

**TELEVISION FREQUENCY
ALLOCATION POLICY
IN THE UNITED STATES**

Due to an error, this copy of *Television Frequency Allocation Policy in the United States* contains some 90 pages of extraneous material – the 90 + pages of the *Federal Communication Bar Journal* immediately before the introduction to the article “A Fair and Equitable Service or, A Modest Proposal to Restructure American Television to have All the Advantages Claimed for Cable and UHF Without Using Either.”

**TELEVISION FREQUENCY
ALLOCATION POLICY
IN THE UNITED STATES**

*This is a volume in the
Arno Press collection*

DISSERTATIONS IN BROADCASTING

Advisory Editor
Christopher H. Sterling

*See last pages of this volume
for a complete list of titles.*

**TELEVISION FREQUENCY
ALLOCATION POLICY
IN THE UNITED STATES**

John Michael Kittross

with a new introduction by the author

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John M. Kittross

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(Original pagination retained)

INTRODUCTION

There is a proverb that says "you can never step twice into the same river." Time doesn't stand still, and I hope that scholarship doesn't either. After receiving after receiving Arno Press' request to reprint my dissertation, it was with much trepidation that I took "Television Frequency Allocation Policy in the United States" from the shelf and -- for the first time since 1959 -- read it carefully. (For reasons that will become apparent if they do it, I recommend this potentially traumatic experience to all my fellow masochists with dissertations in their closets). I had to read it to convince myself that my colleagues and others yet undreamed of could read this twenty-year-old tome and not (a) be misled or (b) laugh. To my surprise -- and relying on Arno's objective judgment to counter my subject pride of authorship -- "Television Frequency Allocation Policy in the United States" seems to have held up. Of course, there were a number of typographical errors (the typist had her own agenda which precluded allowing me to proofread the final version before it was deposited), but the essential analyses and conclusions seem to be at least as valid as most studies in the field -- and are a tribute to the supervision of Dallas Smythe, my chairman. Even more important, an article published in 1976 which was triggered by an idea in the dissertation (and which accordingly is reprinted at the end of this volume) attracted a lot of attention from people in government, business and academe who have little time to waste on historical trivia. Hence, feeling somewhat reassured (and with the opportunity to correct a few of the worst typos and write this introduction, I agreed to allow the republication of "Television Frequency Allocation Policy in the United States" in this edition.

Although a lot of things have changed since the dissertation was written -- "television" now subsumes "cable" and will soon include videotape or videocassettes purchased at the corner store as well as on-the-air broadcasts, and the "United States" itself changed during 1959 with the addition of Alaska and Hawaii -- the basic concept of "frequency allocation" remains the same. Many of the "policies" remain similar to those of 20 years ago.

Without roads, there would be no automobile industry -- or gasoline shortage. Without the electromagnetic spectrum, there would be no television broadcasting -- or myriad other uses of the spectrum from microwave ovens to CB radio. Visible light, radiated (infrared) heat, radar, and X-Rays are part of the same spectrum.* Many frequencies can be carried on wires (as evidenced by electric power lines, telephone, telegraph, and cable television), but for widespread broadcast (rather than point-to-point) communication, there is only a limited part of the spectrum on which these communications signals may be sent without wires. And even this limited portion is divided into many subparts, each with different characteristics, as shown on p.33 of the dissertation. These overall limitations and specific characteristics confuse and compound the difficulty of apportioning parts of the spectrum to services such as radio or television broadcasting.

The political and economic ramifications of the use of specific frequency bands by specific services are immense -- one estimate of the number of television receivers in the hands of the public is \$30 billion, which was expended by possibly 140 million potential voters living in nearly 75 million households. No government agency, such as the FCC, dependent on Congress for its budget (and its existence), will lightly dismiss the political inertia of this public investment by suddenly moving a service from one frequency band to another -- no matter how technically cogent the reason for the move.

Since each nation claims sovereignty over the entire radio frequency spectrum, and since radio waves can cause interference farther than they can give service, it is not surprising that (a) there are international agreements, almost always adhered to even in time of war, governing the use of frequency bands that can ignore such arbitrary distinctions as national borders, and (b) each nation has its own priorities and procedures for the use of domestic channels. These procedures are not immutable. Many nations have changed (or had changed, by occupying armies or by neighborly persuasion) their systems, their goals and their methods of allocation (apportioning a portion of the spectrum for a particular service), assignment (reserving some

* Definitions for many of these concepts are to be found in the glossary (Appendix B) of Christopher H. Sterling and John M. Kittross, Stay Tuned: A Concise History of American Broadcasting (Belmont, Calif.: Wadsworth Publishing Co., Inc., 1978). Of particular use to the lay reader will be the definitions of "allocations" (p. 484), "bandwidth" (p. 485), "cable" (p. 486), "channel" (p. 487), "electromagnetic energy" (p. 490), "modulation" (p. 493), "receiver" (p. 497), "television signals" (p. 502), and "waves, propagation, frequency, wavelength" (p. 506).

of these channels to a particular user, geographical area, or city), and licensing (authorizing a particular user to use that channel in that area). These procedures often are misunderstood, and frequently politicians insist that political processes can overcome technological imperatives -- only to find that in the battle between King Canute and Mother Nature, the prudent thing to do is bet on Mother Nature.

However, within the strictures imposed by the physical nature of electromagnetic propagation, there is substantial room to maneuver. At a high financial cost, the sensitivity and selectivity of receivers can be manipulated to overcome many technical limitations; with enough money one might eliminate over-the-air transmissions entirely (using some form of cable) however socially or politically undesirable this may be; and it is even possible that some new approach -- from videodiscs to direct electrical stimulation of the pleasure centers of the brain -- will change the entire ballgame, much as radio changed our use of other media and television quickly changed radio.

Perhaps the most easily modified factor is "policy," whether determined by fiat or by legislative action ... or even by consumer economics. Third World countries have very different views of the purposes of radio than do heavily industrialized European nations; the U.S.S.R.'s view of broadcasting (and even of news) is shaped by its political philosophy; less-developed nations cannot afford high technology; and recent proposals in the U.S. House of Representatives (Rep. Van Deerlin's proposed "rewrite" of the Communications Act, H.R.3333) suggested replacing the "public interest, convenience and/or necessity" licensing criterion from the 1934 Act with a vague call for "diversity." In the United States alone, there are now many discussions of telecommunications policy: some in the works listed in the dissertation bibliography, and many others of a more recent vintage from government, business and academic sources. *

* For example, see the works listed in the bibliography following the introduction to John M. Kittross, Documents in American Telecommunications Policy (New York: Arno Press, 1977). Others come forth with increasing frequency, in the form of bills (H.R. 3333, S.622, S.611 -- the Bell System repair number being an appropriate number for this bill), NTIA or Congressional reports, the results of the annual conferences on telecommunications policy, or academic research or speculation such as the article published at the end of this volume, or books such as Jerome A. Barron, Freedom of the Press for Whom? (Bloomington: Indiana University Press, 1973), Barry Cole & Mal Oettinger, Reluctant Regulators (Reading, Mass.: Addison-Wesley, 1978), Frank J. Kahn (ed.), Documents of American Broadcasting (3rd ed.) (Englewood Cliffs, N.J.: Prentice-Hall, 1978), Erwin G. Krasnow & Lawrence D. Longley, The Politics of Broadcast Regulation (2nd ed.) (New York: St. Martin's Press, 1978),

The particular problem facing us when this dissertation was written is spelled out in the dissertation itself:

It is apparent that the full potential of the television allocation plan [of 1952] has not been realized. Because of imperfections in the allocation plan and in its implementation, the number of television services available in any given community is far below the expectations engendered by the underlying principles of the allocation plan. The shortage of television stations: 1) restricts the viewing fare of the average citizen, 2) sharply reduces the potential number of nationwide program sources (networks) and creates conditions of monopoly or near monopoly of content in many communities, 3) raises costs so high that the local advertiser often cannot afford to use television as a selling medium, and 4) restricts opportunity for new talent. At the same time, there is a critical shortage of space in the radio spectrum for services other than television.

Seventy of the eighty-two television channels are largely unoccupied because of UHF station inability to compete on equal terms with stations on the twelve VHF channels. This is a sad commentary on the planning and administration of the regulated aspects of the television industry. (pp.2-3)

The United States today does not have a competitive, nationwide television system affording fair, efficient and equitable service to the public. This thesis is not meant to be a denunciation of the Federal Communications Commission, although few of its actions with respect to television allocation since 1944 have been in accord with its stated lofty policy goals. Rather, it is a warning that a pernicious situation has developed and is growing more resistant to corrective change with every month. The present imperfect system of television allocation has developed over a period of years, with the Commission reluctant to make any move actually favoring a quasi-monopolistic system of television service. Television was originally planned to avoid the unequal competitive system found on the AM radio band, and it is technically feasible to remedy the present unsound and faulty television allocation structure.

Harvey J. Levin, The Invisible Resource: Use and Regulation of the Radio Spectrum (Baltimore: Johns Hopkins Press, 1971), Glen O. Robinson, Communications for Tomorrow (New York: Praeger Publishers, 1978), and Anthony Smith, The Shadow in the Cave: The Broadcaster, his Audience, and the State (Urbana: University of Illinois Press, 1973). There is even a scholarly journal titled Telecommunications Policy, and several dozen titles found in John M. Kittross, A Bibliography of Theses and Dissertations in Broadcasting: 1920-1973 (Philadelphia: Broadcast Education Association, 1978; available from the BEA, 1771 N St., N.W., Washington, D.C. 20036 for \$4 a copy), most of which were completed in the last decade, are germane to this topic.

To make corrections in the present system would cause a great deal of dislocation. Yet if changes are not made, the public interest will suffer as both the economic and social (e.g., programming) aspects of television solidify in a non-competitive mold. It is evident that if the present unequal situation with respect to television allocation is allowed to continue, together with Commission laissez-faire regulation, all of the pressures of the Commission and Congress to save the UHF will go for naught. So will the brave words about the public interest in the Communications Act. The United States will have what a disinterested public, a meddling Congress and a weak Federal Communications Commission have given it: a twelve-channel VHF system, all hope of equality of competition and planned coverage gone, with a small handful of program sources feeding a somewhat larger number of program outlets that are ill-equipped to allow local expression. (pp.447-448)

It is almost shocking to realize how little has changed since those passages were written.

Different licensing criteria have been suggested (from lotteries and auctions to racial and social proportional representation or quotas), technological "fixes" such as the "wired nation" of cable television, the use of direct-to-home broadcasts from space communications satellites, or mixtures such as those found in the author's article at the end of this volume have been prepared, and an entire field of study has grown up. Whether the political and economic climates today are favorable to any of these suggestions probably must be answered in the negative (although any observer of recent U.S. history realizes that this could change quickly). Furthermore, the use of space communications satellites is not yet technically feasible for direct broadcast, and the "wired nation" approach could easily lead to a situation where, in the words of David C. Adams, retiring vice chairman of NBC when interviewed by Television Digest ("White Paper" supplement to Vol. 19, No. 20, May 14, 1979, p. 10): "the program producers will offer via an inexpensive distribution system... the kinds of material that bring in the greatest revenues and say the hell with...news, which doesn't make much money if any -- and say, 'I'm sorry. We're not interested in providing news.'" Former FCC Commissioner Lee Loevinger, in his article on "The Role of Law in Broadcasting" (Journal of Broadcasting, 8:2:113-126 at 121, Spring 1964) has said that "performance of the journalistic function is the one function of broadcasting that can reasonably be called a 'public necessity.'" I believe that any American system of broadcasting must provide that news and information that citizens need in order to make rational decisions in a democracy. Other approaches have other drawbacks, but the problem is real and remains, and must be solved some day.

"Television Frequency Allocation Policy in the United States," while still valid for the most part, cannot answer all of the questions to be posed in the 1980s and 1990s. The political climate has changed, the technology has evolved, the publics' uses for television are no longer as simple as they were in 1959, and the freedom to make changes has been severely restricted. Yet it is possible to learn from the past, to use knowledge of the development of a problem in the search for answers valid for today and tomorrow.

That is the reason for this publication.

A Personal Note: A large number of typographical errors in the dissertation have been noted and corrected for this edition. Some, such as inconsistent underscoring and use of "op.cit." or "ibid.", were not. In no instance was meaning or wording modified -- although, as evidenced by the many "Afterthoughts and Second Guesses" that follow, there was considerable temptation to do so. Numerous ideas for future research have come to mind, ranging from bibliographies of such individuals as Senator/Governor Edwin C. Johnson, analysis of the ownership of UHF stations through the years, rigorous examination of the conclusions to chapter VI (pp. 429-433), and a study of the development of "superstations" (see p. 430), to a rigorous computer analysis of the "modest proposal" published at the end of this volume. Some of these studies will be done, some day. Oral history interviews of still-living participants and additional searching of government and industry archives should bring forth more primary data that will help fill in some of the logical and conceptual gaps (possibly undue reliance on Television Digest, even though its level of validity and reliability is extremely high, is a weakness of the dissertation) -- and maybe some day somebody will use "Television Frequency Allocation Policy in the United States" when preparing what will be that year's "definitive study" of the topic.

AFTERTHOUGHTS AND SECOND GUESSES

The following comments, keyed to the pages of "Television Frequency Allocation Policy in the United States," do not pretend to cover all of the changes that would have been present if the dissertation had been written in 1979 rather than 1959. Revisionism, in this instance, would be a sin against the very concept of scholarly publication. On the other hand, an unsuspecting reader of the present edition should be made aware of egregious errors of fact or interpretation in the original, and should be provided with guideposts to the ensuing 20 years. Hence, these comments are not to be taken as a complete update; rather, they are only informal musings by their author, in the hope of making easier the labors of those who wish to go beyond 1959 in their study of this crucial subject.

page 1, line 5: The 1979 Nielsen Report on Television (A.C. Nielsen Co.) reports that, as of September, 1978, some 74.5 million or 98% of all households in the United States owned at least one television set. An estimated 48% had two or more TV sets and 81% had at least one color set. See also Table 9 from Appendix C of Christopher H. Sterling and John M. Kittross, Stay Tuned: A Concise History of American Broadcasting (Belmont, Calif.: Wadsworth, 1978), or Table 680 in Christopher H. Sterling and Timothy R. Haight, The Mass Media: Aspen Institute Guide to Communication Industry Trends (New York: Praeger, 1978) for historical trends.

page 1, footnote 4: FCC data as of May 31, 1979 (reported in Broadcasting magazine) indicate that there are now 735 commercial television stations on the air -- as compared to 260 educational or public television stations, and 8,651 radio stations (4,549 commercial AM, 3,109 commercial FM, and 993 educational FM).

page 2, 1st paragraph: Even in 1979, the proportion of occupied UHF channels is low. Of the 995 television stations on the air (735 commercial, 260 non-commercial educational) on May 31, 1979, only 376 (218 commercial) were on the UHF band. Although the assignment table (Section 73.606 of the FCC Rules and Regulations) has been changed a number of times since 1952, it is still true that almost all VHF assignments have been gobbled up, while less than a third of the UHF assignments are in use (a figure that is inflated by the large number of non-commercial educational or public stations using the UHF. After the assignment table revisions, by the late 1970s there were some 1,908 channels assigned to 847 communities around the nation (and an additional 49 to some 21 communities in Puerto Rico and various possessions and territories). 1,199 of these were on the UHF and only 709 on the VHF band.

Hence, 87% of all VHF assignments were occupied, but only 31% of the UHF. Eleven of the 50 states had as many or more UHF as VHF channels assigned.

	<u>1949</u>	<u>1959</u>	<u>1969</u>	<u>1979</u>
Commercial TV stations on air	51	510	662	735
Non-commercial TV stations on air	0	35	175	260
Commercial AM stations on air	1912	3326	4265	4549
Commercial FM stations on air	700	578	1938	3109
Non-commercial FM stations on air	27	151	362	993
Number of households in U.S. (in millions, as of March)	435 (1950)	528 (1960)	618	760
% of U.S. households with TV	2%	86%	95%	98%

(Figures for number of stations on air as of Jan.1, except for May 31 in 1979)

page 3, 2nd paragraph: "It is the right of the viewers and listeners, not the right of the broadcasters, which is paramount." Supreme Court of the United States decision in the 1969 Red Lion case (Red Lion Broadcasting Co. v. FCC, 395 U.S. 367).

page 4, line 6: At the present time, some 92% of all households with television can receive UHF channels. However, until passage of the All-Channel Receiver Act (see Lawrence D. Longley, "The FCC and the All-Channel Receiver Bill of 1962," Journal of Broadcasting, 13:3:293-303) the proportion stayed below 10%, not reaching the two-thirds mark until 1969.

page 8, footnote 10: Because of inadequacies of receiver design, reception of UHF signals from more than 35-40 miles away is uncommon.

page 11, 2nd paragraph: Even such proposed techniques as direct-to-home television service from space communications satellites would need a large chunk of the electromagnetic spectrum.

page 11, footnote 15: The "cable theater" is now known as "pay cable." While the cost of wiring all homes in the country is still prohibitive, the provision of cable television to most urban and suburban homes is no longer unthinkable. However, only 18% of U.S. television homes now (late 1978) subscribe to cable television service.

page 12, footnote 16: Since the passage of the All-Channel Receiver Bill of 1962 (P.L. 87-529), the FCC has had a considerable amount of authority (see Part

15 of the FCC's Rules and Regulations) over the technical specifications of television receivers, both to prevent spurious radiation and to achieve comparability of reception on both UHF and VHF. It has not been very successful in implementing these goals.

page 15, 3rd paragraph: It is interesting to note that a young FCC attorney ejected forcefully from the Cox committee proceedings was John J. Sirica, later to win fame as the Federal District judge who presided over the Watergate trials at the end of the Nixon administration.

page 18, 1st paragraph: The AM clear channel problem is still with us!

page 19, footnote 27: Denny's move to NBC has been variously (and invidiously) implied to be a result of this color television decision and/or the decision to move FM "upstairs" to the 88-108 MHz band. See Lawrence P. Lessing, "The Television Freeze," Fortune, November, 1949, and Lawrence P. Lessing, Man of High Fidelity: Edwin Howard Armstrong (Philadelphia & New York: Lippincott, 1956) for an interesting set of examples of this uncertainty.

page 20, 2nd paragraph: CBS' acquisition of Hytron (Air King) may have been largely a propaganda ploy, since the resulting manufacturing capacity wasn't very large.

page 21, footnote 28: In recent years, the U.S. Circuit Court of Appeals for the District of Columbia has engaged in a great amount of such "second guessing." In fact, it has been labeled as "broadcasting's preemptive court," in recognition of the large number of FCC decisions that were overturned in the early 1970s, particularly by Judge Bazelon. The Department of Justice (the Anti-Trust Division especially) also has entered into active play, as has the White House.

page 25, next to last line: The RMA is now known as the Electronic Industries Association (EIA).

pages 29ff.: There recently have been a number of discussions of radio propagation published in books designed for non-engineers. One of the best is Alfred F. Barghausen's "Technical Problems of Spectrum Utilization" in Sydney W. Head's Broadcasting in Africa (Philadelphia: Temple University Press, 1974). A reminder: nomenclature for electromagnetic frequency bands has been changed from cycles per second (cps) to Hertz (Hz); hence, mc=MHz and kc=kHz in the literature since the early 1960s.

page 33: A revision of this diagram which may be easier to read may be found on p. 507 of Sterling & Kittross, Stay Tuned (op.cit.).

page 35, 2nd paragraph, line 8: Actually, from Portland, Maine to Portsmouth, Virginia.

page 36, line 2: For political reasons, New Jersey officials have been putting a great deal of pressure on the FCC for assignment of a commercial VHF channel to that state. (Channel 13, assigned to Newark, was purchased by New York public television interests in 1961). In lieu of such an assignment -- which is highly unlikely due to the overpowering political weight of New York and Pennsylvania -- the stations in New York City and Philadelphia have been required to establish more and more of a presence in New Jersey.

page 36, line 6: The proper term (now in universal use) is "assigned" rather than "allocated." See the glossary (Appendix B) in Sterling & Kittross, Stay Tuned (op.cit.)

page 36, 2nd paragraph, lines 6-7: VHF stations have to maintain these co-channel separations: 170 miles in Zone I (the Northeast), 220 miles on the Gulf coast, and 190 miles elsewhere. UHF stations can be spaced 15 miles closer together in all zones (47 CFR 73.610). There has been virtually no measurement of co-channel television interference -- although, when propagation conditions are abnormal at the height of the sunspot cycle, there is much thought of it.

page 38, footnote 17: See Part 2 of the FCC's Rules and Regulations (47 CFR) for an up-to-date list of applicable treaties.

page 41, footnote 24: The last vestiges of this condition, the Alaska Communications System, was turned over to private enterprise in the 1960s.

pages 42-46: The IRAC is now a part of the National Telecommunications and Information Administration, within the Department of Commerce. The NTIA was formed in the late 1970s. Prior to this, IRAC was under the thumb of the White House, as part of the Office of Telecommunications Policy, and before that, the Office of Defense Mobilization. The OTP was used during the Nixon administration to put pressure on the networks and other communications institutions, and was almost abolished following the Nixon resignation. The FCC no longer is a full member of IRAC, due to a potential conflict of interest since it is both a governmental user and a representative of civilian users of the spectrum.

page 47, line 2: Technically, the President cannot order a Commissioner to resign. Commissioner Doerfer was the last to resign under direct pressure, in March of 1960.

- page 50, footnote 38: Although there have been 20 additional Commissioners appointed during the past two decades, only 14 of the total of 53 since 1934 completed (or came within six months of completing) at least one seven-year term. Nine of the 46 who no longer are on the Commission served two years or less. The average tenure of the 46 former Commissioners was 67.6 months, but if Commissioners Walker (19 years), Hyde (23 years) and Bartley (20 years) are removed from the list, the average tenure drops to only 54.7. The present Commission, as of late 1978, had two members with only one year of service, two with two years, two with four years, and the dean of FCC Commissioners: Robert E. Lee, who had more than 25 years of experience.
- page 50, 1st paragraph: A number of studies have been done of the backgrounds and other attributes of FCC Commissioners. Two articles by Lawrence W. Lichty in the Journal of Broadcasting paved the way: "Members of the Federal Radio Commission and Federal Communications Commission, 1927-1961" (6:1:23-34) and "The Impact of FRC and FCC Commissioners' Backgrounds on the Regulation of Broadcasting" (6:2:97-110). A more recent study by James M. Graham and Victor H. Kramer was published by the Senate Commerce Committee in 1976 under the title "Appointments to the Regulatory Agencies: The Federal Communications Commission and the Federal Trade Commission (1949-1974)." Also see Wenmouth Williams, Jr., "Impact of Commissioner Background on FCC Decisions," Journal of Broadcasting, 20: 2:239-260 (Spring, 1976).
- page 54, 2nd paragraph: The FCC, like most of government, has grown substantially in the past 20 years. A current organizational chart may be found in the latest U.S. Government Organization Manual or (together with the number of employees) in the latest Annual Report of the FCC.
- page 55, line 1: Hearing Examiners are now called "Administrative Law Judges."
- page 55, 3rd paragraph: see the Administrative Procedures Act, which is bound with copies of the Communications Act of 1934 sold by the Superintendent of Documents (U.S. Government Printing Office).
- page 55, footnote 50: A number of Commissioners have -- perhaps unfortunately -- hired speechwriters rather than engineers for their personal staff. This may have some immediate political advantages (although no Commissioner has yet moved to high elective office, or even to a more prestigious appointive post in government) but, considering the limited knowledge of technology possessed by most named to the Commission, can hardly lead to better quality decision making by the Commission.

page 57, 2nd paragraph: A number of members of Congress own broadcasting (or other media) properties, and may allow this to affect their views and votes.

page 59, 2nd paragraph: This area needs a great deal of study; it is possible that Congress is being directly acted upon by the telecommunications industries today to a greater extent than is the FCC.

page 61, 1st paragraph: ABC, with a number of very popular programs, managed to forge far ahead in the ratings race in 1977-78. As a result, nearly a dozen affiliates of CBS or NBC (which trailed in the ratings) moved to ABC in the following year or so. On the other hand, ABC's programming chief, Fred Silverman (who had started at CBS), moved to NBC in 1978.

page 63, last paragraph: The entire "Patents Pool" story was told in Sterling & Kittross, Stay Tuned (op.cit.)

page 64: See Longley article on the All-Channel Receiver Bill of 1962 cited above (p.4), or Erwin G. Krasnow and Lawrence D. Longley, The Politics of Broadcast Regulation (2nd edition) (New York: St. Martin's Press, 1978, chapter 6, pp. 118-126).

page 65, line 3 ff.: The number of broadcast receiver manufacturers in the U.S. has shrunk drastically in recent years. There are no radios being mass produced by a major company within the continental United States, and there is only one manufacturer (Magnavox) who makes TV sets without foreign parts or sub-assemblies. Production was cheaper (and sometimes design was better) in such countries as Japan, Taiwan, Hong Kong, Indonesia, South Korea, and Mexico -- and most "American" manufacturers either established plants abroad or purchased components, sub-assemblies, or entire receivers elsewhere. The loss of jobs in the United States, exasperated by the increasing use of automation, resulted in a shrinking manufacturing labor force -- and a corresponding loss of political power to persuade Congress to reverse or stem this trend.

page 76, 2nd paragraph: An interesting case study, that of Citizens Band (CB) radio, is to be found in the second edition of Krasnow & Longley, The Politics of Broadcast Regulation (op.cit.), chapter 9, pp. 162-179.

page 111, 2nd paragraph: Some pioneer television broadcasting operations -- particularly that of General Electric in Schenectady, New York -- have been slighted here.

page 112, footnote 121: No change, still.

page 112, footnote 122: In the past decade, there has been a strong trend -- from the Justice Department's Anti-Trust Division somewhat more than from the Commission -- toward forbidding the ownership of more than one medium in a given market. The FCC has pushed for divestiture in a few communities, but generally has relied on separation of media at a time of sale, rather than arbitrarily and retroactively. Ownership of a newspaper (or other medium) is generally a "minus" factor when competing for a new station license, and no one may acquire both television and radio stations in the same market (although AM-FM combinations usually are approved, and existing combinations under the same ownership are "grandfathered.")

page 125, footnote 6: In the early 1960s, the British started major construction of a 625-line system on the UHF. In 1967, color broadcasts (using the European PAL rather than the American NTSC standards) started on those channels -- acting as an incentive for people to acquire sets constructed to the new standards. Although a black-and-white 405-line service is still provided, it should be phased out soon. BBC (and ITV) intend to provide service to 100% of the population -- even though reaching the last two or three percent is extremely expensive (some 200 times as expensive per person as reaching those in London and other large cities).

page 130, footnote 10: The Golub report, which has been extremely hard to locate (it never was "published," and mimeograph paper of that vintage has largely self-destructed), has recently been made available on microfilm from the U.S. government (filmed from a defective copy), and soon will be reproduced (from a better copy) in John M. Kittross (ed.), Administration of American Telecommunications Policy (New York: Arno Press).

page 153, 1st paragraph: There is some sharing of the lowest UHF television channels between land mobile radio and television in certain urban areas where the demand for mobile channels is greatest, and channels 5 and 6 are allocated for non-broadcast use in Hawaii and Alaska.

page 155, footnote 64: As mentioned, this should be called an "assignment" rather than an "allocation" table.

page 167, 1st paragraph: See Stanley Kempner, Television Encyclopedia (New York: Fairchild Publishing Company, 1948), p. 33, or Donald G. Fink, "Television Broadcasting Practice in America--1927 to 1944," The Journal of the Institution of Electrical Engineers (London), Vol. 92, Part III, 1945, p. 150.

page 170, last paragraph: Although the publication of Donald H.V. Erickson's doctoral dissertation ("FM Broadcasting: Its Technical, Political, and Economic History," University of Illinois, 1969) as Armstrong's Fight for FM Broad-

casting: One Man vs Big Business and Bureaucracy (University of Alabama Press, 1973) added another one-sided view to the FM story, a more reasoned and better researched approach is to be found in Mary Ellen Hogan, "The Innovation of FM Radio: Armstrong vs. The Radio Corporation of America" (unpublished master's thesis, Temple University, 1972). See also Krasnow & Longley, The Politics of Broadcast Regulation (op.cit.), Chapter 5, pp.107-117.

page 173, footnote 103: Norton continued to make waves for many years. At the end of his career (which was with the Bureau of Standards after World War II) he prepared -- in response to a major publication of the Telecommunication Science Panel of the Commerce Technical Advisory Board, Electromagnetic Spectrum Utilization: The Silent Crisis (Washington: Government Printing Office, 1966) -- The Five-Dimensional Electromagnetic Spectrum Resource: A Major Economic and Engineering Research Responsibility of the Federal Government (or, The Silent Crisis Screams) (Boulder, Colo.: Environmental Science Services Administration, Institute for Telecommunication Sciences, unofficial multilith, 1967). Norton's retrospective (1971) views about his 1945 testimony may be found as Appendix III to Hogan's thesis (op.cit.).

page 182, footnote 127: Other laws and Presidential Orders have further restricted the practice of ex-Commissioners later representing parties before the FCC.

page 182, footnote 128: The salaries of Commissioners have risen -- together with inflation -- to more than twice the 1958 level (so far).

page 186, last paragraph: As mentioned, the British did decide to allow color only on the UHF.

page 190, footnote 153: A number of technical studies to explore the possibility of reducing bandwidth were conducted under FCC auspices in the late 1970s. Although higher-definition television is available off-the-shelf for industrial and scientific applications, there has been little consideration of higher-definition for broadcast television. (The 625-line television standard used in most of the world -- except the Americas and Japan -- actually does not have many more pictorial elements than the 525-line system, since only 25 pictures per second are transmitted in countries with 50 Hz electrical current that use the 625-line system. $625 \times 25 = 15,625$; $525 \times 30 = 15,750$ horizontal lines).

page 201, footnote 2: The FCC quickly learned the error of its ways, and corrected the terminology it employed. It was used properly as early as 1956 (see the second item on p. 479).

page 216, footnote 39: This was the genesis of that later became "A Fair and Equitable Service or, A Modest Proposal to Restructure American Television

to Have All the Advantages Claimed for Cable and UHF Without Using Either" written in the mid-1970s and published at the end of this volume.

page 232, footnote 99: FM television almost certainly would require a greater bandwidth than 6 MHz. A number of spectrum saving techniques -- vestigial sideband reduction, alternate field transmission, etc. -- have been suggested and explored in recent years, most recently under FCC auspices. The use of PCM (Pulse Code Modulation) also has been proposed. It is interesting to note that the noise-reduction possible with digital rather than analog transmission has led to its adoption for uses (such as master videotape recording and some networking) where the transmission channel isn't restricted to 6 MHz.

page 236, 1st paragraph, lines 10-11: As mentioned, the British did do this.

page 249, footnote 150: It took until the summer of 1955 for the 12th ETV station to go on the air. Nearly a quarter of a century later -- spurred by foundation and Federal financing -- there were 260 operating public television stations, more than a quarter of all operating stations. In New York City, commercial channel 13 (officially assigned to Newark, New Jersey) was purchased by an educational television group (with substantial contributions for this purchase coming from the local commercial television stations which were delighted to eliminate a competitor for advertising dollars), but in Los Angeles, a UHF channel is still used for public television.

page 259, 1st paragraph: The "15 mile provision" originally was established to make it possible for Pittsburgh to have a third commercial station without actually violating the co-channel milage separation rule of the 6th Report and Order (see pp. 363-364). A careful reading of this provision made it possible to move channel 46 from Riverside, California some 50 miles to the much larger market of Los Angeles. The city of license was moved 15 miles to the tiny town of Guasti -- which could receive a "city grade" signal from a powerful transmitter on top of Mt. Wilson, the location of all the Los Angeles television transmitters.

page 270, line 2: Dean Everitt was Dean William Everitt of the University of Illinois School of Engineering.

page 279, footnote 264: Color television finally "took off" in the late 1960s. Although all networks had decided to support color by the fall of 1965 (RCA's subsidiary, NBC, logically leading with about 95% of its prime time schedule in color, with CBS (50%) and ABC (40%) following), it wasn't until 1968 that a quarter of American television homes could receive color. More than 50% could receive color in 1972, a proportion that rose to 81% by the fall of 1978.

page 281, footnote 269: The percentage of homes receiving television through cable has risen slowly, despite the hyperbole of cable television supporters. It reached the 10% level in 1973 (nearly a quarter of a century after its introduction) and the 18% level in May of 1978 (some 13.4 million television homes out of the total of 74.5 million).

page 283, 2nd paragraph, last clause: See discussion above on the effects of the All-Channel Receiver Bill of 1962.

page 286, footnote 2: Channels 70-83 were removed from the table of assignments by the FCC in May of 1970, and no assignments had been made to these channels since 1966. Channel 37 also has been deleted because of the need of radio astronomy for this particular frequency. By the fall of 1978, except for some low-power translators, no stations were operating on channels numbered above 69. (Only 18 stations were in operation on channels 59 through 69).

page 296, last line: The number of stations on the air on each band can be found in each issue of Broadcasting magazine.

page 300, 1st paragraph: Financial "loss" figures can be found in FCC Annual Reports and the trade press, although the tax laws are a factor that often makes a "loss" attractive to conglomerate owners.

page 304, 2nd paragraph, 2nd sentence: Current Nielsen data indicate that 96% of all the country's TV households can receive four or more stations, 66% can receive seven or more stations, and 38% can receive ten or more stations. This is a far cry from 1964, when only 59% would receive four or more stations, 26% could receive seven or more, and only 4% ten or more (some by cable, some in New York City or Los Angeles, and some located between major cities, such as central New Jersey, which can receive signals both from New York and Philadelphia stations).

page 313, 2nd paragraph: Although there have been major improvements in UHF receiver sensitivity and selectivity (with the FCC mandating even closer comparability between UHF and VHF tuners in the future), UHF tuners still do not achieve the quality levels of VHF tuners.

page 323: See Krasnow & Longley, The Politics of Broadcast Regulation (op.cit.).

page 331: Networks, per se, and not merely their owned-and-operated stations, continued to make substantial profits. Even network news started to return more revenue than it cost in the late 1970s.

page 332, 2nd paragraph, last sentence: A small handful of independent (without network affiliation) stations do very well indeed, although almost all of them are in the largest markets. (One exception is the "superstation" (WTCC, channel 17 in Atlanta) owned by Ted Turner, which apparently does very well by distributing its programs to cable systems and charging ten cents for every home connected to the system).

page 342, line 7: The American Research Bureau is now known as "Arbitron."

page 343, last paragraph: The importance of reaching rural communities with television has diminished somewhat since the Supreme Court "one man - one vote" decisions of the 1960s (led by Baker v. Carr) reduced the political voting power of rural areas within the several states. Hence, more Congressmen are elected from urban areas, and have little objection to reducing rural services if their own constituents will gain thereby. (Allied to this development has been the steady erosion in proportion of the national population that lives in rural areas -- from one in five at the end of World War II to less than one in twenty today).

pages 345-346: The "Booster rebellion" finally was put down, with few (if any) on-channel boosters remaining in operation today. The interference they caused became politically unacceptable, and translators or cable were able to provide service. A substantial number of translators (including some on the VHF) are in use under the provisions of 47 CFR 74.711-784, although translators are much more expensive than boosters.

page 347, 1st paragraph: In the early 1960s, under Congressional and broadcaster pressure, the FCC assumed authority over cable -- only to be slapped down by the courts over the years. By 1979, there was virtually no authority for such supervision left to the Commission. See Don R. Le Duc, Cable Television and the FCC: A Crisis in Media Control (Philadelphia: Temple University Press, 1973). The new copyright law that went into effect in January of 1978 provides for limited payment of royalties by cable television systems, but does not give broadcasters the right to block the use of programs by cable systems -- for the most part.

page 350, 1st paragraph: As mentioned, CATV now services some 18% of American TV homes. There are more than 3,800 cable television systems -- with ownership figures obscured by constant buying and selling.

page 350, 2nd paragraph: Proof of the "death" of any television station due to cable competition has been hard to find, although the National Association of Broadcasters has used this argument for years in various arenas while trying to restrict the growth of cable television.

page 353, footnote 142: Cox later became an FCC Commissioner (March 26, 1963 to September 1, 1970).

page 361, 2nd paragraph: Apparently, television bandwidth reduction isn't as simple as it appeared to be in 1959. The technical, economic, and political factors are very complex and interactive, even though a number of promising techniques have been proposed. See: UHF Task Force Report on Television Bandwidth Reduction (Washington: UHF Task Force, Office of Plans and Policy, Federal Communications Commission, August, 1978).

page 365, footnote 152: This is not quite true today, because of the demand for any sort of channel (and the All-Channel Receiver Act), but Zone I still has a disproportionate number of UHF stations on the air. For example, of 439 UHF stations authorized (not all of which were on the air) late in 1978 (as reported in Broadcasting Yearbook, 1979, pp. B-85-135 & 144-147), some 195 (44%) were in the 19 states -- including the District of Columbia -- that were at least half in Zone I (Connecticut, Delaware, District of Columbia, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, and Wisconsin). Only 24% of authorized VHF stations were in these states. In only six of these states (Delaware, Maine, Michigan, New York, Rhode Island, West Virginia) were there more VHF stations on the air (or authorized) than UHF stations. An analysis of the even less desirable top 19 UHF channels (51-69) shows that more than 55% of the stations on the air in these upper UHF channels are in the states represented in Zone I. This contrasts to the bottom 36 UHF channels (14-36, 38-50), where Zone I has only 45% of the in-use (not merely authorized) channel assignments. The article at the end of this volume proposes, among other things, a plan to avoid such disparities.

page 369, 1st paragraph: Again, see Longley's all-channel receiver bill article (op. cit.) in the Journal of Broadcasting. It quotes a 1968 letter from Kittross that points out that "There is some precedent for the view that the FCC had the power all the time, via asking the FTC to act along the lines of: 'it is fraudulent to sell any receiver in interstate commerce that cannot pick up all channels of a given service...'. Another approach is the one used in 1910. The problem was the failure (by order of their company) of Marconi Company operators to communicate with ships/shore stations that used equipment of other manufacturers. This was against public policy. The U.S. enforced an international agreement [a 1906 treaty prepared after international meetings in Berlin] against the Marconi practice by writing into the Wireless Ship Act of 1910 that all ships of certain classes leaving U.S. ports had to be 'equipped with an efficient apparatus for radio-communication' and that 'for the purpose of this act apparatus for radio-communication shall not be deemed to be efficient unless the

company installing it shall contract (it) in writing to exchange, and shall, in fact, exchange, as far as may be physically practicable, to be determined by the master of the vessel, messages with shore or ship stations using other systems of radio-communication.' A very interesting use of a 'technical' requirement to accomplish a 'social' purpose."

page 380, line 1: Actually, there are and have been various classes of FM broadcasting stations, so that not all are permitted to use the same amount of power, antenna height, etc. See 47 CFR 73.206 and 73.211.

page 397, 2nd line from bottom: Senator Pastore's position on the Senate Commerce Committee (eventually as chairman) certainly didn't hurt Rhode Islander efforts to amend the assignment table to provide more VHF service to Providence.

page 403, 2nd paragraph, line 4: See the article published at the end of this volume.

page 404, footnote 269: IRAC is still in existence but, as pointed out earlier, is now part of the National Telecommunications and Information Administration within the Department of Commerce. Henry Geller, who runs NTIA, has had a number of positions in Washington dealing with telecommunications policy (including several posts at the FCC), and has been responsible for some extremely powerful and original thinking in this field.

page 407, footnote 282: The Broadcast Education Association in 1978 published a bibliography prepared by George Brightbill of the Samuel Paley Library of Temple University, of Congressional hearings and documents dealing with broadcasting and communications between 1870 and 1976. Copies of Communications and the United States Congress are available from the BEA at 1771 N St., N.W., Washington, D.C. 20036 for \$4 each.

page 410, line 9: "Absence of mountain and rural areas" is perhaps too strong a word, particularly for anyone who engages in bicycling or hiking.

page 420, footnote 332: See the Communications Act of 1934, section 606.

page 426, 2nd paragraph, line 3: The author of this dissertation had spend all of his life (until late 1959) living east of the Mississippi; hence, to state that Colorado was in the "northwest" can be blamed on New Yorker chauvenism as much as on ignorance. In the past two decades, many delightful months spent driving and camping west of the Mississippi (as well as a decade of California living) have made these geographical distinctions very clear.

page 430, footnote 358: See Simmons v. FCC, 169 F.(2d) 670 (1948), and many other expressions of the desirability of local origination and control of broadcast programming.

page 433, 1st paragraph: As mentioned above, no FCC Commissioner has moved to a "higher" or "better" governmental post. (Dean Burch's move to the White House in the last months of the Nixon administration was hardly a promotion).

page 436, 1st paragraph: During the Nixon administration, the Office of Telecommunications Policy, part of the Executive Office of the President, was used to initiate policy proposals in Congress and at the FCC as well as to put apparently partly successful political pressure on networks and other news media to eliminate criticism of the administration. See: William E. Porter, Assault on the Media (Ann Arbor, Mich.: University of Michigan Press, 1976) and Marilyn A. Lashner, "The Chilling Effect of a White House Anti-Media Assault on Political Commentary in Network Television News Programs: Comparison of Newspaper and Television Vigorousness During the Nixon Administration" (unpublished doctoral dissertation, Temple University, 1979). After the Nixon administration fell, Clay T. Whitehead, the OTP director, resigned and some Congressmen expressed interest in abolishing the agency to prevent future presidents from wielding such power. Cooler heads prevailed, however, using the argument that an executive-branch policy planning arm was needed since the FCC was clearly hobbled by its day-to-day responsibilities and the many industry and other pressures upon it. The NTIA (National Telecommunications and Information Administration within the Commerce Department) was the compromise result. Another factor in diminishing the FCC's role as "the only legally qualified 'expert' body for making decisions affecting broadcasting has been the willingness of the U.S. Federal Circuit Court of Appeals for the District of Columbia to overrule even highly-technical FCC decisions.

page 436, 2nd paragraph: New technologies -- space communications satellites, home videotape recording, the interfacing of telecommunications and inexpensive high speed computers, etc. -- have not changed public apathy in this field.

page 437 (last paragraph)-441: This has been expanded in John M. Kittross, "The Federal Communications Commission: Neither Fish Nor Fowl," in David G. Clark & Earl R. Hutchison (eds.), Mass Media and the Law: Freedom and Restraint (New York: Wiley-Interscience, 1970, pp. 360-362).

page 441, 2nd paragraph, lines 4-5: As mentioned, the "engineering assistant" is now often a speechwriter, leaving the Commissioner with little or no technological telecommunications information or advice (except that gained in the adversary process of a hearing).

page 442, 1st paragraph, last sentence: As mentioned, Congress did provide the FCC with statutory power through passage of the All-Channel Receiver Bill of 1962. (See 47 CFR 15.65 for FCC regulations stemming from this law).

page 443, lines 4-12: In September, 1960, Public Law 86-752 (see 47 USC 503) amended the Communications Act of 1934 so as to give the FCC authority to grant short-term licenses and to impose fines and forfeitures upon licensees. See: Earl R. Stanley, "Revocation, Renewal of License, and Fines and Forfeiture Cases before the Federal Communications Commission," Journal of Broadcasting, 8:4:371-382 (Fall 1964); John D. Abel, Charles Clift, III and Fredric A. Weiss, "Station License Revocations and Denials of Renewal, 1934-1969," Journal of Broadcasting, 14:4:411-421 (Fall, 1970); Charles Clift, III, Fredric A. Weiss and John D. Abel, "Ten Years of Forfeitures by the Federal Communications Commission," Journal of Broadcasting, 15:4:379-385 (Fall 1971); Maurice E. Shelby, Jr., "Short-Term License Renewals: 1960-1972," Journal of Broadcasting, 18:3:277-288 (Summer 1974); and updates reported in professional meetings but yet to be published.

pages 449-454: The eight recommendations listed in this appendix were, obviously, forward-looking and thus did not fit directly into the historically-oriented dissertation itself. These recommendations were inserted as an appendix (much as George Gerbner's well-known model of the communications process was inserted as an appendix to his dissertation) because the traditions of scholarly publication were felt at the time (some months before the author suddenly assumed the editorship of the Journal of Broadcasting, with all its attendant editorial freedom) to preclude conventional polemics. In looking at these recommendations from a vantage point 20 years down the road, they have held up remarkably well. The first ("greater care should be taken in making appointments to the Commission") is as valid today as it was in 1959. The second ("amend the provisions...which prevent the Commission from making full use of its professional staff") also seems to remain valid -- and perhaps even more important because of the tendency to name speechwriters rather than engineers to a Commissioner's personal staff, and the tightening up of rules against ex parte contacts in all government agencies. The third ("information should be solicited from non-partisan sources...") also remains a useful rule in a highly technical field such as this. The Commission has recently used private research firms and universities to obtain data through research contracts; this practice might further involve academe in the policy-making process, to the public benefit. The fourth recommendation ("...the power to set minimum receiver performance standards...") has been accomplished by means of the All-Channel Receiver Bill of 1962. The fifth ("...consider the public's actual listening or viewing habits when making determinations that may affect broadcast station facilities or location.") is a bit simplistic. The public good may not be best

served through slavish reaction to popularity or habit. What the public needs may not be what it wants. Also, imposing major changes by fiat is unlikely to survive the political process, and to develop viable public policy requires carefully thought out options and decisions. The recent effort by the House Communications Subcommittee to completely "rewrite" the Communications Act of 1934 ran afoul of (among other things that may have had more effect) the objection of many to the proposed change that would have deleted the "public interest, convenience and/or necessity" standard for licensing and replaced it with an essentially undefined criterion of "diversity." The sixth recommendation ("...all television broadcasting should be moved to the...UHF band") not only hasn't occurred, but is extraordinarily unlikely to happen. The British have been in the process of making such a shift for the past 15 years or more, but have had to (a) provide a "carrot" in the form of color transmissions only on the UHF, (b) be certain that transmission services will be available to the entire population, and (c) give plenty of warning to allow sets to be amortized before eliminating the old 405-line VHF service. Some of these conditions would be very hard (or impossible) to meet in the United States. The seventh recommendation ("establish a continuum of 'punishments'...") was accomplished by P.L. 86-752, as mentioned above. It is unlikely that a station could be forced to operate at a loss (deletion of only the "commercial" part of its license), but stranger things have been required of many people, firms, and institutions in recent years. And, finally, it is unlikely that the eighth recommendation ("reduce the amount of litigation burdening the FCC by narrowing the grounds for appeal to the Federal courts") will -- in the most litigious society on earth -- be adopted soon. In the early 1960s, the British Independent Television Authority was able to change programme contractors (the equivalent of a cross between a station and a network; only 15 serve the entire United Kingdom from what will be a total of 50 main transmitters and 350 relay transmitters on the UHF) without needing to make public its reasons or justifications. These decisions could not be successfully challenged in the courts -- a situation that flabbergasts American broadcasters, regulators, and legislators. This situation may need some fundamental rethinking of our judicial system -- which is undergoing a great deal of change already, due to such other factors as the pressure of population, the personalities and philosophies of members of the Supreme Court (and those who appoint them), the growth in size and arrogance of the legal profession, and changing views of what constitutes "fairness" and "impartiality."

page 450, footnote 1: See earlier comment about Norton (keyed to p. 173).

page 463, 7th item: Murrow's speech has been reprinted widely, and deserves even wider distribution. Here is a taste of it again: "This instrument can teach, it can illuminate; yes, and can even inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise it is merely wires and lights in a box."

- page 464, next to last item: NARBA finally entered into force, insofar as the United States was concerned, on April 19, 1960. It originally had been signed at Washington on November 15, 1950.
- page 465, 1st item: A number of modifications of the United States-Mexican agreements on VHF and UHF television channels used within 250 miles of the border, and on use of the standard (AM) broadcasting band, are cited in Part 2 of the FCC's Rules and Regulations (47 CFR). These include TIAS 4089 (UHF, July 16, 1958), TIAS 5043 (VHF, April 18, 1962), TIAS 7021 (AM, entered into force November 18, 1970), and TIAS 7021 (pre-sunrise, post-sunset operation of AM stations, entered into force November 18, 1970). See 47 CFR 2.603.
- page 473, 7th item from bottom: FCC Rules and Regulations, in the CFR (Code of Federal Regulations) edition, have been renumbered: Part 3 is now Part 73, and Part 4 is now Part 74. "Telecommunications" remains Title 47.
- page 479, last item: The Golub report (as mentioned above, keyed to p. 130) is in the process of being published in the forthcoming Arno Press volume titled Administration of American Telecommunications Policy.

TELEVISION FREQUENCY ALLOCATION POLICY
IN THE UNITED STATES

BY

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THESIS

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CHAPTER I

INTRODUCTION

The situation

In the past decade, television broadcasting in the United States has mushroomed from a virtually unknown will-'o-the-wisp to a nation-blanketing cultural force. Today the ubiquitous symbol of mass culture, a television antenna, is perched atop more than eighty-six per cent of all American homes.¹ By comparison, it took the telephone eighty years, electricity sixty years, the automobile forty-nine years, and sound radio twenty-five years to reach only three out of four homes in this country.²

To bring television to some forty-five million homes, there are a mere 520 commercial television stations scattered throughout the country,³ as compared with 5,000 radio stations serving approximately fifty million homes.⁴ Distribution of

¹U. S. Department of Commerce, Bureau of the Census, Current Housing Reports, Housing Characteristics, Series H-121, No. 6. Households with television sets in the United States, May 1959, August 3, 1959.

²Stanton, Frank. Statement before the U. S. Senate Committee on Interstate and Foreign Commerce, Television Inquiry, hearings, 84th Congress, 2nd Session. Part IV, p. 1705.

³Population estimate from Television Factbook No. 28; number of stations (as of June 30, 1959) from Broadcasting magazine.

⁴Ibid. 3,377 of these radio stations operated on the standard (AM) band, the other 621 were frequency modulation (FM) stations.

television channels has been by an assignment plan intended to bring about a nationwide and competitive television broadcasting system. A total of 1,873 television channels was assigned to communities around the country. Five hundred and forty-two of these assignments are on twelve channels in the very high frequency (VHF) band, which has been the home of experimental and commercial television since the middle 1930s, while the other 1,331 assignments are on seventy channels in the ultra high frequency (UHF) band, which was opened for commercial television in 1952. However, instead of a preponderance of UHF stations on the air in proportion to the number of assignments, there are only seventy-nine UHF stations and 441 VHF stations. In other words, some 81 per cent of the VHF channels are now occupied, in contrast to the paltry 6 per cent of assigned UHF channels. In addition, 177 UHF construction permits (CPs) were cancelled before station licenses were issued, as against only forty-two deleted VHF CPs. (See Tables VI-1, 1-A and 1-B).

It is apparent that the full potential of the television allocation plan has not been realized. Because of imperfections in the allocation plan and in its implementation, the number of television services available in any given community is far below the expectations engendered by the underlying principles of the allocation plan. The shortage of television stations: 1) restricts the viewing fare of the average citizen, 2) sharply reduces the potential number of nationwide program sources (networks) and creates conditions of monopoly or near monopoly of content in many communities, 3) raises costs so high that the local advertiser often cannot afford to use television as a selling

medium, and 4) restricts opportunity for new talent. At the same time, there is a critical shortage of space in the radio spectrum for services other than television.

Seventy of the eighty-two television channels are largely unoccupied because of UHF station inability to compete on equal terms with stations on the twelve VHF channels. This is a sad commentary on the planning and administration of the regulated aspects of the television industry. The trouble largely stems from the philosophy underlying American domestic radio⁵ allocation. In theory American radio allocation "places emphasis upon the listener as an end. It is his interest and welfare that must be considered first and above all else." But in practice, "the majority of station owners and advertisers ... consider (the listener) as a means for their private or corporate profit."⁶ It is only natural that differences of opinion and interpretation of role will arise in an industry that is fiercely committed to private enterprise, yet is under a certain amount of Federal regulation because the broadcasting industry must use the radio spectrum (part of the public domain) but does not own it. The attitude "what is good for the industry is good for the public" is particularly evident in the current American politico-economic framework.

The Federal Communications Commission (FCC), an independent regulatory agency, is charged with protecting the public interest

⁵The term "radio" subsumes the subject of "television"; the "electromagnetic spectrum" includes the "radio spectrum."

⁶Frost, S. E., Jr. Is American radio democratic? (Chicago: University of Chicago Press, 1937), p. 137.

in the radio spectrum. It has broad powers to regulate the operators of radio transmission apparatus, but it has no legal authority to force related industries, such as advertisers and receiver manufacturers, to operate in the public interest, convenience or necessity. As a result, the vast majority of the millions of television receivers are unable to tune in the UHF, thus resulting in a multi-billion-dollar investment in VHF receivers by the public. This creates a powerful force working toward the continued use of the crowded VHF television channels, ignoring the potential of the UHF. The situation gets worse as time goes on without action -- a state of affairs welcomed by VHF operators.

Although the Federal Communications Commission must place its imprimatur on any decision relating to the civilian allocation of frequencies, its principal role has been to act as the focal point of conflicting industry pressures. The FCC does not always react in favorable response to the strongest pressure, but appears to lack the initiative to act without the support of some outside pressure group. The Congress often acts as a forum in which opposing interest groups debate. However, since the FCC is the legal agency responsible for determining telecommunications policy, Congressional activity in this area is normally restricted to acting for their constituents and for elements of the industry in seeking relief from Commission policies. The Congress can override the Commission by legislation, and can exert a great deal more pressure than any other group through investigating committees, appropriations, and many other ways.

Background

It is apparent that the decisions that have been made in the conception and administration of the allocation plan for television have created a condition more favorable to monopoly than to unrestricted competition. Decisions have been made on the basis of expediency, pressures, and politics often without adequate information and analysis. Many of the basic allocation decisions for television have frustrated rather than aided the goals and potential of this medium.

Although television broadcasting has been a national force for only a decade, the present problems of program and station availability have their roots in struggles and decisions as far back as the middle 1930s. The identities, strategies and tactics of various pressure groups have changed with the years as have the issues and problems to be settled. Nevertheless, the history of television allocation decision and regulation can be divided into four important periods:

1. In the beginning: television standards and allocations to 1944. After a period of experimentation that started in the early 1920s, marked by the abortive efforts of certain promoters to innovate a form of mechanical-scanning television of inadequate quality, the Radio Corporation of America (RCA) prevailed upon the FCC to allow television to operate on a limited commercial basis in 1940. RCA hoped not only to recoup certain developmental program expenses, but also to make use of its commanding patent-holding position to promote and merchandise so many receivers built to RCA specifications that the FCC would

be unable to change transmission standards⁷ in the probable event of later improvements. This attempt to freeze standards immediately met with opposition from the greater part of the manufacturing industry, as well as from one of the few FCC chairmen who was willing to take the initiative in dealing with telecommunication problems. (Chapter III).

2. The shaping of post-war television (1944-1948).

Toward the end of World War II, the industry was divided into two groups. RCA led the majority striving to get television underway immediately after the war, using prewar standards and channels, and postponing potential improvements in both standards and allocations to a vague future. CBS, largely in an effort to promote its system of color television and thus steal a march on RCA, argued the minority position advocating further research on monochrome and color and a thoroughly blueprinted allocation system able to accommodate any foreseeable expansion of television. In particular, CBS advocated a large number of channels in the UHF band, with VHF television allowed only on a temporary basis.

Arguments prevailed that television was ready "now" and that the post-war economy needed its immediate introduction. Although the channels allocated on the VHF band were fewer than even RCA advocated, the major portion of the electronics manufacturing industry, headed by RCA, happily prepared to "live with" a thirteen-channel allocation straitjacket.⁸ To alleviate

⁷Television transmitters and receivers must be manufactured to operate with the same standards, in a "lock-and-key" analogy.

⁸Pre-war television allocations, unused for the most part, contained nineteen VHF channels.

the reduction in number of channels and to provide more competitive opportunity, the Commission (largely on the basis of faulty engineering data supplied by the industry) made the major error of providing too little geographical separation between stations on the same channel, which in turn led to signal interference and picture-quality degradation. (Chapter IV).

3. Interlude (1948-1952). The interference mentioned in the previous paragraph was so serious that the FCC halted the licensing of new television stations. While this "freeze" was in effect, the Commission conducted an extraordinarily long (three and a half years) series of hearings dealing with the future of television. Subjects under discussion included: 1) color television standards, 2) use of the UHF band, and 3) allocation and assignment principles and practices, including the reservation of some television assignments for educational purposes. The color issue flared up again in 1946 and 1947, with CBS and RCA each hoping to have its own system adopted as the industry standard. In 1949 and 1950, the color issue became a time-consuming fiasco, with CBS winning the official FCC decision. This 1950 decision was frustrated by the refusal of the manufacturers to accept the CBS color system. RCA later perfected its own system, which was accepted in 1953 by the Commission and the industry. Most witnesses before the Commission during the hearings on the use of the UHF agreed that more channels were necessary. However, the established (or "prefreeze") broadcasting interests, which included the CBS and NBC, but not the American Broadcasting Company or DuMont networks, successfully resisted

efforts to move all television to the UHF, and abandon the VHF channels to other services which needed them.

The decision to retain the VHF band was based largely on the enormous investment in receiving and transmitting equipment in operation on that band. However, this decision made it difficult even to contemplate a move to the UHF in later years, since there would be a great deal more VHF equipment in operation, with a "moral guarantee" as to its future usefulness. (Chapter V).

4. Inequality Compounded (1952-1959). In addition to the 1952 decision to retain the VHF band, the FCC also decided to intermix UHF and VHF stations in the same market or community. This proved to be a serious mistake and perhaps the chief cause of the difficulties faced by UHF stations whenever they attempted to compete with VHF stations. Nothing was done by the Commission to enable the VHF and the UHF stations to compete on reasonably equal footing.⁹ The VHF band could be received by all of the millions of receivers manufactured before 1952. On the other hand, UHF or all-channel sets could not legally be required by the Commission, and they would be more expensive if built. VHF signals had a slightly wider range,¹⁰ and, in general, the 108 prefreeze VHF stations were left economically entrenched.

⁹The FCC did include in its decision (U.S. FCC, Sixth Report and Order in Dockets 8736, et.al., April 14, 1952) provision for higher power limits on the UHF band than on the VHF band. However, high-powered transmitters for UHF were not made available until 1954-55 by the manufacturing industry.

¹⁰Both VHF and UHF are in the "quasi-optical" portion of the radio spectrum, where reliable transmission is limited to slightly more than line-of-sight, or distance to the horizon, distances (45-70 miles with antennas of 300-1000 feet). However, VHF stations have a range advantage of some 10 miles over UHF.

Since 1952, the FCC has done little to remove the inequalities from the allocation structure. More than ninety UHF stations and one network have left the air,¹¹ with a concurrent loss of program service to their communities and a waste of the unused spectrum space.¹² To fill in the gaps in this basically-VHF system, such auxiliary services as community antenna systems, UHF "translators," satellite stations, and presently-illegal "boosters" or "repeaters" are used. New York and Los Angeles demonstrated that very large cities can support seven stations, yet there are only two other cities (Chicago and San Francisco) which have more than four VHF channels assigned. In other communities, the UHF channels which were assigned on an inter-mixed basis with one or more VHF channels are either unused, or occupied by UHF stations without much economic support. The only economically successful UHF operations are in all-UHF communities.

Since the failure of the UHF channels to provide a competitive and local television system and the plight of the individual UHF station operators was first noticed in 1953, the Commission and the Congress have held almost continuous hearings on the problem. The three major suggestions for remedying the situation are: 1) an all-VHF system using reduced separation standards and possibly additional channels; 2) an all-UHF system, such as was proposed in 1944 and 1948-1952; and, 3) as a

¹¹ See Table VI-1-B.

¹² See: Joint Technical Advisory Committee (Institute of Radio Engineers - Radio Manufacturers Association). Radio spectrum conservation. (New York: McGraw-Hill, 1952.)

compromise, selective or total deintermixture, which would make each community either UHF or VHF, but not both. None of these proposals has been fully accepted or adopted by the Commission as of June 1959. Meanwhile, the spectre of an all-VHF system by default looms steadily larger as UHF stations leave the air and an ever-smaller proportion of all-channel receivers are built. Yet, a political body must weigh semi-monopoly against the estimated cost of over two and one-half billion dollars to move television broadcasting wholly to the UHF band.¹³ (Chapter VI).

The decision making process

Robert Hutchins has said:

The notion that the sole concern of a free society is the limitation of governmental authority and that government is best which governs least is certainly archaic. Our object today should not be to weaken government in competition with other centers of power, but rather to strengthen it as the agency charged with the responsibility for the common good. That government is best which governs best....¹⁴

The Federal Communications Commission was established by the Communications Act of 1934 to allocate and assign frequencies, and, among other responsibilities, to license and supervise all types of radio service in the United States, excluding only Federal government-owned stations. The FCC has a positive responsibility under the law to promote experimentation leading to the more efficient use of radio.

¹³Columbia Broadcasting System, Cost of shifting the U. S. television system to UHF-only. (New York: CBS (mimeo) September 22, 1959), p. 4 ff.

¹⁴Hutchins, Robert M. Address upon receiving the Sidney Hillman Award for meritorious Public Service, New York, January 21, 1959. Published as the Fund for the Republic Bulletin for February 1959. Quote from p. 6.

The FCC has the only statutory authority to make decisions with respect to civilian allocation of the radio spectrum. However, it is evident at even casual glance that various special interests, such as broadcasters, networks, manufacturers, and other radio services, have a great deal of autonomy in their activities. When allocation policies affect special interest groups, it is only natural that they attempt to influence the decisions of the Commission by means of petitions, testimony at FCC hearings, harnessing public opinion, and lobbying to induce the Congress to bring pressure upon the FCC.

The importance of frequency allocation decisions by the FCC cannot be overemphasized. They spell out life or death to the entire concept of broadcasting, not to mention the individual broadcasters. Since the spectrum is finite, and the demand greater than the supply, any radio service must justify the use of a number of channels in terms of the public interest. Wire lines afford a practical substitute for point-to-point radio services, but with the widely scattered communities of the United States, national broadcasting service could not function without the use of the radio spectrum.¹⁵

¹⁵Certain forms of radio program distribution wholly or partly by wire, known as "wired wireless" or "radio-diffusion" systems have been successfully employed in Great Britain, the U.S.S.R., other European countries -- and on American college campuses. However, in the United States, with the exception of such wired music services as Muzak, wired radio is unimportant, and will doubtless remain so, although technologically feasible. To send television signals by wire is much more complex and expensive, although "community antenna systems," feeding programs from a master antenna to homes (otherwise unable or unwilling to go to the expense of picking up a distant signal directly) on a monthly fee basis, serve some 550,000 American homes, particularly in mountainous regions. Another wired television project, known

When dealing with frequency allocation problems the FCC has two roles, one as referee, the other as overlord. First, many elements of the television industry will spare no effort to protect their heavy investments and their interests. The Commission, faced with a lack of authority over some portions of the industry,¹⁶ must mediate between conflicting views and search for a compromise which will be accepted by those elements of the industry. The need for an "acceptable" solution, rather than a fiat, leads to delay, vacillation and compromise. It also makes the second role much more difficult.

The second role of the FCC is that of impartial decision-maker, with the aim of providing the most service for the most people. To make decisions in the public interest, the Commission must possess 1) clear authority and jurisdiction over the problem in question, 2) sufficient information to be able to judge the matter and sufficient knowledge of the subject to analyze and discriminate between and among the facts and opinion included

as a "cable theater," is sponsored as a form of subscription television which need not use the spectrum. To wire the United States so that (for example) a minimum of four programs were available to every home, or even to every urban and suburban home, would be prohibitive in cost.

¹⁶The Commission has no control over advertisers or receiver manufacturing, among other things. Although the FCC may make a decision affecting these industries, they have no power to enforce it. Unless the manufacturing and broadcasting industries are willing to make equipment and to operate on the allocated frequencies, these frequencies will remain idle until some other service persuades the Commission to change the allocation and give them more space. Lack of control of the manufacturers by the Commission does not work both ways: the industry is willing and able to generate enough pressure to cause revision or even reversal of unwanted allocation decisions.

in the available information, and 3) power with which to enforce any decisions without fear of reprisal. This thesis is concerned with the degree to which the Commission possesses these three attributes of a decision maker.

The two roles of the Commission are inexorably intertwined. Even if acting strictly in consideration of "the public interest," the FCC has given the appearance of taking sides in the probable event that the industry itself is split as to the proper course of action. The testimony, exhibits and demonstrations of opposing factions must be taken into account. In the widely splintered television industry, where, for example, the UHF operator's meat is the VHF operator's poison, it is inconceivable that the FCC could make an allocation decision pleasing to everyone. The Commission must always take sides, and any allocation problem becomes a conflict between two or more interest groups. However, as Snyder points out, in a conflict situation "participants do not completely control the situation, and...not all interests can be satisfied in the same degree, and often some cannot be satisfied at all."¹⁷

In analyzing decision making and conflict situations, it has been useful to consider separately the concepts of participants, coalitions, strategies, and rewards.

1. Participants. Two types of participants are involved in matters of television frequency allocation. First are those

¹⁷Snyder, Richard C. "Game theory and the analysis of political behavior" in Bailey, Stephen K., et al. Research frontiers in politics and government. (Brookings Lectures, 1955) (Washington: The Brookings Institution, 1955), p. 76.

that rarely initiate action, that are the "acted upon" rather than "actors." They are the forums for the special interest groups. In this class are the Federal Communications Commission, the Congress and the courts. Although these possess a great deal of freedom of action -- particularly the Congress and the Commission -- and are the repositories of "legal" authority, they are often circumscribed by such restrictions as specific statutes, lack of power to initiate action, lack of power to enforce decisions or punish transgressors, pressure of other duties, and so on. Since, however, these governmental organs are the formal machinery of allocation decision making, they are acted upon or pressured in diverse ways by a second class of participants.

The second type consists of the "special interests" or "pressure groups" of television. Specifically, they include manufacturing corporations, trade organizations such as the National Association of Broadcasters (NAB) and Electronics Industries Association (EIA), networks, station operators or groups of operators such as the Committee for Competitive Television (representing the UHF station owners) or the Association of Maximum Service Telecasters (representing many VHF station operators), entrepreneurs and inventors such as Edwin H. Armstrong (the inventor of frequency modulation radio), the military services and other government users of radio, various safety and special services groups (such as taxicab operators or police associations). By far the most important participants of this second class are the broadcasting/manufacturing giants, such

as RCA (with its broadcasting subsidiary, NBC) and the Columbia Broadcasting System.

2. Coalitions. Within the television industry there are no long-term antagonisms so bitter that the participants cannot present a mutual front against a common threat.¹⁸

For example, bitter enemies RCA and CBS have been accused by Armstrong of acting jointly in holding back the development of FM broadcasting;¹⁹ and Philco and RCA have engaged in costly lawsuits over patents, yet have joined hands to deride the production methods touted by Zenith.²⁰ Typical of the complicated coalitions found in the broadcasting field is that of the Cox Committee investigation of the FCC in 1943-44,²¹ wherein a great many interest groups, each with its own motives, "ganged up" on the Commission.

The immediate origin of this Select Committee of the House was the F.C.C.'s daring to turn over to the Department of Justice evidence of criminal malfeasance on the part of Representative Eugene Cox of Georgia. Ample support for the resolution authorizing the investigation was available from Cox's position as the second ranking Democratic member of the House Rules Committee and from factors associated with the group life of the legislature. In the background,

¹⁸With the exception of Armstrong's post-1936 enmity toward RCA. See reference in footnote 19 below and Chapter III.

¹⁹Lessing, Lawrence P. Man of high fidelity: Edwin Howard Armstrong. Philadelphia and New York: Lippencott, 1956. passim. Hereafter cited as: Lessing: Man of high fidelity.

²⁰Zipser, Alfred R. "Circuits revive R.C.A.--Zenith war." New York Times, February 22, 1959. (pp. 1 & 4, Business Section).

²¹Hearings before the (U. S. House) Select Committee to Investigate the Federal Communications Commission, 78th Congress, acting under House Resolution 21. (Five volumes). Also, Wilson, H. H. Congress: corruption and compromise. New York: Rinehart, 1951. pp. 48-68.

however, were influences of undefined strength stemming from the broadcasting networks, which recently had been censured by the F.C.C. for their contractual relations with their outlet stations, from the telephone and telegraph companies which had recently been subject to F.C.C. investigation, and from disappointed applicants for radio broadcasting licenses. ²²

3. Strategies. In a theoretical rational choice process a participant is confronted by a number of different, specified, mutually exclusive courses of action. To each of these alternatives is attached a set of consequences or results, which are of differential value to each concerned party. The participant makes his choice on the basis of the most desirable of these probable consequences. On the other hand, in an actual non-theoretical choice process, the participant finds that alternatives are often not given but must be searched for. In addition, there is nothing simple or trivial about determining what consequences will follow each of the alternatives, and he is more often concerned with finding a satisfactory rather than the best alternative, and, indeed, sometimes the problem itself must be searched for. ²³

Television is a dynamic and fast-changing industry. Its many participants have little time to consolidate or to analyze their positions before they are changed as the result of the activity of another participant or changes in the industry itself.

²² Leigh, Robert D. "Politicians vs. Bureaucrats," Harper's Magazine, No. 1136, January 1945. pp. 97-105. Quoted in Truman, David B. The governmental process. New York: Knopf, 1951. p. 365.

²³ Simon, Herbert A. "Recent advances in organization theory" in Bailey, et al, op. cit., pp. 23-44 at pp. 32-3. Also see: Snyder, Richard C. "Game theory and the analysis of political behavior" in Bailey, et al, op. cit., pp. 70-103 at 101-2.

Thus, any participant who feels that he has some advantages in a given situation is likely to try to resist change, until forced to counter the move of another participant who does not have such advantages. The strategy of delay is often used, and, in fact, may be the key to the seemingly inconsistent actions and positions of the several participants. The strategy of delay²⁴ has been used by virtually every participant at one time or another.

For example, at present, VHF station operators are in favor of delaying any move that might bring relief to their potential competitors, the UHF stations. To do this, they must jump from Commission, to Congress, to court, and back to Commission and Congress, to try to forstall the UHF operators, who have initiated a variety of strong actions in these agencies in order to postpone their own demise. An FCC decision is usually a signal for frenzied maneuvering. Few, if any, broadcast allocation decisions by the Commission have gone unchallenged. "Losing" contestants or applicants take their appeal to the Commission again, to Congress, or to the courts, often with more

²⁴ The terms "strategy" and "tactic" will be used interchangeably in this paper. There are actually very few long-range strategies employed, with the exception of attempts to form favorable corporate "images" through public relations. In this connection, there have been attempts to build up a body of precedent supporting one's historical antecedents and practice by causing to be published historical volumes supporting one's position. For example, two amazingly dissimilar books dealing with the early history of radio are: Archer, Gleason L. History of radio to 1926. New York: American Historical Society, Inc., 1936 (This book is written from the RCA viewpoint, although it is more objective than its companion volume Big Business and Radio) and Banning, William Peck. Commercial broadcasting pioneer: the WEAf experiment 1922-1925. Cambridge: Harvard University Press, 1946. (Banning is a former Assistant Vice-President of the American Telephone and Telegraph Company.)

vigor than the original suit. Part of this practice results from the appeal provisions of the Administrative Procedures Act, and part from the usually-correct conviction that a strong attack will promote a revision or a compromise of the decision that will be more favorable to the applicant. This sort of pressure, which gives the FCC a gauge of the intensity with which a participant holds his position, almost inevitably has a delaying effect. Procedural delays are initiated (as in the 20-year old AM clear channel situation), new hearings are opened (as in the case of subscription television in 1957), and stated policies are tacitly not enforced (as in the case of the so-called "Blue Book" recommendations).²⁵

Whether or not to call a given strategy "delay" is often a problem. An assault, such as the UHF operators', is merely an attempt to put off the evil day of bankruptcy. Their opponent's maneuvering is an attempt to put off the evil day of competition. In the complex CBS-RCA color struggle, the strategy of delay was used by both sides, its use determined by the relative status of the two systems at a given time. "Delay" is most logically that strategy or series of strategies that tries to prevent or forestall a decision by some formally organized body such as the FCC.

Most of the special interest participants are able to command vast resources in engineering and legal talent, financial backing, and public relations skill. Once the major strategy is chosen, a small army may be put to work. If one corporation

²⁵U. S. FCC. Public service responsibility of broadcast licensees, March 7, 1946.

wishes to delay the implementation of a particular FCC order, it might a) whip up "grass roots public opposition" through the use of public opinion manipulators, that results in a flood of protests to the Congress and the Commission;²⁶ b) using this "public protest" as a lever, sympathetic Congressmen may be prevailed upon to exert pressure on the FCC through the various methods open to them from letter writing and "friendly" conversations to committee investigations and even to special legislation; c) hoarded secrets of the laboratory may be presented to the FCC and represented as rendering the Commission's decision obsolete, thus leading to new hearings on the problem; d) the Commission's order may be appealed through the judicial system, even to the Supreme Court of the United States; and e) ways may be found to circumvent the decision in spirit if not in letter. The special interest participants feel free to use any and all methods, at the same time, or in sequence, that they feel will help gain their goal. It is not unusual for the spirit, or even the letter, of the law to be broken if the stakes are considered high enough.²⁷

²⁶For example, the attempt by RCA-NBC to circumvent the FCC's authorization for experimental "limited commercial" operation before all technical transmission standards had been decided upon. RCA tried to effectively "freeze" television into its own standards by selling as many receivers as possible based on those standards. This is discussed in Chapter III.

²⁷A good many Commissioners and high ranking FCC staff members have resigned to accept lucrative positions with industry soon after making decisions which favor that section of the industry. A case in point is that of Chairman Denny, who accepted a high paying position with NEC soon after turning down a CBS color petition; See Chapter IV.

In addition, disclosure of more direct and immediate "influences" recently brought about the resignation of a Commissioner who had financial dealings with an agent for a successful competitor for a television license. See the hearings

4. Rewards. With respect to spectrum allocation, the goal of any radio service is to obtain as many useful frequencies as possible, and to keep them intact so as to avoid making equipment obsolete before it wears out. There are also negative goals to keep the other service or the other participant from moving ahead; such as the complaint that AM networks and television promoters tried to get certain channels in order to "box in" FM (both to obtain channels for TV and to remove competition to AM). A goal of VHF station operators is to prevent the successful operation of UHF stations, as a class. A station in a given market is always trying to be "one up" on its competition.

The manufacturers and patent holders have another set of rewards, as testified to by the CBS need to obtain a favorable FCC decision on its own color system before it could hope to compete in any way with RCA's manufacturing complex. The original CBS color system required a 16mc bandwidth, which required the FCC to make determinations on allocations as well as choosing between the two systems. CBS acquired manufacturing facilities partly in the expectation of manufacturing industry refusal to build CBS color sets if CBS should win the decision.

In so far as the FCC itself is concerned, perhaps its greatest possible reward would be to make everyone so happy that its members would be left undisturbed. This goal is, of course,

of the (Harris) Subcommittee on Legislative Oversight of the House Commerce Committee, 85th & 86th Congresses.

Another case (discussed in Chapter IV) is the use of possibly dishonest and certainly faulty information on propagation in the shifting of FM from one part of the spectrum to another. (See Chapter IV).

unrealizable in this world, but it probably explains some of the dilatory decision-making of the Commission.²⁸

Conclusion

The course of the television industry in the United States has been shaped by frequency allocation decisions. These, in turn, have been made by the clash of conflicting interest groups in the forums supplied by the FCC, the Congress and its committees, and public opinion. The interest groups form coalitions and use any and all strategies and tactics to obtain favorable decisions.

Honest disagreements over the proper course to take in complex allocation situations are to be expected.²⁹ However, many decisions or proposals have been made without serious consideration of engineering principles or economic and social principles, but only in terms of specific interest group advantage. Often, the real decision is masked in camouflage. For example, the April 1959 FCC allocation proposals appeared on the

²⁸This goal has been particularly attractive during the past five years. Congress, particularly the Senate Commerce Committee, the House Antitrust Subcommittee, the House Legislative Oversight Subcommittee and the House Appropriations Committee, have been "second guessing" the Commission, and taking it to task for many of its decisions and activities. Few Congressmen will uphold the right of the Commission to make its own decisions without fear or favor.

²⁹For example, the JTAC (Joint Technical Advisory Committee, *op. cit.*, p. 138) drew a conclusion calling for a complete shift of existing television channels resulting in 100 continuous channels in the high VHF and low UHF bands. Using the same data, Dean William Everitt of the University of Illinois College of Engineering and one of the members of the 1950-51 President's Communication Policy Board, reached the personal conclusion that it would be "too bad to throw away VHF to make everyone equally

surface to be a bold attempt to satisfy the requirements of a nationwide competitive television system. However, the favored proposal called for between thirteen and thirty-eight more VHF channels -- without specifying where these channels would come from.³⁰ It is hard to conceive of this proposal as other than a temporizing or delaying tactic, since it also calls for "drop-ins" of VHF stations, which are bound to arouse opposition from existing VHF stations whose service area will be reduced.

Television is far too potent a medium of communication³¹ to permit technical restrictions on the number of program choices available to the public. In addition, spectrum space is far too scarce and valuable to allow seventy UHF channels to remain fallow. From this standpoint of frequency spectrum conservation, a summing up made in 1941 is still pertinent today:

Since frequency channels in the radio spectrum which are needed for television and many other important services are so strictly limited, government allocation and regulation of channels has long since been established. Such power to regulate gives government the practical power to advance or delay progress, both technical and economic, in TV as well as in other radio services....

bad...why should everyone suffer?" (Telephone conversation with the author, February 11, 1959).

³⁰U.S. FCC. Recommendations on Allocations, presented to the Senate Committee on Interstate and Foreign Commerce, and released by the Committee on April 23, 1959. Published by Television Digest as a Special Supplement, April 27, 1959. See Chapter VI.

³¹"...this instrument can teach, it can illuminate; yes, and it can even inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise it is merely wires and lights in a box."

Murrow, Edward R. "A broadcaster talks to his colleagues." Speech before the Radio and Television News Directors' Association, October 15, 1958. Printed in The Reporter, Vol. 19, November 13, 1958, pp. 32-36 at p. 36.

Thus the regulatory body has the major task of reaching a technical decision as to the best television system for the people, and to foster progress on a sound economic basis. To do this and at the same time to harmonize the varied interests and objectives of the several parties is the course that is clearly indicated.³²

Although not one of the active "interest groups," the receiver buyer's resistance to change is an important factor in the making of allocation decisions. This inertia has resulted in the absence of serious consideration of innovation of radical new systems which might eliminate the perennial shortage of frequencies, but which would require a complete and expensive changeover of both transmitting and receiving equipment.³³

From a social and cultural viewpoint, it would be tragic if communities could not have a local voice, or if local businessmen could not find or afford a television outlet on which to advertise.³⁴ Television stations depend upon the networks for

³²Engstrom, Elmer W. "Recent developments in television" in the "New Horizons in Radio" issue of the Annals of the American Academy of Political and Social Science, Jan. 1941, V. 213, p. 137.

³³There are several frequency-saving methods that have never been seriously attempted in television broadcasting. Eventually, if the shortage in the radio frequency spectrum grows more serious, they may have to be tried. For instance, single-sideband (SSB) transmissions are already used by many services, are partially utilized for TV picture transmissions, and are contemplated for stereophonic broadcasts on the AM band. A very promising (and very expensive) technique is pulse-time modulation, which slices up the channel in terms of rotating (or alternating) segments of time, rather than width.

³⁴On one specific, yet not unusual, VHF station licensed to a community of some 75,000 people (WCIA, Champaign-Urbana, Illinois), a 20-second spot announcement in prime time costs \$215. Few local merchants can afford this rate. Due to the shortage of stations and channels, WCIA operates as a "regional" station, claiming to serve 24 counties with a population of 1½ million. If all UHF assignments in central Illinois were occupied,

expensive programming, and the networks must in turn have outlets in major markets to insure profitable operation. Thus, the scarcity of markets with more than two operating stations greatly influences the fortunes of the networks (other than the "big two," CBS and NBC), as well as the total supply of programming and the available choices for the average viewer. The fact that much of the American public receives the greater part of their knowledge of the world from only one medium is disturbing; and it is even more disturbing when such a solvable technical situation as frequency allocation and usage limits the number of stations needlessly and artificially.

and if the majority of the population had converted their receivers, WCIA would make far less sweeping claims, and no doubt would also lower its time cost schedule.

CHAPTER II

BACKGROUND: THE CONTEXT OF FREQUENCY ALLOCATION

Introduction

In this chapter the participants in the clashes over frequency allocation will be discussed, without reference to the process of decision making. This is to facilitate recognition of these participants in subsequent chapters dealing with specific decision periods. Both the active special interest groups and the more passive "forums" of the FCC and Congress will be described.

In addition, some of the important background or "neutral" factors of television frequency allocation will be discussed. Specifically, certain technical considerations that should be understood and kept in mind; the international distribution of the spectrum, and the domestic distribution of the spectrum between government and non-government users.

By placing both the participants and the physical and political context of frequency allocation in this chapter, it is hoped to avoid duplication in subsequent chapters. It should be noted that the list of participants (the President, the Federal Communications Commission, the Congress, the networks, the advertisers, the manufacturers and the Radio Manufacturer's Association, and engineering advisory groups) is not exhaustive.

Allocation -- the allotment of a band of frequencies or a number of channels to a particular service¹ -- is the basis of all systems of broadcasting. Decisions made in this area are complicated by great differences in the technical qualities of the various bands of frequencies which largely determine the range or service area of stations on each band. Differences in bandwidth determine the quality and characteristics of the signal. Such bandwidths are established by the FCC and create a "lock-and-key" relationship between the transmitter and the receiver in the case of television, particularly if other transmission standards are determined.

United States Senators Tobey and McFarland, both of whom have shown great interest in communications during their service on the Senate Commerce Committee, presented an excellent summary of the importance of frequency allocation in a 1949 Senate Report.²

The problem of allocation of frequency space in the spectrum is a fundamental one. It is an authority fraught with so many consequences to development of the whole communications art that it is a pity that it is not better understood and its consequences more sharply realized.

Unfortunately, because it involves decisions based on highly technical knowledge of electronics and the application of such knowledge, the average citizen -- and this includes Members of Congress -- know little about it. Nevertheless, these so-called engineering decisions directly affect and actually control long-range policy determinations which decide not only who shall be licensees

¹As distinguished from assignment of channels to particular localities -- an act of importance to the community involved, but rarely of interest to the entire industry -- and licensing, which is the granting of a permit to an individual or group or company to use an assigned frequency for a stated purpose for a limited time.

²U.S. Senate, Senate Report No. 49, 81st Congress, 1st Session. Communications Study. Interim Report, February 10, 1949.

in the operation of AM radio broadcast stations, FM broadcast stations, television stations, radiotelegraph and wire telegraph common carriers, but more important, in what parts of the spectrum these various services shall operate.

Decisions of this latter kind have an important bearing on what types of service shall move ahead and which shall be retarded; in fact, which shall live and which shall die. For example, a decision in which part of the spectrum television shall operate has the effect of determining (a) that television service shall be available only to limited parts of the United States and to a limited number of people; (b) that television service will be only in black and white and not in color;³ (c) that developer and patent holder X shall have a preferred position over developer and patent holder Y or Z. Or, for example, a decision that certain frequencies are more suitable for television than for FM radio becomes determinative in so retarding the development of FM radio that this latter service is denied a wide use and application throughout the country.

It may be asserted that the results which flow from such decisions may not have been considered in arriving at the original decision. It is claimed that the original decision was made in good faith, based on engineering information and knowledge then available. But it is just because such decisions are based on engineering knowledge at the time, and because like all other experts, engineers may differ with respect to their findings and conclusions as well as with respect to the projection of their findings on the ultimate situation, that it is important to evaluate to what degree so-called engineering decisions should be the sine qua non of a basic determination.

(Our investigation has brought out that) electronics is a rapidly developing and changing art; that despite the fact it is based on such exact sciences as physics and mathematics, it is still far from being an exact and positively predictable art; that reliable and able engineers differ widely; that some engineers whose opinions have been of influence in making decisions of great magnitude are not always abreast of all developments and facts in the art;⁴

³At the time this report was written (1948-49), existing systems of color television required a wider bandwidth than the 6-megacycle channels allocated for black-and-white television. In other respects the color service would also be incompatible with the black-and-white, thus permitting only one service to operate on a given channel, and requiring two receivers for the different services.

⁴This appears to be a mild comment on the testimony of K. A. Norton during the FCC 1944 Allocation Hearings. This testimony was crucial in the moving of FM from the 40 mc to the 100 mc band. See hearings before the Senate Commerce Committee,

that the regulatory agency has had to and does still rely on the testimony and experiences and experiments of engineers who are the employees of major commercial interests in the industry; that the regulatory agency appears to be overawed and too much impressed by such engineering views and does not always balance these views against the broad public policy of what is best for the general interest of the people of the United States.⁵

A restatement of the principles and the importance of frequency allocation, made by an engineer who spent his entire life in this work,⁶ is pertinent at this point.

I want to state that the control of the radio spectrum is just as complex as it is important to the application of radio to the service of the public. The nature of the radio frequency allocations of the future will influence the trend of the new radio industry. This particular phase of radio is not susceptible to the legislative treatment in detail because radio frequency allocation is always in a state of flux. On the other hand, radio spectrum allocation influences not only the philosophies of radio regulation but also the progress of a vast industry.

Many factors influence the allocation of radio channels to the various services using radio. For example, there is a relation between radio frequency allocation, radio equipment design, the economics of manufacture and sale of equipment, and the type of operating organization of the stations which render service to the public. Likewise, there is a relation between regulatory philosophies and radio frequency allocation. If there be allocated only a few channels it is possible that strict Government regulation

Progress of FM radio, 80th Congress, 2nd Session, testimony of Edwin H. Armstrong at pp. 15-16 (April 23, 1948); other material at pp. 169-170; 338-378 dealing directly with this subject. These hearings were interested in "to what extent certain commercial interests (RCA) in the radio industry affected and controlled engineering decisions which resulted in basic policy determinations"

⁵U. S. Senate. Senate Report No. 49, 81st Congress, 1st Session, op. cit., pp. 11-12.

⁶T.A.M. Craven served as an FCC commissioner during two separate periods. His radio engineering experience includes work in the Navy, with the Federal Radio Commission, and later with the FCC, where he was Chief Engineer prior to being appointed as Commissioner.

of many phases of broadcasting might become necessary. On the other hand, if there are many channels the entire relationship between Government and private enterprise might be most liberal.

There is a relationship between freedom of speech and radio frequency allocation. If there are sufficient channels allocated to broadcasting to permit the establishment of as many stations as are feasible economically, radio will become reasonably free and the doctrine of unlimited competition can prevail. On the other hand, if radio frequency channels are scarce, we shall continue to have with us all of the problems of a limited medium for the dissemination of facts and opinions.

Lastly, it is important to consider the economics of broadcasting and its effect upon the development of new services. If frequency modulation, facsimile, aural and television broadcasting are to be maintained as separate competitive services, it is possible that economies cannot be effected, either in frequency allocation or in operating organization and performance. On the other hand, if we are to consider these various types of modulation merely to be different methods of broadcasting service to the public, it is possible that economies, both in frequency allocation and service to the public, may be effected to the benefit of everyone.

It is necessary to balance all of these factors in arriving at a satisfactory solution of the problems. Hence, a limited approach on the part of any one of the many groups which should be brought together may not be in the public interest.

Technical aspects of radio propagation⁸

The fact that television signals are rarely picked up at distances over 75 miles from the transmitting tower is not an

⁷Craven, T. A. M. Testimony before the Senate Committee on Interstate Commerce, Hearings on S. 814, 78th Congress, 1st Session. To amend the Communications Act of 1934, November 30, 1943, pp. 498-499.

⁸Material in this section is drawn from a wide variety of sources, particularly the report of the President's Communication Policy Board, Telecommunications: a program for progress, (Washington: Government Printing Office, 1951)

attribute of the medium itself. There is nothing inherent in television that restricts its range to slightly more than the distance from the antenna to the horizon. However, this "line of sight" characteristic is an attribute of the propagation characteristics of the frequency bands television uses, whether they be used for television or any other service.

The electromagnetic spectrum extends from a few cycles per second to many thousands of megacycles (mega=million). In more common terms, it stretches from the 60 cycle current in home electric wires, through radio waves into infra-red, visible light, ultra-violet, X-rays and cosmic rays. All forms of electromagnetic radiation, including the fallout from the latest A-bomb test detected by a Geiger counter, the reflected light from a painting picked up by the eye, the infra-red (or heat) radiations utilized by a military missile for guidance, and the television or radio signals tuned in by the receivers in our living room are all part of the same spectrum. Different frequency or wave bands have vastly different characteristics. Even within the restricted range of radiations used for telecommunication (roughly from 10 kc -- 10,000 cycles per second -- to well above 30,000 mc, or 30,000,000 cycles) these characteristics determine the qualities and nature of the services utilizing them.

The earliest services used frequency bands dictated by limitations of equipment, such as speed capabilities of rotary generators and the maximum length of antenna as determined by the distance between ship masts. Subsequently, new services and the expansion of existing services encountered additional restrictions

in the form of bands already in use.⁹ It was often the amateur, evicted from the lower frequencies time and time again, who proved the value of the higher bands to which he had been removed.¹⁰ Today, the full occupancy of the spectrum requires any new service to dislodge an old one.

Table II-1
Extension of the radio spectrum¹¹

1906	Berlin Radio Conference	500 kc and 1,000 kc
1912	London Radio Conference	150 kc to 1,000 kc
1927	Washington Radio Conference	10 kc to 23,000 kc (23 mc)
1932	Madrid Radio Conference	10 kc to 30,000 kc (30 mc)
1938	Cairo Radio Conference	10 kc to 200,000 kc (200 mc)
1947	Atlantic City Radio Conference	10 kc to above 30,000,000 kc (30,000 mc)

The enormous spectrum range usable today is divided into a number of major bands. The 300 kc to 3,000 kc band is called the medium frequency (or MF) band, and contains AM broadcasting among other services. From 3 mc to 30 mc is the high frequency band, most familiar for long-range international shortwave

⁹Joint Technical Advisory Committee, op. cit., pp. 17-18.

¹⁰For an interesting history of radio from the amateur's viewpoint, see the first chapter of any edition of The Radio amateur's handbook, published at West Hartford, Connecticut by the American Radio Relay League.

¹¹This table is after the one to be found in the President's Communication policy Board, op. cit., p. 21.

broadcasting. Television uses frequencies within the VHF (30 to 300 mc) and UHF (300 to 3,000 mc) bands. Each of these frequency bands has a different set of characteristics. The most important of these is the mode of propagation, either groundwave, skywave or direct wave. (See Figure II-1). These three propagation methods refer to the direction and manner by which radio waves travel from the transmitting antenna to the receiving antenna at the speed of light. Both the VHF and the UHF television bands are almost entirely within the "quasi-optical" or direct wave regions of the spectrum above 50 mc.

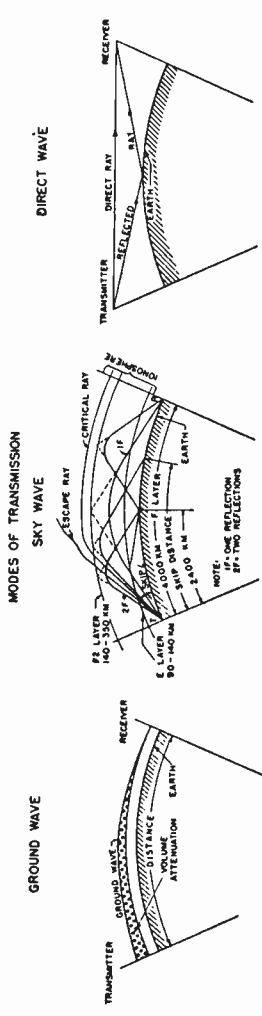
However, the reason for much of the furor raging over the UHF-VHF question is that there are a few miles difference in range granted by use of a low VHF channel over a high VHF or UHF channel. Since television stations derive revenue in proportion to this range, or rather, to the population or "circulation" involved, these few miles engendered many bitter struggles over allocation and assignment.

The actual number of channels available within any particular portion of the spectrum is not fixed. It increases with improvements in equipment such as transmitters capable of maintaining center frequency with smaller error or "swing"; operating techniques such as stations in different time zones sharing time on a channel; availability and correct use of propagational data; knowledge which can lead to the geographical spacing of stations far enough apart to avoid interference, but no farther; necessity, since engineering "miracles" have a way of taking place when the pressure is great enough; and willingness

A GLANCE AT THE
RADIO FREQUENCY SPECTRUM
SHOWING SOME OF THE BROADER FREQUENCY CHARACTERISTICS

FREQUENCY SCALE	30	50	100	300	500	1000	10000	30 MC	80 MC	300 MC	400 MC	800 MC	3000 MC	4000 MC	10,000 MC	30,000 MC	50,000 MC	80,000 MC	
	10 KM	LF	MUF	MF	H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F	V H F
WAVELENGTH SCALE	3000	1000	500	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
WAVELENGTH SCALE	10 KM	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M	100 M
MODE OF TRANSMISSION:	LF	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F
MODE OF TRANSMISSION:	LF	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F
MODE OF TRANSMISSION:	LF	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F
MODE OF TRANSMISSION:	LF	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F
MODE OF TRANSMISSION:	LF	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F

* THE USEFUL RANGE VIA SKY WAVE TRANSMISSION VARIES WITH THE TIME OF DAY, SEASON, YEAR, AND PHASE OF THE SUNSPOT CYCLE.



NOMENCLATURE OF FREQUENCIES	
FREQUENCY RANGE	FREQUENCY SUBDIVISION
BELOW 30 KC	VLF VERY LOW FREQUENCY
30 TO 300 KC	LF LOW FREQUENCY
300 TO 3,000 KC	M F MEDIUM FREQUENCY
3,000 TO 30,000 KC (30 MC)	H F HIGH FREQUENCY
30 TO 300 MC	V H F VERY HIGH FREQUENCY
300 TO 30,000 MC	V H F ULTRA HIGH FREQUENCY
30,000 TO 300,000 MC	S H F SUPER HIGH FREQUENCY
300,000 TO 300,000 MC	E H F EXTREMELY HIGH FREQUENCY

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to accept a poorer grade of service like today's medium-definition picture.

At present television service in the United States is rendered on a channel 6 mc. wide. Only 4 mc. of this width are actually used for transmitting the video signal. Approximately 2.5 mc of this represents one of the two mirror image halves of the signal, or one sideband. The remainder of the channel is used for a "vestigial" (only partly radiated) sideband, the audio signal, synchronizing signals, and space for absorption of unwanted signal at the edges of the picture and sound sub-channels to compensate for the fact that no transmitter can be maintained exactly on its assigned frequency or frequencies.¹² The

¹²Even with this precaution, there is a great possibility of television transmitters on different frequencies (not to mention those on the same frequency) interfering with each other in various ways. For example, a station on UHF Channel 24 could interfere with Channel 32 and 16 to a distance of 20 miles due to a possibility of the phenomenon called "IF (intermediate frequency) beats" within the receiver; also to 20 miles with Channels 19 through 29 due to intermodulation interference; to a distance of 55 miles with the adjacent Channels 23 and 25; to 60 miles with Channels 31 and 17 because of oscillator interference; to 60 miles with Channel 38 due to sound image interference; and as far as 75 miles with Channel 39 due to picture image interference. Thus, it can be seen that 18 channels, over one quarter of the UHF band, are denied to communities within 20 miles of the transmitter on Channel 24, with some 6 channels denied out to over 55 miles. (U.S. FCC Rules and Regulations, Part 5, Rules governing radio broadcast services, Subpart E (Television Broadcast Service).) Unusual types of interference also crop up from time to time. For instance, a station on Channel 33 in Champaign-Urbana, Illinois which receives programs off-the-air from its mother station on Channel 20 in Springfield, will have to relocate its off-the-air receiving antenna outside the city due to interference to the Channel 20 signal produced by "outboard" UHF converters on the public's receivers set to a particular channel, which radiate a weak unwanted signal. Hence, the more people watching, the poorer the picture!

channel carries a signal that contains a picture of 525 lines, 30 frames and 60 fields per second, for black-and-white television, and the transmissions are horizontally polarized.¹³ Different standards are in wide use throughout the world, some of which such as the British 405 line system provide poorer definition, and some of which, the two major European 625 line systems, and the French 819 line system, provide a somewhat finer quality of picture.

The need to consider separation on the same, adjacent, and sometimes other channels, readily illustrates why a shortage of frequencies developed in the crowded urban areas of the United States, particularly in the northeast. When only the 12 VHF channels were considered in making allocations, it becomes obvious why the granting of seven channels to New York City¹⁴ limits the surrounding area to very few VHF or to UHF channels as far north as Boston and as far south as Washington. The sprawling super-city which embraces almost 400 miles from Boston to Washington and Richmond is an allocation engineer's nightmare. Such crowding

¹³Without going into the technical definitions of these terms (which may be found in any standard electronics textbook), it should be said that the number of lines and frames (or fields) determine the number of picture elements transmitted per unit time, and thus the definition or quality of the picture. This is analogous to the way in which the number of dots (or number of holes in the screen) determines the fineness of detail in a printed halftone reproduction. Polarization refers to the plane of the electric field as radiated from the transmitting antenna. This is why television antennas have a horizontal attitude, while taxicab radio transmitters radiate vertically, and thus have a short vertical antenna on the cab roof.

¹⁴Channel 13, assigned to Newark, New Jersey, is actually a New York City station, with transmitter located atop the Empire State Building, sharing that location with the six other New York stations.

results in Boston's having only four VHF channels, Philadelphia three, the state of New Jersey's having no VHF television station at all and Connecticut's having only two. The last two mentioned states contain nearly 5 per cent of the population of the United States. With seven channels assigned to New York City, there are only twenty-four VHF stations allocated within a 200-mile radius of New York, a circle which includes Washington, Baltimore, Philadelphia, and Boston.

Current FCC rules require adjacent channel separations of sixty miles on VHF channels and fifty-five miles on UHF. The rules regarding geographic separation of stations located on the same channel are much more stringent. For example, in the northern United States, VHF stations must maintain co-channel separations of 170 miles, and 220 miles in the southern portion of the nation. (Slightly shorter distances are required for UHF.) The present separations are based largely on empirical observations from the period 1946-1952. Earlier standards, which called for much less distance between stations on the same or adjacent channels, will be discussed at length in Chapter IV.

To repeat: There is nothing inherent in television which restricts its useful range to less than eighty miles.¹⁵ Television has operated successfully and consistently over ranges of several hundred miles, but on a completely different band of

¹⁵The term "line-of-sight" used often in this context could be somewhat misleading, since there is a refraction effect which bends the signal over the horizon.

frequencies.¹⁶ The present standards of transmission and frequency bands used by television are present-day realities, no matter how much they may be deplored.

International aspects of frequency allocation

The nations of the world have long realized the need for cooperation in use of the spectrum, since radio waves do not recognize political boundaries. Most of the problems of mutual interference between stations inside the United States and those in other countries exist only on the frequencies below 30 mc, where potential ranges are world wide. On the VHF and above, where television is ensconced, only distances up to 250 miles need be considered. Nevertheless, international agreements must be kept in mind when planning for domestic television allocation, since the proximity of neighboring countries places restrictions on the freedom of use of the television band.

The United States and most other nations scrupulously adhere to the allocations reached at conferences in the interests of world-wide reduction of interference and efficient utilization of the spectrum.

Often the International Telecommunications Union establishes certain bands of frequencies for a given type of service, such as aviation, which must find compatible systems of communication at both ends of a flight. To sub-allocate frequencies among

¹⁶During the 1930s, Purdue University operated an experimental television service on the 2 mc band, with regular reception reported in the New York City area. See Chapter III.

various routes and terminals and to decide on the proper equipment to be used, organizations other than the International Telecommunications Union such as the International Civil Aviation Organization must operate.

Many frequencies, such as those in the AM broadcast band and those above 30 mc, are "regional." To apportion these frequencies, regional organizations have been established under the International Telecommunications Union, such as the European Broadcasting Union (EBU), and the more loosely organized North American organization. The latter has had its work elaborated in the establishment of a "North American Regional Broadcasting Agreement" (NARBA) covering the AM band. Three separate agreements (1937, 1946 and 1950) have been drawn up, each after considerable negotiation over sharing the band. The rationale for drafting such agreements is as follows:

... the participating countries acknowledged the sovereign right of each with respect to the use of all standard broadcasting channels, but agreed upon a system of priorities and engineering standards designed to minimize interference and generally to provide for the orderly use of such channels in the North American region.¹⁷

Although the NARBA does not concern itself with the frequencies used for television, the same need is present for assignment of frequencies and determination of operating standards

¹⁷U.S. Senate, 82nd Congress, 1st Session, Executive A. North American Regional Broadcasting Agreement and Final Protocol Thereto. p. 3 (Letter of transmittal from the Secretary of State to the Senate). As early as the Radio Act of 1912 (P.L.264, 62nd Congress), the regulating authority (in this case, the Secretary of Commerce and Labor) was empowered "in his discretion, (to) change the limit of wave length reservation..to accord with any international agreement to which the United States is a party."

for such stations, on the basis of coordination and agreement among neighboring countries. For example, Canada uses the same transmission standards and VHF channels as the United States. If Canada assigned the maximum number of transmitters to all of her major cities, few United States stations within 170 miles of these cities could use VHF at all; or, if the United States stations in such cities as Buffalo or Detroit used all of the domestically available channels without consideration of Canadian needs, each country would have more interference than service in the affected areas. To eliminate such possibilities, both Canadian and United States television assignments within 250 miles of either side of the border are coordinated to prevent interference.¹⁸ The same situation prevails with respect to Mexican and U. S. stations.¹⁹ Because of the short range of VHF and UHF frequencies, as well as the fortunate geographical position of the United States (with oceans bordering its populous eastern and western edges), there is no other foreign source of interference to consider, except between Florida and Cuba.

¹⁸ Agreement between the United States and Canada which assigns television frequency channels to cities within 250 miles of the United States-Canadian border. Effected by exchange of notes signed at Ottawa April 23, 1952, and June 23, 1952. Entered into force June 23, 1952. TIAS No. 2594.

¹⁹ Agreement between the United States and Mexico which assigns television frequency channels to cities within 250 miles of the United States-Mexico border. Effected by exchange of notes signed at Mexico City August 10 and September 26, 1951. Entered into force September 26, 1951. TIAS No. 2366. (Modified by TIAS No. 2654, June 25, 1952.)

It should be noted that national sovereignty extends to the transmission standards of television broadcasting, which is held to be strictly domestic in nature.²⁰ Europe, for example, employs some of the same channels for many different systems utilizing different number of lines, etc. This has the incidental effect of limiting contact by one nation's citizens with the alien influences of another nation's television, otherwise a distinct possibility in crowded Europe. A controlled breakdown of this principle is the development of "Eurovision."²¹ This is a method of picking up and then "translating" to another system programs of interest to the entire continent.

Domestic division of the radio spectrum: the IRAC

After the radio spectrum is divided by international agreement, it must once again be apportioned, this time between governmental and non-governmental users.²² This distribution

²⁰ Certain activities such as international aviation, military agreements (NATO), and maritime commerce require agreement upon common standards and operating procedures; for example, an internationally recognized distress call. It is interesting to note that the 1903 radio conference deadlocked on the British (Marconi Company) insistence that unless ships used Marconi apparatus, the Marconi shore stations would be justified in refusing to serve them. This gave, at the time, a virtual monopoly of wireless business to Marconi. Later, this position was dropped in favor of the more sensible (from a safety standpoint) one of service to everyone in case of need. U.S. FCC Rules and Regulations, Part II, rules governing frequency allocation and radio treaty matters.

²¹ United Nations Educational, Scientific and Cultural Organization. Television: a world survey. Paris: UNESCO, 1953, p. 26.

²² Communications Act of 1934, Section 305 (a) states that: "Radio stations belonging to and operated by the United States shall not be subject to the provisions of...this act. All such Government stations shall use such frequencies as shall be

affects domestic television more than the demands of foreign nations.

The Federal government has the legal authority to use any or all parts of the radio spectrum for its own use. The only restriction is the rule that when these stations are not sending signals relating to government business, civilian users have priority; and government stations shall also "conform to such rules and regulations designed to prevent interference with other radio stations and the rights of others as the (Federal Communications) Commission may prescribe."²³ There are also prohibitions on the use of Government radio stations for the benefit of private interests if commercial facilities are available.²⁴

The Federal government needs vast portions of the radio spectrum. Hardly a week goes by without governmental announcement of some new radio use for national defense. These uses range from Distant Early Warning radar networks to the telemetering of experimental missiles. Today, the U. S. Army's "pentomic division"¹ assigned to each or to each class by the President."

²³Ibid. This clause was added by Public Law 97, 75th Congress, effective May 20, 1937, and is a cry from the laws of the early 1920s which laid a positive injunction on the civilian licensees not to interfere with the naval stations at certain points under any conditions. The restrictive clause added in 1937 is quite potent; the author has personal knowledge of a case in which the Commission blocked "live" training by Army Psychological Warfare personnel on their own mobile 5,000 watt AM transmitter located at Fort Bragg, North Carolina.

²⁴Naval radio stations at one time carried private messages at commercial rates whenever commercial facilities were not available. It was made plain by Congress that this service must cease whenever private stations signified their intention of taking over. See Public Resolution 48, 66th Congress; Public Resolution 48, 67th Congress; Public Resolution 56, 68th Congress; and the Communications Act of 1934, Section 427.

utilizes one radio transmitter for every 10.3 men in the division! It is no wonder that "electronic interference from its own equipment is an ever-present problem."²⁵

In addition to the Department of Defense, other Federal agencies, such as the FCC itself, the Federal Bureau of Investigation, the Agriculture Department, and the Federal Aviation Agency use radio to supplement extensive teletype networks over both Government-owned and leased lines.²⁶

Within the Federal Government, the Interdepartmental Radio Advisory Committee (IRAC) exercises the President's power to allocate frequencies to the Government. In practice, all governmental²⁷ assignments are made by IRAC, with reports periodically submitted to the President for formal ratification. The IRAC was created by letter from the Secretary of Commerce to interested agencies in 1922, for the purpose of coordinating the uses of the frequency spectrum by the several Governmental users. Except for a period during World War II when the War Communications

²⁵Baldwin, Hanson. "G.I. Joe and Honest John" New York Times Magazine, February 1, 1959. p. 48. During the first World War, radio was only used by the Army on a limited scale: the Division Commander might have radio contact up to Corps Headquarters, to adjacent columns, to Division Cavalry, Division Trains and possibly to remote areas where wires could not be strung. (Lavine, A. Lincoln. Circuits of victory. Garden City, New York: Doubleday, Page, 1921. p. 105.)

²⁶President's Communication Policy Board, op. cit., pp. 99-105.

²⁷The term "Governmental" used in this section only refers to the Federal Government. Allocations and assignments to state and municipal bodies remains within the province of the FCC, where the applicants from the cities and states must compete with private enterprise for bands of frequencies.

Board exercised many of its functions, the IRAC has kept peace within the Government's shore of the spectrum. At present eleven Federal agencies are represented: the Departments of Agriculture, Air Force, Army, Commerce, Interior, Justice, Navy, State, Treasury, Central Intelligence Agency, and the FCC, which represents the needs of civilian or non-government users.

Periodically, an outcry goes up from a segment of the broadcasting industry or from one of the safety and special services that the FCC should "force" the IRAC to give up some of its frequencies. These protests show a lack of understanding of the role of the IRAC. It is a group of users, not a policy making board, and the FCC is but one member of a committee which operates on the basis of unanimity. It serves as a:

technical forum in which users could agree on assignment of spectrum space to Federal claimants, and in which Government users could inform the Federal Communications Commission of their comments on proposed Commission allocations and assignments of frequencies to non-Government users. The Commission, as spokesman for the non-Government users, could also comment on the effect of requested assignments to Government users on present or future interests of other users.²⁸

The IRAC is a practical method of apportioning frequencies among Governmental agencies in the absence of any statutory procedure. Since the IRAC can legally only "advise" the President any agency feeling aggrieved at an assignment (or the lack of one) may in theory appeal to the Chief Executive. In practice, appeals are very rarely made. As a result of the equality of

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President's Communication Policy Board, op. cit., pp. 197-200 at p. 198.

status enjoyed by the members of the IRAC, assignments are made on a first-come-first-served basis requiring non-interference with other Governmental users, and for as long a period of time as desired. However, "back of the rule of unanimity and absence of compulsion has lain a complex process of bargaining and accommodation."²⁹ As a technical body, the IRAC has been quite successful in coordinating the Government's use of the spectrum. It has also been a thorn in the side of those TV operators or potential operators who covet the Government's frequencies. Unfortunately for them the IRAC's unanimity rule and its operating conditions have led to a tight "gentlemen's agreement" to resist to the utmost attempts to pry away frequencies.

The IRAC's decisions are incorporated in a Station List which is not made public. This practice, although defended on the grounds of national security, has come under strong attack by non-Governmental users of the spectrum, who feel that the Government would not be able to justify the use of so many channels. Although there is no legal reason why the Government need justify its use or reservations of frequencies, the civilian users hope to place it on the defensive, since many of the Government's frequencies would not be used except in time of war and are "wasted" until a national emergency occurs. The President of the National Association of Broadcasters led an attack on the Government's policy, and pointed out that no justifications of IRAC decisions are published and that "there is

²⁹ Ibid., p. 199.

no known way of finding out what the Government does with its half of the total spectrum space...."³⁰ He added bitterly that the

really important point is that the frequency pie has been cut and distributed several times before the slice available for our purposes has been determined; and in that process of pie-cutting, we not only have had no part, but most of us have had no information.³¹

In light of the scarcity of channels, it is a tribute to the self-restraint of Governmental users that half the spectrum was left for civilian radio operations. This is particularly true of the VHF, which the Government had been using since 1936.³² This self-restraint is not enough for the television broadcasters, who have been trying unsuccessfully to obtain additional VHF channels from the Government. Although the armed forces would have first call on all frequencies in time of war, the last formal request by the FCC for Government VHF frequencies was turned down cold.³³

³⁰Miller, Justin. Municipalities and radio broadcasting. An address delivered before the Annual Conference of the National Institute of Municipal Law Officers, Los Angeles, California, September 29, 1947. p. 5. (Published by NAB).

³¹Ibid.

³²U.S. FCC. 3rd Annual Report 1937. p. 22. When commercial services did enter the VHF many years later, they found the region largely preempted by the military. Unlike the amateurs, who also utilized the VHF quite early, the military could not easily be evicted from the desired frequencies. This was destined to have serious consequences after World War II, when the FCC found that it had to establish its initial television allocation framework in the VHF without six of the upper channels which had allocated (on paper) to television before the war.

³³U.S. FCC. Public Notice 30856, April 13, 1956. "Inter-department study concludes that Government can't release any of its VHF spectrum space."

The President and allocation

Although the decisions which IRAC makes need Presidential approval, the authorizing Executive Orders are often spaced several years apart. Seldom has a President taken an active interest in the workings of the IRAC. One exception was President Roosevelt's insistence in 1944 that IRAC provide for international shortwave broadcasting in its plan for postwar allocations. Despite the usual lack of Presidential attention paid to this non-statutory interdepartmental group, the allocation and use of Government frequencies is the President's responsibility, and all actions are taken in his name.

In 1951, after President Truman received the report of the President's Communication Policy Board, a short-lived post as communications advisor to the President was established. The functions of this advisor were transferred to the Office of Defense Mobilization (later Office of Civil and Defense Mobilization), together with nominal authority over the workings of IRAC. IRAC, which had been subsisting financially on the budgets of the FCC and member departments, was given secretarial help and a budget. The Director of ODM was delegated the President's power to make decisions in disputes between the IRAC and the FCC. Thus, all requests by the FCC for Government VHF channels (and vice versa) funnel through the ODM.

Another agency under Presidential control, the Bureau of the Budget, exercises the same control over the budget requests of the "independent" agencies as it does over executive departments. It also must approve any fact-finding questionnaires sent out by the FCC and other Governmental agencies.

The President appoints the members and the Chairman of the FCC and may ask for their resignations at any time--as when Commissioner Mack was accused of improper or "imprudent" activities. In addition to these statutory responsibilities and activities of the President, the weight of his office can be used to support or attack rulings by the FCC. For example, Chairman Fly stood his ground in the face of industry and Congressional pressure, knowing that the President was behind him, and President Eisenhower spoke out against the FCC ruling on the "equal time" provision of the Communications Act (Sec. 315) which would have greatly disturbed existing patterns of political broadcasting. Naturally, the task of the FCC in remaining impartial is greatly eased when assured of Presidential support.

The best of intentions cannot prevent the necessity for administering vague and developing policy in the context of the interests before the enforcing officials. A commission formally independent of the chief executive and expected to assume the detachment of a judicial body is more likely to be primarily accessible to organized elements among the regulated than is an agency in the executive branch; it can less easily command the resources of the presidency for defending its policies; and it is less readily accessible to some of the interests that reach the chief executive.

A regulatory agency normally cannot operate a controversial statute effectively without the support of the chief executive. This it may not get if it is within the executive branch; it is even less likely to get it as a formally independent body. The political survival of an independent commission depends upon its reaching a modus vivendi with the regulated.... Because other interests may have a larger voice in the arrangements made by an executive agency, 'independence' for the regulators has a defensive advantage for the regulated.³⁴

³⁴ Truman, David B. The governmental process. New York: Knopf, 1951, p. 420.

The Federal Communications Commission

The Federal Communications Commission was established by the Communications Act of 1934. It took over all responsibilities for radio communications from the Federal Radio Commission (1927-1934) as well as the regulation of telephone and telegraph from the Interstate Commerce Commission. The FCC was established to act as a technical arm of Congress, organized to handle the day-to-day routine of regulation as well as to formulate some aspects of telecommunication policy.

Partly because of the heavy routine workload and partly from choice, the FCC had rarely attempted to formulate basic policy. The Congress has never fully relinquished its right to make national telecommunications policy, as shown by transcripts of hearings before the Senate Commerce Committee over the past 30 years. The Congress, however, has neither the time nor the expert knowledge to formulate policy by itself. The need for some body to either act in an advisory capacity or to actually formulate policy has been apparent for a long time. In the 74th Congress Representative Scott of California introduced a Resolution calling for a policy-making board in communications.³⁵ In 1951, Senator William Benton suggested the formation of a "Citizen's Advisory Board for Radio and Television" to review the media and advise the FCC on public service programming.³⁶ The Senate Commerce

³⁵House Resolution 370, 74th Congress, 1st Session. Quoted in Cushman, Robert E. The independent regulatory commissions. New York: Oxford University Press, 1941, p. 326.

³⁶Benton, Senator William. Reprint of Speech in the Senate of the U. S., October 20, 1951.

Committee established several temporary study groups to advise it, such as the (Condon) Advisory Committee on Color Television and the (Bowles) Ad Hoc Committee on Allocations. The Commission has regularly worked with industry advisory groups such as the Joint Technical Advisory Committee of the Institute of Radio Engineers and the Radio Manufacturers Association, and the Television Allocation Study Organization. However, the FCC did establish (with Senate prodding) a "Network Study Group" within the Commission, using for the most part consultants from the academic profession. President Truman also entered the field of overall studies of telecommunication policy with his President's Communication Policy Board.

The FCC has all it can do to handle routine matters. When faced with an unusual situation it must, like Alice, be able to run twice as fast. In the wonderland of technology, economics, and social and political considerations, the policy decision-making responsibilities of the FCC appear decidedly unattractive to its members. The FCC is not a strictly "engineering" body. Decisions of far-reaching importance are made by it on social and political, not engineering, grounds. The Congress has often questioned the vast authority assumed by the Commission's permanent staff³⁷ in light of the rapid turnover of Commissioners.³⁸

³⁷ This problem is discussed at length during the hearings by the U. S. Senate Committee on Interstate Commerce, 78th Congress, 1st Session on S. 814. To amend the communications act of 1934 (November-December 1943); and by the 1948 Hoover Commission Staff report on the Federal Communications Commission. During hearings on the nomination of Commissioner Ford, Senator Bricker commented unfavorably on "permanent personnel that I feel have entirely too much responsibility as far as policy is concerned." (Hearings before the Senate Commerce Committee, 85th Congress, 2nd Session, p. 163).

Members of the Commission are rarely chosen for their expert technical knowledge in the fields they are regulating, although some staff members of the Commission, such as engineers Craven, Jett, Sterling and Webster, and lawyers Hyde and Denny, for example, have later been appointed as Commissioners, and others sitting on the FCC had experience in public utility regulation and broadcasting. Of the thirty-two Federal Communications Commissioners since 1934, six have been engineers, nineteen were lawyers, eleven of them with experience in radio or common carrier regulation.

Many of the Commission's difficulties are caused by the absence of accurate factual information. Despite the injunction that the Commission:

...shall keep itself informed...as to technical developments and improvements in wire and radio communication and radio transmission of energy to the end that the benefits of new inventions and developments may be made available to the people of the United States³⁹

³⁸ Although Commissioners are appointed for a term of seven years, their average incumbency is actually much shorter. Of the thirty-three Commissioners since 1934 (Commissioner Craven, who served nearly seven years from 1937 to 1944, and who was reappointed in 1956 is counted twice) only ten completed (or came within six months of completing) at least one "normal" seven year term of office. The average tenure of the twenty-six former Commissioners was 60.5 months. If Commissioner Walker's nineteen years are ignored (the next longest service is Hyde's thirteen years), the average for the first twenty-five commissioners is only 53.8 months. As of May 30, 1959, the average tenure of the present Commission is 63.3 months. Chief Engineers and General Counsels of the Commission have a turnover rate almost as great as the commissioners, although, as mentioned earlier, some members of the staff are appointed as Commissioners.

³⁹ Communications Act of 1934, Section 212.

the FCC receives most of its data on sufferance from the special interest groups involved. The Commission has recognized this problem, since:

Without advance knowledge of the trend of technical developments...the Commission would be severely handicapped in the full exercise of its regulatory powers in the public interest.⁴⁰

As a remedy, the Commission founded the Technical Information Section in 1936 to keep abreast of developments in the industry.⁴¹ This division and the FCC Laboratory have several responsibilities, all hampered by lack of facilities and fluctuating Congressional financial support. Table II-2 shows the size of staff allowed the undermanned Technical Information Division and the Laboratory, and partially explains why the Commission is reduced to examining the publicity releases issued by the great industrial laboratories.⁴²

⁴⁰U.S. FCC. 3rd Annual Report-1937, p. 11.

⁴¹U.S. FCC. 2nd Annual Report-1936, pp. 72-73.

⁴²The Commission has found that it is often difficult to obtain voluntarily submissions of data and new equipment. For instance, when attempting to settle the color television dispute in 1950, the FCC reported considerable difficulty in obtaining RCA color receivers for testing in the FCC laboratory. Ironically, Commission engineers had made a significant contribution to the design of color television sets in the course of testing other manufacturers' sets during that period. See the Brief by the FCC and CBS in the case Radio Corporation of America, et al. vs United States, Federal Communications Commission, Columbia Broadcasting System, et al. before the Supreme Court of the U.S., October Term 1950, No. 565.

Since the Commission does not have enough laboratory facilities to "study new uses for radio (and) provide for experimental uses of frequencies,"⁴³ it must depend upon the leaders of the regulated industry for advice and information in what is to many Commissioners a highly unfamiliar field.⁴⁴

As a consequence, the tendency to depend upon the industry for the actual decisions is not surprising. Cushman pointed out the pitfalls of such a policy:

Neither the Radio Commission nor its successor, the Federal Communications Commission, has come to grips with the major policy problems which are involved in the regulation of the radio industry. The two commissions have followed the line of least resistance and have assumed that what is best for the radio industry as a business enterprise must also be best for the country.⁴⁵

As a result of the Commission's lack of clear jurisdiction over the entire field of frequency allocation, the "meddling" or overseeing of Congressional committees, and the Commission's lack of authoritative information, most FCC decisions fall in a common pattern. This pattern shows: 1) a dilatory and even haphazard approach to initial decisions, 2) a lack of technical knowledge and/or a reluctance to consider technical facts in the face of political or industry pressure, and 3) a disturbing tendency on the part of the FCC to engage in procrastination and equivocation in the hope that the problem will "go away." In

⁴³Communications Act of 1934. Sec. 303(g).

⁴⁴One unnamed Commissioner was quoted in 1936 as saying that overwork and pressure had caused him to have "fewer ideas about the whole radio problem now than when I first came down to Washington." Cushman, op. cit., p. 731.

⁴⁵Cushman, op. cit., p. 730.

TABLE II-2

SELECTED FCC PERSONNEL STRENGTHS^a () = requested number

	1951 ^b	1952 ^b	1953	1954	1955	1956	1957	1958	1959 ^b	1960 ^c
Applied technical research and frequency allocation										
1. Technical research	(?) ^d	(13.7)	(12.2)	(?)	(17.5)	(18.3)	(22.0)	(28.5)	(24.5)	(28.9)
	13.7	12.2	15.0	17.7	18.2	17.3	20.0	21.7	25.2	(28.9)
2. Frequency allocation	(?)	(35.9)	(25.6)	(?)	(28.7)	(27.8)	(31.3)	(35.2)	(32.9)	(34.0)
	34.9	25.6	29.2	29.5	29.2	28.5	29.4	31.2	32.9	(34.0)
3. Laboratory	(?)	(21.9)	(15.3)	(?)	(13.8)	(13.6)	(14.7)	(15.8)	(15.2)	(15.9)
	19.9	15.3	14.4	13.8	12.8	13.1	13.9	13.9	14.5	(15.9)
Total	68.5 ^e	67.4 ^f	58.6	61.0	60.2	58.9	63.3	66.8	72.6	(78.8)
Broadcast activities										
1. Television										
2. Standard (AM)										
3. FM										
Total (including auxiliary broadcast)										

Note: Requests are always far above figures for average employment.

^a Data from FCC detailed justifications before House Appropriations subcommittee on independent offices appropriations for years 1951-1960.

^b Estimate, before end of fiscal year.

^c Fiscal year, () means request, before action.

^d () means request, before action.

^e Actual total was 82.4.

^f Actual total was 59.4.

^g Data not in comparable form.

most policy matters, particularly when innovation is involved, the Commission rarely acts boldly, although, of course, individual Commissioners show some initiative. When an action is finally taken, the Commission will often have done its best to a) delay matters in hopes of a fortuitous solution, and b) insure that the record of the matter is legally (and morally) unassailable.

To help perform its duties, the Commission has a staff of more than 1,000 people under civil service, divided into the operating bureaus of Field Engineering and Monitoring, Common Carrier, Safety and Special Services, and Broadcast.⁴⁶ The seven Commissioners are appointed by the President for seven year terms with "the advice and consent of the Senate." The Chairman of the Commission (who is its chief executive officer) is also appointed by the President. Not more than four Commissioners may be of the same political party. The law forbids a Commissioner or any employee of the Commission to have any financial interest in any business which he helps to regulate.⁴⁷ The Commissioners function as a body in supervising the Commission's activities and in making its policy determinations. Although the Commission is empowered to delegate responsibility for initial decisions to one or to several Commissioners, or even to employees such as hearing

⁴⁶ An organization chart of the FCC may be found in the 24th Annual Report-1958 on p. 8. At one time the Commission staff was organized along professional lines--law, engineering, etc. The present structure was required by Section 5 (b) of the Communications Act Amendments of 1952.

⁴⁷ Communications Act of 1934, Section 4 (b).

examiners,⁴⁸ as a practical matter, virtually all policy or controversial licensing decisions are made by the Commission as a whole.

Although the current method of handling almost every case en banc rather than by panels of two or three Commissioners reduces complaints it also has some drawbacks. One Commissioner testified that he was in favor of the mandatory panel system, since it gave Commissioners a chance to get familiar with one of the major fields of regulation, rather than have to depend entirely upon the staff for information and reasoning.⁴⁹

It should be noted that the Commission is required to remain aloof from its Chief Engineer and General Counsel whenever it is acting in a quasi-judicial capacity (which is much of the time in the case of contested awards of channels, hearings resulting in penalties, etc.). To offset partially the disadvantage of being cut off from technical advice unless it is on the open record of the particular case, each Commissioner is allowed to hire a personal legal advisor and an engineer (as well as a secretary or administrative assistant) to assist him or her.⁵⁰

⁴⁸Ibid., Section 5 (d)(1).

⁴⁹Commissioner Jones, testifying before the U. S. Senate Commerce Committee on S. 1973, 81st Congress, 1st Session, June 16, 1949, p. 15. However, eliminating the mandatory panel system also had the effect of eliminating an entire step in the decision-making machinery, since in practice a person dissatisfied with a panel decision could appeal to the Commission as a whole.

⁵⁰Communications Act of 1934, Section 4 (f)(2).

The Congress

The Federal Communications Commission was established as an arm of Congress,⁵¹ to relieve Congress of the time-consuming day-to-day problems of allocation and assignment of radio that are in its province by virtue of the "commerce clause" of the Constitution.⁵²

Today scientific and technical knowledge should largely control the expenditure of public funds. The useless expenditure of public money can better be prevented by scientific study than by any other means. Nearly all problems of administration and development now involve scientific factors. It is anachronistic to leave control too much in the hands⁵³ of those who lack first-hand knowledge of science.

Although the various radio laws dating as far back as 1910 testify to the interest of Congress in the subject, the first comprehensive laws which took notice of the broadcasting service were the Radio Act of 1927 and the Communications Act of 1934. The first mention of television in a Congressional hearing, however, was in 1940, when RCA enlisted Senate assistance in attempting to overthrow a Commission decision.⁵⁴ As the public

⁵¹A point often brought up by members of the Senate Commerce Committee when holding hearings on FCC nominations. For instance, hearings on Miscellaneous Nominations, 85th Congress, 1st & 2nd Sessions, particularly pp. 162-4, 258.

⁵²Article I, Section 8, Clause 3: "The Congress shall have power...to regulate commerce with foreign nations, and among the several states..."

⁵³Harding, T. Swann. "The place of science in a democratic government." American Sociological Review, December 1947; reprinted in Snyder, R. C. & H. H. Wilson. Roots of political behavior. New York: American Book Company, 1949, pp. 413-19 at 413.

⁵⁴U.S. Senate Committee on Interstate Commerce, 76th Congress, 3rd Session, hearings on S. Res. 251, Development of television, April 10-11, 1940. See Chapter III.

investment in television increased, so did Congressional interest. No Congressman wanted to be in the position of telling his constituents that it had been decided to scrap their "perfectly good" receivers in the event of a major allocation shift. The publicity value of television attracted a number of Senators and Representatives, leading to the plethora of Congressional hearings and investigations dealing with TV. The programming of television has also received attention from alert politicians, partly due to appreciation of the potential of television as a propaganda and campaigning medium.

Not only is broadcasting too important for Congress to ignore, but some Senators and Representatives object to a regulated industry directly or indirectly controlling the decisions of the regulatory agency. Other members of Congress are interested for political or personal reasons (such as Representative Cox) in either the regulatory agency or in telecommunications; still others have strong feelings against monopoly whenever and wherever it might be found--whether in "super-power" radio stations or in network "option-time" agreements.

Regardless of motive, the members of Congress are frequently more guilty of applying pressure than the special interest groups. For example, when the FCC decided by a vote of 6-to-1 that illegal TV boosters were not in the public interest, western Congressmen introduced more than twenty-five bills aimed at reversing that action but held no hearings nor scheduled any. Despite the fact that no technical evidence was produced by these Congressmen to disprove the Commission's case, the FCC "nevertheless voted--unanimously this time--to give operators six months

instead of ninety days to apply for (legal) uhf translators or shut down. Commission said it now finds it needs to give further study to the legal and technical aspects of the problem."⁵⁵

Occasionally, Congress passes a resolution that it is the sense of the House or Senate that a certain action be taken or not taken.⁵⁶ Once in a while a new law is passed, but Congress appears wary of tying the hands of the independent agencies with laws which do not allow flexibility to meet changing conditions. The most common Congressional tactic is to exert pressure by conducting an investigation--as much to remind the FCC that Congress has the primary responsibility to the American people in these matters as for any other reason. These investigations may be prompted by complaints from an aggrieved group,⁵⁷ or they may be the result of a continuing interest in the entire television field, as in the case of the Senate Commerce Committee hearings throughout the 1950s.⁵⁸ A particularly fruitful set of hearings in terms of information on Commission activities are the annual budget hearings before the House Appropriations

⁵⁵Television Digest, Vol. 15, No. 5, January 31, 1959, pp. 1, 2 and 5.

⁵⁶For example, S. Res. 294, 75th Congress, June 13, 1938 effectively cancelled the Commission's power with respect to licencing radio stations above 50,000 watts.

⁵⁷The hearings on S. Res. 251 (76th Congress) mentioned earlier were held largely at the behest of RCA to apply pressure on the FCC. Nothing resulted from the hearings, as FCC Chairman Fly felt he was in the right, stood firm, and won.

⁵⁸Since 1956, known as the Television Inquiry. See Chapter VI.

Committee. The justifications of the FCC before this Committee often appear to have a touch of desperation, since no agency can operate without funds,⁵⁹ or assume new responsibilities and skilled personnel without approval of the Appropriations Committee.

The pressures exerted by Congress are often unpredictable, depending upon shifting currents of opinion "back home." Investigations often bear the stamp of the principal Representative or Senator involved. Nevertheless, Congress is often a counterforce to the interest groups, and acts as a valuable forum for expressing differences of opinion.⁶⁰ Congress, over the years, has served the valuable purpose of keeping the FCC from becoming entirely a creature of the telecommunications industry, and often turns into a sounding board and referee for competing innovations in television.

The industry

a. The networks and the advertisers

A television station may program in two ways: independently, using syndicated material for the most part, or by

⁵⁹As an aftermath of the Cox investigating committee battle between Representative Cox and FCC Chairman Lawrence Fly, appropriations for the FCC were cut 25 per cent, with almost no debate. Robert Leigh quotes a House leader as saying: "Surely it was a punitive cut. Larry Fly has been defiant of Congress for a long time. He has been openly defiant. Now his chickens have come home to roost." Leigh, Robert D. "Politicians vs. Bureaucrats," Harper's Magazine, January 1945, pp. 97-105. Quoted with comment in Wilson, H. H. Congress: corruption and compromise. New York: Rinehart, 1951. pp. 67-68.

⁶⁰Although under oath much of the time, the witnesses at these hearings are not bound by the formal rules of evidence as they are in many FCC proceedings.

affiliation with a network. A local independent station usually does not have the average size of audience commanded by the network affiliate, chiefly because of the lack of "live" programs with high quality (and price) talent, lack of news and special events programs, and, as a consequence, lack of interest on the part of the public. Although a television station can sell its time to local advertisers for a much higher rate than it would obtain from a network, the station would lose out on the expensive "live" programming and the sustaining shows to fill in its schedule.

A network provides an interconnected chain of affiliated stations over which the advertiser can broadcast his program simultaneously to a nationwide audience. Although the station receives an average of only 30 per cent of its rate card when carrying a network program, it has no production costs and it has attracted an audience, and can sell the adjacent time spot commercials at an extremely profitable rate. (A 30-second spot announcement brings in almost as much revenue to the local station as its share of the national advertiser's purchase of a network hour.) Very few television stations have been able to turn a substantial profit without network affiliation except in the largest of markets.

Although network operation has been substantially in the black for many years, it is interesting to note that the networks themselves are only marginally successful in many respects. The network corporations make their profits from their handful (seven is the limit) of wholly owned and operated stations. To make

network operation pay, it must be able to deliver to the advertiser a desirable lineup of stations in a great many markets. The DuMont network collapsed due to a shortage of cities with more than three stations. Another network, the American Broadcasting Company (ABC), found it tough sledding as compared to the enormous gross billings of the two major networks, CBS and NBC. Both of these giants have, or have had, close ties with other elements of the television industry. NBC is a subsidiary of RCA, while CBS (although its main business is network programming) operates a manufacturing facility and laboratories which gave it a color television system in the 1940s.

The networks are among the more vociferous participants in FCC hearings and Congressional inquiries having anything to do with television. In addition to appearing as witnesses, the two larger networks spare no expense in providing extensive exhibits and technical data to the Commission or the Congress. Often, this material, as well as prepared statements by high executives, is expensively printed and widely distributed to editors, columnists, and other opinion leaders. Considering the vast resources and the even vaster stakes of these organizations, it is no wonder that smaller organizations find it hard to compete with network presentations.

The networks are interested in securing the greatest coverage at the least expense, in order to attract the advertiser. Since this has been possible with VHF stations under the present television structure, the networks have been under no compulsion to support UHF, even though the networks once owned and operated UHF stations, and offer lip service to the cause of competition

through the use of UHF. Many UHF stations receive low-cost network programming as largesse from the networks, yet many others at the fringes of a dominant VHF area are unable to obtain a network affiliation, or even network programs on a "per-program" basis. Since the advertisers prefer to consider as few stations as necessary to cover the desired markets, in the interests of simplicity and efficiency, the plight of UHF and other aspects of allocation do not concern them.

The major networks such as NBC and CBS are tremendously interested in anything which might affect their competitive position or the structure of the broadcasting industry.⁶¹ All questions of television allocation fall into this category. Therefore, the networks are one of the most active of the "actors" in the field of television allocation and regulation. Although the most common tactic used by the networks is that of publicity and testimony before the FCC and Congress, the vast economic power of the networks can exert a great variety of pressure.⁶²

⁶¹Despite protestations to the contrary, it is difficult to see why the two major networks might want to establish a condition of "easy access" for competition. At present, the networks are a mighty force for the status quo in allocation, since even ABC would prefer to share time on VHF stations rather than affiliate too many UHF stations.

⁶²Some of this power is undoubtedly due to a common awe of successful business often found in Washington. However, those FCC staff members who resign to accept positions with the networks do so for financial reasons.

b. The manufacturers

The electronics manufacturing companies are able to exert the same sort of pressures upon the Commission as the networks. In fact, the largest manufacturing organization, the Radio Corporation of America, owns NBC. An advantage enjoyed by the manufacturer is that the FCC can exert almost no return pressure. Although the networks are not directly regulated by the FCC, their owned and operated stations are--as are some of their relations with affiliated stations. The manufacturers, at present, cannot be forced to make anything they do not wish. Thus, we find an ever smaller percentage of all-channel sets being made, despite the vast number of UHF allocations throughout the country. We also find the manufacturers fighting to establish and maintain strong patent positions and to "cash in" on their own particular technical research and development. If it becomes necessary to pressure the Commission to set premature or inadequate standards of transmission, the manufacturers will do so.

One manufacturer is a somewhat special position in RCA. Claiming a heritage as the "chosen instrument" of United States policy in international radio communication, and having been formed as the repository for the patents pool established by the radio industry, RCA often acts as if it were the only element whose wishes need be considered.⁶³ In addition, RCA can claim

⁶³ For an overview of the early history of the American radio industry, with emphasis on RCA, see Archer, Gleason L. History of radio to 1925. New York: American Historical Society, 1938; Schubert, Paul. The electric word: the rise of radio. New York: Macmillan, 1928; and the Federal Trade Commission report on The radio industry, 1924.

responsibility for the present technical system of television in the United States (both black-and-white and color), largely as a result of its own laboratory work.⁶⁴ RCA's policy has been to innovate television as soon as possible, in order to take advantage of its patent position and its large manufacturing capability.

Apparently it has been the policy of the television manufacturers to concentrate on style rather than basic changes in television receiving sets. Although UHF would provide an immediate market for millions of converters and replacement sets, the manufacturers have ignored this opportunity and concentrated instead upon the larger, slimmer, fancier, remote-controlled and portable receivers, which are actually the same as (or less than) the sets of yesteryear in quality but are a surely marketable product. The market for replacement television sets, for second sets, and for novelties has remained at a high enough level for the manufacturers to never feel the need for new (UHF) worlds to conquer.

The role of the receiver manufacturers in the television industry has been crucial. For instance, they have refused to produce all-channel receivers and color sets, but made television a mass medium by lowering prices so as to create a strong demand in 1949-50. The receiver manufacturers pioneered television

⁶⁴ Zworykin, for example, perfected his iconoscope at RCA. However, although the RCA spent millions on research, it also spent a great deal of money buying the patent rights of others, such as Farnsworth.

in the 1930s and 1940s and by selective production have succeeded in maintaining a profitable operation.

Another aspect of the receiver manufacturers is their size. The communications equipment industry employs an average of 545,000 people. These workers can exert a good deal of pressure by letters, votes and other political acts. This pressure is intensified when the workers are in large organized plants, such as RCA in Camden, N. J. The employees of this giant manufacturing complex exerted a great deal of pressure when they feared that their jobs were endangered by the television "freeze." (See Chapter V). Table II-3 outlines some of the dimensions of the electronics manufacturing industry, and illustrates the trend toward mortality and mergers that give birth to even bigger corporations than those now in the field.

c. The Radio Manufacturers Association

The RMA (later the Radio, Electronics, & Television Manufacturing Association, or RETMA, and now the Electronics Industries Association, or EIA) has been a powerful force in the development of television standards and allocations. As Rose says, "since its membership includes all the leading manufacturers of radio equipment in the country, it can make itself felt in any situation with which it chooses to deal."⁶⁵

The first proposed standards for television were suggested by the RMA in 1932 as a voluntary standard. Later, the

⁶⁵Rose, Cornelia B., Jr. National policy for radiobroadcasting. New York: Harper and Brothers, 1940. p. 78.

TABLE II-3
THE MANUFACTURING INDUSTRY^a

Year	Radio Manufacturers	Television Manufacturers	Average Employment	TV Production Value
1941	120	2		\$ 50,000,000
1947	98	70		230,000,000
1948		70 ^b		580,000,000
1949		77 ^b		
1950	84	140	350,700	1,350,000,000
1951	70	110	405,800	1,956,986,000
1952	63	94	474,200	1,049,000,000
1953	69	90	556,000	1,230,298,000
1954	65	83	490,100	1,028,540,000
1955	64	72	515,700	1,071,020,000
1956	45	51	557,800	938,596,000
1957	38	45	579,800	832,747,000
1958	40	38	545,000	667,899,000

^aData from Electronic Industries Association Electronics Industry Fact Book, 1959. Employment figures relate to the "communication equipment industry," compiled by the U.S. Bureau of Labor Statistics.

^bData from Television Digest, Vol. 13, No. 28, July 13, 1957, p. 10. These figures do not reconcile with those supplied by EIA.

FCC itself relied on the RMA:

In the years from 1935 to 1937 the Radio Manufacturers Association began to take cognizance of television, and the Federal Communications Commission suggested to the Association that a committee be appointed to recommend standards of television broadcasting for adoption by the Commission.⁶⁶

The RMA has often recommended standards to the Commission, usually in coordination with engineering advisory groups (see below). As a trade organization, it is interested in the welfare and harmony of its membership rather than broad social questions. Although officers of the Association have often testified before the Commission and Congress, virtually all of them have corporate roles to fill and policies to promote and it is doubtful whether any one has found it necessary to contradict himself when "wearing both hats."

An interesting commentary on the EIA's approach to UHF is the initial refusal (or rather, claim of non-availability) of information on UHF set production to the author. Only after a second contact, when it was pointed out that much of this information was available for earlier years, did ETA relent.⁶⁷

⁶⁶ Everson, George. The story of television. Norton, 1949. p. 196. The RMA committee was headed by Murray, of Philco, and included representatives from only five companies: Farnsworth, Philco, General Electric, RCA and Hazeltine Corporation. Farnsworth claimed that they "scrupulously adhered to" an agreement to consider only those standards which "would give the most satisfactory picture regardless of the ownership or control of the patent covering it."

⁶⁷ Correspondence with the author, March 1959. In this connection, the U.S. Census Bureau does not collect these data, and claims "At the present time, production of UHF and VHF-UHF television sets is considered by the Bureau to be too small to warrant separate data for these items." (Letter to the author, June 18, 1958).

d. Engineering advisory groups

It was mentioned earlier that the Commission does not have the technical facilities and staff to engage in large scale re-search. Therefore, it relies upon the industry for such information as it needs to carry out its assigned responsibilities.

On the allocations problem, the matter of advice becomes particularly difficult. The replies from the broadcasting industry on matters of rulemaking and petitioning, although they contain a wealth of solid material, are at once partisan and must be so considered. Here commercial, and therefore competitive, interests are at play. These forces the Commission must take into consideration.⁶⁸

To supply the necessary objective data, whenever a special problem arises the FCC asks the industry to establish an advisory group to examine the question and to report its findings to the Commission. To aid these groups, the Commission normally obtains a prior "clearance" from the Justice Department, which protects the members of the advisory group (and their employers) from threat of antitrust prosecution. This enables the group to arrive at specific standards or proposals without being accused of conspiracy. Until this "clearance" is obtained, the larger corporations will observe but not participate in any deliberations of the advisory group.

Although these groups are presumably composed of engineers working with scientific "facts," actually most engineers represent their corporate employers and their own positions or products. A manufacturer is always pleased to have his research director

⁶⁸U.S. Senate Committee on Interstate and Foreign Commerce. Allocation of TV channels. Report of the Ad Hoc Advisory Committee on Allocations (Bowles Committee). March 14, 1958. p. 221.

serve on such committees or advisory groups whenever there is some chance that the group may adopt the manufacturer's viewpoint for presentation to the FCC.

Many of these groups, such as the Radio Technical Planning Board and the National Television Systems Committees, reported their conclusions in the form of recommendations. The Joint Technical Advisory Committee, with membership from both the RMA and the Institute of Radio Engineers, made many intriguing recommendations in its impressive analysis of radio spectrum use, but was not operating under Commission auspices.⁶⁹ Other groups, such as the Television Allocation Study Organization (TASO) were, by their terms of reference, prohibited from making recommendations from the data they were asked to collect and analyze.

The technical advisory groups have played an extensive role in the history of television standards and allocations. However, it is doubtful if they are the real solution to the Commission's need for accurate, impartial information and analysis.

Summary

This chapter listed some of the elements that make up the context of frequency allocation. The background factors of the physical characteristics of the spectrum, the international and national distribution of frequencies, and participants such as the FCC, the Congress, manufacturers, networks and advertisers,

⁶⁹ Joint Technical Advisory Committee. Radio Spectrum Conservation. New York: McGraw-Hill, 1952.

have been briefly described to facilitate recognition and understanding when they are met in future chapters.

There are two other determinants of frequency allocation practice which have only been mentioned in passing previously: the need to consider economics when establishing an allocation plan, and the reluctance of large corporations to make changes without odds in their favor. As for the economic aspects of spectrum utilization

No matter how much we may wish the contrary to be true, we cannot escape the cruel fact that broadcast stations can be located only in communities that can support them economically and that we cannot solve the problems of inadequate service by purely theoretical assignments.⁷⁰

A good example of the essential conservatism of a successful corporation is found in William B. Lodge's comments in dissenting to the report of the Bowles Committee.

I must confess to some uneasiness that a too-theoretical approach by such a study (an independent audit of allocations) could jeopardize public service, public investment in receivers, program quality, and private investments.⁷¹

In the final analysis, the responsibility for allocation decisions rests with the Federal Communications Commission. Despite the FCC's shortcomings and lack of facilities, it is to the Commission that the interest groups turn for the formal

⁷⁰DeWitt, J. H. Testimony before the FCC on Docket No. 5072-A. Quoted in Rose, Cornelia B., op. cit., p. 32.

⁷¹Lodge, William B., dissent to report. U.S. Senate Commerce Committee, Allocation of TV channels, op. cit., p. 8.

decisions so vital to the future of a powerful communications medium, a manufacturing industry, and the leisure time activity of our society.

The government, in its allocation of powers, hours of operation, and frequencies, determines the conditions under which stations exist, (and) it largely sets the limits of competition in which stations can engage. Viewed in this light, it is the government and not the free play of competitive forces that determines what the public gets, however the regulatory body may attempt to evade⁷² the responsibility which this circumstance imposes.

⁷²Rose, Cornelia B. op. cit., p. 92.

CHAPTER III

IN THE BEGINNING: TELEVISION STANDARDS AND ALLOCATIONS TO 1944

Introduction

Today's allocation problems did not just happen. Every allocation decision has further limited freedom of action for deciding the next one. Every move of the Commission and the other participants establishes precedent and example. To understand the allocation problems of 1959, it is necessary to go back thirty years.

During television's period of research and development, problems of both frequency allocation and transmission standards were common. In the late 1920s and 1930s, while television was still in the laboratory, transmission standards, camera systems and scanning methods received the most attention. When it appeared that television was ready for commercial exploitation, the necessity for channels on which to operate became important.

The two issues, standards and allocations, are closely related. A decision made with respect to one often affects the other. A channel is capable of carrying only a finite amount of information. Every time the standards call for higher definition (e.g., greater detail or resolution of image) the bandwidth requirement grows in proportion.¹ Thus, a bandwidth that is too

¹Another method is to use complicated sampling or sequential techniques to give the effect of an increased amount of information,

narrow acts as a strait-jacket on picture quality. Changing either standards or allocations has the same effect on the set owner, since it matters not to the layman why his expensive receiver does not operate. A standards or an allocations change could have the same effect: no picture. The economic waste of the useless receiver and the possible political resentment over this uselessness are matters of great concern to the FCC and the Congress. It was this concern which caused FCC Chairman Fly to attempt to "carry to the people" the importance of the proper establishment of standards before full fledged commercial exploitation of television could be permitted. In a radio speech to the nation on April 2, 1940, Chairman Fly said:

First let us consider the case of the broadcast of sound alone. Such broadcasting in the United States is roughly twenty years old. As you all know, during these years there has been vast improvement in the technique of radio transmission and reception. There has, however, been no change in the fundamental standards for transmission and reception during that entire period. A receiver built to receive a broadcast station operating in 1920 will receive a broadcast station that operated in 1940. A transmitter built in 1920 will be received by radios in use today. Better transmitters are being built now than were being built in 1920, and the same is true of receivers, but they all operate on the same principle; or, more technically, on the same basic standards. Improvements have been gradual. Obsolescence has taken only a normal toll.

Television is different--uniquely so.

In the case of television, a receiving set is so synchronized with the transmitter that the two are inseparable

although the simpler method of increasing bandwidth is preferred on the grounds of low cost and simplicity. For example, present color television standards take into account both the differential responses of the human eye to various colors and the "persistence of vision" effect. Color television "samples" the three primary color signals many millions of times a second; thus, the various color and monochrome elements (as well as the synchronizing signals) operate sequentially in time, effectively sharing the same bandwidth as a standard black-and-white transmission.

in operation. The receiving set is, in effect, the key which unlocks the transmitter in order to receive the broadcast. A substantial change in the lock renders the key useless.

A television receiving set capable of receiving the signal of one type of transmitter may not accept the signal of a different type of transmitter in existence today. The receiving set must be constructed to operate on the same principle as the particular transmitter. If the American people should buy television receivers in great numbers as they have bought ordinary radios, and if at a later date transmission standards are adopted which contemplate an alternative or improved transmission system over that on which the particular receivers can operate, we should, in effect be changing the locks and leaving you with a bunch of highly expensive keys rendered utterly useless.²

This speech was made to offset an attempt by RCA to prematurely freeze television standards by selling to the public as many "keys" as possible. This attempt, coupled with approval for limited commercial broadcasting, was a "false dawn" for television, and a significant episode in television's history. Early in the 1930s most television promoters were interested in securing unassailable patent positions. Broadcasting was subordinated to manufacturing potentialities in the minds of the most energetic developers. RCA, through its own work, the purchase of patents, and pooling of patents with other inventors and manufacturers had established a commanding position which led to a complete television system though not of the highest quality. In a natural desire to "cash in" on this position, RCA tried to gain approval for commercial television from 1938 on. Although it received a serious setback in 1940 when the Commission and the rest of the industry refused to be stampeded, the fight was won by RCA with the 1941 and 1945 FCC decisions to establish an "adequate" rather than "best possible" system of television service to the public.

²Fly, James Lawrence. Quoted in Hubbell, Richard W. 4000 Years of Television. New York: Putnam, 1942, p. 129.

In the period from 1936 to 1944, RCA developed a television system, warded off introduction of mechanical scanning TV, had its premature efforts at commercial operation rebuffed, and eventually succeeded in impressing the RCA system upon the television industry. At the same time, E. H. Armstrong's efforts to establish FM radio ran afoul of the promoters of television, emerging more-or-less triumphant in 1940-41, only to be set back by the 1945 decisions covered in Chapter IV. CBS first attempted to upset RCA's plans by suggesting the use of high-definition color television, only to be told that its ideas were premature, despite higher potential quality over RCA's black-and-white television.

Since it required Commission approval to move television from the laboratory to the marketplace, the 1936, 1939, 1940 and 1941 hearings, conferences and other activities of the FCC were assiduously attended by the various interest groups. The embryonic television industry had to fight off attacks of other services, but on the whole did very well in obtaining allocations from the Commission.³

At the same time, the Commission was under sharp attack by promoters of television who desired immediate introduction of the new medium. Until 1938, these promoters were the smaller elements of the industry, many not even associated with electronics.

³In late 1939 and early 1940 television had a "period of plenty" when there were more than enough channels for those who desired them. There were nineteen VHF channels of the current 6 mc. bandwidth, a channel in the 2 megacycle region for experimentation with rural television, and virtually unlimited use of any frequencies above 300 mc. Unfortunately for this picture, the war soon brought military use of the upper frequencies, and little use was made even on those between 100 and 300 mc. due to equipment unavailability.

The Commission had the support of such companies as RCA and Westinghouse in ruling against premature innovation. From late 1938 on, the FCC had to withstand pressures from RCA, the largest unit in the industry. The FCC received support in 1940 from other manufacturers in its stand against the freezing of standards at an inadequate level. However, once the larger interest groups had begun promoting television, only under a strong chairman supported by the President was the FCC able to assert and maintain its right to set television standards as well as allocations.

The legal right of the Commission to set standards is clear, but only Chairman Fly has been able to assert this right in the face of intense opposition.⁴ He was supported by a large

⁴The legal bases of the Commission's authority to select and adopt a given set of transmission standards for each and every broadcast service is the Communications Act of 1934. Section 303(b) ("...prescribe the nature of the service to be rendered by each class of licensed stations...") and Section 303(e) ("Regulate the kind of apparatus to be used with respect to its external effects and the purity and sharpness of the emissions from each station and from the apparatus therein.")

See also, the Brief of the FCC and CBS before the U. S. Supreme Court (October Term 1950, No. 565) in the case of Radio Corporation of America, National Broadcasting Company, Inc., et al. vs. United States of America, Federal Communications Commission, and Columbia Broadcasting System, particularly pp. 103-108.

Traditionally, one of the most important tasks of the regulatory agency has been to set standards. For instance, the FRC established a set of standards for AM broadcast stations, to which each station had to conform. (FRC, 2nd Annual Report-1928, p. 20; 4th Annual Report-1930, p. 59; 5th Annual Report-1931, p. 6; and 6th Annual Report-1932, p. 28.) These standards incidentally had the effect of deleting a great many stations whose management could not afford the new transmitters or other equipment required to meet the new standards calling for greater frequency stability through crystal control, 100 per cent modulation capability, etc. Many educational stations left the air during this period. Whether or not the FRC wished these regulations to have the effect of deleting marginal stations is beside the point; it was imperative to use the most efficient and frequency-saving equipment and techniques of which the radio art was capable of producing. Whenever a broadcasting service has been established on a regular commercial or nonexperimental basis, the Commission has adopted a single set

part of the industry, and it is questionable whether any single company could have withstood the near-unanimous industry opposition that existed in 1940 and 1944. The RCA attempt to introduce inadequate television standards on its own terms in 1940 was strongly rebuffed, providing a fitting end to what White calls the "public service" era of the Commission's existence.⁵

Embryo: Television Prior to 1939⁶

Television prior to 1938-1939 was still experimental. Although there were premature attempts to introduce inadequate systems of television before that time, these efforts were opposed by the larger manufacturing companies who wished a better product before attempting to offer television to the American public. In the late 1920s and early 1930s a relatively large number of experimenters worked independently on television systems.⁷ Their

of standards (good or bad, advanced or retarded) for the service. This occurred when monochrome and color television were adopted, as well as AM and FM radio.

⁵White, Llewellyn. The American Radio. Chicago: University of Chicago Press, 1947, pp. 126-127.

⁶Although data in this section are drawn from many sources, readers interested in summaries and chronologies should examine: Hubbell, Richard W., 4000 Years of Television (New York: Putnam, 1942, particularly Chapters 1 and 2); Dunlap, Orrin E., Jr., Dunlap's radio and television almanac. (New York: Harper, 1951); and Kempner, Stanley. Television encyclopedia (New York: Fairchild, 1948).

⁷Many writers contend that Nipkow's development (1884) of a spiral perforated mechanical scanning disc was the first step in the modern development of television. Others, who are interested primarily in the systems in use today rather than those which fell by the wayside, advocate that only with electronic scanning devices such as Zworykin's iconoscope (the first patent on this device was issued in 1923, but several more years of development were needed for perfection) and Farnsworth's image dissector was television really born. The author is not alone in feeling that the work of Jenkins in the early 1920s was actually the start of

goals were to develop a system whose patents would give them either monopoly control over the new industry or royalties from other manufacturers on the manufacture and sale of sets.

The first major corporations in the field were the American Telephone and Telegraph Company (AT&T) and General Electric (GE). In April, 1927 an AT&T experimental transmission attracted much attention in the press due largely to the stature of the participants: Secretary Hoover in Washington, and AT&T President Gifford in Whippany, New Jersey.⁸

modern television. The experimentation of Alexanderson (General Electric) and Ives (AT&T) built on Jenkins' work. Jenkins transmitted unmoving silhouettes by radio from Washington to Philadelphia in 1923, and motion pictures from a Navy station in 1925. J. L. Baird was always equal to or ahead of Jenkins, but on the other side of the Atlantic. See, Hubbell, op. cit., p. 85; Jenkins, C. F. Vision by radio. (Washington: Jenkins Laboratories, 1925); and de Forest, L. Television, today and tomorrow. (New York: Dial, 1942). Even earlier experimentation used stationary selenium photoelectric cells, and could transmit intelligence, but it required the faster scanning rate of the disc scanner to show recognizable objects in motion. Of course, there was no need for them to use motion until they could transmit a satisfactory still picture, or wireless when wire sufficed. A child must stand before it can walk.

⁸Nine days later, on April 16, 1927, AT&T demonstrated wireless television between Whippany and New York. Dunlap, Orrin E., Jr. Dunlap's radio and television almanac, pp. 85-86; MacLaurin, W. Rupert. Invention and innovation in the radio industry. New York: Macmillan, 1949, p. 197. For a discussion of AT&T's policy of delaying innovation of technology to better suit its corporate financial ends, see: N. R. Danielian, A.T. & T.. The story of industrial conquest. New York: Vanguard Press, 1939.

When the first experimenters developed their camera systems to a point where it would be worthwhile to experiment in signal transmission by wireless, they had little trouble obtaining frequencies. Nearly the entire spectrum above the AM broadcast band (then ending at 1500 kc) was the province of the amateur, if he could find some use for it. However, at that time, techniques for transmitting at these high frequencies were either not available or imperfect. An associate of Farnsworth complained during the middle 1920s that: "there were no usable radio channels broad enough to carry the television signal required for adequate detail in the received image."⁹

In October 1928, shortly after the FRC started to bring order out of the AM band, the first provisions were made for television within the standard broadcast band.¹⁰ This allocation was almost immediately changed, allowing a more useful bandwidth (100 kc) on five channels within the 2-3 mc band.¹¹ To qualify for an assignment on this band (only 1/60 as wide as each present channel) or obtain license renewal, an applicant had to present evidence to the FRC of laboratory experimentation.¹²

⁹Everson, op. cit., pp. 84-85.

¹⁰Herring, James M. and Gross, Gerald C. Telecommunications--economics and regulation. New York: McGraw-Hill, 1936. p. 317. Bandwidth was restricted to 10 kc, the same as AM radio, and only one hour per day (at a non-peak listening time) permitted.

¹¹U. S. Federal Radio Commission, General Order No. 55, December 22, 1928.

¹²Herring and Gross, op. cit., p. 318.

In 1929, there was again agitation for placing visual broadcasting within the broadcast band where transmission characteristics and equipment were familiar.¹³ This proposal was strongly opposed by the large AM broadcasters and networks, who were already feeling the pinch of too few frequencies for AM sound broadcasting. RCA made its feelings plain:

If the public is interested in purchasing picture or television receivers, and if commercial interests are desirous of setting up a service along these lines, it will be possible to set up and develop a better class of service with far less interference with the present sound broadcasting art if visual broadcasting service is placed in those bands above 1500 kilocycles. If this is done the necessary elements of standardization can be worked out at a reasonable and thoughtful pace and will develop so as to be of the greatest general public service.¹⁴

. . . development of the art should not be cramped. . . let us, if we can avoid it, not develop one radio art at the expense of another.¹⁵

As was to be expected, Westinghouse, also extensively engaged in AM broadcasting and receiver manufacturing, supported the RCA viewpoint, and maintained that "television will have no right on the broadcast bands" until further research has led to considerably higher quality of picture.¹⁶

¹³This possible use of the broadcast band (with higher definition only possible on higher bands) was first mentioned in the U. S. Federal Radio Commission, 2nd Annual Report-1928, pp. 21-23 and Appendix J (pp. 252 ff).

¹⁴Weinberger, Julius. Speaking before the FRC, quoted in Sheldon, H. H. and E. N. Grisewood, Television. New York: Van Nostrand, 1929, p. 189, quoting the New York Herald Tribune for February 17, 1929.

¹⁵Davis, Col. Manton, ibid., p. 190.

¹⁶Horn, C. W., ibid., p. 189.

Although there was plenty of opposition to this stand¹⁷ of the larger broadcasters and established manufacturers, the FRC decided to keep television out of the broadcast band. During a 1930 television conference, the Commission maintained that only the frequencies above 30 mc held hope for successful expansion of visual broadcasting activities,¹⁸ since it had become evident that the pressure of other services and the need for a wider bandwidth to allow all-electronic scanning and higher definition would soon force television from the 2 megacycle band.¹⁹

¹⁷One supporter of television in the broadcast band offered as the somewhat startling reason for his proposal that ". . . television is no more annoying than any other program and the public is privileged to turn off any program it dislikes." He also pointed out that if sets were on the market, the public would buy them. Sleeper, M. B. (of the Sleeper Research Corporation), ibid.

¹⁸Herring and Gross, op. cit., p. 318.

¹⁹Above 2 mc was largely uncharted territory. In its 5th Annual Report-1931 (p. 54), the FRC said it was "too early to form an opinion as to the suitability of bands up to 80 mc." On the 2 mc band, there had been many reports of reception over great distances, not surprising in light of the use of the 2 mc band. Jenkins supposedly had an audience of "some 25,000 lookers-in scattered throughout the States." (DeForest, L. "The Future of Radio" in Codel, M. (ed.) Radio and its future. New York: Harper, 1930, pp. 316-327 at p. 320). RCA's 60-line picture on 2.1 to 2.2 mc from New York City produced letters from "as far as Kansas." (Archer, Gleason L. Big business and radio, New York: American Historical Company, 1939, p. 438). Chicago's two stations were reported seen in Iowa, Minnesota, Kansas, Michigan, Ohio, Missouri, and even once in Arizona. (Dunlap, Orrin E., Jr. The outlook for television. New York: Harper, 1932, p. 167.) One 1923 report stated that an early Baird transmission was picked up in Hartsdale, New York, the first of a series of such reports lasting to the middle 1940s, when American receivers no longer could pick up the British transmissions, which were on 45 mc by then. (Yates, Raymond P. New television, the magic screen. New York: Didier, 1943, p. 57.) Bell Telephone Laboratories transmitted a full color picture of a flag, which was picked up aboard a ship 1000 miles out of Southampton. (Yates, op. cit., p. 57.) One amateur in Houlton, Maine, was quoted as receiving "clear pictures" from points as distant as Boston (500 miles away), New York City (625

Although rebuffed by the Commission, these promoters were not defeated. They merely shifted from pleadings before the Commission to flamboyant promotion of television to the public.

Books, pamphlets and magazine articles appeared in great profusion. The "get on the bandwagon" theme was predominant. A popular magazine article stated that two or more television broadcast stations were operating in Chicago, Boston, New York, Philadelphia, and Detroit.²⁰ Although experimental television stations (eighteen in all) were operating in these cities, they were expressly forbidden to sell time, and were far from being broadcast stations serving the public. In Chicago, a "survey" quoted in a 1931 article told of "almost 8,000 television receiving sets. . . being operated in homes."²¹ In New York, a newspaper carried program listings for four New York and one Boston station.²²

Hubbell calls this promotion the time of "how television almost replaced Florida, only Wall Street got there first."²³

miles), Lafayette, Indiana (1150 miles), and Los Angeles, some 3000 miles distant. (Quote from a story appearing in the New York Sun. Quoted by Arnold, Frank A. Broadcast advertising: television edition, New York: Wiley, 1933. pp. 274-275.)

²⁰McClary, Thomas C. and Harry Salpeter, in Liberty Magazine for November 21, 1931, quoted by Arnold, Frank A. Broadcast advertising: television edition, ibid., pp. 246-247. The very title of this book is a significant datum.

²¹ibid., p. 247. The reliability of this report is thrown into doubt by another estimate that there were only 500 to 1000 sets in the Chicago area. (Dunlap, Orrin E., Jr. The outlook for television, p. 167.)

²²Arnold, Frank A., op. cit., p. 265. Quoting the New York Sun for January 21, 1933.

²³Hubbell, op. cit., title of Chapter 9.

Although television seemed to be the next-thing-to-get-on-the-ground-floor-of, opposition of the larger broadcasters and manufacturers delayed matters until the 1929 depression dried up capital for this sort of venture. This saved television from receiving the sort of setback that Florida land speculation had received a few years earlier due to the same sort of fraudulent and over enthusiastic promotion. The depression also gave radio broadcasting a chance to continue its normal expansion rate while competing media suffered, since there was no direct out-of-pocket levy on the listener once he had purchased a receiver. This enabled broadcasters to build up financial reserves for future development and investment in television and encouraged the major manufacturers to continue research on more advanced electronic television.²⁴

The television which the promoters were so earnestly touting around 1930 was a collection of uncoordinated systems, using mechanical scanning discs. The quality of picture definition was definitely limited. The inventors of electronic scanning showed the way to better picture definition.²⁵ From the start, both Farnsworth and Zworykin could produce pictures of greater detail than the best of the mechanical systems, although their apparatus was both delicate and expensive.²⁶ It was often possible

²⁴Maclaurin, op. cit., Chapter 9.

²⁵There is a limit to the speed which any mechanical device can assume without flying into pieces. Since the speed of a mechanical scanning disc determines the number of lines in the picture, which in turn is a determinant of the subjective detail quality of the picture, it is evident that mechanical scanning could never give picture quality remotely approaching that of the motion picture.

²⁶As early as 1927, Farnsworth was demonstrating an

to receive signals from a station using one mechanical scanning system on a receiver designed for another system. However, with the advent of rival electronic camera and complex synchronization systems, the lock-and-key aspect of television standards became operative.

Despite the inherent disadvantages of mechanical scanning, opposition of much of the industry, and some highly publicized failures,²⁷ the manufacturing industry began to realize that television had a great deal of potential as a depression-fighting public relations "gimmick." Accordingly, largely as a gesture, the Radio Manufacturers Association set tentative television standards at forty-eight lines and fifteen pictures a second, with a secondary standard of sixty lines for more advanced research workers, to provide for orderly progression in television. These standards were set somewhat below the most advanced state of the art, presumably for the benefit of promoters, inventors, and manufacturers who wished to introduce commercial television as soon as possible. No adherence to these standards was required by the RMA.²⁸

During this period, the FRC looked on benevolently. It could be argued that the FRC was merely following the precedent of AM radio which had evolved with a minimum of government supervision of equipment standards, without a true realization of the

electronic picture with a resolution between 100 and 150 lines at thirty pictures per second, compared with the 30-60 line definition of mechanical disc systems (Everson, *op. cit.*, p. 113).

²⁷One famous case was the overloading of equipment (sending the station off the air) when Governor Walker stepped in front of the camera wearing a dazzling white shirt.

²⁸Kempner, *op. cit.*, pp. 25-27.

complexities and potential of television. However, inaction at this point established the precedent of allowing the industry great latitude in setting its own standards.

Although the FRC showed little inclination to meddle with these standards--which were not intended for commercial use anyway--it did reiterate its stand that the future of television belonged in the VHF region. Major manufacturers, such as RCA, agreed, and began to investigate the properties and implications of VHF frequencies for television transmission.²⁹ The implications of the propagation characteristics of the VHF above 40 mc (which was thought at that time to be strictly limited to line of sight) were very well expressed by a leading amateur:

Limited application? Not at all. This is just the thing for commercial television (if a satisfactory technique is developed), because here is unoccupied territory sufficient to accommodate the enormous modulation bands required and beautifully limited in range. The very peculiarities of these frequencies, in that they cover limited mileage, enable television stations to duplicate their use on the same wave length in every city in the land without interference.³⁰

By 1936, the quality of television pictures improved to such an extent³¹ that the Commission thought it advisable to seriously examine TV during an extensive investigation of the state of the radio art titled an "Informal Engineering Conference."

²⁹Radio Corporation of America. Annual Report-1932. Quoted in Arnold, Frank A., op. cit., p. 269. Still operating on the policy of protecting its AM investment, RCA's statement suggested the promise of an "opportunity of creating a new service without the further overcrowding of the already congested short, intermediate and long wave sections of the radio spectrum."

³⁰Warner, Kenneth B., of the American Radio Relay League, writing in the amateur magazine QST, and quoted by Dunlap in The outlook for television, p. 180.

³¹The RCA improvement was from 120 lines in 1931 (Kempner, op. cit., pp. 25-26) to 343 lines in 1935 (MacLaurin, op. cit., p. 22; Kempner, op. cit., p. 29).

Once again, the larger elements in the broadcasting and manufacturing industries were opposed to immediate introduction of standardized television. The comments of a former RMA president demonstrated the desire of the industry to maintain the status quo respecting innovation of new services at that time, that investments in older services be protected:

I hate to see anything happen to that portion of the spectrum where large and expensive and high-powered equipment is placed, where large and expensive antenna systems are a part thereof, where one little twitch in any portion of that spectrum makes the whole spectrum shiver from one end to the other.

Of course we all shiver in our boots along with it.

So it would seem highly desirable to have things stay just as they are. . . . Let there be congestion than do anything about it that might upset other branches of the service.³²

This view was emphatically supported by the users of the portion of the spectrum under consideration. Witness the cry of the International Association of Police Chiefs that: "While a thug stands with drawn gun and cocked hammer we could betray a sacred trust if we didn't seek our just share of frequencies. . . ."³³

Although television was not yet ready for commercial innovation, most interested parties were united in attempts to obtain as many channels as possible for experimentation and eventual commercial operation. There was still some hesitation as to how

³²Heintz, Ralph M. Testimony at FCC Informal Engineering Conference, Docket No. 3929, June 19, 1936 (Volume V, pp. 876-877), quoted in Waldron and Borkin, op. cit., p. 64.

³³Leonard, Donald S. Testimony at FCC Informal Engineering Conference, Docket No. 3929, June 16, 1936. (Volume II, pp. 252-253), quoted in Waldron and Borkin, op. cit., pp. 71-72.

vigorously television should be promoted. The managing director of the National Association of Broadcasters (NAB) suggested an allocation of eight television channels below 100 mc, which he thought would not really be enough for the expected demand.³⁴ The RMA presented a requirement, often reiterated over the next twenty-three years but never followed, for "allocating for television as nearly a continuous band in the radio spectrum as possible."³⁵ In an effort to keep television development within a fairly small group of major manufacturers and broadcasters, CBS proposed that:

Experimentation and orderly evolution must be followed in order to make the most of the new technical developments and avoid possibly disastrous mistakes. The principle of assigning channels only to individuals and organizations of demonstrated responsibility must be observed in the interests of the American people.³⁶

By the end of the 1936 Informal Engineering Conference, the FCC was impressed with television. Despite its conclusion that "television is not yet ready for public service on a national scale,"³⁷ the Commission's 1936 Annual Report listed television

³⁴Baldwin, James W. Testimony at FCC Informal Engineering Conference (Volume I, pp. 122-123) June 15, 1936. Quoted in Waldrop and Borkin, *op. cit.*, pp. 232-234.

³⁵Skinner, James M. Testimony at FCC Informal Engineering Conference (Volume II, pp. 174-175) June 16, 1936. Quoted in Waldrop and Borkin, *op. cit.*, p. 235. The RMA "5 point plan" called for: (1) a single set of standards for reception, (2) high definition, (3) "a service giving as near nationwide coverage as possible," (4) a selection of programs available, e.g., several networks, and (5) the lowest possible receiver cost and the easiest possible tuning.

³⁶Paley, William S. Testimony before the FCC, June 16, 1936. Quoted in Dunlap, The future of television, p. 114. It may be that FCC Asst. Chief Engineer Ring had this testimony in mind when he called Armstrong's invention of FM "visionary" and refused to issue the inventor an experimental license.

³⁷"While the technique of television has progressed during the past year, it seemed generally the consensus of opinion that

first in a list of "services in which licences have shown the greatest interest" in the "ultra high" frequencies.³⁸ The previous year had seen television listed in sixth place.³⁹ T. A. M. Craven (then Chief Engineer of the FCC) pointed out to a group of educators interested in broadcasting that:

Naturally, we are compelled to take into account such new services as television, because the public appears intensely interested⁴⁰ in this new art, and because it holds the possibility of being such a wonderful contribution to the service of the public that no one would dare limit it by technical regulation in such a manner as to impair its efficiency.⁴¹

In October 1937, the FCC announced that it would accept applications for experimental stations in the band from 20 to 300 mc. Although this new region of the spectrum was expected to provide ample space for all services, "so rapidly does communication breed additional needs for more communication that already the demands for assignments in these bands far exceed the supply."⁴² This

television is not yet ready for public service on a national scale. It must still be considered as experimental. There are numerous obstacles to be overcome and much technical development is required before television can be established on a sound national scale. Nevertheless, the rate of progress is rapid and the energies of the laboratories of the country are being concentrated on the technical development of television." (USFCC, 2nd Annual Report-1936, p. 35.)

³⁸U. S. FCC, 2nd Annual Report-1936, p. 51.

³⁹U. S. FCC, 1st Annual Report-1935, p. 48.

⁴⁰As an example of the completeness of the gap in the public consciousness of television after 1932, the FCC Annual Report for 1935 (p. 27) attributed this interest to "developments abroad."

⁴¹Craven, T. A. M. "The evolutionary development of radio allocation regulations," in Marsh, C. S. (ed.) Educational Broadcasting 1936. (Proceedings of the 1st National Conference on Educational Broadcasting, Washington, December 10-12, 1936). Chicago: University of Chicago Press, 1937. pp. 54-63 at p. 62.

⁴²Jansky, C. M., Jr. Chairman of the 3rd General Session

1937 allocation did open a whole new frontier. It supplied a very limited number of FM channels (which caused severe dissatisfaction on the part of Armstrong, since he felt his system was technically perfected and needed only Commission approval for commercial operation and additional channels), a good many experimental AM sound broadcasting channels, and nineteen channels for experimental television in the VHF band, all waiting to be applied for.⁴³ Even though specific allocations to television included seven channels (6 mc wide) between 54 and 108 mc, and an additional twelve channels between 156 and 194 mc. for future expansion and experimentation,⁴⁴ the Commission took the trouble to point out that:

There does not appear to be any immediate outlook for the recognition of television service on a commercial basis. The Commission believes that the general public is entitled to this information for its own protection.⁴⁵

of the 1st National Conference on Educational Broadcasting, in Marsh (ed.), op. cit., pp. 52-54 at p. 53.

⁴³U. S. FCC. Order No. 19. October 13, 1937. These allocated channels had to be applied for before October 1938, for assignment on a definite basis in 1939.

⁴⁴U. S. FCC. Report in the matter of frequency allocation to services in the frequency bands from 10 kc to and including 300,000 kc. October 13, 1937, mimeo 23415, Docket No. 3929, gives a detailed list of the criteria used to determine the allocations on pp. 2-3. The allocations themselves, from 10 kc to 30 mc, are contained in Commission Order No. 18, October 13, 1937, mimeo 23416; from 30 to 300 mc in Commission Order No. 19, October 13, 1937, mimeo 23417. This allocation of 114 mc gave television some 42 per cent of the VHF band, compared to today's less than 27 per cent. Television was able to hold on to this allocation (with difficulty) against the onslaughts of other services, until the military commandeered frequencies in World War II.

⁴⁵U. S. FCC. Press Release No. 23463, October 13, 1937. Quote in Waldrop & Borkin, op. cit., p. 70-71.

The enormous amount of spectrum space allocated to television was not, and could not, be put to use in the 1930s. The art had not progressed to the point where efficient use could be made of the largely unexplored spectrum above 150 mc.⁴⁶ Many television receivers of the late 1930s were not even equipped to receive the upper twelve channels (those above 156 mc), in a situation directly parallel to the present sets receiving only the VHF channels.⁴⁷ Part of the reason for not having television receivers equipped to receive all channels was manufacturing cost. It was considered unlikely that any one set would be called upon to receive programs from seven stations in one locality. As a result, the number of channels provided ran from two in the cheapest to five in the most expensive receivers.⁴⁸ It should be remembered that these receivers were to receive only experimental transmissions, even on the lower seven channels, since the FCC had prohibited sponsorship of programs and had required that licensees must conduct research and deposit reports on the results of that research with the FCC.⁴⁹

Television experimentation continued through 1937, 1938 and into 1939. By 1938, the Commission reported:

⁴⁶U. S. FCC. Second Report of Television Committee. November 15, 1939 (mimeo 37460), pp. 17-18.

⁴⁷U. S. FCC. First Report of Television Committee. May 22, 1939 (mimeo 34168), pp. 1-2.

⁴⁸Lohr, Lennox R. Television broadcasting. New York: McGraw-Hill, 1940. p. 211.

⁴⁹U. S. FCC. 2nd Annual Report-1936, p. 64.

Information available indicates that the technical phases of the television art are progressing in a satisfactory manner. However, it is generally agreed that television is not ready for standardization or commercial use by the general public. . . . Television has developed to the state where complete transmitting equipment is available on the market, but such equipment is costly and, because of the experimental status of the art, may become obsolete at any time due to new developments.⁵⁰

RCA was the most active company engaged in television research and development.⁵¹ It was also engaged in the acquisition of competing and secondary patents, having purchased the rights of a California inventor in 1938,⁵² and successfully culminating negotiations with Farnsworth--largely on Farnsworth's terms--in 1939.⁵³ Now that it had established its desired patent position, RCA was ready to make its move to innovate television on its own standards and terms. Other experimenters and manufacturers may not have been overly pleased at this development,⁵⁴ but RCA was

⁵⁰U. S. FCC. 4th Annual Report-1938, p. 65.

⁵¹Maclaurin, op. cit., p. 206. After Zworykin's perfection of the iconoscope in 1933, RCA spent over nine and one-fourth million dollars on television research.

⁵²Hubbell, op. cit., p. 135.

⁵³Everson, op. cit., pp. 243-246. This was the first time in its history that RCA had to pay continuing royalties to another concern. However, since RCA had found that they could neither ignore nor circumvent Farnsworth's patents (which formed a system complete enough to set up a camera system competitive with Zworykin's), they were forced to buy them on a royalty basis rather than outright. The RCA officials were not happy over this situation: "When Mr. Schairer finally signed the agreement, there were tears in his eyes." (Everson, op. cit., p. 246.)

⁵⁴RCA's chief antagonist in the years to come, CBS, did not have any manufacturing facilities. It had been experimenting with television since the early 1930s, using a mechanical system. In 1936, CBS purchased from RCA an all-electronic television system to install at its station atop the Chrysler Building in New York. (Kempner, op. cit., p. 29; Hubbell, op. cit., p. 133). This apparently was to provide a facility for program experimentation, while continuing research, particularly on color, in its own laboratories.

still able to persuade the RMA to consider the adoption of new television standards. An RMA committee surveyed the situation and found that the only other practical system (Farnsworth) was merged with RCA's into a patents pool. Accordingly, the RCA system was adopted by the RMA.

The birth of commercial television

RCA now had to turn to the Commission. First, the new standards had to be officially accepted. Then, commercial operation had to be approved so that RCA could begin programming and sell receivers to the public. The RMA asked the Commission to consider the new standards on September 10, 1938.⁵⁵ A few months later, the Commission appointed a committee of three members to investigate the status of television and recommend a course of action.

At first, the Television Committee (composed of Commissioners Craven, Case and Brown) appeared to remain cautious and place considerations of the public interest above the desire of RCA for acceptance of television standards at that time. The initial report of the Television Committee, issued on May 22, 1939, asserted with some hesitation that the public interest would best be served by further delay.

We wish to facilitate, and not delay the speedy emergence of television as a mass production industry. Fundamentally, there is little we believe the Government should do except to keep order and insure protection of the public's interest.

⁵⁵It must have been the optimism engendered by this RMA request which caused Walter Winchell to flatly predict on September 18 that "the local stores will be selling television sets for as little as \$3.95 by October 1." McKelway, St. Clair. Gossip: the life and times of Walter Winchell. New York: Viking, 1940. p. 50.

The technical ingenuity of American inventive genius must solve the problem and indicate the road television development ultimately will follow. The Committee is firmly of the opinion that it would be hazardous to both the best interests of the industry and the public to attempt by administrative fiat to freeze the art at this stage of its development.⁵⁶

The Committee also managed the difficult fence-straddling task of condemning premature standards while praising the proposed RMA-RCA standards as adequate:

(I)t is entirely possible that the technical quality of television produced in accordance with the proposed R.M.A. standards may be accepted by the public as a practical beginning, provided the public is also informed that improvements in quality and reduction in cost of equipment are possible as a result of future progress in scientific and engineering research. In view of this fact, it appears that rigid adoption of standards at this state of the art may either "freeze" the television industry, and thus retard future development, or may result in a high rate of obsolescence of equipment purchased by the public.⁵⁷

. . . a serious question of public interest would arise in the future if the Commission should specify external transmitter performance capabilities differing from the operating capabilities of receivers in the hands of the public. This is because of the resultant possibility that the public's receivers would be incapable of receiving programs emanating from transmitters licenced by the Commission.⁵⁸

FCC preoccupation with the anticipated public investment in receivers prevailed throughout this period. As early as 1936, the Commission pointed out that the rules governing television broadcast stations were experimental and "very specific in prohibiting the sale of programs."⁵⁹ In 1937, the Commission warned

⁵⁶U. S. FCC. First Report of Television Committee, mimeo 34168, May 22, 1939, pp. 2-3.

⁵⁷U. S. FCC. 5th Annual Report-1939. p. 45 (Summary of First Report of Television Committee.)

⁵⁸U. S. FCC. First Report of Television Committee, pp. 1-2.

⁵⁹U. S. FCC. 2nd Annual Report-1936, p. 63.

that "there does not appear to be any immediate outlook for the recognition of television service on a commercial basis. The Commission believes that the general public is entitled to this information for its own protection."⁶⁰ Again, in March 1940, the Commission pointed out that "public participation in television experimentation at this time is desirable only if the public understands that it is experimenting in reception and not necessarily investing in receiving equipment with a guarantee of its continued usefulness."⁶¹ In April of that year, Chairman Fly made the radio address quoted in the first section of this chapter. The First Report of the Television Committee was one of the last overt manifestations of this "public service" policy.⁶² From the middle of 1939, when the FCC issued its first report and at the same time RCA started program service to the public,⁶³ there has been unbroken development of commercial broadcasting.

The Television Committee had operated largely by making "various trips into the field to secure a first-hand picture of the state of the art, as well as to secure an index of possible future trends, as may be reflected in the thoughts of the present leaders

⁶⁰U. S. FCC. Press Release 23463, October 13, 1937. Quoted in Waldrop and Borkin, op. cit., pp. 70-71.

⁶¹U. S. FCC. Press Release, March 23, 1940. Quoted in Dunlap, The future of television, p. 29. Also see U. S. FCC. Order No. 65, March 23, 1940.

⁶²Although events in 1940 did appear at times to have the consideration of the public interest paramount, this consideration may have been more apparent than real, since after all, the Commission did agree to limited commercial operation in the first place.

⁶³On April 30, 1939, NBC televised the opening ceremonies at the New York World's Fair. The publicity accompanying the start of extensive programming (President Roosevelt was present) included the sale of receivers to the public.

of the industry."⁶⁴ In retrospect, it appears as if the Committee's reliance on the "present leaders of the industry" in the period between the first and second reports (i.e., in the six months between May 22 and November 15, 1939) may have favored RCA and its supporters, and slighted such "newcomers" as Armstrong and CBS.

The Second Report of the Television Committee was a complete about-face. In six months, events had supposedly progressed to the point that: "It was felt by the committee that although the television industry had not advanced beyond the experimental stage," it had now arrived at the point where more rapid progress could be expected "by allowing commercial operation to recoup some developmental expense."⁶⁵ The proposed standards⁶⁶ were of course supported by RCA. Opposition to the RCA proposals crystallized at the hearings held by the FCC starting January 15, 1940.⁶⁷

⁶⁴U. S. FCC. 5th Annual Report-1939, p. 45 (Summary of First Report of Television Committee).

⁶⁵U. S. FCC. 6th Annual Report-1940. pp. 70-71.

⁶⁶U. S. FCC. Text of proposed television rules set for public hearing January 15, December 26, 1939, mimeo 38225. (Section 4.74(d) applies to allocation). The proposed "limited-commercial" stations would be allowed a limited number of frequencies in the seven lower channels, those below 108 mc, for which equipment had been developed. Due to the shortage of channels, metropolitan districts over 1,000,000 population would have three stations, cities between 500,000 and 1,000,000 would have two channels, while cities under half a million would only have one channel, unless a showing could be made that allocating more to a given city would not deprive another city of any.

In general, the proposed standards were those of the RMA (really RCA), calling for 441 lines and 30 frames per second.

⁶⁷U. S. FCC. 6th Annual Report-1940. pp. 70-71. The two chief sources of data on the standards fight of 1939-1940 are Maclaurin, op. cit., pp. 232-239; and the FCC Report in the matter of Order No. 64, etc., Docket No. 5806, May 28, 1940.

The opposition to certain of the technical standards was from many sources, particularly from DuMont and Zenith, which had counter proposals to make, particularly in the realm of synchronization, the weakest part of the RCA system. There also were proposals calling for higher definition through a variety of ingenious means. Strong opposition to the RCA proposals came from virtually the entire industry, which objected to being "frozen out" by the adoption of RCA standards.

An aspect of the 1937-1940 allocations situation which brought in competition for the frequencies desired by television was the niggardly allocation to FM in 1937. Armstrong realized that if the 1937 allocations to television were made permanent in 1940, FM would be so restricted that it would never have a chance as a commercial service, no matter how excellent it was from a technical standpoint. It was clear that allocations to one service must be at the expense of the other, and "RCA may have chosen then to put its money on what was clearly the more important innovation"⁶⁸ In his zeal, Armstrong considered appearances for television to be attacks against FM.⁶⁹ During the January 1940 hearings, FM was successful in having permanent allocations to television postponed, until hearings were held on FM. These hearings were held in March 1940, and resulted in authorization for FM commercial operation, as well as a great many channels in the 42-50 mc band.⁷⁰ This

⁶⁸Maclaurin, op. cit., pp. 188-189.

⁶⁹Armstrong and RCA carried on a feud from 1936 until Armstrong's death, since Armstrong believed (with good cause) that RCA tried to hold back FM.

⁷⁰U. S. FCC. Order No. 67, May 20, 1940 (Public Notice May 22, 1940, mimeo 41153); In re frequency allocations contained

band had once been television's Channel 1 (44-50 mc), and its loss was greatly resented by the television industry. However, in a complicated exchange, television did receive the use of a channel formerly occupied by the Government (60-66 mc) to replace the space given FM. Only one channel (156-162 mc) was lost to television in the 1940 shuffle, leaving eighteen for the new service.⁷¹

During the January 1940 hearings the FCC received evidence of disunity in the industry that it should not have ignored. Allen B. DuMont claimed to have developed a "retentive screen" which would permit a fifteen frame a second picture at 800 lines, without the objectionable flicker usually present at such a low frame speed. A demonstration of this, however, proved a "complete failure."⁷² DuMont also proposed a new and improved flexible synchronization method. Philco also attacked the RCA-RMA standards,

in Order 67, May 20, 1940, mimeo 41118; Report on frequency modulation, Docket 5805, (In the matter of aural broadcasting on frequencies above 25,000 kc particularly relating to frequency modulation), May 20, 1940, mimeo 41119.

⁷¹U. S. FCC. In re frequency allocations contained in Order 67, May 20, 1940, p. 3. The FCC relinquished to the Federal Government 41-42 mc and 132-140 mc. The IRAC gave the civilian services priority between 60-66 mc and 118-119 mc. The FCC deleted TV Channels 1 and 8, 44-50 and 156-162 mc. Channel 1 went to FM, with 60-66 mc replacing it. Former Channel 8, plus 116-119 mc were used to replace the former assignments in the band 132-140 mc. The 50-56 mc TV channel was renumbered "Channel 1," with the channels above eight also getting new numbers. The band 116-118 mc (and 25-27 mc) were taken away from experimental FM.

⁷²Maclaurin, op. cit., pp. 233-234. Lee deForest was a fervent supporter of DuMont. In particular, he favored the idea of making "universal" receivers (a DuMont project) which were automatically convertible or adaptable to any system of standards. See DeForest's Television, today and tomorrow, op. cit.

taking the position that several serious deficiencies had shown up in RCA's field testing program. Philco suggested a number of remedies, and favored vertical over horizontal polarization. Zenith took an extreme position of total dissatisfaction with the RMA standards and maintained that television was in no way ready for commercial introduction. Maclaurin pointed out that "This was a tenable (though irritating) position to take, and was understandable in a company that had done no significant research up to that time."⁷³ CBS was later to inject the issue of color television, although at these hearings in January 1940 it did not oppose the RMA standards, and, indeed, suggested a ten year trial of the RMA system.

The RMA proposals were wholeheartedly supported by only RCA and Farnsworth. Naturally, RCA aggressively advocated its own standards. Farnsworth complained that the Commission was holding back the natural course of television, claiming that after the RMA standards committee went to work:

. . . there developed within the Commission a more rigid position toward commercial exploitation. The encouragement we had earlier received appeared to dwindle.⁷⁴

Farnsworth thought that television could help the then-current unemployment problem; while the FCC wanted to protect the "public from buying an article that had not been developed to its ultimate perfection."⁷⁵ Although Farnsworth stated that "the industry as

⁷³Maclaurin, op. cit., p. 234.

⁷⁴Everson, op. cit., pp. 250-251.

⁷⁵Ibid.

a whole, with but minor exceptions, was in favor of action in television,"⁷⁶ the Commission felt that this action should be in terms of further research and development, not in the form of immediate freezing of standards:

Although a divergence of engineering opinion existed with respect to the merits and demerits of the various systems in question, the members of the industry appearing before the Commission were in substantial unanimity on the need for and the possibilities of improvement in these basic aspects of the television art.⁷⁷

In the face of these highly charged differences of opinion, with RCA and Farnsworth trying to establish television on their own terms, and Philco, Zenith and DuMont hoping to establish their systems, the FCC finally reached a typical decision. "Limited" commercial operation would be permitted on some television stations starting September 1, 1940, to give the developers of the art a chance to recoup some of their developmental costs.⁷⁸ At the same time no standards of transmission were to be fixed, since the Commission felt that "crystallization of standards at the current level of the art, by whatever means accomplished, would inevitably stifle research in basic phases of the art in which improvement appeared promising."⁷⁹

This decision meant that despite the very real dangers of obsolescence⁸⁰ the public was to have the "opportunity" to buy

⁷⁶Ibid., p. 251.

⁷⁷U. S. FCC. Report in the matter of Order 65, May 28, 1940.

⁷⁸U. S. FCC. Report of February 29, 1940.

⁷⁹U. S. FCC. Report in the matter of Order 65, May 28, 1940, p. 13.

⁸⁰However, Everson claims this issue was "a hypothetical possibility. . . injected" into what was to be a "routine hearing." Everson, op. cit., p. 252.

various types of receivers to determine which system it preferred. Notwithstanding the Commission's emphasis that it intended only for programming development costs to be recovered and that:

. . . nothing should be done which will encourage a large public investment in receivers which . . . may become obsolete in a relatively short time. . . . It will be realized . . . that the loss to the public by premature purchase in a rapidly advancing field might in a relatively short period exceed many times the present total cost of research.⁸¹

RCA took the approval for "limited commercial broadcasting" as a green light to recoup its technological development costs through the manufacture and sale of television receivers.

RCA started an intensive promotion and advertising campaign. It said, in essence, that television was here, that the Commission had approved it, and that a new commercial service to the American home would start (in the New York area, at least) on September 1, 1940. This publicity campaign, launched on March 20, 1940, was preceded by a bitter fight within the RMA. Despite its testimony to the contrary during the January hearings,⁸² RCA hoped to be able to freeze standards at their existing levels, and to become the biggest fish in the pond of a new medium. RCA's chief television engineer, Elmer Engstrom, presented the RCA viewpoint to an RMA subcommittee on February 29:

Since television transmission service and the sale of television receivers to the public have already begun on the basis of RMA approved standards, proposals involving changes in transmission standards must necessarily be considered

⁸¹U. S. FCC. 6th Annual Report-1940. p. 71.

⁸²Engstrom stated: "I, as an engineer, am not recommending that standards be frozen." An RCA counsel, Wozencraft, stated: "As far as RCA is concerned, we don't ask that the standards be frozen. . . ." in testimony before the FCC. See the FCC, Report in the Matter of Order 65, p. 14.

from the point of view of their superiority, if any, over existing standards. The proponents of changes in these approved standards must, of necessity, bear the burden of proof that such changes would effect a substantial improvement in the service to the public and that a change under the circumstances above referred to is warranted.⁸³

At a still earlier meeting of the RMA Board of Directors, on February 8, RCA President Sarnoff threatened to resign from the RMA and stated that:

So far as we are concerned, there is no use discussing with us, inside or outside of the RMA, any program the purpose of which is to delay the commercialization of television.⁸⁴

RCA did not resign, but Philco withdrew from the committee (following Engstrom's letter of February 29), with the statement that the RMA television standards committee would serve no further purpose, since widespread sale of RCA equipment would render consideration of any other standards futile. All other members of the committee, save RCA and Farnsworth, voted to consider new proposals but none was forthcoming.⁸⁵

Two days after the RCA publicity campaign started, the Commission issued Order No. 65, which called for a new series of hearings to start on April 8, 1940 and reopened the whole question of standards and the effective date for the beginning of limited commercial broadcasting. This Order stemmed directly from FCC annoyance over RCA promotion activities, which the Commission felt:

may be detrimental to the public interest by unduly retarding research and experimentation and the achievement of higher standards for television transmission.⁸⁶

⁸³U. S. FCC. Report in the matter of Order 65, May 28, 1940, p. 15.

⁸⁴Ibid., p. 16.

⁸⁵Ibid., p. 17.

⁸⁶U. S. FCC. Order No. 65. March 22, 1940 (Public Notice, March 23, 1940). mimeo 39922. p. 2.

The April hearings lasted five days, with mostly the same participants as at the January hearings. The Commission stated that it would have acted earlier, if it had only known about the RMA meetings in February.⁸⁷ The Commission's view that freezing standards by any means would cause a lessening of research activity was substantiated by Philco (which had cut down its laboratory work because:

the public outcry that would result from any later change in standards rendering receivers obsolete will effectively deprive the Commission of its statutory power.⁸⁸

Other manufacturers and inventors, such as DuMont, Sanabria and DeForest, testified to the same effect, with DeForest adding that if commercial activities continued, he had:

no doubt that the present, indisputably half-baked "standards" in Television would soon be so effectively deep-rooted in the American Television market that further evolution of this infant art would have been rendered economically and actually almost impossible.⁸⁹

RCA, put on the defensive at the April hearings, tried unsuccessfully to counter attack by promoting a Senate investigation of the FCC and television development.⁹⁰ Although Sarnoff

⁸⁷It is interesting to note that in 1950 (ten years after the event) General Sarnoff claimed that he had "personally" shown Chairman Fly before it appeared in the newspaper the RCA advertisement that the Commission had so objected to. Sarnoff, David. Testimony before FCC on Dockets No. 8736, 8975, 9175 and 8976, May 4, 1950. Transcript, Part 2, Volume 55, p. 10387.

⁸⁸U. S. FCC. Report in the matter of Order 65, May 28, 1940, p. 21.

⁸⁹Ibid., p. 23. Quoting written statement of April 26, 1940.

⁹⁰U. S. Senate Committee on Interstate Commerce. Development of television. Hearings on S. Res. 251, 76th Congress, 3rd Session, April 10-11, 1940. (Sarnoff quotes from page 52.)

attacked Chairman Fly's "technicalities" as "stuff that does not amount to anything" and wanted to establish television "so we can go ahead and put people to work," these hearings did not soften Chairman Fly's determination nor did it lead to further Congressional action.

On May 28th the Commission issued a scathing report, which condemned RCA,⁹¹ reviewed past developments, and concluded that a "single uniform standard of television broadcasting was essential," that "the standards of transmission should not be determined at this time," and that "commercial television broadcasting without the complete cooperation of the manufacturing industry, is irreconcilable with the necessary objectives of further research and experimentation." Accordingly, the Commission declared that the proposed start of limited commercial operation was to be postponed indefinitely, and that "premature crystallization of standards" was to be avoided, but "as soon as the engineering opinion of the industry is prepared to approve any one of the competing systems of broadcasting as the standard system the Commission will consider the authorization of full commercialization."⁹²

⁹¹U. S. FCC. Report in the matter of Order 65, setting television rules and regulations for further hearing. Docket No. 5806, May 28, 1940, mimeo 41249. To a large extent, of course, RCA was condemned out of its own mouth. For example, when queried by a Philco representative about the fact that commercial exploitation at this time might mean \$10 million worth of obsolete receiving apparatus in the hands of the public, General Sarnoff replied: "We live on obsolescence, don't we, in this industry?" Report, p. 16.)

⁹²U. S. FCC. Report in the matter of Order 65, May 28, 1940, pp. 25-29; and U. S. FCC. 6th Annual Report-1940, pp. 71-72.

The requirement that the industry must agree upon "standards insuring a satisfactory level of performance" before any commercial operation would be approved was coupled with a call for increased experimentation and research. This experimentation was to be geographically spread so that all sections of the country could have television as soon as possible. To curb RCA's commanding position in patents and programming up to that time, the Commission established a "strict limitation on the number of authorizations to any one licensee for television broadcast stations which as a part of the experimentation may take programs to the public."⁹³ This limited the RCA market position in broadcasting, if not in set manufacturing.

It was not to be expected that RCA would take this decision lying down. A storm of protest broke, centering on the right of the Commission to regulate the manufacture, sale, and public "right" to buy television receivers.⁹⁴ As Maclaurin pointed out:

By this time the issue had become in part a battle of the FCC versus RCA, and more particularly Fly versus Sarnoff. Mr. Sarnoff, appearing before a Senate Investigating Committee, complained of the Commission's action as being dictatorial and bureaucratic in the extreme. There was some question, in fact, as to whether it might become an issue in the presidential campaign of 1940.⁹⁵

The Commission felt itself to be safely on legal ground in its power to set transmission standards and to classify stations. The outcry, skillfully fanned by RCA, was so great that Chairman Fly (the strongest Chairman the Commission ever had, and

⁹³U. S. FCC. Report in the matter of Order 65, May 28, 1940, pp. 28-29.

⁹⁴See Dunlap, Orrin E., Jr. The future of television. New York: Harper, 1942. pp. 28-31.

⁹⁵Maclaurin, *op. cit.*, p. 237.

most often in hot water) took to the radio on April 2, 1940,⁹⁶ to defend the Commission's Order 65 calling for a delay in commercialization, and to reiterate that the Commission:

. . . did not want to discourage the sale of television receiving sets; that it did not have or desire to have, any regulatory power over the sale of receivers or over advertising; that there must be public participation if the art was to progress. He indicated that his quarrel was with the "extravagant promotion of sales to people of modest income."⁹⁷

Fly, a former Special Assistant United States Attorney General working on anti-trust cases, and former General Counsel of the Tennessee Valley Authority, received support for his stand against RCA's declared intention to control the television medium from President Roosevelt. On April 12th, the President announced that the Administration would exert every effort to prevent television from coming under monopolistic control and advocated a competitive setup.⁹⁸ With this sort of support, the Commission felt free to issue its policy statement in the Report of May 28, which explicitly stated:

The radio spectrum is public domain--development in television must be undertaken and advanced in order that this domain be devoted to the best public use. There is no room for squatters and there can be no preemption in this field. Monopoly must be avoided. Free competition is to be promoted and preserved.⁹⁹

⁹⁶Quoted extensively in the first section of this chapter.

⁹⁷Dunlap, Orrin E., Jr. The future of television, p. 31. RCA's advertising consisted in part of full page ads in the New York Times and New York Herald Tribune. Receiver prices were cut about one-third, to a maximum of about \$395. (Hubbell, op. cit., p. 144.) In this connection, a Gallup Poll on April 30, 1939 had asked a sample: "If you could buy a television set for \$200. . . would you buy one?" Only 16% answered "yes". Cantril, Hadley (ed.) Public Opinion 1935-1946. Princeton: Princeton University Press, 1951. p. 857.

⁹⁸Dunlap, Orrin E., Jr. Dunlap's radio and television almanac.⁹⁹ FCC. Report in the matter of Order 65, May 28,

Following the FCC's rebuff of RCA in May 1940, the Commission acted to promote a television system having general support. W. R. G. Baker, of GE,¹⁰⁰ was named Chairman of the National Television Systems Committee (NTSC) within the RMA. A succession of subcommittees and panels investigated the major issues and points of conflict. By January 27, 1941, after a great deal of work, the industry was able to present a united front to the Commission.¹⁰¹

The Commission in turn had worked closely with the NTSC and the broadcasters in sponsoring or conducting research into various television systems, and licensing experimental stations in different parts of the country to work with the competing systems. The day after the NTSC report was issued, the Commission called for a public hearing, starting March 20, 1941. At these hearings, the FCC found that the NTSC standards represented "with but few exceptions, the undivided engineering opinion of the industry." These standards were superior to the 1940 standards in

1940. pp. 23-29.

¹⁰⁰Baker, who was also the Director of the RMA Engineering Department, once said: "If enough sets are sold (by RCA) the standards may be formulated by reduction to practice." Baker, W. R. G., in a letter to RMA President A. S. Wells, February 27, 1940, quoted in U. S. FCC, Report in the matter of Order 65, p. 20.

¹⁰¹Reportedly, over 5,000 man hours were spent on this task. Farnsworth, was of the opinion that this study was largely wasted motion, as the result of the FCC's taking offense at what seemed to him to be "a reasonable and progressive action" on the part of RCA. Everson's biography of Farnsworth states that "the work of the original Standards Committee was so well done that Dr. Baker's committee found little to alter" with the exception of raising the number of lines from 441 to 525. Everson, op. cit., pp. 252-253.

that they increased the line and frame frequencies to 525 and 30 respectively, greatly strengthened the synchronizing system, and utilized FM instead of AM for audio.¹⁰² Since even these standards were not considered final, experimental stations would continue to be licensed on any of the new commercial television channels. The two most important undecided questions were whether AM or FM was to be used for the video portion, and a choice of alternate standards for the synchronizing system.

In its Report of May 3, 1941, the Commission announced acceptance of the NTSC recommendations, and that commercial television utilizing the new standards would be permitted starting July 1, 1941.¹⁰³ Certain minor points (such as a final decision on synchronizing methods) remained to be settled, but they could wait. These basic standards are still in use. Maclaurin points out two major reasons for the long-lived nature of these regulations: 1) that the crucible of objections offered by DuMont and others in the 1940 hearings tested the RMA standards, found them wanting, and led to some improvement in synchronizing and definition; and 2) that:

insistence on uniform rules encouraged the more cooperative elements in the industry to work closely together on engineering standards.

I was very much impressed by the quality of co-operation achieved by the National Television Systems Committee. The FCC forced the engineers to work together in a way that would probably not have occurred otherwise. Perhaps because of this, it is my impression that the engineers in the industry were able to come much closer to unanimity of opinion on such matters as FM

¹⁰²Even the value of this change has been questioned. Lessing, Lawrence P. "The Television Freeze," Fortune, November 1949.

¹⁰³U. S. FCC. Television report, order, rules and standards. Docket 5306, May 3, 1941. mimeo 49351.

and television than were the top business executives in the industry.¹⁰⁴

It should be remembered that these engineers were employed by, and worked in the interests of, manufacturing and broadcasting companies. The "co-operation" between engineers must have had its genesis in a general agreement within the manufacturing industry. Since RCA standards were largely retained, and no other manufacturer or inventor was able to establish a stronger position during the NTSC deliberations, it is likely that the other manufacturers decided to give up hope for control television and settled for smaller but more certain profits from receiver manufacturing. The inference that all of the major groups in the field were in favor of innovating television immediately, is supported by Craven's comment that:

. . . if we wait upon scientists to decide upon standards, we will never reach a decision. These decisions always were and will have to continue to be made by administrators.¹⁰⁵

The major break in the united front of the industry in 1941 was the CBS introduction of color television as an issue. Since the industry as a whole wished to introduce black-and-white television as soon as possible, the NTSC (with the exception of CBS)¹⁰⁶ was of the opinion that color television had a long way to go before it left the laboratory. However, since Chairman Fly

¹⁰⁴Maclaurin, op. cit., p. 154.

¹⁰⁵Craven, T. A. M. (Then representing Cowles Broadcasting System as a consulting engineer) in testimony before the FCC hearings on Docket 7896 (CBS color television petition) December 1946, January-February 1947). Vol. 5, p. 783.

¹⁰⁶Hubbell, op. cit., pp. 151-152, presents a list of others impressed by and supporting the CBS color proposals in 1941. Hubbell wrote his book while a CBS employee. Also see the FCC Television Report, order, rule and standards, May 3, 1941, op. cit. p. 3.

was quite interested in color, the NTSC agreed to allow color field-testing, and if the initial six-months trial were successful, to consider eventual co-existence with black-and-white television on the proposed commercial bands.¹⁰⁷ Despite Fly's interest in color, the Commission, in its May 3, 1941 order decided to wait several months before looking into color standards for the first time.¹⁰⁸

The adoption of new standards created the situation of receivers obsolescence, only on a microcosmic scale. There were only a few thousand receivers to be considered, and there are conflicting statements as to what became of them. Dunlap, chiding the FCC for its worries over obsolescence, claimed that no loss in receivers had occurred, even though standards had been changed:

Those who had purchased 1939 model television sets did not suffer. Even in 1942, when the television sets marketed in 1939 were enlisted for civilian defense and air-raid warden lessons, they were still in use with no taint of obsolescence to mar their record of service. They operated under the new standards approved by the FCC. Only slight adjustments in the receiver had been necessary to comply with the new standards.¹⁰⁹

Hubbell, on the other hand, maintained that a serious problem was presented by:

(T)he public's receiving sets, which had to be rebuilt. The set manufacturers offered to do this free of charge, saddling themselves with the cost. To get all the sets back to the factory and remodel them was a long and costly job.¹¹⁰

¹⁰⁷Maclaurin, op. cit., p. 238.

¹⁰⁸U. S. FCC. 7th Annual Report-1941, pp. 32-34; and U. S. FCC. Television report, order, rule and standards, May 3, 1941, op. cit.

¹⁰⁹Dunlap, Orrin E., Jr. The future of television, op. cit., p. 31.

¹¹⁰Hubbell, op. cit., p. 154.

Alarums and excursions (1941-1943)

The green light of May 1941 was all but extinguished by World War II, when there were ten commercial (mostly converted experimental) stations on the air.¹¹¹ A War Production Board Order, implemented by the FCC, forbade further building of new stations because materials were more urgently needed for the war effort.¹¹² The Commission allowed licensees with construction permits and the necessary equipment on hand to finish their stations. It was felt that the limited number of existing television stations plus some new experimental stations "should keep alive this new art during the war."¹¹³ Six stations did continue regular program service (the FCC minimum operating time requirement had been dropped to four hours a week on April 9, 1942) throughout the war. NBC and CBS maintained skeleton organizations during the early part of the war, dropped television broadcasting altogether for awhile, and resumed program transmissions in the summer of 1944, after DuMont had begun a full commercial schedule.¹¹⁴

Although the war effort took most of the attention of the Commission and the engineering profession, research and development work on television did not stop. On the ninth of April, 1942, an NTSC report submitted to the Commission at a conference in

¹¹¹U. S. FCC. 8th Annual Report-1942, p. 34; 7th Annual Report-1941, p. 34.

¹¹²U. S. FCC. Memorandum Opinion of April 27, 1942, replacing one of the same title dated February 23, 1942.

¹¹³U. S. FCC. 8th Annual Report-1942, p. 34. ". . . the Commission has. . . continued to issue authorizations for such (experimental) stations upon a showing that the construction was necessary to carry forward worthwhile television research work."

¹¹⁴United Nations Educational, Scientific and Cultural Organization. Television: a world survey. Paris: UNESCO, 1953. p. 59.

Washington was adopted. It recommended that existing standards be continued until the end of the war. At the same time, color was not considered far enough advanced for standards to be set.¹¹⁵

During the war, many of the upper television frequencies¹¹⁶ were used by the military and other government stations. In fact, 95.6 per cent of the entire usable spectrum above 162 mc, and a somewhat lesser amount of the spectrum below 162 mc was assigned exclusively to the government.¹¹⁷ The owners of the 5,000 to 10,000 television receivers used them throughout the war for entertainment, with a leavening of civil defense classes. By the end of the war, one out of every four receivers was no longer in working order,¹¹⁸ but those in operation could receive an ever increasing choice of programs on the seven lower channels in New York, Chicago, Los Angeles and Philadelphia.

As the war progressed, it became evident that the shortages of frequencies before the war would seem like a time of plenty after

¹¹⁵U. S. FCC. 8th Annual Report-1942. pp. 35-36.

¹¹⁶A minor change in the relatively unused upper television frequencies was made, effective January 23, 1941. Channels 13 and 14 were shifted four mc further down in the spectrum (230-242 mc instead of 234-249 mc) with no other change. U. S. FCC. Amendments 42 to Part 4 of the Rules and Regulations.

¹¹⁷Jett, E. K. Testimony (supplemental statement) before Senate Commerce Committee hearings on S. 814, 78th Congress, 1st Session, December 10, 1943, p. 849, giving table of assignments by number and percent of assignments to government and non-government in 1939 and 1943. At that time, Jett was Chief Engineer of the Commission; later a Commissioner.

¹¹⁸Estimate made to the author by CBS engineers in 1945, referring to the New York area.

the war. Applications for new stations piled up in the FCC files: 158 for television alone.¹¹⁹ Persons, groups or corporations interested in broadcasting before the war braced themselves to fight for a larger share after the war. Manufacturers who grew fat on military electronics contracts started looking about for profitable post-war fields. Businessmen in or out of war industry, soldiers worried about their future, people looking for new worlds to conquer or those just wanting to profitably invest their money thought of broadcasting as a golden opportunity. The Commission looked on as the stacks of applications mounted and tried to make its own plans.

During the middle war years, one of the chief forums of those competing for favored positions in television was the Congress.¹²⁰ The whole future of broadcasting was discussed time and again, as elements in the industry loosed "trial balloons" and used the Congress as a sounding board. Many of the issues at stake had little to do with television (such as the question of clear channels versus more local stations on AM,¹²¹ or the question of cross-media ownership of broadcast stations),¹²² but the post-war course

¹¹⁹U. S. FCC. 12th Annual Report-1946, p. 17. There were also some 600 applications for FM stations, and 319 pending for new AM outlets or major changes in existing stations. Applications were being received at the rate of 100 per week. (Ibid., p. 10.)

¹²⁰In addition to the House investigation of the FCC, there were extensive House hearings to amend the Communications Act in the spring of 1942 (H.R. 5497) and in the Senate in the winter of 1943 (S. 314). See bibliography for full citations.

¹²¹This question has still not been decided (July 1959).

¹²²This issue came to a boil with the issuance of Commission Order No. 79, March 20, 1941 (mimeo 48496), raising the point of whether newspapers should be allowed to obtain licenses for FM stations; and whether this would represent too great a concentration

of television was charted at this time. Since neither RCA nor CBS could have the same thing at the same time, the wartime Congressional hearings offered a preview of the struggles of the 1944-1947 period.¹²³

The most extensive hearings on the postwar future of broadcasting were held by the Senate Commerce Committee in December of 1943. Almost every important issue was thoroughly aired from censorship of radio programs to Armstrong's hope of FM sound broadcasting supplanting AM after the war,¹²⁴ and these hearings gave

of control of the news media in a given community. This question was soon broadened to include the entire area of multiple ownership of broadcast media. Owners of AM radio stations wondered whether they would be permitted to go into FM radio or television, newspaper owners were concerned whether they would be forever barred from the new broadcast media for which they felt so well prepared. They pointed to their experience in communications, and suggested that development of the new media would be seriously retarded if this experience and financial backing were not utilized. After a stormy battle in Congress, in the press, and before the Commission, the proponents of cross-media ownership (the newspapers) won their fight. There are still anti-monopoly measures on the books, including limitation on multiple ownership, but the large number of newspaper-owned stations, and the majority of FM stations which broadcast the programs of their parent AM station testify to the failure of this plan to reduce tendencies toward monopoly. This battle had political implications, since the Democratic Party had been complaining about a "one-party" press in connection with the 1940 elections, and the FCC was, of course, controlled by the party running the Administration.

¹²³Another issue which has received a great deal of ineffectual attention was that of interconnection methods for television networks. Although outside the scope of this thesis (and worthy of one of its own) it should be mentioned that the contest ostensibly between AT&T's coaxial cable and the microwave systems of GE and Philco among others was settled in favor of AT&T which now uses both cable and microwave, interchangeably and profitably. The question of possible exorbitant rates by AT&T for intercity television service has been raised at frequent intervals in both Congress and the Commission. For many years, stations off the network, wishing to use their own microwave facilities, had to use AT&T's common carrier facilities. Of course, film (and videotape) are also used, without direct interconnection.

¹²⁴It should be noted that most participants in the disputes

an indication of the corporate policies and strategies which were employed the following year in the 1944 Allocation Hearings. There were two major positions: that of RCA, which looked forward to continuing prewar black-and-white into the postwar era; and that of CBS which hoped to innovate its own color television system.

A typical RCA view was expressed by O. B. Hansen of NBC. He earnestly tried to retain for television as many of the existing channels as possible, in spite of the demands of other services who had discovered the value of the VHF during the war. He pointed out the dire results to be expected from shifting television (or FM for that matter) to a higher frequency band. As was to be expected in view of the interests of his employer, he depreciated the status of color television, suggested raising the maximum power limits for AM stations, and held that if the allocations boat were not rocked the new medium of television would provide many job opportunities in the postwar period. Hansen's testimony that FM be controlled by existing AM station operators only increased Armstrong's enmity toward RCA. The RCA-NBC policy for immediate introduction for postwar television was succinctly framed: "Should (the public) now be denied vision by radio because some day color television will be perfected?"¹²⁵

of the early 1940s wanted "all or nothing." Armstrong wanted FM to supplant AM, the CBS and RCA hopes for television were incompatible, if the Clear Channel AM stations won their points, the local broadcasters would lose theirs. A refreshing view was of John V. L. Hogan, the supporter of facsimile, who nevertheless gave as his opinion that television, FM and facsimile "should all be given the opportunity to develop into the best possible public service that they can render--that none should be held back at the expense of others" (S. 814, December 9, 1943, p. 810.

¹²⁵Hansen, O. B. Testimony before the Senate Commerce Committee on S. 814, December 10, 1943. pp. 857-873, at pp. 864-865.

At the time of the December 1943 hearings color television indeed was still unperfected. CBS policy had not yet been determined, and as a result no CBS spokesman so much as mentioned television during the hearings. Within a few months, however, CBS decided upon a course of action, and announced it to the industry and the public with great fanfare.¹²⁶ Although CBS missed the dress-rehearsal of the 1943 Congressional hearings,¹²⁷ it participated very extensively in the FCC's 1944 Allocation Hearings.

In addition to the views of the two protagonists, RCA and CBS, there was a third force consisting of those members of the FCC and others who realized the public interest implications of establishing any television system immediately after the war. In their long range view, considerable planning would be necessary before the manufacturers managed to reconvert their factories after the war. Any changes in the television allocation structure would have to be made quickly or the status quo might be maintained indefinitely. As one consulting engineer put it:

¹²⁶See Kugel, Frederick A. "Report on CBS Post-war television policy," Television, Vol. 1, No. 1, (Spring 1944), pp. 2-5.

¹²⁷Although CBS did not formally appear before the Congressional committee considering S. 814, the general outlines of its future policy were known in the trade and, as noted above, RCA did not fail to recognize its chief enemy of the period or hesitate to attack the idea of delaying television for any reason whatsoever. "When victory seems assured and we must all turn our attention to transferring from a wartime to a peacetime economy, Government and industry must have prepared a plan for post-war radio expansion ready to spring to life when hostilities cease, to provide for the new economy, and, above all, to make jobs for our returned fighters." (O. B. Hansen, Testimony on S. 814, December 19, 1943, p. 859) This appeal to patriotism and self-interest could not be matched by CBS.

The minute the war is over they are going to grind out peacetime equipment. Everyon who has money in his pocket expects to buy a new radio set. If they buy one for the existing allocation, which they will likely do unless some planning is done, they will buy a set to cover certain bands, and these bands will be automatically frozen because of the economics of it within a year after the war is over. So these things should be given consideration at a very early date.¹²⁸

This view was also held by FCC Chief Engineer Jett (later Commissioner), who gave a facts-studded statement to the Senate Committee. Jett was quite worried about allowing prewar conditions to be resumed by default:

In my opinion, if we do not get this planning job done very soon, whereby the Commission and various industry planning groups are given access to this confidential and secret information, then I am convinced that the minute manpower and materials become available that manufacturers will not wait for the engineers and the Government to take a year or two to work out new standards, but will proceed immediately to produce equipment on the basis of pre-war standards, and the effect of that may be to freeze this service, because if you sell to the public a large quantity of equipment it will be very difficult to change from the technical standards.¹²⁹

If developments did require changing the allocation of a broadcast service, Jett felt that it would be far better to change or render obsolete the 10,000 existing television sets, rather than to discard the half million FM receivers or the sixty million AM sets.¹³⁰

Jett also pointed out that even "the present eighteen channels and the standards governing them are inadequate for an efficient Nation-wide competitive system of television broadcasting. In my opinion we should have at least twice this number of channels,"¹³¹ and, in the same connection, said:

¹²⁸Cullum, A. Earl, Jr. Testimony on S. 814, December 1, 1943. p. ⁵⁹¹

¹²⁹Jett, E. K. *Ibid.*, December 10, 1943, pp. 822-823.

¹³⁰*Ibid.*, p. 823.

¹³¹*Ibid.*, p. 835.

It has been stated that there may be sufficient room in the post-war spectrum to take care of all rival services. I think Mr. Cullum said something to that effect. I think it is true that as far as a particular service is concerned, it is easy for an engineer to find space for his particular service, but whenever an engineer sits down at a conference table with all interested groups in many radio services, then I think the situation is quite the reverse. I think there will be frequencies for the legitimate services providing we do this planning job and do it well.¹³²

The main supporter of the "public interest" viewpoint toward frequency allocation was Chairman Fly. Although he had some support from CBS which wished to delay the introduction of black-and-white television for its own purposes, much of the time Fly stood virtually alone. The manufacturers, the newspapers and the networks intimated that they would be able to assist the post-war economy and establish television if only the Congress would support them and squelch Chairman Fly in his attempts to "control" the broadcasting industry.¹³³

Recognizing his main opponent, Fly gave as good as he got, and attacked RCA's policies on postwar broadcasting:

(You will be surprised at the ingenuity R.C.A. will show in getting around competing patents; and, indeed, in discouraging activities in the broadcast field which would tend to promote competing patents. Let us take a single example: If you study Mr. Trammell's testimony you will note the great emphasis he put on television. He spread it on pretty thick, and taken all together it was quite a fanciful picture. And that was the bad enveloping thing for the future. . . Mr. Trammell only gave hide-and-seek treatment to FM. He mentioned it once or twice in passing and tossed it off. The truth of the matter is that FM is extremely well developed. It has full authorization to go ahead commercially;

¹³²Jett, E. K. Testimony before Senate Commerce Committee, December 10, 1943. p. 832.

¹³³For examples of these attacks on Fly, see the testimony of the following persons on S. 814: Kaye, Sidney M. (Attorney, Newspaper-Radio Committee) November 23, 1943, p. 417; Miller, Neville (NAB President) November 17, 1943, p. 256; and Reinsch, Leonard (Manager, Cox radio stations) November 18, 1943, p. 308.

it is ready to go ahead and to deliver extensive broadcasting service. In terms of its efficiency and its completeness it is several points ahead of television.

Now, Major Armstrong controls key patents of FM. R.C.A. has taken a position on FM which has tended to discourage--in official proceedings and in their dealings with these parties, has tended to discourage progress in FM as controlled by the Armstrong patents. Right here before this Senate Committee they are trying to emphasize television and minimize FM.¹³⁴

Anticipating the inevitable appeals from future allocation decisions, Fly pleaded for a free hand in reorganizing the spectrum according to the dictates of engineering necessity and the public interest:

(I)t is utterly essential that the Government remain free to reallocate frequencies. Those are matters that must be dealt with in the light of the developments of science and the needs of the varying services; and through the whole history of radio the periods of reallocations and re-assignments have come at occasional junctures; and frequently, of course they are--as they are right now and were a few years ago--bound up in international treaty by which allocations and assignments are provided for, and the war needs must be met, and various competing services must be provided for, and a lot of them of tremendous importance. It may well be that the development of the science would require moving from one band of frequencies to the other; and some of these services--the very ones to which this legislation would apply--we just don't know where they will be from year to year. We have certain bands assigned to them now, and tomorrow we may have to move them to other bands. There are so many varying needs there.¹³⁵

It is obvious that Fly was not of a mind to permit RCA to continue by default the status quo in television allocation. He felt that the public interest demanded a thorough examination of the entire spectrum, at the very least, followed by reallocation if necessary. This policy would delay the introduction of television and might seriously hamper it through loss of frequencies to

¹³⁴Fly, James L. Testimony before Senate Commerce Committee on S. 814, December 10, 1943. p. 832.

¹³⁵Fly, James L. Testimony before Senate Commerce Committee on S. 814, December 15, 1943. p. 971.

other services. This policy, and Fly's personal interests in FM and color, put him firmly on the side of Armstrong and CBS. The latter rallied to support this policy of "look before you leap," though it might be said that no broadcaster was wholly in favor of the uncompromising Fly.

The stage was now set for the real battles over post-war television broadcasting. The Congressional hearings were only dress rehearsals, with the action to be shifted before the Commission in the forthcoming Allocation Hearings of 1944. The cast of characters and their parts remained the same.

Summary and conclusions

The early story of television is simple. Various promoters, inventors, and manufacturers felt that television should be introduced, while others wished to delay this innovation so that their own systems might have time to be perfected, considered, and adopted. At first, in the 1920s and early 1930s, these innovators or promoters were opposed by the major researchers and manufacturers, notably RCA.

Not until 1940-1941 did the effective protagonists become identified as the major elements of the industry. In 1940, RCA was ready to introduce black-and-white television. Its attempt to freeze standards at a level below that of which the art was capable (by selling receivers to the public) was rebuffed by the Commission and the rest of the industry. Less than a year later RCA was able to persuade the industry and later the Commission to accept but a slight improvement as the permanent standard of transmission.

The strategies, tactics, and forums employed during these two decades were crude but adequate. The Federal Radio Commission had only to worry about finding space in the spectrum for another of many experimental services. The 1936 Informal Engineering Conference was a result of the first real interest shown by either Commission in the upper spectrum and the future of broadcasting. A great many experimental allocations were made in this period: frequency modulation, high fidelity AM broadcasting (on a variety of bands) and television. The FCC did not consider any of these services ready for commercial exploitation until 1939-40. Before 1940, the FCC did not have to worry about any public investment in television receivers. Although the actual investments in television were small, the potential of the new medium was tremendous and well worth fighting for.

The fighting took place within industry councils such as the RMA standards committee, in the field of public opinion (witness the extravagant promotion efforts of 1929-1931, and RCA's moves in 1940), before Congress (the hearings on S. 814 in particular were used as a sounding board by the industry), and before the FCC.

The FCC's decision of May 1940 represented the last clear-cut decision by the Commission which was predicated upon the public interest. Although the FCC had the support of most of the industry at this time (or rather, was able to harness the industry's resentment against the tactics of RCA), it took a strong Chairman with the backing of the President to thwart the plans of RCA. Such a situation did not arise again. After 1943, the manufacturing industry had apparently overcome its annoyance with RCA and

accepted the RCA position that it was better to innovate a known system immediately than wait several years for development of a better one, and possibly miss the tide of postwar consumer purchasing. Thus the Commission no longer had this support, except for such die-hard participants as Armstrong and CBS.¹³⁶ With the departure of Chairman Fly, the FCC itself lost most of its crusading spirit and in later years avoided any semblance of leadership. It contented itself with mediating at best and automatically making decisions in favor of the corporation with the largest influence at worst.

¹³⁶which in turn were at loggerheads with one another, since Armstrong felt (with some reason) that CBS did not really have an interest in FM, and, indeed, in order to hedge its investment and position in broadcasting, was willing to support some low-band black-and-white television at the expense of FM channel allocations. See Lessing, Man of High Fidelity, op. cit.

CHAPTER IV

THE SHAPING OF POSTWAR TELEVISION: 1944-1948

Introduction

The period of time covered in this chapter runs from the exhaustive FCC general allocation hearings of 1944 to the start of the television "freeze" in 1948. These four years were crowded with conflict and development on an unparalleled scale. At no later time have the contestants been so evenly matched or so readily identified in an allocations battle.

There were actually four "wars" in progress during this period. They were:

1. Standards for postwar television. In this most important of allocation conflicts, one coalition led by RCA and including NBC, GE, Philco, DuMont, Farnsworth, and the Don Lee Broadcasting System held that postwar television should be allowed to proceed as soon as war material shortages permitted, with the use of prewar standards and frequencies. This view was held by those representing the heaviest investment and the longest research experience in the industry.

The opposition, for the most part comparative newcomers to television, asserted that the public would be irreparably disillusioned if large numbers of receivers with the inherently low-quality prewar standards were sold. This group, under the

leadership of CBS (which wished to establish its own color TV system in the UHF band), included Westinghouse, Zenith, Federal Telephone and Radio Corporation and the Yankee Network. They argued that wartime research had pointed the way to utilization of the UHF and that the wider channels possible in the uncrowded upper band would enable television to have color or higher picture quality.

Although the two coalitions were organized during the war years, the two philosophies were quite old. As early as 1930, these two philosophies were delineated:

...workers in television are divided between two views as to the future. One group believes that the relatively crude television now possible over available radio channels has a sufficient appeal and field of usefulness to warrant its exploitation. The other group holds that television will have no wide or lasting use until it has been developed to yield images of many times the detail yet attained. The verdict must ultimately come from the public...¹

Coalitions representing the same two groups were reidentified by the FCC's Television Committee in 1939:

...there are two different schools of thought concerning the method of attaining this objective (of standard performance). One advocates standardization as being recommended in the proposals of the Radio Manufacturers Association as being the best method to obtain orderly progress. The other advocates further technical research before the adoption of any standards which might tend to hamper practical progress because of the inflexibility inherent in any standardization at such an early stage of development.²

¹Ives, Herbert E. "Television" in Codel, Martin, (ed.), Radio and its future (New York: Harper and Brothers, 1930), pp. 302-315 at p. 315.

²U. S. FCC. First report of television committee. May 22, 1939, FCC mimeo 34168, p. 5.

Orrin Dunlap, formerly of the New York Times, now a vice-president for institutional advertising and publications of RCA, leaned toward the post-1939 RCA viewpoint in his 1942 analysis of the two groups:

...television...has been juggled between two schools of thought. The most progressive group advocates giving television its freedom in the air and guiding it toward commercial development; the other would hold it back. The latter contends that television should be purely experimental until...all the kinks are ironed out... Fortunately for the new art, the idea of the first group has to a large extent prevailed.³

During the 1930s, promoters tried to establish a commercial television structure despite the low and inadequate standards. Until 1941, the Commission and that portion of the industry that had "something better" in the laboratory rebuffed attempts to introduce commercial television. The promoters were near success in 1940, when RCA was finally ready to proceed with television and almost succeeded in freezing standards (see Chapter III). The drubbing RCA took in 1940 might have crushed a lesser organization, but it came back with slightly improved standards within the year, and persuaded the industry to accept them.⁴ This acceptance gave RCA the leverage it needed to enter the FCC 1944 allocation hearings from a position of strength.

CBS was not in such a fortunate position. It made a bid for establishment of color standards and use of the UHF during

³Dunlap, Orrin E., Jr. The future of television (New York: Harper and Brothers, 1942), p. 22.

⁴The similarity between this episode and the story of RCA's color television development in 1948-53 is striking. See Chapter V.

the 1940-1941 hearings, when Dr. Goldmark, who was developing the CBS color system, was having considerable laboratory success.⁵ When it announced its postwar policy, it did not have a complete color system to demonstrate. Although color pictures could be transmitted and received, part of the CBS scheme required using the UHF, for which high-powered transmitters were not yet practicable. Adoption of the CBS plan would mean that few people would be willing or able to purchase receivers that would provide the industry with sales for the crucial postwar years.

The only real support received by CBS in the 1944 hearings was from Chairman Fly and those others who realized that this was the last time decisions could be made on the public's behalf without also disturbing a major investment on the part of the industry or the public. The entire development of television in this country⁶ rested on whether television would be introduced

⁵See Chapter III.

⁶Other countries developed television in different ways. In 1932, the British attempted to promote the use of television by expanding the BBC program schedule. They also guaranteed purchasers against obsolescence by freezing standards for a period of two years. "But in spite of these promotional efforts, sales of receiving sets remained very limited." (MacLaurin, *op. cit.*, footnote 35, p. 205.) In 1935, the BBC arranged for two rival companies (Baird and the giant Marconi-E.M.I.) to try out their systems on alternate weeks. In February 1937, the Television Advisory Committee recommended adoption of the Marconi-E.M.I. standards, to remain fixed for a minimum of three years. (Hubbell, *op. cit.*, pp. 160-162.) These standards are still in effect due to World War II. "British television works on 405 lines because it adopted that standard in 1937, when 405 lines was the highest that technical experience justified. Post-war experience would justify a considerably higher standard (though there is still little practical experience of transmissions beyond 600 lines) but Britain, having established a standard, could not change it without inflicting hardship on both manufacturers and viewers who had bought sets. In fact, if it had not been decided

on "adequate" but not optimum standards or if it would be held back for a time to allow for more research leading to higher quality. Many of the problems of television allocation today stem from the 1945 decision to innovate television with RCA "as is" standards on an inadequate number of channels.

2. Station assignments. When the allocation decisions of 1945 were made, television was given only thirteen channels because of wartime military encroachments on the VHF band. At least twice that number were suggested by witnesses at the 1944 allocation hearings in order to provide a nationwide competitive service. In addition to the scramble by applicants in a given market, the wealthier would-be broadcasters represented for the most part by the Television Broadcasters Association, had a definite interest in getting as many stations as possible in the larger cities (admittedly fostering competition in these communities) at the expense of smaller and outlying communities, and thus preventing a true nationwide service.

It was a tenet of the TBA that New York City should have seven channels, a conclusion innocent in itself but one which

to resume television after the war on the pre-war standards, Britain would probably not have had post-war television at all." (Gorham, Maurice. Television: medium of the future London: Percival Marshall, 1949, p. 64.) "Allowing the public" to purchase sets to help in the development of television financially had the effect predicted by the FCC in its own efforts to forestall premature innovation. Once sets are purchased by the public in any numbers, and manufacturers and broadcasters develop a vested interest in the status quo, then the mere fact of the existence of higher standards is of no importance if introduction of the new system will jeopardize the investment in the old.

had unfortunate results over the entire eastern seaboard. Instead of making its decision on the basis of engineering standards, the FCC acceded to the short-range economic proposal of TBA and established a system of television which provided coverage to only 40 per cent of the nation's population, with competition only in the largest cities. This condition was inescapable if the RCA policy of immediate innovation were followed. However, conditions were even worse than expected, since in order to accommodate as many outlets as possible, stations on the same or adjacent channels were assigned too close together without any margins of safety. The resulting mutual interference and degradation of signal quality required halting new station construction in 1948 to try to unscramble the situation. Only television's enormous vitality and almost unlimited financial backing kept it from falling into public disrepute.⁷

3. Frequency modulation radio allocation. Once more FM and television interests clashed over the disposition of old Channel 1 (44-50 mc). Since propagation characteristics, particularly with respect to range, were apparently better the lower a station got in the VHF, television tried to get back this spectrum space. Although the weight of engineering evidence and opinion was in favor of leaving FM in this band, the

⁷FM, also faced with a halt, was not nearly so fortunate. In addition to lack of financial "staying power", a large investment was lost when FM was moved to the 88-108 mc band after the war. The delay in establishing postwar FM -- on either the old or new channels -- was almost fatal.

Commission decided, on the basis of testimony Armstrong has labeled "false," to move FM up to the 88-108 mc band, thus rendering obsolete all FM transmitters and receivers. Armstrong's bitterness and disappointment over this move (which almost killed FM) led to further rounds in the struggle, particularly before Congressional investigating committees.

4. Color. Throughout the late 1940s, the two principal protagonists, CBS and RCA, carried on their "personal" arguments over color television standards. The energetic promotion of color by CBS forced RCA to demonstrate that it, too, could produce color, and thus played into CBS hands. RCA could not afford to take the risk of CBS's controlling color television development and patents, no matter how much it wished to "play down" the entire question.

Ingenuous developments by both parties later gave them the ability to squeeze a color signal into the standard 6-mc wide channel used for black-and-white, thus divorcing the question of color from that of allocation. In the middle 1940s, color needed a much wider bandwidth and was inexorably intertwined with the strategies and tactics of major participants in allocation struggle.

Although these conflicts were aired before several tribunals or forums at the same time, such as public opinion and formal presentations before the FCC, principal "battlegrounds" could be identified for each of these four battles. In the RCA-CBS fight over the structure of postwar television, proceedings and representations before the FCC were the most

common methods for presenting a point of view. RCA also worked "behind the scenes" to garner support from other manufacturers. Since the Commission apparently lacked knowledge of radio propagation gathered during the war, it depended largely upon industry for its information, particularly upon the Radio Technical Planning Board (RTPB). CBS and RCA engineers⁸ started their fight in the RTPB and continued it in the trade press long before the 1944 Allocation Hearings started. Since the RTPB was supporting RCA, CBS had to make its presentations before the FCC count heavily.

Although all participants made use of Congressional committees and individual congressmen, Armstrong excelled at this type of lobbying. In order to gain the maximum salvage from the wreck of prewar FM allocations, Armstrong did not hesitate to apply every possible means: petitioning the FCC, writing articles and letters to editors, spending his own money to show what a FM high-fidelity network could do,⁹ and, particularly, testifying before friendly Congressional committees. Although Armstrong never achieved his goal of retrieving the 50-mc band, he gave the television interests (particularly RCA) some bad moments.

⁸To the layman, accustomed to thinking of engineering "facts" rather than "opinions", the differences between the views of the various chief engineers or directors of research is startling. For instance: "it is nothing to hear one imposing engineer say that no tube is available to give sufficient power output at high frequencies, while another imposing engineer says he has one and it does. It is nothing to hear one engineering group say that the wide future of television is in the ultra-high frequencies, while another swears that, though it's feasible, there's actually no practical advantage up there..." "Television: a case of war neurosis," *Fortune*, February 1946, p. 104.

⁹See Lessing, Man of high fidelity, *op. cit.*, p. 301.

CBS was another contestant that specialized in a specific forum. Its strategy rested upon the manipulation of public and industry opinion, from the initial news release about color television, through feature stories in press and pamphlets, engineering "miracles" which were "made to order" in the laboratories, advertisements and public demonstrations.

This chapter will deal with the 1944 Allocation Hearings, the 1945 Reports, the 1946-7 color controversy, and the 1947-8 realization of the magnitude of earlier allocation errors. It will also examine two case studies: Armstrong and Congressional lobbying, and CBS and public opinion manipulation.

Standards for postwar television

The FCC Allocation Hearings of 1944.---The FCC Allocation Hearings of 1944 were the scene of conflicting strategies and comprised the most extensive airing of the allocations problem during the 1940s.

These hearings started as a result of a clash between the Commission and IRAC. On June 3, 1943, the IRAC established a subcommittee under the chairmanship of Commissioner Craven to consider planning for the postwar use of the spectrum.¹⁰ This subcommittee (mainly FCC engineers, but with some industry

¹⁰Much of this section has been drawn from the (U. S.) Commission on organization of the Executive Branch of the Government (1949 Hoover Commission), Committee on Independent Regulatory Commissions, Staff Report on the Federal Communications Commission. Prepared by William W. Golub, September 15, 1948. Washington: Unpublished, mimeo. Particularly Appendices A-II(6) and D. Hereafter referred to as the Hoover Commission Staff Report.

consultants on frequency usage) proceeded to prepare an allocation plan designed to replace the provisions of the Cairo Treaty of 1938.

When this plan was completed in the spring of 1944, Commander Craven submitted it to the FCC for its approval as a member of IRAC. However, the Commission felt that it had a statutory duty to make an independent investigation and submit proposals as the only agency which could plan for the needs of non-Federal government users. The Commission held that the Communications Act required full consideration of industry demands for frequencies at a public hearing. Accordingly, it instructed Craven to inform the IRAC that the Commission could not approve the report until it made its own study and could prescribe a plan which, together with the IRAC plan, could serve as the basis for our treaty proposals.

The Department of State, also a member of IRAC, charged with negotiation of the treaty, announced that as soon as it received the IRAC plan it would independently convene a government-industry meeting to prepare the United States proposals. Despite the FCC position, IRAC "adopted" rather than "approved" the Craven subcommittee report since under IRAC procedures, a unanimous vote was required to "approve" the report.

The Commission, particularly Chairman Fly, was incensed by this action. It felt that the State Department was bypassing the Commission and the public, and was attempting to arrogate functions which it did not have. In addition, the refusal of IRAC to withhold its report as requested by the Commission was a source of great irritation. Fly had

been having a running battle with the military,¹¹ and he was convinced that their action in IRAC was just another case of their trying to run all phases of the government during the war period.¹²

The Commission effectively sabotaged the State Department's government-industry meeting by not participating and letting it be known that it did not intend to cooperate until it had made its own determinations.

On August 15, 1944, the Commission announced an Allocation Hearing of its own to begin on September 28, 1944 (Docket No. 6651). These hearings were to center upon work of the Commission's staff engineers, many of whom had worked on the IRAC proposals, and the industry's Radio Technical Planning Board.¹³

The hearings were held between September 28 and November 2, 1944, before the full Commission. These were the most extensive hearings ever conducted by the FCC up to that time, with 231 witnesses testifying, 4,559 pages of testimony and 543 exhibits.¹⁴

The battle over television allocation started early, with initial skirmishes involving the Commission's expressions of concern over the possibilities of interference bothering FM in

¹¹Testimony before the House Committee to Investigate the FCC (op. cit.) showed this conflict to have been quite bitter.

¹²Hoover Commission Staff Report, Appendix page A-II-(C)-3.

¹³The RTPB was divided into panels representing specific services or groups of services for the most part. These panels were subdivided into committees dealing with one aspect of the situation. Panel 6 dealt with television, and one of its committees dealt with allocation. However, Panel 2 was concerned with the allocation structure of the entire spectrum.

¹⁴U. S. FCC. 11th Annual Report-1945. p. 7.

the 40-50 mc band and suggestions to move it up to the region of 100 mc. This proposal was strongly opposed by Armstrong, who mustered near-unanimous engineering support.

This argument was but a sideshow to the main event between RCA, which wanted to establish postwar television using "proved" standards, and CBS, which was trying to delay the full-fledged exploitation of television until its program of research in color and high definition TV in the upper frequencies had been completed. In a reversal of the 1940 situation, RCA found to its satisfaction that almost the entire industry was in favor of immediate establishment of postwar TV.

The CBS proposition.--Since its efforts in the RTPB had little success, CBS decided to use the 1944 Allocation Hearings as a full-fledged sounding board. The opening gun was fired in an emotion-packed appeal to public opinion by CBS Vice-President Paul W. Kesten:

I shall, for your consideration, urge what many will call a complete annihilation of the status quo -- moving television bodily from what might be called the basement of the very high frequencies to an upper floor in the ultra high frequencies -- moving each licensee, moreover, from a narrow cell down there in the basement to a broad and spacious room in the upper megacycles, and finally -- scrubbing off the dingy grey soot of the cellar so that television can emerge, upstairs, in the full and natural colors of the life it is to view and reflect to the American audience.¹⁵

¹⁵Kesten, Paul W. in National Association of Broadcasters, Special Allocation Hearings Bulletin No. 2, p. 12, October 5, 1944. Washington: National Association of Broadcasters. The twelve bulletins in this series, which are dated between October and December 1944, contain extracts from hearing testimony dealing with any form of broadcasting. They will be cited hereafter as NAB Allocation Hearing Bulletin No. _____.

CBS asserted that any delay in innovating high-definition or color television would be decisive in determining the shape of television's future.¹⁶ If these higher quality standards were ever to be developed, the time would be before postwar television started using prewar standards. The public investment of two million dollars in television sets prior to 1944¹⁷ could be disregarded much more easily than the estimated 200 million dollars which might be spent on a million receivers within two years after the war. CBS management witnesses emphasized that expensive research on the UHF band had been conducted by the military during the war and that technological advances resulting from this research might lead to a demonstration of the new television system within a year.

CBS engineers backed up the CBS management in estimating that it would take about a year to develop a workable high-band color television system, if a concentrated effort were made by all parties.^{18, 19}

As a double-barrelled effort to "hedge its bets" and to avoid unduly antagonizing the rest of the industry, CBS (which

¹⁶The semantic difficulty in this area is quite well illustrated by CBS attacking RCA's attempts at delaying high-definition color TV, while RCA was attacking the CBS attempts to delay the immediate introduction of black-and-white TV.

¹⁷The estimates of the number of prewar receivers range between 7,000 and 10,000.

¹⁸It was estimated by CBS that 80-90 per cent of needed research had been accomplished during the war. Goldmark, Peter C. NAB Allocation Bulletin No. 7, pp. 1-17 at p. 17.

¹⁹Kugel, Frederick A. "Report on CBS Post-War Television Policy," Television, Vol. 1, No. 1, (Spring 1944), pp. 2-5 at p. 2.

was operating a New York City television station on the VHF band) was apparently willing for some sets to be sold and commercial broadcasting to continue on the low band while research went forward on high-definition and color. It cautioned, however, that people should be warned of the possible obsolescence of their TV purchases. The public should not be "loaded up with millions of sets designed and built to receive only pre-war television pictures" providing a "tempting double market" for the manufacturer. CBS called the possibility of supplying potentially useless sets "a first-rate fraud upon the public and upon the broadcasters" and reminded the Commission that without adequate spectrum space there could be no competition.²⁰

Since CBS, unlike RCA, was "not interested in making a fortune in patents", but wanted a competitive programming situation so that people would buy sets, and create an ever larger potential audience for CBS,²¹ its proposal for adding more channels seemed logical. However, the color aspect of the CBS proposal was recognized and attacked as the legitimate advantage-seeking gambit that it was. High definition and color, although manifestly of value and interest to the public, were not ready (in a technical sense) for innovation in 1944.

There was little support for the stand of CBS. Even Philo Farnsworth, who once predicted that "in television of the

²⁰Kesten, Paul W. NAB Allocation Hearing Bulletin No. 6, p. 21.

²¹Ream, Joseph H. NAB Allocation Hearing Bulletin No. 6, pp. 23 and 25.

future, we will actually utilize the frequency bands above 5000 megacycles (and) will have color television with detail...,"²² did not testify himself at the 1944 hearings, and his firm's representatives generally supported its patents-partner, RCA. Farnsworth's financial position was such that his need for royalties outweighed considerations of idealized potential television systems.

FCC Chairman Fly was wholly consistent with his 1940 stand against RCA's attempt to freeze the situation by selling to the public receivers based on RCA standards. His opinion was entered on the CBS side when he attacked a New York Times editorial in favor of the current standards and took the manufacturers to task for planning to sell receivers that could not give the best possible service.²³

In an attempt to gain manufacturing allies in its fight against RCA, as well as to show genuine interest in UHF, CBS negotiated for the delivery of a UHF transmitter from General Electric and cooperated in the development of UHF receivers with Zenith. Even with these orders in hand and the opportunity to be in on the ground floor of UHF, neither Zenith nor GE was willing

²²Farnsworth, Philo T. Letter to the First Annual Conference of the Television Broadcasters Association, Inc. (New York, December 11-12, 1944) published in the Conference's Proceedings, p. 176.

²³Kugel, Frederick A. "Report on CBS post-war television policy" op. cit., p. 3.

to burn its bridges and give much support to CBS during the 1944 hearings.²⁴

Of course, even CBS "hedged its bets" and continued broadcasting on the VHF narrow (6 mc) band with black-and-white in New York, in order to hold on to the channel. However, every time it went on the air, it broadcast an announcement which antagonized other segments of the industry, particularly manufacturers, to the effect that it did not want these broadcasts to be considered as inducements to purchase television sets "at this time." A booklet explaining this announcement was published by CBS and sent upon request to the viewing public. It stated that operation on the low band with then-current standards "was necessary to protect our use of this channel" and that "forfeiture of our license would have jeopardized our position in the television field."²⁵

²⁴See NAB Allocation Hearing Bulletin No. 6, pp. 17-18 for CBS' story of how the industry rejected the idea of moving to UHF with a "barrage of abuse" even though CBS proposed allowing a service to continue for an unspecified temporary period on the VHF. Representatives of GE and Zenith did testify inconclusively and possibly evasively at the Allocation Hearings with respect to CBS. Although no one from the following firms testified, CBS was able to announce that both Federal Telephone and Radio (an IT&T subsidiary) and Western Electric (an AT&T subsidiary) had expressed willingness to make UHF transmitting equipment. IT&T and Westinghouse personnel are quoted in an article in Fortune ("Television -- a case of war neurosis," February 1946) as supporting CBS color proposals. W. R. G. Baker, of GE, although working with CBS on color-receiver designs, is quoted in the same article as saying: "The trouble with the higher frequencies is that we don't even have enough facts to state the problem."

²⁵Columbia Broadcasting System. A statement of some television facts. Quoted by Norman D. Waters in NAB Allocation Hearing Bulletin No. 8, pp. 40-41.

The original CBS proposal suggested a total of twenty-eight new 16-mc wide channels in the UHF band. This extraordinary bandwidth was necessary for the CBS color system in its then-current state of development, and CBS attempted to make this width desirable to other television interests by pointing out that it could be used to provide high-definition (up to 1,029 lines) black-and-white television as well as color.²⁶

CBS opened its campaign outside the FCC hearing room with a manifesto issued in April, 1944, calling upon the industry to "free television from the straitjacket of narrow-band, black and white transmission" with its relatively "coarse-screen picture."²⁷ This proposal was rejected by a majority of the industry, and the Television Broadcasters Association dismissed it as being "in the

²⁶An interesting skirmish developed when CBS' Edward R. Murrow reported that the French had experimented successfully with 1,000-line television in Paris during the war. John R. Royal, of NBC, said that this wasn't so, and sent John McVane, NBC's Paris agent, to investigate. McVane reported that the Director General of French radio declared that it would take at least four and probably many more years of experimentation before a 1,000-line television was ready for the public. In fact, France's 450-line television was still on a minor experimental basis.

CBS immediately countered with a broadcast by Charles Collingwood, who also quoted officials as saying that France did have practical 1,000-line television and that there were no longer insurmountable technical obstacles to putting it into general use, and that ten million francs had been spent on research on television improvement since 1940.

These opposing stories were aired on nationwide radio programs to try to influence public opinion. It is interesting to note that present transmissions in France are 819-line, with some Paris transmissions still using 441-line as a service to set owners who had purchased their receivers before the new, higher, standard was adopted in November 1948 (the first full-scale operation on 819-lines was in the summer of 1950). "Television in review", Television, Vol. 1, No. 4, January, 1945, p. 26; and UNESCO, Television-a world survey. Paris, 1953. p. 121.

²⁷"Television -- a case of war neurosis", Fortune, February 1946, p. 107.

realm of speculation." When CBS called for abandoning the VHF band, opposition intensified, with supporters of "television now" accusing CBS of trying to hamstring television because of its investment in sound (AM) broadcasting, its lack of a manufacturing subsidiary to profit from the sale of sets, its desire to delay television to strengthen its own position, and finally because of its ambition to pose before the public as a champion of science.²⁸ Although many of these charges leveled against CBS were accurate, the opposition could not destroy the basic soundness of the call for extensive serious planning for the best possible quality and greatest amount of competition.

The RCA opposition.--The lineup of those opposing the CBS proposals who desired to start some sort of immediate television system was formidable. Most of the manufacturers of electronic material possessed what would become excess plant capacity at the war's end. Many of their factories had been built with government money to produce war material such as radar and military communication equipment. These plants could be bought from the government at low cost and were readily convertible to television receiver production. Plans could readily be drawn up based on prewar television standards, and production started as soon as the war ended. The introduction of new standards would require "tooling up", and the delay might mean that producers of black-and-white TV would miss out on the profits to be made from the expected postwar surge of consumer buying.

²⁸Ibid., pp. 107-108.

The opposition to CBS came from those major segments of the industry that were ready to go ahead immediately, as well as from manufacturers, broadcasters, and other persons who seriously feared the dangers of postwar unemployment and looked for new industries to take up the slack. The newly formed Television Broadcasters Association declared that the "CBS statement deals in speculation, not sound technical principles."²⁹ DuMont lost no opportunity to satirize³⁰ and cast doubt on CBS technical qualifications and information, pointing out that CBS was almost the only firm in the industry not engaged in wartime propagation research in the UHF.³¹

One of the greatest handicaps of CBS was that it was moving counter to the pent-up demand for consumer goods. It attempted to offset this insofar as the manufacturers were concerned, by pointing out that the demand for radios, phonographs and other equipment could keep the manufacturers occupied during the time needed to engineer a new television system.³² However, the dominant opinion of the industry -- and the country

²⁹Kugel, Frederick A. "Report on CBS post-war television policy", op. cit., p. 3.

³⁰When receiving an award from the TBA, DuMont was called upon to discuss the future of broadcasting. He said: "...the five experts ahead of me...have covered everything but the 'smell' angle in television. We may have that some day and we may have third dimension, but I hope we do not hold up commercialization until we get it." Proceedings of the First Annual Conference of the Television Broadcasters Association, New York, December 11-12, 1944. p. 178.

³¹Kugel, Frederick A. "Report on CBS post-war television policy". op. cit., p. 3.

³²Ream, Joseph H. (Vice President and Secretary, CBS). NAB Allocation Hearing Bulletin No. 6, p. 25.

as a whole -- was that the postwar era should bring forth glittering new services for the public. A workable television system was available, and it was felt that it should be exploited to the fullest, regardless of its shortcomings.

Thus, many groups with different motives supported the actions advocated by RCA. Acting as a spokesman, RCA's chief engineering witness, Dr. C. B. Jolliffe, called upon the Commission to:

reaffirm its authorization for commercial television on standards recommended by the RTPB on an adequate number of frequencies to be selected below 300 mc, without limitations, physical or psychological, which would prevent it being universal and national in scope.³³

When asked what he meant by "psychological" limitations, Jolliffe replied that there should not be "any indication that this may be upset overnight or that the public should not buy receivers because they may change."³⁴ Another RCA engineering witness testified that he would be willing to accept 6 mc bandwidth television near 50 mc "for all time", although he also wanted to be able to apply later for higher channels if needed for expansion.³⁵ A manufacturing manager of RCA testified at length to the need for immediate commercial operation and warned of the dire consequences (such as unemployment) certain to follow if

³³Jolliffe, C. B. Testimony during 1944 Allocation Hearings, Transcript Volume 10-B, October 24, 1944, p. 3062. Dr. Jolliffe was a former FCC Chief Engineer.

³⁴Ibid.

³⁵Engstrom, Elmer W. Testimony during 1944 Allocation Hearings, Transcript Volume 10-C, October 25, 1944, p. 3173.

television did not get the immediate postwar green light.³⁶

Niles Trammell, President of NBC, predictably testified that VHF television should not be curtailed or abandoned:

First, because a satisfactory and practical service of television with tried and tested standards can be operated on frequencies below 300 megacycles.

Second, because the period of time required to develop, and to demonstrate the practicality of, a television system in the frequencies above 300 megacycles cannot be determined at this time.

Third, because the nation needs and expects television as an immediate postwar service and industry.³⁷

This RCA position of 1944 was but an extension of their 1940 stand that television should be innovated as quickly as possible, thereby enabling the industry to realize on its investment and catch the tide of postwar consumer spending. In this connection, a specific public relations tactic of RCA was to pretend that the Commission had never held the 1940 promotional activities as being against the public interest. In fact, RCA acted as if the whole episode had never occurred.³⁸

³⁶Joyce, Thomas F. (RCA Victor). NAB Allocation Hearing Bulletin No. 8, p. 31.

³⁷Trammell, Niles. Testimony during 1944 Allocation Hearings, Transcript Volume 10-D, October 26, 1944, p. 3335.

³⁸See Chapter III for this story. When O. B. Hanson, Vice-President and Chief Engineer of NBC, testified before the 1944 Allocation Hearings with respect to a "few historical facts" about television, he mentioned the start of limited commercial broadcasting, the appearance of "some differences of opinions among engineers as to technical details", and the fact that there were "hearings before this Commission in 1939 and 1940", but the bitter words and actions of 1940 were ignored completely, and (according to this account) television sailed serenely along from limited commercial operation in 1949 to full commercial broadcasting in the summer of 1941. (NAB Allocation Hearing Bulletin No. 9, p. 3.

A pamphlet published by RCA in 1944, which makes rather sweeping claims about credit for television's progress and historical development, also slid smoothly from 1939 to 1941

The supporters of RCA's position -- no matter what their motives -- testified extensively. Typical were the broadcaster witnesses who felt that "peaks of interest" had been built up that should be exploited as soon as possible,³⁹ and the advertising agency representatives who emphasized the advantages to the national economy of rapidly innovated television.⁴⁰ On a more specific plane was testimony such as that of Allen B. DuMont, who claimed that satisfactory television was then available which "the public can use while waiting for miracles" and that "the heated exchanges of advertising copy-writers" could not settle scientific questions.⁴¹ One witness gave his opinion:

without a mention of the arguments of 1940. (Radio Corporation of America. Television: progress and promise. New York: RCA Department of Information, 1944).

Elmer Engstrom, then director of research for RCA, phrased it this way: "Two public hearings were held before the Federal Communications Commission early in 1940. At these hearings those most responsible for the research and development that has produced television urged that it be allowed to proceed in an orderly fashion. Others, including some who participated in the Radio Manufacturers Association work, urged that all was not ready, particularly on the matter of standards. Television was not permitted to throw off its cloak of 'experimental' and begin its more full-grown steps leading to a public service." (Engstrom, Elmer W., "Recent Developments in Television", Annals of the American Academy of Political and Social Science, Volume 213, "New Horizons in Radio", January 1941, pp. 130-137 at p. 136).

³⁹Weiss, Lewis Allen (Vice-president and General Manager of Don Lee Mutual Broadcasting System). NAB Allocation Hearing Bulletin No. 7, p. 23.

⁴⁰Long, Frederick A. (Batten, Barton, Durstine and Osborne), NAB Allocation Hearing Bulletin No. 6; Nelson, Raymond E. (Charles M. Storm advertising agency), NAB Allocation Hearing Bulletin No. 6; Waters, Norman D. (Norman D. Waters and Associates), NAB Allocation Hearing Bulletin No. 8.

⁴¹DuMont, Allen B. (Representing TBA) Testimony during 1944 Allocation Hearings, Transcript Volume 10-D, October 26, 1944, p. 3358.

...television should start as soon as possible on the lowest band of wave lengths that can possibly be assigned to it and that there should be made available as many wave lengths as possible to the exclusion of all other interests which may be asking for them but whose influence on man's mind is considerably less.⁴²

The RTPB, composed of what FCC Chairman Fly had once called the "best technical minds in the industry",⁴³ issued an allocation report that was extremely damaging to the CBS case and was in support of RCA and its allies. The television panel of RTPB, after much travail, had come up with the following recommendations for television:

The Panel...is firmly of the opinion that a substantial service which will have widespread public acceptance can be established on the basis of the proposed standards...

(1) Commercial monochrome television broadcasting should be continued on six megacycle channels and on the present standards...

(3) Every effort should be made to provide a continuous frequency spectrum of thirty channels for immediate post-war commercial monochrome television broadcast. This spectrum should include the (existing channels below 108 mc).

⁴²Raibourn, Paul. (President, Television Productions and economist for Paramount Pictures). Testimony during 1944 Allocation Hearings, Transcript Volume 10-D, October 26, 1944, p. 3382. This view was bitterly contested by the representative of the industrial, medical and scientific services. "Marvelous as television promises to be the public will find it a poor substitute for...(a) a higher standard of living. I therefore urge the Commission not to let television demands monopolize the radio spectrum to the detriment of the real public interest..." (Testimony of Alexander Sonauke. NAB Allocation Hearing Bulletin No. 12, p. 9).

⁴³Fly, James L. "As the FCC sees it". Television, Vol. 1, (Spring 1944) p. 8. Chairman Fly considered the RTPB recommendations as only advisory, however. "In the end the Commission will have to decide the best place for television in the interest of the greatest number of people. But in arriving at its decision, you may be sure, it will make use of the best advice it can obtain." Although he acted as Chairman during the actual hearings, Mr. Fly left the Commission on November 13, 1944, and thus did not take part in the ensuing FCC deliberations and decisions.

(4) With respect to color television, it was decided that adequate standards for color television for a six megacycle channel cannot be established at this time. This action was taken without prejudice to the continuation of experimentation in color television in such channels.

(5) Provision should be made at this time for higher frequency channels in which experimentation and development may be conducted looking toward an improved service which may include color, higher definition and any other improvements which may occur. It is recommended that these channels be assigned on the basis that they will subsequently be utilized for commercial broadcasting of the improved television service at such time as standards may be adopted.⁴⁴

These recommendations by RTPB Panel Six (Television) were only tentative, since all recommendations had to be coordinated with the needs of other services through Panel Two (Allocations). The suggested continuous frequency band of thirty channels was badly mangled after it had been reviewed by Panel Two, which recommended twenty-six TV channels, divided into seven segments instead of one continuous band. All were to be in the VHF, with nine below 108 mc. The three uppermost channels were for "local" or "community" station use, with low power and antenna, and would probably be needed only along the Atlantic seaboard. This final recommendation by the RTPB was presented to the FCC with the following list of supposed advantages:⁴⁵

1. It would "require a minimum shifting of existing services."

⁴⁴Smith David B. (Chairman, Panel Six, RTPB: Television). NAB Allocation Hearing Bulletin No. 1, pp. 13-15.

⁴⁵Ibid.

2. It would "provide a reasonable approximation" to the ideal of thirty continuous channels.⁴⁶

3. It would "provide the ideal service if during the next few years the services interposed between the proposed channels could be moved to other frequencies."

Long-range considerations.--The RTPB recommendations also looked forward to possible use of color or high-definition television. It was suggested to the Commission that some thirty channels, each 20 mc wide (large enough for more than three standard 6 mc channels) be provided for experimentation and development. If color television were innovated successfully, these channels would become the "home" for television. In the meantime, they could be used for relay purposes as well as experimentation.⁴⁷

Testimony at the FCC hearings showed agreement in nominating the upper frequencies as television's eventual home. The number of channels, and their bandwidth, had yet to be decided upon. Commander Craven suggested immediate allocation of forty channels in the UHF band, each 13 mc wide. He felt that postponement of experimental allocations until complete propagational data was obtained could lead to the danger that "the factor of

⁴⁶It is hard to see how twenty-six channels, in seven segments -- thus requiring expensive receiver tuning components -- can be considered "a reasonable approximation" to the original recommendation of thirty continuous channels.

⁴⁷Smith, David B. NAB Allocation Hearing Bulletin No. 1, p. 16.

invested capital in equipment (may force) compromises which are not the best solution from an engineering standpoint."⁴⁸

FCC General Counsel Denny questioned RTPB Television Panel Chairman Smith carefully about the possibilities of full exploitation and competition with the use of about half the number of VHF channels recommended by RTPB. The reply was a qualified "no," and pointed out that fifteen channels would be enough only if "there was a reasonable chance of additional channels being made available at a later date" since there "must be some substantial opportunity available" for television to be "put over."⁴⁹ Despite general agreement that at least twenty-five to fifty channels would be needed (probably in the UHF band) for a satisfactory competitive television service, Smith -- a Philco executive -- expressed the conviction of that majority portion of the manufacturing industry following the lead of RCA toward immediate postwar television, when he declared that:

...6 mc television can be very good and will provide a very acceptable public service and second that not only will it take a long time to develop new standards on higher frequencies, but also there is no good reason why the public should not enjoy our present television while that research is going on.⁵⁰

The dilemma faced by members of the RTPB was summed up by Commissioner Jett:

⁴⁸Craven, T. A. M. (then Vice-president, Cowles Broadcasting Company). NAB Allocation Hearing Bulletin No. 4, pp. 14-15.

⁴⁹Smith, David B. NAB Allocation Hearing Bulletin No. 6, pp. 14-15.

⁵⁰Ibid., p. 3.

...television will find its focus in the years to come in these higher bands and...some of the developments coming out of the war will certainly find a useful application in the television class. It is just a question of time in my mind as to how soon we can afford to discard or give up the idea of 6 mc television and concentrate on the ultra-high frequency system.⁵¹

FCC Chairman Fly had strong notions of the course television should take. His foresight is shown in a pungent speech delivered to the Radio Executives Club of New York in 1944. Any effect that this speech may have had was unfortunately lost when Fly resigned at the close of the 1944 Allocation Hearings. In his speech Mr. Fly described what he considered to be the serious dangers of subordinating every other consideration to the immediate postwar introduction of television:

Why blow our brains out with a flood of hot air? I think we have been doing too much talking on this subject. Stop talking and get back to the research laboratories and experimental stations! Let us do our damnest to develop a better system of television; both we and the industry, and the public will be the beneficiaries for all time to come.

The important consideration remaining is that no one, today or tomorrow, erect any legal commercial or artificial barrier that may retard television's advance (from a somewhat improved 6 mc, black and white system to a wideband UHF system), where it will almost inevitably and ultimately land.

First, it may be that with the passing of time and perhaps during the war further information will be released. Indeed, it is being developed in our own laboratories. Second, with reserve materials made available and, third, with the lack of volume materials for broadscale commercial expansion, we might actually have a golden opportunity to make the initial broad sweep to commercial operations with a vastly superior, broad band, larger screen and possibly full color television, in the upper range of frequencies.

Many factors are uncertain. I will not say this can be done. I challenge anyone to say that the possibility

⁵¹Jett, E. K. NAB Allocation Hearing Bulletin No. 6, p. 19.

should be foreclosed today. No amount of sales and promotional propaganda will settle questions of that character now.

Just as the administrator should not supplant the engineer, the engineer should not put out policy conclusions under the cloak of technical observations.

Television is fully authorized by the Commission to move forward commercially... (and) RCA and NBC are in the best position to set the pace and for that matter to project the outcome and that, indeed, is a grave responsibility.

I am rather regretful to see editorials talking about the necessity of freezing television at the pre-war standards because there were 7,000 receivers in the market and in the hands of consumers. Now, that ought to be a warning to us. If we are going to have that cry with 7,000 receivers we will never change basically a system of television when the quantity of receivers may run into millions and the public investment, let us say, is in billions.⁵²

The 1945 Decisions.--It would be hard to overemphasize the importance of the 1945 decisions on allocations which were based on the 1944 Allocation Hearings.⁵³ The structure erected then has remained in existence. The errors in judgment made with respect to mileage separation, use of only twelve channels and

⁵²Fly, James Lawrence. Speech at Television Seminar conducted by Radio Executives Club of New York in NBC Studio 6A, Radio City, New York, May 18, 1944, (mimeo) passim.

⁵³It should be remembered that the principal overt function of the 1944 hearings was to serve as a basis for United States proposals to the international postwar allocation conference, and, unless conflicts with the IRAC report could be avoided or reconciled, the State Department might be in the difficult position of having to choose between them. Accordingly, the FCC met with IRAC representatives, and the two groups managed to eliminate all differences. The chief disagreement was over frequencies for international high frequency ("shortwave") broadcasting. Although the IRAC was opposed to this service, President Roosevelt's interest in the subject caused the IRAC to agree to FCC proposals to grant a substantial number of frequencies to this service. (President Roosevelt's interest and intervention into telecommunications affairs was more active than any of his successors to date). Hoover Commission Staff Report, Appendix page A-II-(C)-6.

other aspects of television allocation have continued to plague the nation. As Commander Craven put it:

...never before in the history of allocation have we had an opportunity to make plans for the future equal to that presented to us here. Today we know more about radio possibilities than we did in 1920, 1927 and 1936.

Today we do not have the crucial problem of capital investment in existing commercial equipment as we had in former years.

Hence, it is not necessary to compromise engineering to such an unsatisfactory degree as we have been required to do heretofore. I sincerely hope that all concerned will have the broadness of vision, the wisdom and the courage to act wisely for the future of broadcasting service in the public interest.⁵⁴

On January 15, 1945, the Commission issued a lengthy proposed report with respect to its tentative conclusions on allocations. Television would receive only twelve channels in the VHF, in comparison to the figure of twenty-five or thirty proposed by the RTPB. Six of these FCC proposed channels were to be between 44 and 80 mc, and six more between 180 and 216 mc. Other frequencies formerly allocated to television (notably between 225 and 294 mc) were needed during and after the war for government services, and there was no space to be had below 225 mc to compensate for the six lost TV channels.⁵⁵ In fact, space was so scarce that it was proposed that eleven of the twelve channels were to be shared with government and non-government fixed and

⁵⁴Craven, T. A. M. NAB Allocation Hearing Bulletin No. 9, p. 47.

⁵⁵One former TV channel, 102-108 mc, was left unassigned pending further consideration.

mobile services on a geographical basis, as long as no interference to either resulted.⁵⁶

This scheme would have made it possible to have as many as seven stations in a city: four below 80 mc and three in the upper VHF.⁵⁷ Although specific assignments to localities were not included in this Report, the Commission observed that twelve channels would not be enough to provide a nationwide competitive service. Such a service would be dependent upon the development of the UHF (between 480 and 920 mc, to be precise).

Hearings and oral briefs on this proposed allocation table were held in late February and March 1945. Additional evidence was presented, some of it behind closed doors to permit classified military propagation data to be submitted. A few engineers representing the industry were allowed to attend and cross-examine witnesses.

The Final Report by the Commission on allocations above 25 mc was issued on May 25, 1945,⁵⁸ with the exception of the important VHF sub-allocation between 44 and 108 mc. This meant

⁵⁶U. S. FCC. Proposed Report in the matter of allocation of frequencies to the various classes of non-governmental services in the radio spectrum from 10 kilocycles to 30,000,000 kilocycles. Docket No. 6651, January 15, 1945.

⁵⁷The reason why only seven channels could be provided in any one city, instead of the entire twelve, was because stations operating on adjacent channels within a certain distance of one another (on the order of fifty-five miles) would interfere with each other.

⁵⁸U. S. FCC. Final Report in the matter of allocation of frequencies to the various classes of non-governmental services in the radio spectrum from 10 kilocycles to 30,000,000 kilocycles. Docket No. 6651, May 25, 1945.

that neither FM nor television could make definite plans until allocations were made to these and other services between 44 and 108 mc. The May 25 Report did not restore the 102-108 mc channel to television, but did give it a thirteenth channel between 174 and 180 mc. This made six channels below 108 mc, and seven on the upper band above 174 mc. Definitive allocations in the 44-108 mc band were linked to the ultimate decision on FM. Three alternative locations of the six lower TV channels were proposed, and a further hearing and argument was needed to dispose of this troublesome sub-allocation. The proposal to share TV channels was retained. The Commission also stated that it expected "soon" to issue a nationwide assignment plan, even though it felt that the future of TV appeared to be in the higher ranges of the spectrum.

The last television allocation report of 1945 was the sub-allocation of the 44-108 mc band, issued on June 27, 1945.⁵⁹ FM was moved to the 88-108 mc band,⁶⁰ with six channels for television (on a shared basis) at 44-50 (the old FM band), 50-72 and 76-88 megacycles. This was in essence one of the three alternate plans proposed in the May 25 report.⁶¹

⁵⁹U. S. FCC. Report of allocations from 44 to 108 megacycles. In the matter of allocations to the various classes of non-governmental services in the radio spectrum from 10 kilocycles to 30,000,000 kilocycles. Docket No. 6651, June 27, 1945.

⁶⁰Non-commercial (or educational) FM was given 88-92 mc, and facsimile 106-108 mc, with FM broadcasting permitted to operate on the later band.

⁶¹These three plans were in terms of FM's space in the spectrum: either 50-86 mc, 68-86 mc, or 84-102 mc. TV channels would be fitted around the chosen FM band, as would also amateurs and other services.

Four extremely serious drawbacks to the June 27th Report are evident. First, it required the sharing of television channels with fixed and mobile services, a dangerous practice for a service which was highly susceptible to interference. Second, it discarded the engineering criterion of a continuous band of channels, thus increasing the cost of sets by requiring more expensive switch-type components which had to work over a range of 172 mc (from the bottom of channel 1, 44 mc, to the highest part of Channel 13, 216 mc) rather than continuous tuning over a range of only 78 mc (thirteen channels at 6 mc each). Third, it rendered obsolete the existing FM investment and delayed the start of postwar FM on a band of frequencies believed by most engineers testifying at the 1944 hearings to be less suitable than its previous band. Fourth, and most important, it authorized full-fledged exploitation of television on an inadequate number of channels. The decision to use the thirteen VHF channels is entirely separate from FCC decisions not to adopt CBS' proposals for color television on the UHF band. It was unanimously agreed by Commission and industry that thirteen channels were too few for a nationwide, competitive service. No provision for alleviating this situation (other than some plainly labeled "experimental" channels on the UHF band) was made. In an effort ostensibly intended to free television from its wartime fetters and establish the new industry as soon as possible, the FCC actually bound the new service in a straitjacket.

Station assignments

The television allocation table.--Despite differences of opinion over the possible irrevocability of the Commission's allocation decisions of 1945,⁶² the fact remains that only thirteen channels were allotted to TV in the VHF. Since television was considered so important to postwar America that it should be encouraged to get a start as soon as the wartime material shortage permitted, the allocation limitation that would permit less than 500 stations was more or less ignored. Although UHF channels were reserved for experimentation, no incentive was provided for their use. The shape of television, for some time to come, was thought to have been fixed by the 1945 allocations in favor of those firms (centering upon RCA, whose enviable patent position was the subject of some comment in the trade press)⁶³ which had pioneered television in the VHF.

In the late spring of 1945, the FCC's engineering staff was given the task of preparing a plan for the nationwide distribution of TV stations on a sound engineering basis. The alternative would have been to drop a group of channels into a grab bag for distribution on a first-come, first-served basis, in the way that AM radio developed. The purpose of such an

⁶²Commander Craven felt that: "If you start in the low definition range and the public buys receivers, I think...that you have an obligation to the public." (NAB Allocation Hearing Bulletin No. 9, p. 49.) On the other hand, Chairman Fly commented that "if the Commission is going to concern itself with an investment of this sort in this band, then we would have to abandon all hope of improving it in the future." (NAB Allocation Hearing Bulletin No. 7, p. 19).

⁶³Television, Vol. 2, No. 4, May 1945, p. 19.

allocation plan was to specify (1) the locations at which stations could be licensed, market-by-market; (2) the number of stations at each location, so that no part of the nation (particularly rural areas) would be without service, with little or no interference between stations. This method would also ease the Commission's and applicant's administrative burden of the necessity for an engineering determination to see whether a station on a given channel were feasible in a given locality. Since the number of channels had been determined, the only other major variable was the distance between stations operating on the same or adjacent channels.⁶⁴

Most of the propagation data at the Commission's disposal at that time dealt with the intensity of ground wave or direct wave signals. However, sparse and not wholly reliable data relating to what was called tropospheric propagation were available.⁶⁵ The FCC engineering staff took the conservative position that a safety factor should be provided for interference which might be caused by tropospheric propagation of other signals. This safety factor took the form of minimum co-channel

⁶⁴This allocation table principle is used for FM as well as TV.

⁶⁵The troposphere is those layers of earth's atmosphere lying between the earth's surface and the stratosphere. Radio waves are often refracted in the different densities, temperatures and directions of these layers.

separations of 200 miles and adjacent channel separations of about eighty-five miles.⁶⁶

Using these safety factors, however, made it impossible to provide more than four channels in the New York City market and still allow for adequate service throughout the congested portion of the eastern seaboard.⁶⁷ This meant that New York City (always in need of more stations to provide adequate opportunity for advertisers and for competition between stations) would not have three of the seven channels that might be available if the rest of the country were ignored.⁶⁸ The Commission issued an Order of Proposed Rulemaking on September 20, 1945, setting forth the allocation (or rather, assignment) table for ten of the thirteen channels among 140 metropolitan districts in the United States.⁶⁹ The other three (Channels 1, 12 and 13) were to be reserved for low-power community stations able to operate with smaller co-channel separation. This Commission order was essentially the one developed by the staff and assigned only four

⁶⁶Panel Six of the RTPB discussed the separation problem at length, pointing out that a minimum adjacent channel separation would have to be on the order of eighty miles. See Report of Committee Four of Panel Six (Television), RTPB Document P6C4-240-A, pp. 3-5.

⁶⁷Because of this concentrated population and resulting congestion, the development of a nationwide TV plan is largely a matter of providing for adequate and competitive service in the northeast U. S. It was generally expressed in the 1944 Allocation Hearings that about thirty channels would be needed for this purpose.

⁶⁸Adjacent channel interference would limit a given city to every other channel, even if no other cities received stations.

⁶⁹U. S. FCC. Order of September 20, 1945 in Docket No. 6780. Mimeo No. 85053.

channels to the New York area. However, the Commission did provide for a species of "drop-in," permitting the assignment of stations to unlisted metropolitan areas more than 150 miles removed from listed co-channel stations and seventy-five miles from listed adjacent channel stations.

Although the major aspects of this plan were obviously based on safety factors which took account of tropospheric interference, the Hoover Commission Staff Report claims that:

There is some doubt as to whether the Commission proper was fully aware of this source of interference. None of the persons with whom this question has been discussed has any distinct recollection of what took place. The engineers believe it is entirely possible that they did not mention tropospheric interference to the Commission because they were not too sure of their data and feared that their safety factors might be cut down because of the weakness of the underlying support. It nevertheless is difficult to believe that the Commission proceeded in total ignorance of troposphere. The mere fact that only four stations were allocated to New York, when seven were theoretically available there, would be sufficient to require an engineering justification.⁷⁰

At hearings held pursuant to the September 20 proposed Order, the most active participant was the Television Broadcasters Association, which had the support of many existing and potential television licensees, particularly in the New York area. Earlier in 1945 the TBA had submitted a proposed plan which contemplated seven stations in New York but made no provision for stations in many other important localities in the northeast. At hearings held in the fall of 1945, the TBA argued for seven channels in New York, while countering the objections

⁷⁰Hoover Commission Staff Report, Appendix page A-II (D)-7. Appendix A-II(D) is drawn upon extensively for this section.

to its earlier proposed plan. Its revised plan suggested that two of the three "community channels" be used for full-power stations and that directional antennae be employed.

The Commission, quite sensitive about the industry's desire for as many stations as possible in New York (particularly since that would also be in accord with the FCC's expressed ideas on competitive TV service), directed its staff to investigate the directional antennae proposal of TBA. The staff concluded that the scheme would not work, partly because it was unlikely that the Civil Aeronautics Administration would approve the sites necessary for such directional operation (the existence of several forests of towers around a town becomes a distinct flying hazard). As a result, the FCC directed the staff to develop a plan which would achieve the basic objectives of the TBA plan without using directional antennae.

A revised plan was reported on November 21, 1945. It seemed to adjust all complaints. Seven channels were provided for New York City, and directional antennae were omitted. This was accomplished by retaining only one community channel and by using community stations where high-power directional stations were suggested in the TBA plan. In addition, and most important, "television stations have been located somewhat closer together in the eastern part of the United States than was done in the original Commission proposal."⁷¹

⁷¹U. S. FCC. Report of November 21, 1945 in Docket No. 6780, Mimeo No. 86536. (pp. 2-3.

No allocation plan will give something for nothing. In this case, the price of seven channels in New York was neglect of the safety factors previously deemed necessary to protect television against tropospheric interference. Instead of the 200-mile separations proposed in the original staff plan, the plan adopted by the Commission called for separations on the order of only 150 miles, which allowed for only groundwave and not troposphericly propagated interference.

What happened to troposphere between September and November 1945 has not been readily ascertainable. One thing does seem to be reasonably clear -- the engineering staff was not too strong in its handling of the problem. Apparently the engineers were convinced that the Commission was going to place seven stations in New York, and as many stations as possible in other large metropolitan centers, whatever the consequences might be. They either wearied of warning the Commission about tropospheric interference or just were resigned to the probable futility of pressing the point.

How much the Commission knew about troposphere can only be hazarded. The probabilities are that the Commission was aware of the phenomenon, but was unwilling to reject the industry's demands on the basis of a largely unknown quantity. Whatever the state of the Commission's knowledge may have been, it adopted a TV allocation plan without providing an adequate safety factor for tropospheric interference.⁷²

Another negative comment on the Commission's plan came from a scientist at the Bureau of Standards Central Radio Propagation Laboratory some years later:

There is no doubt in my mind after the conference and after the committee discussions that better engineering guesses (Class C estimates in JTAC terminology) can be made than were used in setting up the TV allocation

⁷²Hoover Commission Staff Report, Appendix page A-II(D)-9.

plan in which the guess was made to ignore both (tropospheric propagation and the effects of irregular terrain near the transmitter).⁷³

Sharing of Channels and U. S. border assignments.--After complaints from both sides, a group of Commission engineers concluded in 1946 that sharing of television channels with safety and special services would not work on either a technical or an administrative basis.

For some reason, this situation could not be brought to the Commission's attention until the spring of 1947 when now Commissioner Sterling was appointed Chief Engineer. The Chief of the Allocations Division, McIntosh, and Miles, the Chief of the IRAC Branch, convinced Sterling that sharing was not feasible. This conclusion was confirmed by Sterling after conferences with the industry in June.⁷⁴

The engineers devised eight plans which might remedy the situation. At a meeting held while the International Telecommunications Conference was in session in Atlantic City, Commissioners Denny and Jett joined with the FCC engineering staff in selecting the most desirable alternative. This was to delete Channel 1 (on which only one grant had been made), and to allocate the 44-50 mc band to the fixed and mobile services, thus enabling the Commission to eliminate sharing on the remaining twelve channels.

⁷³Carroll, Thomas J. Observations on the problems put before the Ad Hoc Committee, Attachment B-1 to the Report of the Ad Hoc Committee for the evaluation of the radio propagation factors concerning the television and frequency modulation broadcasting services in the frequency range between 50 and 250 mc; to the Engineering Conference in the matter of Dockets 8736, 8975 and 9175 (1948-52 allocations and color hearing), May 31, 1949. p. 1. FCC Mimeo 36830.

⁷⁴Hoover Commission Staff Report, Appendix page A-II (D)-10.

Another factor, which caused even more confusion and congestion in some parts of the country than the sharing of channels, was the establishment of television in Canada and Mexico. Prior to 1947, Canada had taken the position that it would wait until the UHF was opened before licensing any television stations.⁷⁵ Canada announced, at an NARBA meeting in Cuba in November, 1947, that it intended to go ahead on the VHF band after all. It was agreed at conferences between the U. S. and Canada that modifications should be made in the FCC's allocation plan so as to prevent interference between stations located in border cities. This led to the current Agreement, by which a definite allocation is made to stations lying within 250 miles of either side of the border.⁷⁶ Later, a similar agreement was made with Mexico.⁷⁷

⁷⁵See the (Canadian) Royal Commission on Broadcasting, Report. Ottawa: Queen's Printer, March 15, 1957. Volume 1, pp. 18 and 228. The inescapable result of most of Canada's population living close to American cities was expressed in the phrase: "...if the end of the American television winter comes, the Canadian spring cannot be far behind" (p. 192).

⁷⁶Agreement between the United States and Canada which Assigns Television Frequency Channels to Cities within 250 miles of the United States-Canadian Border. Effected by exchange of notes signed at Ottawa April 23, 1952, and June 23, 1952. Entered into force June 23, 1952. TIAS No. 2594.

⁷⁷Agreement between the United States and Mexico which Assigns Television Frequency Channels to Cities within 250 miles of the United States-Mexico Border. Effected by exchange of notes signed at Mexico City August 10 and September 26, 1951. Entered into force September 26, 1951. TIAS No. 2366. (Modified by TIAS No. 2654, June 25, 1952).

1947 Allocation decisions.--Taking into consideration Canadian allocations, the additional crowding caused by deletion of Channel 1, and testimony and engineering evidence⁷⁸ given at hearings that started on November 17, 1947, the Commission's engineering staff was instructed "to prepare the revised allocation plan on the same basis as the first plan."⁷⁹ This meant that once again tropospheric interference was not to be taken into account.

The Commission made no mention to the staff of the problem of tropospheric interference because, and this is quite clear, it was wholly unaware of the existence of the phenomenon.⁸⁰

Although the Hoover Commission Staff Report makes the point that "virtually all" of the Commissioners had not been in office when the original plan was adopted, there was a great deal of experience overlap.⁸¹ The staff, including some who later became

⁷⁸Many FCC engineering experiments and tests had to be made on a cooperative basis with industry, since the Commission was financially unable to assemble all of the necessary equipment.

⁷⁹Hoover Commission Staff Report, Appendix page A-II-(D)-12.

⁸⁰Ibid.

⁸¹The original plan, dated November 21, 1945, found the following men on the Commission: Walker, Wakefield, Durr, Jett, Porter, Denny and Wills. All of these, with the exception of Porter and Wills, had participated in the 1944 Allocation Hearings (Denny in the capacity of FCC General Counsel). By January 2, 1948, only Walker and Durr remained. The new Commissioners, however, included a former General Counsel of the Commission (Hyde), a highly experienced former Assistant Chief Engineer (Webster), and a former Chief Engineer (Sterling). The remaining newcomers were a former Congressman (Jones) and the director of a newspaper-owned radio station, who had also a great deal of administrative experience in Federal agencies over a ten year period (Coy). Although the turnover appeared almost complete

Commissioners, was fully aware of tropospheric interference, with its authoritative knowledge buttressed by recent industry and military research. However:

Apparently (the staff) took the Commission quite literally when it was instructed to apply the same standards which had served as the basis for the 1945 plan. The Commission did not ask the staff for a detailed account of the factors which went into the original plan, and the staff did not volunteer that information. As a result, the plan finally presented to the Commission by the staff proceeded on the same basic disregard of tropospheric interference as had the first plan.⁸²

During the early part of 1948, the Commission was occupied with many television allocation problems. These included revision of the Commission's report on deletion of Channel 1, the modified TV allocation plan, rule-making proceedings stemming from the reallocation of frequencies, and finally, an investigation of the status of research on use of the UHF band.⁸³ After a great many revisions, on May 6, 1948 the Commission made public its decision on the deletion of Channel 1 and concurrent cessation of the sharing of other television channels with fixed and mobile services.⁸⁴ Although the television broadcasting industry

(Durr left on June 30, 1948), at least three of the new Commissioners should have carried a wide experience in the area of television allocation to their new jobs.

⁸²Hoover Commission Staff Report, Appendix page A-II (D)-12.

⁸³U. S. FCC. Notice of proposed rule-making in Docket No. 8972, 1 Pike and Fischer Radio Regulation, Par. 91:32. The Commission held hearings in September 1948 to explore the industry's activity (or inactivity) in developing the higher frequencies for television use.

⁸⁴U. S. FCC. Report and Order of May 5, 1948 in Docket No. 8487. 1 Pike and Fischer, Radio Regulation, Par. 91:13.

objected to the deletion of Channel 1, it was generally agreed "that twelve exclusive television channels were preferable to thirteen channels, twelve of which were subject to sharing."⁸⁵ In the course of its May 5, 1948 report, the FCC reiterated its opinion of three years previous that:

...the Commission is still of the opinion that there is insufficient spectrum space available below 300 megacycles to make possible a truly nation-wide and competitive television system. Such a system if it is to be developed, must find its lodging higher up in the spectrum where more space exists and where color pictures and superior monochrome pictures can be developed through the use of wider channels.⁸⁶

The Commission admitted that deleting a channel "does make more difficult the establishment of a nation-wide system on frequencies below 300 megacycles. However, the Commission is convinced that, on an overall basis, a generous allocation has been made for broadcasting, including television...."⁸⁷ A great many industry appearances and oral briefs failed to substantially modify the May 6, 1948 proposals, which went into effect on June 14, 1948.⁸⁸

On May 8, 1949 the Commission proposed a new plan for the geographical assignment of stations. A revision of the allocation table was prompted by "increasing demand" from potential broadcasters in metropolitan areas to assign them certain unassigned channels which could have been used for nearby small cities.

⁸⁵Ibid., par. 91:67.

⁸⁶Ibid., quoting from allocations report of May 25, 1945, pp. 99-100.

⁸⁷Ibid.

⁸⁸U. S. FCC. 14th Annual Report-1948. pp. 39-40.

The proposed separations were 150-mile co-channel and 75-mile adjacent channel, "wherever possible".

Such separations meant, in a number of cases, that fairly large cities would receive only one channel and in some cases, no channels. In such instances, the geographical separation was reduced to accommodate the city. In critical cases, the distance figures were drastically reduced to meet the situation.⁸⁹

The interference situation was also becoming acute, caused by only the 50-plus stations then on the air. The effect of narrow separations was heightened by the unusual propagation conditions resulting from the peak of the sunspot cycle. Complaints from the broadcasters and the public reached the Commission in large numbers. At the September 13, 1948 Industry-Commission conference to discuss the allocation table, Chairman Coy suggested that a six to nine month study of the allocation situation with particular respect to tropospheric interference might be necessary. Coy summarized the problem as follows:

The geographical allocation plan for television now pending reflects a continuing effort to obtain the maximum number of assignments with the few frequencies available. We have continually thrown away the 'safety factor' of greater mileage separations in a series of progressive (sic) steps, and today the assignments on these 12 channels are exposed to interference due to tropospheric propagation, because of the relatively close spacings between stations in many sections of the country.⁹⁰

This...raised the question of whether we want adequate planning reflected in the television service or whether we are going to yield to the insistent pressures of applicants who are now willing to take whatever they can get but who,

⁸⁹Coy, Wayne. Opening statement at conference of September 13, 1948, in Dockets Nos. 8975 and 8736, FCC No. 26714.

⁹⁰Ibid., para. 51(b).

like persons now holding authorizations, will then want large service areas and protection from interference. It seems obvious that if we are to pursue the procedures I have been talking about, the processing of applications will necessarily need to be held up pending the adoption of a final rule on a new allocation plan.⁹¹

After further hearings held from September 20 to 23, 1948, the Commission ordered:

Pending determination of future TV channel allocations, the Commission on September 29 ordered applications for new TV stations placed in the pending file.⁹²

They remained there, not for six months, but for nearly four years, in the now famous "freeze".

Harbingers of tropospheric interference.--Although Chairman Coy said of tropospheric interference: "We cannot close our eyes to new scientific data," the evidence is clear that the Commission and the industry had managed to close their eyes to a great deal of available data, some obtained from as long before as 1932. Reports were available describing beyond-the-horizon communication of 168 miles on 600 mc, 161 miles on 500 mc, 200 miles on 61 mc, several thousand miles on 56 mc, 300 miles on 112 mc, and even reports of BBC television broadcasts in the 45 mc band being picked up in the United States at certain stages of the sunspot cycle.

One of the most obvious and well publicized examples of over-the-horizon VHF propagation was the off-the-air relaying of television broadcasts between WNBT (RCA) in New York City, and WRGB (General Electric) in Schenectady. Reception from the

⁹¹Ibid., para. 56.

⁹²U. S. FCC. 14th Annual Report-1948. p. 6.

Empire State Building in New York had been noticed consistently at GE's transmitter site in the Hilderberg Mountains starting with the historic telecasts from the New York World's Fair in June 1940. This distance of 129 miles was at least fifteen miles past that which conventional propagation theory would predict, even taking into account the extreme heights of both transmitting and receiving antennae. The relay system was in constant operation throughout the war years, and ended only when FCC regulations required that common carrier (AT&T) program transmission channels be used for networking. Both companies desired immediate postwar operation on the VHF band in order to sell receivers (RCA and GE) and transmitters (GE), as many and as soon as possible. Accordingly, neither of these two giants of the electronics manufacturing industry mentioned their "hand-writing on the wall" experience with tropospheric propagation at any FCC hearing.

The Commission itself, although severely limited in laboratory facilities and staff, had been studying tropospheric waves since 1940.⁹³ However, the 1939 conclusion that it was too early to form an opinion as to the suitability of bands above 150 mc⁹⁴ was valid until the 1944 Allocation Hearings brought in more evidence. There is still a shortage of the sort of propagation information the FCC needs for broadcasting in the VHF and UHF, and even today the Commission must rely upon the

⁹³U. S. FCC. Annual Reports. 1940-1949,

⁹⁴U. S. FCC. Second Report of Television Committee, November 15, 1949, pp. 17-18.

Television Allocation Study Organization (TASO) for data its own laboratories cannot supply.

It is difficult to consider any engineering "laws" of propagation immutable in the face of the history of scientific and engineering progress. RCA's Sarnoff twenty years ago expressed the opinion that he would hesitate "to question the ability of science...to overcome the visual-horizon difficulty in television broadcasting."⁹⁵ This prophecy has recently come true, as a matter of fact, with the military and civilian development of various "scatter" techniques for sending VHF, UHF and SHF signals far over the horizon.⁹⁶

Two of the most strident Cassandras who raised their cries of warning about tropospheric interference were Commander McDonald of Zenith, and Major Armstrong. McDonald, in a June 1947 letter to Chairman Denny, stormed:

The interference now plaguing television on this band is trivial compared to what will happen when new stations now authorized take the air. Then there will be intolerable interference between television stations in different cities assigned to identical channels....Two injustices have been done, and both television and FM have been seriously injured, as a result of the engineering errors of 1945. Why not face the facts and correct the situation

⁹⁵Sarnoff, David. Quoted in Archer, Big business and radio, p. 456.

⁹⁶"New radio beams to aid in defense." New York Times, July 17, 1955. U. S. FCC. Notice of proposed rule making in the matter of amendment of part 2 of the Commission's Rules to provide specifically for the fixed service utilizing tropospheric scatter techniques. Docket No. 11709, May 11, 1956.

now, before further damage is done? You can do so by moving television immediately to its ultimate permanent home you have provided in the frequencies above 500 mc...⁹⁷

In 1949 Armstrong outlined to a Senate committee his arguments against the Commission's dependency upon a staff which takes "positions of advocacy, and then to attempt to establish that the scientific facts, the laws of nature supported these positions." He illustrated his attack with a discussion of the "errors of fact" which led to moving FM into the 100 mc band, and then "with complete inconsistency" giving the released channel to television, which was "twenty-five to fifty times as vulnerable to interference as FM." After quoting McDonald's letter, and mentioning a brief by himself to the Commission on October 7, 1947 pointing out that "television was in engineering trouble" and should be engineered for the 500 mc band, Armstrong claimed that the Commission "paid no attention" to either statement.⁹⁸

Armstrong declared that the Chief of the Technical Information Division of the FCC had presented a memorandum to the Chief Engineer on June 26, 1947, pointing out the difficulties TV would encounter from tropospheric phenomena. (This memo was unearthed from the FCC's confidential files as the result of the

⁹⁷McDonald, E. F. Quoted in Lessing, "The television freeze", op. cit., p. 127.

⁹⁸Armstrong, E. H. Statement submitted to U. S. Senate Commerce Committee, 81st Congress, First Session, hearings on S. 1973. June 17, 1949, pp. 140-142.

Senate committee's investigation of another matter.⁹⁹⁾ After the "freeze" had thoroughly vindicated Armstrong's position, he did not waste the opportunity to point out that RCA's Dr. Jolliffe had been one of the first to scoff at Armstrong's "television is in engineering trouble" statement in 1947.

Finally, the inventor attacked the Commission itself, to state with a good deal of insight (and prejudice) that the:

Commission has not, except during brief periods, been an effective instrument of congressional policy. Whether because of its ineptitude, or because of influences brought to bear upon it, or for whatever causes, the Commission has permitted the dominant factor of the industry -- the Radio Corp. of America -- to run away with the ball. It has permitted that corporation, in the interests of its patent monopoly and for its financial advantage, to establish television broadcasting on an unsound engineering basis...¹⁰⁰

Frequency modulation and television allocation, Armstrong and the Congress

The 1940 clash between the backers of television and the backers of FM radio broadcasting was only the first of several. From 1944 through 1947, FM and TV were struggling for the mutually exclusive right to occupy spectrum space in the 40-50 mc band. The last ditch attempts by Major Armstrong to retain the lower band, in the face of RCA opposition at all levels, would make a fascinating case history of allocation decision making. RCA's need for space with familiar propagation characteristics

⁹⁹Lessing, "The television freeze", op. cit., p. 158; Armstrong statement before Senate Commerce Committee on S. 1973, op. cit., p. 141.

¹⁰⁰Armstrong statement before Senate Commerce Committee on S. 1973, op. cit., p. 141.

on which to inaugurate television as soon as the war ended was matched by Armstrong's determination to protect and nurture FM at the critical juncture when it had an opportunity to ride the postwar buying crest and possibly supplant AM radio. The Commission's decision to move FM "upstairs" was based largely upon testimony later proved incorrect, and was in the face of the contrary opinion held by the vast majority of propagation experts. If this testimony, which was so important with respect to FM's future, had been applied to the television allocation plan, it is possible that a much sounder allocation plan would have been promulgated for television in 1945.

Armstrong did not surrender when the 1945 FCC decision went against FM. He used every available means for recovering the 50 mc band, in addition to appeals and petitions to the FCC. Chief among these tactics was a series of investigations in both the House and the Senate, sparked by Major Armstrong's ability to persuade Congressmen that his cause was just. Much Congressional interest in television (Senator Tobey's, for example) stems from Armstrong's fight against RCA and the television industry.

The fight between RCA and Armstrong resulted from the following situation: In order to allocate as many channels below 100 mc as possible to television in keeping with RCA's plans for television on those channels on which it already had a great deal of experience, FM had to be moved "upstairs" from the 40-50 mc band to the less desirable 88-108 mc band. This was accomplished

after maneuverings during the 1944 Allocation Hearings. It should be remembered that, as a general rule, the lower a station is in the spectrum the further its signal will carry. This explains much of the present disparity in range between UHF and VHF television stations, and even between VHF channels above and below 88 mc. FM broadcasters objected strenuously to losing the wider coverage of the 40-50 mc band and also complained bitterly of the loss of investment in lower band equipment and the hiatus while the half million listeners replaced their receivers. In giving the old FM band to television,¹⁰¹ the Commission had to disregard the preponderant weight of opinion and evidence from outstanding propagation experts.¹⁰²

The FCC apparently relied upon the testimony of a former Assistant Chief Engineer, Kenneth A. Norton, who testified on the basis of classified propagation data that interference could be expected on the 40-50 mc band which would be detrimental to

¹⁰¹Actually, only the band 44-50 mc went to television, and this channel was deleted in 1948 before extensive use was made of it.

¹⁰²The RTPB, after a series of conferences between Television Panel and the FM Panel, compromised on an allocation to FM of seventy-five channels, 200 kc wide, between 41 and 56 mc. This was somewhat less than the original request of the FM Panel, which was for eighty to 100 channels. However, the recommendation was that these channels be "in the vicinity of 40 megacycles, and...so assigned that they shall be continuous with and include the present FM band." Most industry witnesses before the FCC during the 1944 Hearings supported this compromise, particularly the engineers. (Jansky, C. M., Jr. Chairman of RTPB Panel 5, FM broadcasting NAB Allocation Hearing Bulletin No. 1, p. 11).

high-fidelity FM.¹⁰³ It was not explained how the Commission could disregard all other evidence on propagation, presented by the greatest experts in the field, as well as the economic dislocation which resulted from rendering obsolete a half-million receivers and some fifty stations.¹⁰⁴

Not one of the three alternative plans suggested by the FCC in its May, 1945, Report contemplated the use of the old FM band from 42 to 50 mc. The two surviving alternatives (one was unanimously discarded as "unfeasible") were the bands 50-68 mc and 84-102 mc. Although Armstrong, RCA, RTPB, TBA, FM Broadcasters, Inc., Zenith, RMA and others ostensibly favored the first (or lower band) alternative, "the FCC. elected to swim against the tide", with only Philco, Motorola and Hallicrafters (of some twenty manufacturers of receiving sets) applauding the move "upstairs".¹⁰⁵

The May 1945 report of the Commission devoted fifty pages and two appendices to a minute examination of all possible types

¹⁰³Norton's testimony was apparently refuted, leading to a retraction some years later. This secret testimony exposed the FCC to a great deal of Congressional criticism.

¹⁰⁴The Commission claimed that the possibility of interference on the 50 mc band was especially important to FM since it was being sold on an "interference-free" basis. When it was pointed out that most of this interference would take place in very thinly populated areas, the FCC replied that its duty "to make available to all the people...an efficient radio service" required full and satisfactory service to rural areas. Also, set manufacturers would give no assurance that their sets would reject the proper ratio of interference. U. S. FCC. Report of Allocations from 44 to 108 megacycles, op. cit., June 27, 1945, p. 3.

¹⁰⁵White, op. cit., pp. 136-137.

of interference to FM, disposing of TV in a mere four pages without any mention of interference. Lessing reminds us that:

The engineering caliber of these deliberations may be judged by the fact that the band from which FM was ejected, because of what new FCC Chairman Paul Porter called intolerable interference in that area, was tentatively reassigned to TV, which is technically at least twenty-five times more vulnerable to disturbances than FM. Later this band was turned over to emergency services, such as police and fire-department radio, in which the requirements for dependable transmission are even more exacting.¹⁰⁶

However, the Commission insisted that:

...its primary concern in making allocations between 44 to 108 megacycles is that FM shall be assigned the frequencies best adapted to its needs. All of the other services for which provision is made in this portion of the spectrum, have allocations in other portions of the spectrum, so that they are not wholly dependent upon their assignments here. FM, on the other hand, is receiving assignment only in this portion of the spectrum, and accordingly it is essential that it receive an allocation which will give it a permanent locus, as free as possible from interference and other shortcomings.¹⁰⁷

The June 27, 1945 report went on to describe the high levels of "sporadic" interference which could be expected around 40-50 mc, and presented figures which indicated even longer ranges possible on the high band. Although Armstrong would hardly be likely to agree, the Commission stated that "there is now substantial agreement that the band (42-50 mc) for which these receivers were made is wholly inadequate and unsuited to FM reception."¹⁰⁸ This "agreement" was further explained as meaning

¹⁰⁶Lessing, "The television freeze." op. cit., p. 127.

¹⁰⁷U. S. FCC. Report of allocations from 44 to 108 megacycles, op. cit., p. 1.

¹⁰⁸Ibid., pp. 4-5.

that persons appearing before the Commission's June 1945 hearings "were willing to assume that the predictions as to interference contained in the Commission's report were accurate."¹⁰⁹

Even if the figures and the reasoning applied by the FCC to the FM allocation situation were perfectly correct according to then-available knowledge of the spectrum, the question is still unanswered as to why television was given the 44-50 mc channel. If interference conditions required the spacing of FM stations out to between 260 and 320 miles in the VHF band,¹¹⁰ why was television, with its inherently more interference-prone signal, permitted to use this region of the spectrum? It appears that knowledge of the upper spectrum was so uncertain that television interests desired every channel possible on the familiar lower portion of the VHF band. It should be remembered that virtually all experimental and the handful of commercial TV stations then broadcasting were below 108 mc. Delay and expense would result if the bulk of television broadcasting were assigned to the upper band.

Although Armstrong accepted the allocation of 88-108 mc for FM (where FM could have 100 channels instead of forty), he refused to relinquish all of the advantages enjoyed on the 42-50 mc band. In 1948, the last of his various petitions to the FCC was turned down. Armstrong had asked that a part of the old band be retained by FM for long-distance intercity off-the-air

¹⁰⁹Ibid., pp. 3.

¹¹⁰U. S. FCC. Report of allocations from 44 to 108 mc, op. cit., p. 12.

relaying of FM programs, and that this service be allowed to broadcast to those members of the public who still had receivers for the 42-50 mc band.¹¹¹ However, by 1948 the Commission could point to the needs of the safety and special services which were slated to occupy the 40-50 mc band. FM was chastised for seeking to extend the "cut-off" date for broadcasting on the old band for another two years from December 1948, since they had been warned "as early as July, 1945" that they were to be evicted.¹¹²

Unable to make headway with petitions to the FCC, Armstrong turned to the Congress. Many members of Congress, interested in the complaints of constituents who held now-useless FM receivers and who lived outside the reduced service area of stations in the new band, were willing to listen to Armstrong at almost every opportunity.¹¹³

There were two main reasons for Congressional interest in FM. First, Congressional Committees are often rather touchy when told not to poach on the "purely technical" grounds of the regulatory body they set up to handle "details". Although not possessing the "experteze" of the regulatory agency, Congress cannot resist the opportunity to dabble whenever the "experts"

¹¹¹U. S. FCC. Memorandum Opinion and Order in the matter of Amendments to the Commission's Rules and Regulations Governing Sharing of Television Channels and Assignment of Frequencies to Television and Non-Governmental Fixed and Mobile Services, Docket No. 8487, September 16, 1948.

¹¹²Ibid., Footnote 2 to para. 1.

¹¹³Armstrong either testified or submitted a statement concerning FM's shabby treatment at the hands of the FCC and RCA at virtually every Congressional hearing having anything to do with broadcasting from 1943 until his death in 1954.

fall out among themselves. After all, virtually every engineering decision by the FCC can be said to have a social or political aspect, particularly broadcasting decisions which affect the public at large. Although there are very real dangers in attempting to superimpose political decisions on technical problems, the legislature obviously feels that political and social considerations are just as valid as the economic and competitive considerations often considered as overriding by the FCC. There have been several cases of Congressional attempts to steer technological factors to satisfy political ends: the Davis Amendment designed to distribute radio frequencies among the states (without regard to the differences in area involved),¹¹⁴ the restrictions on the power allowed AM clear channel stations,¹¹⁵ and the Lemke Resolution to allow FM to continue to use the 42-50 mc band.

The second reason for the intensity of the two Congressional investigations into FM in 1948 appears to be the respect given to Major Armstrong. This attitude toward Armstrong is easily warranted by his numerous inventions, which have contributed so much to broadcasting.¹¹⁶ Armstrong's personality

¹¹⁴Communications Act of 1934, Sec. 307(b). (Repealed by P. L. 652, 74th Congress, June 5, 1936).

¹¹⁵S. Res. 294, 75th Congress, June 13, 1938. Subsequently, an extended hearing was held by Senator Tobey in April 1948, on S. 2231, 80th Congress, 2nd Session, To limit AM radio broadcast stations to 50,000 watts and to provide for duplicating of clear channels.

¹¹⁶In addition to FM, Armstrong was the inventor of the superheterodyne receiver (still universal on AM), the regenerative or "feedback" circuit, the super-regenerative circuit, and several

appears to have been a major factor in persuading various Congressmen to support his views. In addition, there has always been respect in certain liberal Congressional circles for a man willing to spend a large personal fortune, earned by his broadcasting inventions, to fight "big business." This has been coupled to a general suspicion that agencies such as the FCC were too sympathetic to the regulated interests. Senator Edwin C. Johnson of Colorado was a frequent attacker of monopoly in radio on the Senate floor. Armstrong also cultivated:

Senator Charles W. Tobey, the Bible-thumping Senator from New Hampshire, who lived not far from Rye Beach. Armstrong drove over to have luncheon with him one summer's day, and from all accounts the occasion had some of the features of an old-fashioned revival meeting. Out of all this came a Joint Senate and House Resolution -- sponsored in the House by Representative William A. Lemke, a Republican maverick from North Dakota -- which proposed to order the FCC to restore part of FM's former band for high-power relay purposes.¹¹⁷

Senator Tobey was so impressed by the Major's cause that he supported it at every possible opportunity, and called him the "foremost expert in radio science today." ¹¹⁸

This Congressional interest led to hearings on FM broadcasting in both the Senate and House in 1948. Senator Tobey's

other theoretical contributions of the greatest importance to the development of radio.

¹¹⁷Lessing, Man of high fidelity, p. 270.

¹¹⁸Hearings before a subcommittee of the Committee on Interstate and Foreign Commerce, U. S. Senate, 80th Congress, 1st Session, on S. 1333, A bill to amend the Communications Act of 1934, and for other purposes. June, 1947. p. 489.

hearings¹¹⁹ also concerned themselves with RCA patent policies. Representative Lemke's committee¹²⁰ wished to turn back the clock on the decision to move FM to the 88-108 mc band in the interests of rural listeners who could receive FM in the lower band much more readily, due to its longer range and spacing of channels for covering wide areas rather than single markets.

The Senate hearings attempted "with a sense of outraged feelings and indignation"¹²¹ to impeach the Commission for relying upon Norton's testimony in the 1944 Allocation Hearings, to the exclusion of the opposing opinions by almost all American experts on allocation. It came out that a closed meeting of military and civilian experts (under the aegis of the RTPB FM panel) had proved an error in Norton's calculations, but that a report of the meeting, edited for release by the FCC's staff, had "mysteriously" shown the opposite conclusion. Armstrong's deduction was that the Chairman of the Commission, Paul A Porter,

¹¹⁹Hearings before the Senate Interstate and Foreign Commerce Committee, 80th Congress, 2nd Session on Certain charges involving development of FM radio and RCA patent policies. March, 30, April 23, May 12, 13, 21, 1948. Hereafter referred to as "U. S. Senate, Commerce Committee, Hearings, Progress of FM radio."

¹²⁰Hearings before the U. S. House Committee on Interstate and Foreign Commerce, 80th Congress, 2nd Session, on H. J. Res. 78, a Joint Resolution Relating to assignment of a section of 50-megacycle band of radio frequencies for frequency modulation (FM). February 3, 4, March 31, April 1, 1948. Hereafter cited as U. S. House Commerce Committee Hearings, Radio Frequency Modulation.

As early as the second page of these hearings, Lemke's impartiality is indicated by the statement: "There is no reason why the 50-megacycle band should not be returned to frequency modulation" despite the needs of the safety and special service.

¹²¹U. S. Senate, Commerce Committee, Hearings, Progress of FM radio, p. 357.

had already made up his mind and was not to be deterred by any facts from the experts.^{122, 123} The Senate committee extensively probed into the "editing" of the classified transcript of Armstrong's cross-examination of Norton.¹²⁴ Representative Lemke also probed into Norton's testimony, as well as the supposed motives of the manufacturers and the Commission in "boxing-in" FM.

These two sets of hearings are excellent examples of an attempt to use Congressional pressure to change decisions of the FCC. Although the merits of the case appeared to favor FM, it is difficult to see what Armstrong expected to obtain from these 1948 hearings. By this time, the decision to give Channel 1 to the Safety and Special Services had been made. The entire 40-50 mc band was thus occupied with services having a demonstrable priority in the spectrum on the grounds of protection of life and property. Once the decision had been made to move FM to the 88-108 mc band, the legitimate needs for space below 100 mc forced the Commission or gave them an excuse to complete the transition as rapidly as possible so that the new tenants might move in and unpack.

¹²²Lessing, Man of high fidelity, p. 258.

¹²³Mr. Porter, a former legal counsel for CBS, was quoted as saying in March of 1940 that: "if there is a conflict, as there appears to be in the allocation problem with respect to television and frequency modulation, it is the opinion of the Columbia Broadcasting System that preference should be given to the new public service of television rather than an additional system of aural broadcasting." U. S. Senate, Commerce Committee Hearings on S. 1333, June 1947, op. cit., p. 490.

¹²⁴U. S. Senate, Commerce Committee, Hearings, Progress of FM radio, pp. 169-171, 338-378.

It should be remembered that FM received an allotment of 100 channels on the upper band as compared with forty on the lower.¹²⁵ Armstrong's 1947-48 petitions to the FCC did not seriously suggest that the Commission reverse its decision to move FM "upstairs." Instead, he asked for the use of some channels in the 42-50 mc band for "relaying purposes only." Doubtless it was in Armstrong's and the FM Association's interests to continue broadcasting for as long as possible on the low band to the already existing audience, while at the same time preparing the 88-108 mc band for occupancy.

Although Armstrong had managed to stir up a great deal of Congressional resentment over the Commission's treatment of FM, little practical aid was given the medium. The 42-50 mc band remained assigned to other services on a permanent basis, and FM, willy-nilly, had to survive or fail on the 100 mc band.

One aspect of the many hearings held by the House and Senate in the period 1947-1949 was a general tightening up of some of the procedural and organizational sections of the Communications Act. One section of the McFarland Bill¹²⁶ prohibited the resignation of an FCC Commissioner to accept jobs representing

¹²⁵Even this wasn't considered enough. J. N. Bailey of the FM Association asked for another "20 or 30 FM channels to the present band below and contiguous to 88 megacycles." U. S. Senate, Commerce Committee Hearings on S. 1333, June 18, 1947, op. cit., p. 210.

¹²⁶S. 1973, 81st Congress, and S. 658, 82nd Congress. Passed into law as the Communications Act Amendments of 1952, P. L. 554, 82nd Congress.

the regulated industry.¹²⁷ It appears that this was prompted by the resignation of FCC Chairman Denny on October 8, 1947, to accept a job as vice-president of NBC at three times his FCC salary.¹²⁸ This occurred shortly after the Commission had turned down both Armstrong's petition and CBS' color television proposal.¹²⁹

It is plain that Armstrong, in his attempts to get a place in the sun for FM, had antagonized both RCA and CBS. He impugned both their methods and their motives. The record does indicate clearly that much of the responsibility for FM's difficulties and failure to "catch the tide" of postwar radio broadcasting was due to proposals made by these two firms. On the other hand, television offered a much greater opportunity for the

¹²⁷Communications Act of 1934, Sec. 4 (b). "Any such commissioner...shall not for a period of one year following the termination of his service as a commissioner represent any person before the Commission in a professional capacity, except that this restriction shall not apply to any commissioner who has served the full term for which he was appointed."

¹²⁸Commissioner's salaries were \$10,000 a year until October 15, 1949, when P. L. 359, 81st Congress raised them to \$15,000. The Federal Executive Pay Act of 1956 (P. L. 854, 84th Congress) raised Commissioners to \$20,000, and the Chairman to \$20,500.

¹²⁹The House Hearings on Radio Frequency Modulation discuss this event at several points. Of particular interest is a "timetable" on p. 160 which implies that Denny's resignation and the strange disappearance of copies of Armstrong's brief occurred simultaneously. Although Denny was accused of skulduggery, the specific act depended upon the accuser's purpose. For instance, Lessing in his 1949 article on "The television freeze" (op. cit.) says that the turning down of CBS color led to soreness "aggravated six months later when FCC Chairman Denny resigned to become a Vice President of NBC". However, seven years later, in Man of high fidelity, Lessing wrote that "three months" after turning down Armstrong's (no mention of CBS') brief, Denny resigned. (p. 267).

manufacturer, the broadcaster and the public than did FM. The networks, with a profitable working situation on the AM aural broadcasting band, had no reason to change over to an FM system which offered them no real advantages. However, to Armstrong, FM was everything, and the legitimacy of corporate motives, particularly those involving television, did not interest him.

In fairness to Armstrong, the methods used by the "opponents of FM" (particularly RCA) as described in his testimony before Congress and in Lessing's book, are apparently highly reprehensible. The bitterness of the Armstrong-RCA fight is attested to by the accusations made by Armstrong, and the refusal by RCA to pay Armstrong royalties for the use of FM in a limited number of radios and all television sets.¹³⁰

Although Armstrong also attacked CBS (specifically on the "single-market plan," which would have further reduced the range of many FM stations, and also for Porter's 1940 appearance before the FCC),¹³¹ the CBS activities involving FM in 1947 could be interpreted in different ways. The President of CBS told the Commission that CBS believed in and had experimented with FM and felt that "it is confidently expected ultimately to supplant today's standard broadcasting as the preferred audio service for

¹³⁰Lessing, Man of high fidelity, p. 272.

¹³¹Mr. Porter, a former legal counsel for CBS, was quoted as saying in March of 1940 that: "if there is a conflict, as there appears to be in the allocation problem with respect to television and frequency modulation, it is the opinion of the Columbia Broadcasting System that preference should be given to the new public service of television rather than an additional system of aural broadcasting." U. S. Senate, Commerce Committee Hearings on S. 1333, June 1947, op. cit., p. 490.

the great majority of the people."¹³² Stanton also said, however, in what might be interpreted as a backhand move, that "our surveys indicate that most listeners do not prefer the full fidelity possible through FM."¹³³ In addition, "perhaps the greatest single advantage of FM lies in the greater number of stations and the equality of physical facilities which FM makes possible,"¹³⁴ thus enabling networks as well as stations to compete more fully. Stanton went on to amplify and support the CBS "single market plan" which by this time had been adopted in essence by the Commission. The detailed plan set forth by CBS consisted of networks of 200 FM stations each, competing on a basis of equality in a given market. To fill in "white" or rural areas (some 10-12 per cent of the population) not receiving primary FM coverage under this plan, CBS proposed using a severely limited number of AM stations of extremely high power. Although CBS repeatedly pointed out the "fundamental advantages of FM over AM," it also pointed out that "the transition from AM to FM cannot be stopped, but it can be delayed."¹³⁵ Armstrong's fears over the delaying effects of the "single market plan" and the FCC order permitting AM stations to duplicate their programs on FM to the detriment of "FM only" stations, and FM in general, by removing most of the

¹³²Stanton, Frank. Testimony before the FCC on Docket 6741, April 24, 1946, (mimeo), p. 5.

¹³³Ibid., p. 2.

¹³⁴Ibid., p. 3.

¹³⁵Stanton, Frank. Testimony before the FCC on Docket 6741, April 24, 1946, (mimeo) p. 13.

incentive for buying receivers, were well founded. As Commander McDonald of Zenith asked: "Who besides the AM networks could possibly gain by crippling FM?"¹³⁶, 137

CBS Color and public opinion

Even while protecting its bread-and-butter, AM radio, the Columbia Broadcasting System was not idle in promoting its system of wide-band color television on the UHF band. It was mentioned in Chapter III how CBS used the 1944 Allocation Hearings as a forum for the promotion of its color system. CBS failed to have its system adopted or to have television moved to the UHF with 16 mc bandwidth standards. This setback did not stop further CBS formal appeals to the FCC and opinion-molding directed toward the public and the rest of the industry.

¹³⁶McDonald, E. F., Jr. Letter to FCC Chairman Paul A. Porter, February 1, 1946, quoted in House Hearings on Radio Frequency Modulation, pp. 154-158 at p. 158. This letter consisted of thirteen questions which were "still unanswered" on February 4, 1948. The ninth question showed an interesting use of an ally-gaining tactic by Porter: "Why, Chairman Porter, did you ask me to include the 42-44 megacycle band in our petition, which inclusion brought in objections from various police departments all over the country who had been assigned that band, and from others, after we had indicated our belief that public interest would be served at this time by the reassignment of only the 44-50 megacycle band?" Protests from these various police departments and representatives of other safety and special services filled a great deal of the second volume (March 31 and April 1, 1948 hearing record) of the Radio Frequency Modulation hearings.

¹³⁷At the time this letter was written, and until television became profitable, the main corporate activity of CBS was the operation of a network of sound radio broadcasting stations on the standard (AM) broadcast band. NBC, one of RCA's largest operations, was in the same position.

In October 1945 CBS announced that it had broadcast color television at 485 megacycles from a 25-watt transmitter and had received the pictures "with superb clarity" across town. It also announced that GE had contracted to produce CBS-designed production prototype UHF receivers (Zenith had previously worked on UHF set design), and that Westinghouse had agreed to take orders for color studio and transmitting equipment.

Up to this point, the proponents of low-frequency television had looked upon C.B.S. principally as a gadfly. Now they began to view it as a saboteur. For they claimed, with considerable engineering authority, that C.B.S. was talking through its technical hat and that a mechanical system of color television could only harm the industry. The day after C.B.S.'s announcement, Allen B. DuMont asked the FCC to freeze television immediately at present standards for ten years. N.B.C. entered the plea that while the pioneers of television must expect to take some risk, the government should give them 'a reasonable opportunity to recover venture capital'. On the other hand, a representative of a California radio station called upon the commission to halt television development in the lower frequencies and direct full attention to the development of the 480 to 920-megacycle region.¹³⁸

CBS filed a petition with the FCC on September 27, 1946, which asked for the start of commercial color television broadcasting on the UHF band. No change was contemplated with respect to black-and-white broadcasting on Channels 1 through 13. The FCC decision of March 18, 1947,¹³⁹ pointed out that with the wide channels then necessary for color there was not room for more than one system in the 480-920 mc band.

¹³⁸"Television: a case of war neurosis". Fortune, February 1946, pp. 108 and 246.

¹³⁹U. S. FCC. Report of the Commission, Docket No. 7896, March 18, 1947, In the matter of petition of Columbia Broadcasting System, Inc., for changes in Rules and Standards of Good Engineering Practice concerning television broadcast stations.

The Commission also stated that further field testing was necessary, and that research should be conducted to provide good color, "cheaper receivers and narrower band widths." It was pointed out that there had never been more than fifteen color receivers in existence, all in the hands of CBS. Finally, only twenty-seven channels of 16 mc bandwidth would fit in the 480-920 mc band, and in allocating this band "it was the Commission's hope...that in this band it would be possible to provide for a truly nationwide competitive television system".¹⁴⁰

This decision to send color television "back to the drawing board" for further study and testing was the signal for a one-sided race. The black-and-white receiver manufacturers were in the position of having both receivers to sell and stations in existence to provide programs. CBS had neither color receivers nor color stations.

All that CBS could do, to counteract the RCA moves while further field testing was being completed and the Commission persuaded of the value of the CBS color system, was to try to sell the public and the broadcasting industry "pie in the sky." For example, in the printed proceedings of the TBA conference in 1946 appeared a full page advertisement containing only the words "compliments of a friend" -- printed in a half-dozen shades of colored ink.¹⁴¹ Other double-page advertisements in the trade

¹⁴⁰U. S. FCC. Report of the Commission in Docket No. 7896, op. cit., March 18, 1947.

¹⁴¹Television Broadcasters Association, Inc. Second television conference and exhibition. New York City, October 10-11, 1946. p. 71.

press were headlined: "The public speaks (and) overwhelmingly picks color television";¹⁴² "Talk about impact!...here's how CBS full color television struck the press";¹⁴³ and "now advertisers speak and pick color television as sales medium"¹⁴⁴ The public was assailed with glossy four color spreads in national magazines. These tactics, common enough in the industry, were accused by the opposition of "overselling" color television. On the back cover of one magazine containing a CBS advertisement, DuMont ran an ad titled "The Truth About Television." This advertisement discussed the "clever propaganda" that there were two television camps, one for and one against color. DuMont called this a "deliberate misrepresentation" and claimed that nobody was opposed to color, but that it had a very long way to go before it would be ready for the home.¹⁴⁵

The conclusion that commercial color television on the UHF band was many years away was held not only by its opponents such as RCA, DuMont and Philco, but by a group of twenty-nine consulting engineers of wide repute queried by Television magazine. Four of these engineers thought that it would take ten years, two chose seven years, one picked six years, twelve suggested five years,

¹⁴²Television, Vol. 3, No. 4, April 1946. p. 20.

¹⁴³Television, Vol. 3, No. 3, March 1946. p. 20.

¹⁴⁴Television, Vol. 3, No. 5, May 1946. p. 20.

¹⁴⁵Television, Vol. 3, No. 5, May 1946, back cover.

five mentioned two years, two believed it could be done in one year, and three were noncommittal.¹⁴⁶

The CBS proposals had an effect not to the liking of many elements of the industry. Applications to operate experimental UHF stations increased at the same time that applications for VHF stations were withdrawn or delayed.¹⁴⁷ An article in the trade press bewailed how the color vs. black-and-white controversy had confused the industry. Television applicants were undecided whether to wait for color or go into black-and-white at once, set manufacturers stalled while trying to hedge their bets with pre-production type research, and advertising men admitted that they had no idea what the fuss was all about.¹⁴⁸ To add to the delay, General Electric warned its customers for VHF transmitters that the equipment they had ordered might be obsolete before it could be completed and installed. A few newspaper editorials asked the Commission to warn the public that VHF television receivers, not yet in production to any great extent,¹⁴⁹ might soon be obsolete.¹⁵⁰

¹⁴⁶Kugel, Frederick A. "When will UHF color television be in operation?" Television, Vol. 3, No. 4, April 1946, p. 5.

¹⁴⁷U. S. FCC. 12th Annual Report-1946, p. 17. Of 158 applications for television stations at the end of the war, about eighty were withdrawn; both "waiting for color" and financial reasons were cited.

¹⁴⁸Kugel, Frederick A. "When will UHF color television be in operation?" op. cit., p. 5.

¹⁴⁹Approximately 6476 sets were manufactured during 1946, and 178,571 in 1947, according to Electronics Industries Association figures, reported in Television Factbook No. 26, Spring-Summer, 1958, p. 447.

¹⁵⁰"Television: a case of war neurosis", op. cit., p. 248.

Meanwhile, the long-awaited rush of orders for black and white transmitters and sets failed to materialize, either from this cause or delays in FCC approval or from difficulties in getting delivery. And the industry, caught in the reconversion, price, and supply switches, had to revise its timetable and announce that 1947 -- not 1946 -- would be television's 'first big year'. The C.B.S. campaign, on top of all this, was the final straw. Said the head of one of the biggest companies in television: 'If I had sat down and tried to think of some way to screw up this industry, I couldn't have done a better job than C.B.S. has done.'¹⁵¹

RCA found itself in a difficult position as a result of the CBS publicity and plans for public demonstrations. In order to protect its own extensive investment in color television research, RCA was forced to hold a public demonstration of its own color system. RCA hoped to steal the CBS thunder, since the CBS demonstrations to the public had not yet started, by showing that RCA could do it, too. Sarnoff pointed out that this system, first demonstrated by RCA in 1941, was outmoded and would not be pushed by RCA. and that to develop an all-electronic color system would take at least five years. However, the very act of demonstrating color put RCA in the position of showing the public that there was something to the CBS claims, after all.¹⁵²

Color television was associated with spectrum allocation extensively until 1949, by which time both CBS and RCA had developed methods for squeezing a color signal within a 6 mc bandwidth.¹⁵³ However, when the CBS petition came up for hearing in

¹⁵¹"Television: a case of war neurosis." op. cit., pp. 248 and 253.

¹⁵²Ibid., p. 253.

¹⁵³Little more was heard of the desirability of high-definition wideband black-and-white television after the color signal was reduced to 6 mc. It is certain that improvements

late 1946 and early 1947, it was still believed that a wide bandwidth was necessary, and the contestants all predicated their strategies upon this fact.

During the hearings on its petition, CBS had to bear the burden of proof, not only against the public's growing investment in the low-band black-and-white system, but against RCA's extremely able promotion of its new all-electronic compatible system of color.¹⁵⁴ CBS attempted to forestall some of the objections of the existing VHF operators by suggesting that the new UHF-and-color system be added to the television allocation, and that no change at all be made in the VHF band. However, CBS added that the public had the right to choose between the two services, but that they should be allowed to choose between two operating systems. The CBS position was that the Commission should act immediately, that this might be the last opportunity in years for the Commission "to permit the American public to decide for itself what kind of television they want",¹⁵⁵ since extensive sale of low-band black-and-white sets could result in the FCC finding "itself deprived, as a practical matter, of the power to act."¹⁵⁶

One magazine article pointed out that CBS was sticking out both its neck and its reputation too far to be accused of

could be made in the present 6 mc television picture, but problems of obsolescence and conversion make research unprofitable.

¹⁵⁴U. S. FCC. Report of the Commission in Docket No. 7896, op. cit., March 18, 1947.

¹⁵⁵Stanton, Frank. Testimony in Docket No. 7896, Transcript Volume 1, p. 15. (December 1946)

¹⁵⁶Ibid., p. 26.

"pulling a stunt." ¹⁵⁷ For example, when a CBS vice-president was asked by FCC Attorney Plotkin whether nationwide networks in color were more important than four networks in black-and-white, he replied, "I would say that it would be better to have two networks in color..."¹⁵⁸

RCA, in addition to publicizing the advantages of all-electronic compatible¹⁵⁹ color (which it claimed to be rapidly perfecting -- and continued to perfect over the next several years), questioned CBS's motives in asking for immediate color standards. Although RCA eventually whittled its estimate of time needed to suggest color standards based on its own system from five years to eighteen months, it still downrated color and emphasized the immediate benefits of black-and-white. Dr. Jolliffe, of RCA, expressed the thought that the industry should agree before standards were brought to the attention of the public.¹⁶⁰ This is, of course, a complete reversal of RCA's position during the 1940 standards fight, when RCA tried to force through its own standards on a commercial basis in the face of violent opposition from most of the industry.¹⁶¹

¹⁵⁷"Television: a case of war neurosis", op. cit., p. 253.

¹⁵⁸Murphy, Adrian. Testimony in Docket No. 7896, Transcript Volume 1, p. 27.

¹⁵⁹A compatible color system (such as the one currently in use) can be received in black-and-white on monochrome receivers and in color on color sets at the same time. Hence, no set is rendered completely obsolete.

¹⁶⁰Jolliffe, C. B. Testimony in Docket 7896, Transcript Volume 4, p. 468, Vol. 1, pp. 42-44.

¹⁶¹See Chapter III.

In the hearings over its petition, CBS had real support only from the fringes of the industry.¹⁶² On the other hand, RCA was backed by two other large manufacturers, DuMont and Philco. This support from established firms was a great advantage, since RCA could then point to CBS's relatively meager experience in manufacturing and engineering. The FCC tended to depend upon the older elements of the industry. For example, David Smith (Director of Engineering for Philco) was "called upon most" and virtually subpoenaed by the FCC to testify in the roles of Chairman of the RTPB television committee, Chairman of the RMA subcommittee studying UHF, and also as the representative of his own company.¹⁶³ It was understandable that, even while wearing different hats, Mr. Smith's testimony remained constant.

The Commission bemoaned the fact that the press and the public had mistakenly thought that the hearings would decide once-and-for-all between black-and-white and color. The FCC decided to pat CBS on the back for its initiative and hard work, and ask

¹⁶²One of these fringes was the Cowles Broadcasting Company, represented by T. A. M. Craven, who once said that "if we wait upon scientists to decide upon standards, we will never reach a decision. These decisions always were and will have to continue to be made by administrators", thus leaving the problem up to the Commission and whatever theory of the public interest it held, rather than strictly upon technical facts or opinion. (Testimony in Docket 7896, Transcript Volume 5, p. 783). Some years earlier Craven had pointed out that if technical evidence is available indicating that one part of the spectrum is better than another, then the Commission should allocate the proper services without delay. (The postwar future of broadcasting, a symposium in connection with the NAB Executives War Conference, Chicago, August 31, 1944.)

¹⁶³Holloway, Dorothy. "Washington". Television, Volume 3, No. 9, November 1946, p. 4.

it to see if something could be done about narrowing the bandwidth and achieving a compatible system. From this point on, CBS started losing some interest in color, since television was obviously becoming profitably established on the VHF band, and the RCA (supported by its fellow manufacturers) was serious about trying to get its own compatible, all-electronic color system adopted. (The CBS system was later adopted by the Commission, only to be overturned in favor of RCA's some months later -- see Chapter V).

Conclusions

The structure of television service in the United States to date was formed during the period from 1944 to 1948. Within this period four battles were fought, ending in truces, but laying the seeds for future struggles. These four clashes, and the consequences of each, were:

1) the question of standards and allocations for postwar television, which ended in a decision to innovate television on an inadequate number of channels on the VHF band, where operating experience had already created familiarity with propagation conditions;

2) the geographical assignment of stations, which created a chaotic situation leading to the 1948 "freeze" after the Commission had "continually thrown away the 'safety factor' of greater mileage separations in a series of progressive steps";¹⁶⁴

¹⁶⁴Coy, Wayne. Opening statement for the September 13, 1948 Conference. op. cit., Par. 51(b).

3) the location of FM within the VHF band, in which it was moved "upstairs" ostensibly to avoid potential interference, but actually to make room for another television channel on the lower part of the VHF, despite opposing views from the majority of propagation experts; and

4) the proposals of CBS to innovate a color television system on a commercial basis, an attempt which met with violent opposition from most of the industry, and was turned down at that time by the FCC.

Many of these conflicts are interrelated. For example, the CBS proposals included not only the introduction of color, but also the use of high-definition black-and-white on the UHF band. The entire period was one of steering or attempting to steer the progress of television, not a question of whether TV was ready for commercial exploitation. Each participant or contestant (except Armstrong, who had similar motives with respect to FM) desired to establish some sort of competitive advantage in what was essentially a new postwar industry.

If this were not the peculiar industry it is, decisions would be easier. But once a great weight of black and white low-frequency equipment is in the field, there is no assurance that the 'orderly' development of the industry will not mean a protracted and delayed development. Almost every attempt to raise television standards thus far has met with heavy opposition...

Lacking an all-wise authority to decide the issues, it falls to the more or less messy operations of a competitive system to decide them. C.B.S., by providing the competition and pitching the issue into the ultra-high frequencies, has given the public a choice and some assurance of getting the best possible product in a free market. Whether the immediate television system is color or black and white, it is certain that those companies with the largest

investment and research will remain the major figures in television. But if the immediate postwar television is in color, it will be due almost solely to the kicking up of C.B.S.¹⁶⁵

This "kicking up" by CBS was chiefly within two forums: the FCC (particularly during the 1944 Allocation Hearings, and also by subsequent petitions), and public opinion. In fact, never before or since has the public been so wooed by a contestant in an allocation contest. Although CBS attempted to create a favorable climate for the introduction of high-band color¹⁶⁶ it was unsuccessful at every round. The FCC was not the "all-wise authority" in the above quote. Among other things, the existing authority neither gave the public a choice of systems nor decided in favor of the system with the greatest long-range potential. In fact, the FCC has made television allocation decisions on a short-term basis insofar as the public interest is concerned since Chairman Fly's departure in 1944. The company with the "largest investment and research" did remain the major figure in television, but that company was not CBS.

RCA worked within the industry, and achieved its goals. Faced with the weight of opinion mustered by RCA and its cohorts, the FCC could not bring itself to do other than establish postwar television with prewar transmission and definition standards. RCA reaped the benefits from the tremendous rapid expansion of television service by building sets and from huge patent royalties.

¹⁶⁵"Television: a case of war neurosis", op. cit., pp. 253-254.

¹⁶⁶Remember that CBS did not have production facilities of its own at this time.

Additionally, RCA fostered a "don't rock the boat" attitude among the remainder of the industry with respect to color. The resulting turndown of CBS color (RCA was still working on its own color system) served as the go-ahead for expansion of black and white television service.

As television grew in popularity, the demand for more entrepreneurial opportunity became insistent. The Commission, seemingly unable to foresee the consequences of its actions, repeatedly narrowed the mileage separations between stations on the same or adjacent channels. Although the broadcasters who received grants to the new channels were pleased at first (the Television Broadcasters Association's insistence upon seven channels in New York was a major factor), the mutual interference which followed called for drastic action, of a sort not seen since the "traffic policeman of the airwaves" cleaned up the AM band under authority of the Radio Act of 1927. The television freeze began less than three years after the broadcasters and potential broadcasters started putting pressure on the FCC through the public and Congressmen interested in why their city didn't have a television station.

Thus, in late 1948, the television broadcasting industry ran up against the results of its own actions. The pigeons which came home to roost in 1948¹⁶⁷ were the result of pressures exerted from the industry itself; the FCC deserves much of the blame.

After Chairman Fly left, the Commission seemed to show a general debility with respect to farsighted television planning.

¹⁶⁷However, the freeze was later realized to have brought a bonanza to pioneers in television broadcasting.

The FCC showed itself incapable of coping with many of the highly technical problems of frequency allocation largely because of inexperience, high turnover, and dependence upon the industry for technical information -- and climate of opinion -- on which to base decisions, and laid the seeds for future difficulty by creating a stop-gap system on a basically inadequate twelve channels in the VHF band. Even allowing that the definition standards are adequate, there were not even half enough channels to create the desired "competitive, nationwide" television system.

The Commission's desire to establish the best possible television system as soon as possible under conditions of competition for spectrum space and pressure from the manufacturing industry led to the somewhat startling decision to move FM broadcasting "upstairs." This action, favored by television broadcasters who wanted their channels as low in the VHF as possible, stirred up a hornet's nest of opposition from Armstrong. Although his petitions could be dismissed on the perfectly legitimate grounds that the safety and special services had been given the 40-50 mc band before television had become firmly established, the furor started by Armstrong in the halls of Congress could not be dismissed and left a residue of mistrust for the members of the Commission and their successors.

As late as 1948, after removing one small aspect of the problem (the sharing of channels) by deleting one out of thirteen channels, the Commission still could not conceive of the problem in its broad terms. Even the parts of the problem failed to fall into focus; as for example, the obvious fact that increased

separations would be necessary to reduce interference. At this time, rather than accept the necessity of reducing the number of stations on each channel, the Commission thought in terms of a vague "basic conflict in the desires of the industry to obtain stations with large service areas and at the same time have a large number of assignments in each of the various cities."¹⁶⁸ In it's agony at being forced to declare the "freeze," the Commission was still unable to act in terms of the long-term public interest or engineering considerations. It still thought of this necessary delay as a short "breather," after which the allocation situation could be "patched up." Unfortunately, while acting thus leisurely, the status quo grew ever more rigid and resistant to change as the public "discovered" television.

¹⁶⁸Coy, Wayne. Opening statement for September 13, 1948 Conference, Para. 51(c), op. cit.

CHAPTER V

INTERLUDE (1948-1952)

Introduction

The "temporary" freeze on new television stations which started September 30, 1948, lasted to April 14, 1952. Although no new applications were considered, stations holding construction permits were permitted to go on the air, and manufacturers sold millions of sets a year in satisfying the enthusiastic demand for receivers. The public in areas with television enjoyed expanded programming, but people in non-TV areas looked forward to the end of the freeze no less ardently than the entrepreneurs who hoped to bring television to them.

Arrayed against those wishing for free access to a competitive television structure were the 108 pre-freeze stations, including the stations owned and operated by CBS and NBC. This group worked in divers methods: a) to delay the end of the freeze and thus hold off the potential competition, and b) to promote a condition of scarcity and inequality of television channels to insure the smallest effective amount of competition when the freeze was lifted.

The maneuverings of these two groups were focused about an extremely lengthy series of Commission hearings,¹ the conduct of

¹U. S. FCC. In the matters of Amendment of Section 3.606 of the Commission's Rules and Regulations, Docket Nos. 8736 and 8975; Amendment of the Commission's Rules, Regulations and Engineer-

which determined the date of the lifting of the freeze and the future shape of television service. These hearings covered five substantive issues, interrelated chiefly by their differential values to the two above groups (the "ins" and the "outs"): 1) reduction of tropospheric interference, 2) the additional channels needed to provide sufficient space for nation-wide competitive broadcasting, 3) educational television channel reservations, 4) allocation plans and city-by-city assignments of channels, and 5) color television standards. Hindsight tells us that the question of color television standards might better have been severed from the main hearings and considered later. Regardless of the motives of the participants in the color television imbroglio, the greatest effect of the color phase of the hearings was to delay the end of the freeze by more than a year. Keeping in mind that there are significant interrelationships between the separations required by tropospheric interference, the number of channels then required to provide satisfactory service and the make-up of the city-by-city allocation table,² the substantive issues and factual alternatives of the five questions are listed below.

1. Tropospheric interference and mileage separations.--

Since the most obvious cure for tropospheric interference is increased mileage separation between stations on the same channel, this problem could be and was solved within a few months. Certain

ing Standards Concerning the Television Broadcast Service, Docket No. 9175; Utilization of Frequencies in the Band 470 to 890 mcs for Television Broadcasting, Docket No. 9876. Hereafter referred to as "U. S. FCC. () in Dockets 8736, et al."

²Actually, such a city-by-city table of channel availabilities should be termed an "assignment table" rather than an "allocation table." However, the latter term will be used in order to be consistent with FCC and industry usage.

technical developments, such as "offset carrier," also alleviated the problem. However, those parties who wished to obtain VHF channels after the freeze claimed that a bit of interference was a small price to pay for the benefits of healthy competition and multiple program sources, since increases in separation would mean reductions in numbers of permissible stations.

2. Obtaining additional channels.--To make even a pretense of providing for a competitive nationwide television system the Commission had to acquire more channels, particularly after increased co-channel mileage separations reduced the number of stations possible on the twelve VHF channels. However, even those in favor of greater opportunity for access were not in favor of starting in the untried UHF band, with its concomitant problem of receiver conversion. Accordingly, unsuccessful attempts were made to obtain additional VHF channels from the military and the FM band. Some proposals were also made by the "outs" that would have the effect of "shoehorning" in additional stations through less-than-maximum power, directional antennae and reduced mileage separations. The FCC, with the growing administrative allocation problem of the AM band as a warning, and also with a tender regard for the established service areas of the prefreeze stations, turned down these proposals. Of necessity, the question became not whether to utilize the UHF band,³ but rather how much of it to use. Various proposals ranged from a "half dozen" channels up to the maximum possible seventy. In an effort to counteract the advantages enjoyed by the established pre-freeze stations, it was suggested that all

³The band 470-890 mc. had been set aside in 1945 for television experimentation and possible future broadcasting.

television be moved to the UHF band. The commission rejected this proposal, doubtless because of the already huge investment in VHF transmitters and receivers.⁴

3. Educational channel reservations.--Campaigning by educators and Commissioner Hennock brought a reservation of approximately 10 per cent of all channel assignments for educational institutions. Beneficial as this reservation could prove to the nation, it did remove valuable channels from commercial use in a number of markets. Accordingly, many potential commercial applicants opposed the concept of educational reservations. On the other hand, there was tacit support for these reservations on the part of commercial stations already possessing a monopoly or near-monopoly position in the particular community. Their reasoning was that the audience to educational television would be small, and at the same time a potential commercial rival would be unable to gain access to the market so long as the reservation for education was in effect.

4. Allocation plans and city-by-city assignments.--Despite the pleas of those potential broadcasters and the two smaller networks (ABC and DuMont) which were hoping for equality of access and facilities in a given community, the Commission assigned channels to communities in terms of a system of four priorities. These priorities ignored population, the key to successful station operation, in the interests of a strict interpretation of the section of the

⁴Another reason was doubt over the propagational potential of the UHF band, use of which would restrict the television fare of rural communities. In reasoning similar to the retention of AM clear channels, the FCC maintained that both VHF and UHF would be needed to provide nationwide service.

Communications Act that called for a fair apportionment of channels to the several states in terms of geographical area.⁵ Multiple service to the public was only a secondary priority. The priorities were: I. To provide at least one television service to all parts of the U. S.; II. To provide each community with at least one station; III. To provide a choice of at least two services to all parts of the U. S.; IV. To provide each community with at least two program services. Channels which remained unassigned would be allocated on the same basis.⁶

Under the FCC plan cities would be intermixed, with both VHF and UHF channels assigned. Opposition to this plan pointed out the grave disparity between the service the two bands could offer, and the resulting economic disadvantage of a UHF station in a city with VHF stations assigned. If the VHF station had been operating during the freeze, and the public had been saturated with VHF-only receivers, the problem would be compounded. DuMont, in particular, issued detailed nationwide allocation plans which minimized mileage separations, use of the UHF, and intermixture, but had the advantage of providing outlets for the four networks in a majority of those larger communities able to support television. This was in contrast to the Commission's rather diffuse plan for the distribution of channels, which would have permitted the limited number of VHF stations in some communities to play the outlet-starved networks off against one another. This would have been to the advantage of

⁵Communications Act of 1934, Section 307 (b).

⁶U. S. FCC. Sixth Report and Order in Dockets 8736, et al., Para. 63.

CBS and NBC, which had successful stations of their own as well as the programming resources which enabled them to attract affiliates.

5. Color television standards.--The CBS-RCA color fight, which had been largely quiescent following the 1947 FCC rebuff of the CBS system, flamed again during this period. The staunchest advocate of color was Senator Edwin C. Johnson, who had appointed himself a watchdog over the Commission's responsibilities for innovation of new services to the public. As mentioned earlier, color was added to the television allocation hearings, causing the freeze to remain unbroken for an additional eighteen months, despite the importunings of those wishing to establish new stations.⁷ By the start of the hearings, both systems⁸ had shown their ability to fit into the standard 6-mc. bandwidth. This was a requirement by the FCC that in theory (but not in practice during the hearings) removed the question of color from the problem of allocation.

After a long and acrimonious series of hearings and demonstrations, the CBS color system was approved by the Commission. Neither RCA (which appealed to the courts) nor the rest of the manufacturing industry would accept this decision. Few CBS-standard color sets were ever made, although CBS itself purchased manufacturing facilities. While the manufacturers were balking at the idea of constructing non-compatible, clumsy small-screen television sets and paying a royalty to CBS for the privilege, RCA worked hastily

⁷The color phase of the hearings lasted approximately from May 1949 to November 1950.

⁸A third system, that of Color Television, Inc. (CTI), was considered during the hearings, but apparently could not compete financially or politically with CBS and RCA. Other inventors and companies also conducted research on color television systems and components, particularly the tri-color picture tube. In terms of interest group strategies, these groups are unimportant.

to develop an improved system of its own. CBS recognized that what little support it had would evaporate as soon as the new RCA system became perfected, since the compatible RCA system would not disrupt existing television broadcasting, stop the profitable manufacture of black-and-white sets, or cost the manufacturing industry additional royalties. Accordingly, the decision by the National Production Administration that color television was non-essential during the Korean war had the effect of getting CBS "off the hook." The Commission also learned the valuable lesson that it was not able to exercise practical control over the manufacturing industry and force the innovation of something the industry did not want.

RCA, which had played an essentially negative role during the 1944-1947 hearings (working to block CBS color rather than innovate its own), apparently seriously desired to establish its own color system in the early 1950s. RCA soon found that the other manufacturers showed almost as little inclination to go ahead with RCA as with CBS color. There was no reason for the industry to consider color until after the vast market for black-and-white sets had become saturated, and there was too much expense and too little benefit for the public to buy the sets which RCA itself manufactured.

During the freeze, a condition of station scarcity existed. Large areas of the country waited for their first television service. Only twenty two cities had two or more stations, and only twelve had three or more, creating an almost impossible situation for the two smaller networks, and restricting viewing fare for the average viewer. To remedy this, the potential applicants for stations favored placing emphasis on multiple service to population rather than to area or number of communities.

In spite of their views on color television, neither CBS nor NBC wished to upset the new structure of black-and-white television, just beginning to show promise of replacing network radio as a profit-making enterprise. Most manufacturers were preserving neutrality toward the freeze itself as long as they could continue selling an average of 410,000 receivers a month.⁹ Against this array of prefreeze broadcasters, large networks and manufacturers,¹⁰ the potential broadcasters and small networks working for ending the freeze and equal access to markets were unable to prevent the introduction of intermixture, which in turn has prevented the emergence of a nationwide competitive system.¹¹

Television allocation and assignment

Tropospheric interference and mileage separations

Mileage separations.--The primary cause of the freeze was a barrage of complaints about co-channel interference. The Commission's 1945 allocation table had placed cities as little as 90 miles

⁹Figures from Electronic Industries Association (EIA, formerly RMA). Television Factbook No. 26, Spring-Summer, 1958, pp. 444-447. These receivers had a factory value of over three billion dollars during the 43 months of the freeze.

¹⁰Although the transmitter manufacturers such as DuMont and RCA had strong reasons for ending the freeze, the more important goals of their networks and receiver manufacturing divisions took precedence. Also, it was not likely that the transmitter market would dissipate if the freeze lasted a little longer. Of course, if the freeze had lasted past the receiver saturation point in all cities possessing prefreeze stations, there would have been strong agitation from the manufacturers for opening additional stations and markets.

¹¹After 1952, the prefreeze and the postfreeze VHF stations have metamorphized into a class possessing advantages as great as those enjoyed by the prefreeze stations alone prior to the lifting of the freeze. On the other hand, the present UHF stations are in even worse shape than the postfreeze applicant group, since they are faced by numerically stronger and technologically superior competition.

apart on the basis of importunings of the TBA. As more stations went on the air in 1948, and as the sunspot cycle neared its zenith, the shortcomings of the 1945 allocation table became unbearable. Mutual interference between stations in Detroit and Cleveland was making reception impossible well into the heart of each city. The Commission chose to issue a freeze on all construction permit grants¹² while taking a few weeks to plan remedies.

It was thought that a quick decision to raise the mileage separations by a few miles was all that was needed. Broadcasters could then get back to the business of building stations. Industry reaction, even among those who had applications pending, was initially favorable to the freeze. Both the president of TBA and Allen B. DuMont praised the action of the Commission,¹³ although DuMont later became a violently outspoken opponent of continuing the freeze.

When it became apparent that the FCC 1) was thinking in terms of doubling the mileage separations (and thus halving the number of possible station assignments), and 2) desired information as to the desirability of utilizing the UHF band before lifting the freeze, industry reaction grew considerably cooler. Worried about television's economic potential and the possibility of a move to an all-UHF system,¹⁴ fifteen construction permit holders never built their stations. Other construction permit holders

¹²Holders of previously granted CPs were allowed to take to the air.

¹³"TV freeze generally approved by industry." Broadcasting, Vol. 35, No. 15, October 11, 1948, p. 28.

¹⁴Ibid., quoting newspaper editorials to this effect.

attempted to delay construction while waiting to see which way the wind would blow, only to have the FCC inform them that:

The Commission will not accept as an excuse for failure to proceed diligently with construction of a television station the fact that the permittee may feel uncertainty due to pending proceedings affecting television rules, regulations and allocations.¹⁵

With all the activity the Commission engaged in during the fall of 1948, it seemed inconceivable that the freeze would last three years and six and one half months. After the Commission-Industry Conference of September 13-14, 1948 (at which evidence was presented that led to the freeze), the Commission held an Engineering Conference on November 30, December 1, 2, and 3, 1948. The Chairman of this conference appointed an Ad Hoc Committee, composed entirely of some of the nation's foremost propagation authorities from government and industry,¹⁶ who were to examine and evaluate all available data on tropospheric and ground-wave propagation. The report of this committee, on May 31, 1949,¹⁷

¹⁵Pike and Fischer, Radio Regulation, 1086 (1949), the WSAZ case.

¹⁶As originally composed, this Ad Hoc Committee consisted of three engineers from the FCC, two from the Bureau of Standards' Central Radio Propagation Laboratory, and four outstanding independent consulting engineers. Six months later, the group had expanded to include two more independent consulting engineers, and representatives from DuMont, CBS, RCA and Westinghouse.

¹⁷U. S. FCC. Engineering Conference in Dockets 8736, et al., Report of the Ad Hoc Committee for the evaluation of the radio propagation factors concerning the television and frequency modulation broadcasting services in the frequency range between 50 and 250 Mc. May 31, 1949, FCC mimeo 36830.

cautioned that its tentative conclusions were based on meager data. One committee member warned that "these new guesses of ours may be taken too seriously, and perhaps even. . . might throttle the possible development of TV broadcasting in places where our guesses turn out to be wrong."¹⁸ He also stated that:

. . . too great separations now will be easier to modify later by the policy of acceptance of measurements (from station applicants) than will overly close separations. A bad guess on the high side will surely be easier to correct on the basis of measured performance than will too compact a station pattern.¹⁹

Accordingly, the FCC's July 1949 Notice of Proposed Rule-making called for co-channel separations ranging up to 328 miles, depending upon frequency and grade of service.²⁰ In general, the Commission's proposed allocation table was based on separations of 220 miles on the VHF band.²¹ This was ten miles farther than a 210-mile plan used by the FCC for an "illustration" of the allocation table in November 1948.²²

Synchronization and offset carrier

In its July 1949 Notice, the Commission:

¹⁸Ibid., Attachment B-1, p. 1. Observations of Dr. Thomas J. Carroll (National Bureau of Standards).

¹⁹Ibid., Attachment B-1, p. 3.

²⁰U. S. FCC. Notice of further proposed rulemaking in Dockets 8736, et al., July 11, 1949, FCC 49-948, Mimeo #37460. Appendix B, p. 7.

²¹Ibid., Appendix C, p. 1.

²²"TV band grab: Navy may seek 'upstairs.'" Broadcasting, Vol. 35, No. 21, November 22, 1948, p. 21. The 210-mile plan was characterized by Broadcasting's Rufus Crater as "dismal," since only half the existing number of assignments would be made available. The reported Navy plan to seek substantial portions of the 500-900 mc band apparently got nowhere.

. . . recognized that by means of synchronized or offset carrier operation some improvement in the interference ratio is possible. The Commission hopes to encourage such operations but does not intend to use them as a means of reducing separation between stations but rather to extend the service area of stations to improve the quality of television reception.²³

These two techniques--synchronization and offset carrier--are shining examples of the technical accomplishments of which the American electronics industry is capable.²⁴ Synchronization, which had been experimented with in the early days of AM radio in the hope of reducing interference by permitting co-channel operation,²⁵ could be used to reduce the interference suffered by co-channel television stations presenting the same program.²⁶ RCA announced in late December 1948 that it had been experimenting with carrier synchronization between stations WNEW (Washington) and WNBT (New York) and that the technique had greatly reduced interference between the two stations. However, RCA cautioned that it would probably not work with stations less than 150 miles apart.²⁷ The FCC immediately expressed interest²⁸ and this synchronization

²³U. S. FCC. Notice of further proposed rulemaking in Dockets 8736, et al., Appendix A, p. 5.

²⁴In the broadcast field, the outstanding example is the multiplexing of various signals (such as Facsimile or a second audio channel for stereo) onto an FM transmission.

²⁵Stations WBZ (Boston) and WBZA (Springfield) are synchronized today.

²⁶Much co-channel interference is caused by the very small driftings and variations between the carrier signals of the two stations. If these variations are eliminated, so is a great deal of interference.

²⁷"WNEW-WNBT synchronization plan hailed." Broadcasting, Vol. 35, No. 25, December 20, 1948, p. 25.

²⁸"TV dilemma: FCC invites observation of synchronization." Broadcasting, Vol. 36, No. 1, January 3, 1949, p. 68.

technique was apparently used to reduce interference between the Detroit and Cleveland stations on Channel 4 during the 1948-1952 period.²⁹

On the other hand, offset carrier operation separates the carriers of co-channel stations by approximately 10 kc. This procedure, which reduces the "venetian blind" interference effect, does not require the additional expense of a receiving and synchronizing station. Once the station is assigned either a plus or a minus 10 kc offset, and installs the crystals for same, no further effort is needed. With offset carrier, co-channel stations separated by 150 miles or more may carry different programs without mutual interference. RCA first suggested this technique in May 1949,³⁰ but it was not adopted as a basis for allocation by the FCC in its July 1949 Notice of Further Proposed Rule Making. Later, after a survey by the Joint Technical Advisory Committee of stations using offset carrier had indicated almost unanimous favorable support for this procedure, the Commission adopted 10 kc offset carrier in its Third Notice of Proposed Rule Making in

²⁹Allen, E. W., W. E. Boese and H. Fine. Reference D (Summary of tropospheric propagation measurements and the development of empirical VHF propagation charts, revised) to the Report of the Ad Hoc Committee, Dockets 8736, et al., op. cit., May 26, 1949, pp. 11-12. This technique involved picking up one of the two stations at some intermediate point (near Sandusky, Ohio in this case, and at Princeton, N. J. in the New York-Washington experiment) and using this signal to control the variations in the second station's transmitter.

³⁰"Co-channel TV: RCA has 'off-frequency' plan." Broadcasting, Vol. 36, No. 21, May 23, 1949, p. 32.

March 1951³¹ and in the final report and order on the allocation question.³²

The Third Notice recognized that offset carrier should enable co-channel separations to be reduced an average of forty miles to 180 miles on VHF and 165 miles on UHF. It was pointed out that "greater separations are utilized in Gulf coast areas and in other areas where high levels of tropospheric propagation may be expected."³³ When the 6th Report and Order was released in April 1952, separations in the portion of the country roughly east of the Mississippi and north of Virginia were reduced to 170 miles in the VHF, 155 on the UHF. On the Gulf coast, VHF separations were set at a minimum of 220 miles, with 190 miles being the standard for the rest of the country.³⁴

Opposition to increased separations

Although increasing mileage separations was a safe and sound way to eliminate interference between stations, there were other alternatives. The argument of the opposition was that more stations providing multiple service to urban areas (even if some rural areas received co-channel interference) was more desirable

31U. S. FCC. Third Notice of Further Proposed Rule Making in Dockets 8736, et al., March 22, 1951. FCC 51-244 (Mimeo 61128). Appendix A, p. 17.

32U. S. FCC. 6th Report and Order in Dockets 8736, et al., paras. 183-188.

33U. S. FCC. Third Notice of Further Proposed Rule Making in Dockets 8736, et al., Appendix A, p. 10.

34U. S. FCC. 6th Report and Order in Dockets 8736, et al., para. 115-126.

than a severely limited number of stations, each capable of maximum range. It was pointed out that efficient utilization of the spectrum required the maximum number of stations, each serving as great a proportion of the population as possible, thus allowing for more competition between stations in a given market. To provide this greater number of stations, not only should mileage separations be reduced; but directional antennae, restrictions on power and antennae height (to reduce or equalize range), and location of stations with regard to separation and not to distance between the centers of the communities involved, should be employed. At one extreme were those who were willing to take almost any restrictions to be allowed access to a given community.³⁵ At the other end were the "superpower" advocates such as consulting engineer A. Earl Cullum who maintained that VHF stations be allowed to use the maximum power and antenna height permitted by engineering considerations, regardless of the principle of equalization of facilities in a given market. In lieu of the FCC allocation priorities, he recommended that the aim be three services for the entire country, even if this would mean deleting stations from cities now having more than three in order to squeeze the required number of stations of maximum power (100 kw at 1000 feet antenna height for channels 2-6, 300 kw for channels 7-13) into the twelve VHF channels.³⁶

³⁵ Television Digest, Vol. 6, No. 44, November 4, 1950, p. 2. Among those suggesting the use of minimum power stations were Professor R. G. Kloeffer of Kansas State College and consultant Robert Kennedy who represented a station applicant from Holyoke, Massachusetts. (Testimony during Docket 8736 hearings.) Westinghouse, DuMont, etc. (Television Digest, Vol. 6, No. 45, November 11, 1950, p. 3.)

³⁶ Television Digest, Vol. 6, No. 44, November 4, 1950, p. 2.

The view that three or four services over the entire country was a more desirable schema than the FCC's four priorities (one service over the entire country; one local service to each community; two services over the entire nation, two local services, etc.) was taken up by several groups. The advocates of maximum power and range hoped to have extensive, clearly defined and protected range and minimum competition within their own bailiwick. The smaller networks, unable to gain much of a foothold during the period of the freeze, hoped for enough outlets in major markets to provide full-time affiliates. As long as they could establish a nationwide service, able to compete in a given market with the affiliates of CBS or NBC, neither ABC nor DuMont really cared too much about the question of the various determinants of maximum range.

A detailed and reasonable plan was presented to the Commission in 1950 by one Bernard C. O'Brien. This plan lay between the ideas of maximum range advocates and the believers in providing each community with a local voice in preference to supplying the larger communities with a greater choice of services. O'Brien held that the never-adopted Commission proposal of May 1948 calling for 150 mile spacing made "a more efficient and equitable use of these frequencies."³⁷ This view, a definite contradiction

³⁷O'Brien, Bernard C. (of WHEC, Inc., Rochester, N.Y.) Statement before the FCC in Dockets 8736 et al. (mimeo, n.d.; internal evidence for date of November 2, 1950). Supplement, p. 11. In February, 1951, he added UHF to his analysis, and arrived at the same answers. (Television Digest, Vol. 7, No. 5, p. 2, February 3, 1951.)

of the general belief in wide separations, was backed up by a lucid and persuasive engineering analysis which pointed out that all of the Commission's priorities--in terms of square miles and number of stations--would be better fulfilled with 150 mile separation than with 220 mile separation.³⁸

His presentation included charts showing the theoretical maximum number of stations which could be produced with various spacings,³⁹ as well as the application of these theoretical charts to the northeastern United States. In addition to his own analysis, O'Brien was able to quote other authorities. For example, K. A. Norton, then working for the Bureau of Standards, pointed out in the Ad Hoc Committee report that the Committee had not yet undertaken a study of spacings required for "efficient allocation in accordance with the priorities," and accordingly "until such studies are made. . . this report of the Ad Hoc Committee can serve no useful purpose to the Commission in its forthcoming allocation

³⁸For example, under the 150 mile plan, over 251,000 square miles would receive at least one grade B television service compared to only 145,000 square miles under the FCC's 220 mile separation plan. At least 159 communities would have one station and seventy cities at least two stations under O'Brien's plan, compared to sixty-eight and thirty-nine under the 220-mile plan. (O'Brien statement, op. cit., p. 6.)

³⁹A single channel could be used to cover the largest area by placing stations in a triangular lattice formation, with stations all equally spaced from one another, on the corners of adjacent equilateral triangles. Although the optimum spacing of this sort is approximately 200 miles, it drops rapidly whenever there is even a slight departure from a full triangular lattice, as is the case whenever stations are assigned to communities, which of course are not spaced with required regularity.

hearings.⁴⁰ Other supporters of closer assignments, particularly in the eastern part of the country, included a representative of CBS,⁴¹ and a representative of the Association of Federal Communication Consulting Engineers, who said that: "The association believes that the Commission has given undue weight to those factors which tend to increase the mileage separation."⁴² O'Brien's contention that "the area lost by the larger range stations of the 220 mile plan is more than equalled by the area gained due to the larger number of smaller range stations"⁴³ had a strong emotional appeal for the vast numbers of AM broadcasters still debating about getting into television, since:

The reduction of the service area of a VHF station due to a closer co-channel spacings will still allow these stations to cover many times the area, as a rule, that the average 5 kw regional or 250 watt local standard broadcast station now covers at night. Here, interference-free ranges of the order of 3-15 miles are typical, at least in the east, and the prospect of a TV station with a 20 mile range or so, with the additional range resulting from offset carrier and directional antenna protection, seems like a wonderful prospect.⁴⁴

Although Television Digest commented that it had

. . . yet to hear really convincing answer, from FCC, to the testimony of Bernard O'Brien, chief engineer of Rochester's WHEC, that the May 1948 proposed allocation

⁴⁰Norton, Kenneth A. Endorsement of Vol. 2 of Ad Hoc Committee Report, quoted in O'Brien statement in Dockets 8736, et al., op. cit., pp. 1-2.

⁴¹Lodge, William B. (CBS Vice President and Director of Engineering), quoted in O'Brien statement in Dockets 8736, et al., op. cit., pp. 7-8.

⁴²Gillette, Glen, quoted in O'Brien statement in Dockets 8736, et al., op. cit., p. 8.

⁴³O'Brien statement in Dockets 8736, et al., op. cit., Supplement, p. 9.

⁴⁴Ibid., p. 10.

(utilizing 150 mi. vhf) actually meets Commission's own current objectives better than proposed 220 mi. . . .⁴⁵

the Commission held in the Third Notice that:

It is not deemed advisable to effectuate a reduction to 150 mile VHF separation as suggested at the hearing. In the first place, the evidence upon which the 150 mile separation is based is the theoretical computations of what coverage can be achieved. On the basis of the evidence in the record, it is clear that considerations of terrain and other propagation factors will materially affect many of the theoretical computations. In the second place, much of the propagation data--although the best available--upon which the Commission relies is necessarily quite meager.⁴⁶

However, the Commission did reduce co-channel mileage separations on the VHF to 180 miles, which allowed for more of a safety factor:⁴⁷

In this way, if as a result of actual experience more interference results than was indicated by the earlier calculations, the safety factor will prevent extensive damage to overall service. If actual experience shows that the amount of interference is approximately that predicted by the calculations, then the rules and standards can be amended to reflect the new data. In the Commission's experience, it is much easier as a practical matter to reduce station separations which are somewhat larger than were thought to be necessary than it is to increase separations which are smaller than were thought to be necessary.⁴⁸

In another move which still further reduced co-channel separation, the FCC made the peculiarly ambivalent suggestion that the 180 mile separation between communities could be reduced another ten miles for the actual transmitter location "in order to

⁴⁵Television Digest, Vol. 7, No. 5, p. 2, February 3, 1951. (Edited by Martin Codel.)

⁴⁶U. S. FCC. Third Notice of Proposed Rule Making in Dockets 8736, et al., Appendix A, p. 9.

⁴⁷Credit for having "contributed greatly" to this 40-mile reduction was given to O'Brien by Television Digest (Vol. 7, No. 16, April 21, 1951, p. 3) when commenting on an O'Brien presentation at the 1951 NARTB conventions which maintained that doubling the number of VHF stations would still give a thirty-five mile range, much above the average AM station's range.

p. 10. ⁴⁸U. S. FCC. Third Notice of Proposed Rule Making, op. cit.

provide for flexibility in the location of transmitters and in order to give communities within 15 miles of the city in question a reasonable opportunity to utilize channels. . . .⁴⁹ This differentiation between "communities" and "facilities" is the result of the conflict of philosophies. Some would assign channels in order to cover the greatest population or area; while others would try to cover a certain given market.

In the Sixth Report and Order the Commission realized the difficulties of dual separation standards and removed the differentiation between facility separations and assignment separations.⁵⁰ At the same time, the assignment separation was reduced to 170 miles in the Northeast, more in keeping with the great number of communities to be served. In the more sparsely settled regions of the country the separation was increased to 190 miles to permit wider coverage by each station. UHF stations were spaced some fifteen fewer miles apart.⁵¹

At this time, the Commission rejected the use of less-than-maximum powered stations,⁵² claiming that inadequate safety margins would result and that any further reductions made necessary by unforeseen interference would have to be remedied by cutting into

⁴⁹Ibid.

⁵⁰U. S. FCC. Sixth Report and Order in Dockets 8736, et al., Para. 182.

⁵¹Ibid., Para. 142.

⁵²There was a power differential imposed because of the different propagation characteristics of various bands. The power hoped for on the UHF band determined the maximum power allowed on Channels 2-6 and 7-13.

one or both stations' Grade A rather than Grade B service area.⁵³
 As a basic principle, despite the arguments of O'Brien, et al.,
 the Commission's allocation table was:

. . . based on the concept of affording each station the
 widest coverage possible consistent with an efficient utilization
 of the spectrum and the satisfaction of the needs of the
 various cities and communities in the United States.⁵⁴

Although both of the two major allocation viewpoints are
 included in the above statement, the Commission's emphasis was
 clearly upon the first clause: widest coverage possible. In
 Commissioner Jones' fiery dissent to the 6th Report and Order,⁵⁵
 he points out that the actual average spacing of assignments in
 the Northeast is 250 miles (280 elsewhere), and that these ex-
 tremely inefficient spacings cannot be justified on an engineering
 basis. In an analysis similar to O'Brien's, Jones considers 150
 miles to be an optimum separation with full power, and that any
 distance from 100 to 140 miles, with a low 10 kw of power, would
 be more efficient than 100 kw and 170 miles separation. The Com-
 mission, however, has not subscribed to this view, and strictly
 enforced the 170 mile separation.⁵⁶

Obtaining additional channels

Although some broadcasters or potential broadcasters felt

⁵³U. S. FCC. 6th Report and Order, Para. 139. These
 service classifications were based on engineering curves of signal
 strength, not necessarily the actual viewing conditions of the
 public in those areas. See TASO report discussion in Chapter VI.

⁵⁴Ibid., Para. 138.

⁵⁵Ibid., Dissenting Opinion of Commissioner Jones, Part II.

⁵⁶Spacing variations as small as one mile were turned down
 without exception.

that an adequate number of stations could be accommodated on the twelve existing VHF channels, the general view was that more channels, regardless of origin, were needed. Although it is to be expected that the prefreeze station operators, as a class, would be against opening up new channels, the public demand for television was such that overt opposition to new channels would have been very unwise from a public relations standpoint. As it happened, none of the prefreeze stations was "exiled" to the UHF, and each was well able to retain its share of the potential audience.

Stratovision

A method for using the twelve VHF channels to cover the entire country that achieved a great deal of attention was called Stratovision. This technique, arising out of World War II airborne television experimentation, was sponsored by Westinghouse.⁵⁷ It consisted of installing a television transmitter in high altitude orbiting aircraft, which could then cover satisfactorily over 200 miles. Stratovision was tested extensively during 1948 and 1949, and attempts were made to broadcast such events as the World Series over a wide area, which would permit stations not yet on the coaxial cable to pick up the Stratovision signal "off-the-air" and relay it to their own locality. Unfortunately, both co- and adjacent-channel interference with stations on the ground spoiled this particular test.⁵⁸ The potential advantages of

⁵⁷Tyler, Kingdon S. Telecasting and color. New York: Harcourt, Brace, 1946, p. 130.

⁵⁸Broadcasting, Vol. 35, No. 15, Part 1, p. 67, October 11, 1948; Broadcasting, Vol. 35, No. 16, October 18, 1948, p. 26.

Stratovision, analogous to the AM clear channel stations and eliminating at one stroke much of the need both for coaxial cable lines linking the country and the large number of small stations otherwise needed to cover the nation, must have seemed attractive to the Commission.

However, there was a great deal of opposition to Stratovision, largely from the same small station operators and members of Congress who managed to restrict clear-channel AM stations to 50,000 watts. The attitude of the Chairman of the Senate Commerce Committee was clearly expressed in his questions to the FCC about the "potentially monopolistic features" of Stratovision which might lead to "a single operator, or two or three operators, (who) would be granted licenses to serve the entire United States with their own television programs."⁵⁹ Referring to Stratovision, a small station owner commented that:

You must allow for scientific development and encourage it, but you must also protect the people against control in the hands of a very few.⁶⁰

Although the Commission was favorably disposed to Stratovision as a means of covering those portions of the nation otherwise uneconomical for television, and for common carrier relaying operations,⁶¹ evidence became available which showed that some

⁵⁹Johnson, Edwin C. Letter of February 15, 1949 to FCC Chairman Coy, Questions "e" and "f". See 1 Pike and Fischer, Radio Regulation, Para. 91:18.

⁶⁰Craney, E. B. (Radio Station KXLF, Butte, Montana). Testimony before Senate Commerce Committee, 81st Congress, 1st Session on S. 1973, Amendments to Communications Act of 1934, Hearings, June 16, 1949, p. 65.

⁶¹U. S. FCC. Reply by Commission to Questions of Senate Interstate Commerce Committee, February 25, 1949. 1 Pike and Fischer, Radio Regulation, Para 91:18.

twenty channels would be needed to supply all areas of the nation with four signals.⁶² Since the necessary perambulations of the Stratovision aircraft would disastrously affect the principles of "fair, efficient and equitable allocation of television facilities to the various communities," the Commission made no specific allocation to Stratovision in either the Third Notice⁶³ or the 6th Report and Order.⁶⁴ However, as early as 1950 Westinghouse placed Stratovision in the FCC's lap, claiming that the system had proven itself and that the Commission would have to provide impetus in the form of authorization for commercial operation.⁶⁵ The best that the FCC could do was to encourage experimental operation outside the commercial television bands.⁶⁶ Westinghouse donated the equipment to Texas A & M late in 1952.⁶⁷

⁶²U. S. FCC. Third Notice of Proposed Rule Making in Dockets 8736, et al., Appendix A, IV, p. 20.

⁶³Ibid. In the same way, the FCC turned down an untried scheme called Pollycasting for using a number of low-power UHF stations on the same channel as a lower cost, more flexible method of covering an area, p. 21.

⁶⁴U. S. FCC. 6th Report and Order in Dockets 8736, et al., Paras. 225-228.

⁶⁵Television Digest, Vol. 6, No. 45, November 11, 1950, p. 2.

⁶⁶U.S. FCC. 6th Report and Order, Para. 228.

⁶⁷Television Digest, Vol. 8, No. 51, December 20, 1952, p. 8.

Obtaining additional VHF channels

A good many potential television broadcasters were somewhat cautious of accepting the FCC's view that UHF stations would be able to compete on equal terms with prefreeze VHF stations. Accordingly, they tried to obtain additional VHF channels from the various government services or by deletion of the FM band. The Navy apparently followed the maxim of "the best defense is a good offense" and attempted to obtain substantial portions of the 500-900 mc UHF band in addition to its extensive use of lower bands.⁶⁸ The industry, with the philosophy of denying the government use of natural resources to the exclusion of private industry, called for the creation of a high level policy board to take into account "public (sic) as against military and governmental demands" for the spectrum.⁶⁹ A few months later the broadcasters went on the offensive to ask for "a half-dozen or more 6-mc channels in the military zone of the spectrum just above 216 mc," in an effort to forestall expansion into the "unknown" of the UHF.⁷⁰ Broadcasting magazine suggested editorially that the problem of "seemingly sacrosanct chunks of spectrum assigned to (but not always used by) government agencies" should be "carried squarely to President Truman if necessary."⁷¹ When the Senate Commerce Committee's

⁶⁸Grater, Rufus, "TV Band Crab: Navy may seek 'upstairs'," Broadcasting, Vol. 35, No. 21, November 22, 1948, p. 21.

⁶⁹"IRAC-Wracked Radio." Broadcasting, Vol. 35, No. 22, November 29, 1948, p. 44.

⁷⁰"VHF Video: New efforts to postpone use of UHF." Broadcasting, Vol. 37, No. 12, September 19, 1949, p. 47.

⁷¹"Room to grow." Broadcasting, Vol. 37, No. 13, September 26, 1949, p. 36. Another Broadcasting editorial, "FCC's TV spot" appeared on October 10, 1949 (v. 37, No. 15, p. 42).

Communications Subcommittee initiated a probe of division of the spectrum between civil and government services, Broadcasting headlined the story "Is U. S. Spectrum Hog?"⁷² Although the initial announcement by Senator McFarland of the subcommittee's purposes did not particularly mention television broadcasting, it took a little while before broadcasters could be convinced that the Senate Committee was chiefly interested in non-broadcast matters,⁷³ and in any case the Committee's interest dwindled as Congress adjourned.

Little more was heard from the broadcasters about additional VHF channels for some time. The Korean war, breaking out in June of 1950, eliminated any chance of obtaining these frequencies from the military. A somewhat half-hearted attempt to delete the FM band in whole or in part to provide television with three new channels was made in the middle of 1951. Despite the fact that it seemed to most observers, as it did to CBS's Stanton, that "the FM boat has sailed,"⁷⁴ the FCC strongly defended the service, assailed the manufacturers who were not providing or promoting FM sets, and stated that "The FCC is not considering the deletion of the FM band or any part of it. . . ."⁷⁵

⁷²"Is U.S. Spectrum Hog?: Congress will seek answer," Broadcasting, Vol. 37, No. 16, October 17, 1949, p. 23.

⁷³"Spectrum Probe: subcommittee marks time." Broadcasting, Vol. 37, No. 17, October 24, 1949, p. 29.

⁷⁴Stanton, Frank. Testimony before FCC on Dockets 8736, et al., quoted in Television Digest, Vol. 6, No. 16, April 22, 1950 (n.p.).

⁷⁵U. S. FCC. Letter from FCC Chairman Wayne Coy to John L. Horne of station WFMA (FM), Rocky Mount, N.C., July 13, 1951. Television Digest, Vol. 7, No. 29, July 14, 1951, p. 14. Admiral Corporation President Siragusa wrote off FM as a "dying art," and held that use of FM frequencies for TV (Admiral was the third largest TV manufacturer) would provide service to three million families. Television Digest, Vol. 7, No. 1, January 6, 1951, p. 3.

Opening the UHF band

Rejection of all alternatives for obtaining additional VHF channels required moving to the UHF for additional television space.⁷⁶ Although the trade press quoted Chairman Coy as believing that use of the UHF would open up television for all, adequate knowledge was lacking of the propagation characteristics of the UHF. As soon as the freeze started, various manufacturers such as Philco and RCA obtained licenses for experimental television stations on the UHF. The outstanding example was the RCA-NBC operation at Bridgeport, Connecticut, which operated as a satellite of WNBT, New York City. This station gave manufacturers and broadcasters an opportunity to test their ideas and equipment (particularly UHF receivers) under actual conditions on a variety of terrain. This station remained in service, providing extremely valuable data, until the end of the freeze.⁷⁷

⁷⁶Interestingly enough, the Commission claimed in the 6th Report and Order (Dockets 8736, et al., para. 21) that: "In order to allocate additional VHF channels to the television service, it would be necessary to delete frequencies from one or more of the other radio services which have been allocated frequencies in this portion of the radio spectrum. While there is testimony in the record as to the possibility and alleged desirability of such a re-allocation of frequencies, this proceeding has included no issue or proposal by the Commission or the parties for the reallocation of specific frequencies nor any evidence evaluating the comparative needs of the various radio services for the pertinent VHF frequencies. Accordingly, this proceeding affords no basis for a decision withdrawing frequencies from other services (both government and non-government) for the purpose of creating additional VHF television channels."

It is difficult now to see how proposals for "specific frequencies" could be made, when government assignments are unpublished, and, indeed, often cloaked in military secrecy. See the FCC proposals during the spring of 1959 for contrast.

⁷⁷In 1952, the experimental station transmitter was sold to a Portland, Oregon, station which became the first commercial UHF station on the air. For details of the operation of the Bridgeport station, see Television Digest, Vol. 6, 1950, Nos. 5, 14, 26, 43,

Although there was serious doubt as to the amount of power which could be generated on the UHF⁷⁸--thus further restricting the possibility of UHF and VHF stations competing satisfactorily--the question before the FCC was how many channels to use in the UHF, and what standards should be adopted. Despite some suggestions that a mere half dozen additional channels would be sufficient, either on the VHF or on the UHF,⁷⁹ the Commission in July 1949 proposed using an additional forty-two channels in the UHF.⁸⁰ Identical standards were advocated for both the VHF and the UHF bands, with any use of color required to fit into a 6 mc bandwidth.⁸¹ By the date of the Third Notice (March 1951) the Commission was thinking in terms of sixty-five or seventy channels in the UHF band.⁸² The Commission had still not reached a decision on its almost two year old deliberations over the proposed use of the 470-500 mc band for a broadband system of mobile communications on a common carrier (Bell Telephone) basis, which rendered allocation of the lowest five channels for television problematical. The

44, 45, 46, 47 and Vol. 7, 1951, Nos. 25, 26, 29, and 37.

⁷⁸A completely new set of engineering techniques, such as waveguides instead of wires, are needed in the upper UHF. These techniques are closely akin to radar than radio.

⁷⁹"Limited UHF." Broadcasting, Vol. 36, No. 19, May 9, 1949, p. 48.

⁸⁰U. S. FCC. Notice of further proposed rule making, in Dockets 8736, et al., July 11, 1949, Appendix A-I. This was seven more channels than proposed in a public notice dated May 26, 1949.

⁸¹Ibid., Appendix A-II.

⁸²U. S. FCC. Third Notice of further proposed rule making, in Dockets 8736, et al., March 22, 1951. Appendix A-I.

television service was given this sub-band in July 1951,⁸³ although the need for mobile telephone frequencies has continued.

Role of the manufacturer

The key to the use of the UHF band lay in the hands of the manufacturing industry. Throughout the freeze, with the exception of some sales slumps during summer months, television set makers were kept busy with the demand for VHF sets destined for those communities with TV service. It was not until the last half of 1951 that the demand for sets in these areas showed signs of future lessening. Although the material shortages resulting from the Korean war seriously hampered the manufacturers, and caused a stretching out of production, the manufacturers appear to have hewn to the "one thing at a time" line, and did not do more than preliminary engineering work on UHF until the freeze had been on for more than three years.

The Zenith advertisements and obsolescence

One conspicuous exception was Zenith, which announced plans to construct a line of UHF-VHF receivers, able to receive a total of twelve channels within either or both bands right after the freeze was instituted.⁸⁴ Some months later, Zenith stung the rest of the manufacturing industry into furious reaction by means of a series of advertisements assuring prospective buyers of TV receivers that the engineering of Zenith sets would protect them against "expected changes" in television allocations. This

⁸³U. S. FCC. Fourth Report of Commission and Order in Dockets 8736, et al., July 12, 1951.

⁸⁴Christopher, Larry. "High-low TV." Broadcasting, Vol. 35, No. 17, October 25, 1946, p. 29.

"insurance against obsolescence" theme aroused bitter resentment, not only from retailers who complained of being "knifed in the back" and of a "lousy deal", but from other manufacturers. It is difficult to say how much of this almost reflexive antagonism was due to the immediate desire of all concerned to sell as many television sets as possible with expectations of a long period of "freeze", and how much was due to disbelief in the eventual development and use of the UHF. In any event, several manufacturers (notably Admiral) reportedly complained to the Federal Trade Commission about the Zenith advertisement.⁸⁵ The RMA initiated a concerted "educational" drive with a war chest of between \$50,000 and \$100,000 to acquaint the public with "the actual facts" about obsolescence.⁸⁶ Some newspapers refused to carry the Zenith ads, and others editorially attacked them. Retailers and wholesalers almost unanimously condemned the advertisements as "misleading" and "inaccurate" and claimed that they were hurting business. On the other hand, one set maker (Crosley) announced, possibly in a fit of bravado, that its sales to distributors were the highest in its history during the week following the Zenith ads.⁸⁷ In a more extreme action, but in keeping with the attitude of the industry, two manufacturers (Sightmaster Corporation and Empire Coil Company--which also owned a Cleveland television station) sued Zenith in the New York Supreme Court for one million dollars as

⁸⁵Osbon, John. "Zenith squall: 'obsolescence' ad sparks FTC study." Broadcasting, Vol. 36, No. 11, March 14, 1949, p. 25.

⁸⁶"RMA meet: fund proposed for 'facts' drive." Broadcasting, Vol. 36, No. 12, March 21, 1949, p. 29.

⁸⁷Osbon, John. "'Obsolete' ads: Zenith continues to draw industry fire." Broadcasting, Vol. 36, No. 12, March 21, 1949, p. 32.

damages, and an injunction against the ads.⁸⁸ Independently, RCA maintained that converters could be constructed for virtually all television sets to enable them to pick up UHF when and if the time came. This view was attacked by Commander McDonald, who pointed out a change in bandwidth standards would render all⁸⁹ sets obsolescent or obsolete beyond the ability of a converter to remedy.⁹⁰

Zenith's defense in the million dollar damage suit was based largely upon the correspondence between Senator Johnson and Chairman Coy in February 1949.⁹¹ In this exchange, Coy admitted that there would be obsolescence, and that converters were not entirely satisfactory. Commissioner Hennock went one step further and suggested that the public be informed of just what each manufacturer's sets were capable of, as well as the dangers of potential obsolescence.⁹² The rather lukewarm attitude of the Commission majority toward UHF at this point is obvious, although Zenith received official praise and publicity when it provided Chairman Coy with the first UHF set with built-in tuner off its production line,⁹³

⁸⁸"Zenith sued: two firms hit obsolescence ads." Broadcasting, Vol. 36, No. 13, March 23, 1949, p. 54.

⁸⁹This line of argument seems analogous to throwing out the baby with the bath water, since Zenith sets wouldn't be usable under these conditions, either.

⁹⁰"TV converters: McDonald, Wilson disagree." Broadcasting, Vol. 36, No. 16, April 18, 1949, p. 38.

⁹¹"Zenith answers million dollar damage suit." Broadcasting, Vol. 36, No. 24, June 13, 1949, p. 38.

⁹²Hennock, Frieda. Additional views to letter from Commission (Chairman Coy) to Senator Johnson, February 25, 1949, in answer to the Senator's letter of February 15, 1949. 1 Pike and Fischer, Radio Regulation, Para 91:18.

⁹³Christopher, Larry. "High-low TV: Zenith hints high band color, too." Broadcasting, Vol. 35, No. 17, October 25, 1948, p. 29.

and a great deal of FCC comment dealt with the eventual need for the UHF channels.

Retention of the VHF band

No matter what laudatory comments were made about the Zenith receiver by Chairman Coy, in March of 1949 he proceeded to tie the Commission's hands with respect to establishing a nationwide allocation plan that would not repeat the mistakes of 1945. At a meeting of the Advertising Club of Baltimore, Coy promised flatly that the twelve present VHF channels "will not be eliminated" and that TV sets now on the market "obviously" will be able to "get service from these channels."⁹⁴ He also pointed out that the "tempest in a teapot" over the Zenith ads had created "definite pressures" for adoption of the then-current VHF standards for UHF. This speech was the death knell for the 1944-1947 idea of higher standards on the UHF band, which would have required a different bandwidth.⁹⁵ The decision not to consider deleting the VHF band in order to put

⁹⁴Coy, Wayne. Address before the Advertising Club of Baltimore, March 23, 1949, quoted in "UHF band: power development is key--Coy," Broadcasting, Vol. 36, No. 13, March 28, 1949, p. 54-D. The statement was unequivocal: "There is no proposal by the Commission. . . to delete any of the present VHF channels. This service will not be eliminated." (Quoted in Siepmann, Charles A. radio, television, and society, New York: Oxford, 1950, p. 321).

⁹⁵Coy, at a joint meeting of the Radio Executives Club and the Advertising Club of Boston on January 25, 1949 is quoted as saying: "I am quite sure we could have a wider channel, higher definition service in this country if we had a monopoly--either privately owned or government owned. Personally I will take competition rather than improved definition if it means monopoly of either variety." (Quoted in Siepmann, Radio, television and society, p. 321.)

everyone on an equal footing in the UHF was looked at with some mistrust by Senator Johnson, who said:

I regard it as tragic for the ultimate development of television that the VHF allocations heretofore made is handicapping the adoption of a truly equitable and scientifically practical VHF-UHF allocation.⁹⁶

The Commission maintained its position that there was no doubt as to the value of the VHF portion of the spectrum, despite the possible dangers of intermixture, saying:

We are not . . . convinced that an adequate showing has been made that sufficient spectrum space would be provided for an adequate nation-wide television service if only the UHF portion of the spectrum is allocated for commercial television broadcasting. Accordingly, we have decided that commercial television operations should be provided for in both bands of the spectrum. . . .⁹⁷

Although other matters, such as color, largely occupied the thoughts of the Commission, Congress, and the industry through 1950-51, Coy found it necessary to repeat in 1950 that there was no intention to move all television to the UHF band.⁹⁸ Suggestions such as improved definition, moving all color to the UHF thus leaving black-and-white on VHF, and "frequency modulated television"⁹⁹ were discarded. Engineers and manufacturers and

⁹⁶Johnson, Senator Edwin C. Letter to FCC Chairman Wayne Coy quoted in "Johnson's stand: clarifies position on TV," Broadcasting, Vol. 37, No. 21, Nov. 21, 1949, p. 56.

⁹⁷U. S. FCC. 6th Report and Order in Dockets 8736, et al., Para. 25. Only a few minor participants favored an all-UHF system.

⁹⁸Television Digest, Vol. 6, No. 27, July 8, 1950, p. 1.

⁹⁹This system was developed in the FCC laboratories, and offered greater interference rejection. It was completely and coldly ignored by the industry. (Broadcasting, Vol. 36, No. 3, January 17, 1949, p. 21.) Independent research activity by the Commission laboratories was a distinguishing mark of this period of television development; see section on color television in this chapter.

broadcasters examined the RCA-NEC station at Bridgeport, and expressed lessening degrees of caution over use of UHF as the end of the freeze grew nearer.¹⁰⁰ Zenith again raised industry tempers (but not to the same extent as in 1949) with a 1951 series of "obsolescence" ads along the same lines. This time, the counter-moves were in the form of sales "ammunition" to retailers, pointing out that conversion was necessary and possible with almost every brand of receiver.¹⁰¹

Perhaps the outstanding evidence of the FCC's preoccupation with the VHF was in its decision to intermix, without seriously disturbing more than a handful of existing stations.¹⁰² The position of the manufacturing industry with respect to UHF was also plain. As Television Digest stated:

¹⁰⁰Television Digest, Vol. 6, No. 26, July 1, 1950, pp. 1-2.

¹⁰¹Television Digest, Vol. 7, No. 14, April 7, 1951, pp. 9-10.

¹⁰²Some thirty-one stations were to be required (by terms of the Third Notice) to change channels. None were to be eliminated, although the Commission was empowered to do so if necessary. Under the terms of the 6th Report and Order, only thirty stations were required to shift, and one of these thirty had a smaller change to make than suggested in the Third Notice. Of the thirty:

No stations had to shift to the UHF band.

Twenty-six stayed in the same half of the VHF band they were in before.

Two moved up from the low (Channels 2-6) to high (Channels 7-13) band.

Two moved down from the high VHF channels to the low VHF channels.

Of the twenty-six which stayed in the same half of the band, fourteen only changed by one channel (either up or down), eight by two channels, two moved three channels, and one each moved five and six channels away. Thus, in most cases the amount of change was negligible, even though 28 per cent of the stations on the air had to change their channel. Many stations swapped equipment to further reduce the expense of shifting.

. . . any company with a name to protect and service contracts to fulfill will certainly see to it that past as well as future customers are protected.¹⁰³

By the end of the freeze, the manufacturers were confident that they would be able to fill any demand for UHF receivers,¹⁰⁴ although the market for VHF sets remained undiminished. The broadcasters who would have to use the UHF to get into television were optimistic,¹⁰⁵ despite the predictions of nothing but trouble resulting from intermixture.¹⁰⁶

Allocation plans and intermixture

The 1945 allocation plan of the FCC, as modified by the deletion of Channel 1 in 1948, was designed to give service through roughly 400 stations to some 140 metropolitan areas, accounting for fifty-seven million people, or about 40 per cent of the population. Simple arithmetic made it necessary to use the UHF to reach the other 60 per cent with multiple television service.

This decision was not reached without opposition, as mentioned in an earlier section. Proposals were made to obtain additional channels in the VHF from the government or from FM broadcasting. Although the number of channels suggested ranged from a

¹⁰³Television Digest, Vol. 7, No. 14, April 7, 1951, p. 10.

¹⁰⁴It so turned out that the technical quality of these receivers left a great deal to be desired and that many manufacturers were not ready for the rapid licensing of UHF stations after the freeze. See Chapter VI. Also see: Television Digest, Vol. 8, No. 5, February 2, 1952, p. 7.

¹⁰⁵Television Digest, Vol. 7, No. 37, September 15, 1951, p. 1.

¹⁰⁶See next section in this chapter ("Allocation Plans and Intermixture").

"half dozen" to the entire additional seventy channels available in the UHF for television, few participants denied the need for additional channels. Even O'Brien, while commenting that "a UHF station is going to be severely restricted in coverage as compared to a VHF station," only asked that "the VHF band should be put to its fullest possible use" although it seemed "inevitable that this (the UHF) portion of the spectrum must be used to some extent for television service."¹⁰⁷ The most stubborn refusal to consider the UHF (except for some unnamed "broadcasters" and "government (sic) engineers" in 1949)¹⁰⁸ came from Admiral President Ross Siragusa, who advocated ending the freeze and adding over one hundred new stations on the VHF ("without. . . interference"), and augmenting that number with the stations made possible through elimination of the FM band.¹⁰⁹

Several proposals suggested that if the UHF must be used, wider bandwidths, higher definition, or color be permitted exclusively in the upper band. One proposal, by Kenneth Norton, was to use the twelve VHF channels for Stratovision, with the UHF being devoted to color.¹¹⁰

¹⁰⁷O'Brien, Bernard C. Statement before FCC on Dockets 8736, et al., November 2, 1950, p. 8.

¹⁰⁸"VHF Video: new efforts to postpone use of UHF." Broadcasting, Vol. 37, No. 12, September 19, 1949, p. 47.

¹⁰⁹Television Digest, Vol. 7, No. 1, January 6, 1951, p. 3.

¹¹⁰Norton, Kenneth A. Testimony before FCC on Dockets 8736, et al., mentioned in Crater, Rufus. "Video standards showdown: freeze end in 1950?" Broadcasting, Vol. 36, No. 22, May 30, 1949, p. 24.

A Washington attorney proposed that two channels in cities over 100,000 and one channel in cities below that figure (not disturbing those cities already assigned more channels) would "probably be adequate. . . to meet all reasonable needs and demands for the next three to five years." He suggested that allocation of a half-dozen UHF channels would be enough, since allocation of the whole of the UHF "would diminish the incentive to apply now and encourage those who prefer to hold back if they can be assured of a channel in the future." In conjunction with this proposal, it was suggested that UHF provide a "novel or. . . superior" service such as color of high definition so that there will be incentive "to construct UHF stations and for the public to purchase UHF receivers" in order that UHF "avoid suffering a fate. . . similar to that which befell FM." Intermixture should be avoided on the grounds that a city with existing VHF stations would not be hospitable to UHF.¹¹¹

Another plan, suggested by Paramount, was to make the UHF color-only, and the VHF monochrome-only, with each VHF station required to duplicate all programs on UHF.¹¹² Neither plan was adopted, as might be expected from the Commission's early decision to apply the existing standards and 6-mc bandwidth to whatever portion of the UHF band that would be opened to commercial television.¹¹³

¹¹¹Limited-UHF: New TV allocation plan offered by McKenna" (James A. McKenna, Jr., representing TV applicant in York, Pa.). Broadcasting, Vol. 36, No. 19, May 9, 1949, p. 48.

¹¹²Television Direct, Vol. 6, No. 26, July 1, 1950, (n.p.)

¹¹³U. S. FCC. Public notice of May 26, 1949 in Dockets 8736, et al. (Quoted in Crater, Rufus. "Video standards showdown:

The number of stations to be assigned to each community, whether they would be VHF or UHF or both, and the implications of any decisions along these lines upon the competitive situation in the communities, was a hard fought issue; although few participants bothered to make specific proposals geared to the nationwide situation. CBS did analyze and present the effect of different co-channel spacings on fifty cities in the northeastern portion of the country. This analysis was similar to the FCC's own illustration of 220-mile separation but could not be complete until certain policy questions were answered by the Commission. These included the relative importance of need for more stations as against larger service areas, whether VHF channels were to be permanently allocated to television, whether UHF channels were to be considered in VHF planning, and, if UHF was to be considered, should both UHF and VHF be intermixed in the same city?¹¹⁴

A proposal by the Joint Technical Advisory Committee called for intermixture, and assured the FCC that at least four television stations could be assigned to each market, with part of the UHF band left free for future experimentation. The JTAC's chairman, Philip F. Siling of the RCA Frequency Bureau, expressed the belief that "it is not practical to assign VHF channels only to primary cities and UHF channels only to secondary cities."¹¹⁵

freeze end in 1950?" Broadcasting, Vol. 36, No. 22, May 30, 1949, p. 44.)

¹¹⁴Christopher, Larry. "Engineering conferences: sessions held in Washington." Broadcasting, Vol. 35, No. 23, December 6, 1948, p. 66.

¹¹⁵"UHF-VHF: more space seen in spectrum." Broadcasting, Vol. 36, No. 9, February 28, 1949, p. 50.

In stark contrast to this view was the first of three plans by the most indefatigable participant in the allocations phase of the freeze hearings, Allen B. DuMont. The DuMont opinions were conditioned by the fact that DuMont was a set manufacturer, a station owner, and a weak fourth television network. This triple role was complicated by the fact that Dr. DuMont himself had strong views on many subjects, which had grown out of his long years of research and association with independent engineers such as Armstrong and Farnsworth. This preliminary "DuMont plan," issued in the fall of 1948, was, however, a far cry from DuMont's carefully thought out and detailed plans of later years. ¹¹⁶

The second DuMont plan, (hereafter called the "first" plan, in conformity with other references), appeared about a month after

¹¹⁶The preliminary "DuMont plan" is as follows:

1. Leave present operating VHF stations untouched.
 2. Leave present construction permit holders untouched, except those closer than about 160 miles co-channel or those in cities which cannot be provided with an adequate number of VHF channels after first providing larger neighboring cities with sufficient VHF channels.
 3. Present operating stations are almost entirely within first 50 market areas; most of existing CP holders are within first 50 areas or areas where little crowding would exist. Few of first 50 areas are in such crowded locations that insufficient VHF channels could be assigned to provide competitive service. Thus, provide VHF channels in quantity of five stations minimum where possible and attempt at least 120-mile separation. Make this allocation until VHF channels are exhausted.
 4. Fill in all other cities with sufficient UHF channels to provide competitive service. Five channels per city is probable.
 5. Use left-over UHF channels for relay services."
- DuMont, Allen B. Testimony during Industry-Commission Conference on Dockets 8736, et al., September 20, 1948. Quoted in: Crater, Rufus and Larry Christopher. "TV expansion: move appears imminent after FCC hearing." Broadcasting, Vol. 35, No. 13, September 27, 1948, p. 72.

the July 11, 1949 FCC Notice of further proposed rule making and was the only nationwide plan submitted to the Commission.

The DuMont project was exemplary for its breadth of understanding of the problem and for its professional quality. This comprehensive project, recognizing 1,400 communities, (the 6th Report embraced some 1,200), took into account economic considerations, saw with lucidity the fatal dangers of intermixture. It recognized the principle of reserving space for noncommercial broadcasting by allowing nine channels for this service on a first-come-first-serve basis. . . . The plan faced realistically the vital interrelationship of stations and networks and the importance of competition between the networks themselves. It yielded a minimum of four channels, either U or V, not intermixed, in most of the major metropolitan markets. It minimized the intermixture of VHF and UHF assignments. There was but 1 intermixed city among the first 325 in market rank.¹¹⁷

DuMont proposed using sixty-five UHF channels to augment the twelve VHF channels with the aim providing a minimum of four channels per city in most of the 140 metropolitan districts of the nation. The plan succeeded in placing four VHF channels in about thirty-five of the first fifty cities, as compared to the FCC's twenty. Many of the UHF channels would be reserved for future or "latecomer" broadcasters wishing to serve smaller communities.¹¹⁸

The DuMont proposal pulled no punches in suggesting changes in the

¹¹⁷U. S. Senate, Committee on Interstate and Foreign Commerce. Allocation of TV channels. Report of the Ad Hoc Advisory Committee on Allocations to the Committee on Interstate and Foreign Commerce, March 14, 1958, Committee Print, 85th Congress, 2nd Session, pp. 98-99. As all but the first eight pages of this 266 page report consist of additional views and a "supporting brief" by the Ad Hoc Committee's Chairman, Edward L. Bowles, this publication will hereafter be referred to as: U. S. Senate Commerce Committee, Bowles Report.

¹¹⁸Christopher, Larry. "TV proposals, DuMont plan announced." Broadcasting, Vol. 37, No. 8, August 22, 1949, pp. 46 and 64.

assignments of existing stations in order to fit its overall plan and even changed some twenty on-the-air VHF stations to UHF, an action utterly rejected by the Commission in its own planning. The DuMont plan was predicated on two interrelated factors: non-intermixture and the opportunity for additional networks to establish themselves in competition with CBS and NBC.¹¹⁹

Certain aspects of the DuMont plan were changed and revised, yet the outlines remained clear. DuMont did not stop attempting to improve or revise the scheme, leading to confusion as to which plan was being promoted at the moment. For instance, the August 1949 plan embraced some 326 markets but was expanded to 1400 markets in February 1950.¹²⁰ The DuMont plan was spectacular in physical appearance as well, with 9' x 16' maps¹²¹ illustrating both the FCC and the DuMont proposals forming a backdrop for witnesses of all persuasions at the FCC hearings.

Although meeting with "approval in principle" from the industry, the DuMont plan was received coldly by the Commission. When it became apparent that the FCC was insisting on intermixture, DuMont suggested another modification in detail in order to salvage its work. This plan was based on the general premise that number of channels should be directly related to number of people in area

¹¹⁹U. S. Senate Commerce Committee, Bowles Report, p. 99.

¹²⁰Television Digest, Vol. 6, No. 7, February 18, 1950, (n.p.). This revised plan proposed shifting thirty-one operating VHF stations or CP's to different channels (the same number that the FCC proposed in the Third Notice a few months later), twenty-five of them to the UHF (as compared with no shifts to UHF in the FCC plan).

¹²¹Detailed photographs of the 9' x 16' DuMont allocation maps are published by DuMont as Volume VII of its presentation in Dockets 8736, et al. (Sept. 1950).

served. However, at least one service should be made available to everyone, while metropolitan areas would have at least four channels whenever technically feasible. This would require use of the entire UHF band (non-intermixed when possible, intermixed where necessary), and deletion of the provision for educational channel reservations.¹²² To develop this plan, DuMont used an electronic computer at MIT. The display maps, which were earlier made from Aeronautical Charts, had been replaced by one containing lights representing 300 top markets and actuated by punched cards to show at a glance which channels were reserved, which occupied, how each channel was allocated, etc.¹²³ DuMont stuck to this plan based on population rather than area, claiming the FCC's alternative promoted monopoly. The monster "light map" was exhibited at a New York press Conference on May 17, 1951, to demonstrate that the DuMont plan gave 375 cities some 655 VHF stations, as opposed to the FCC's 342 cities and 557 stations. In particular, the DuMont plan gave four or more VHF channels to forty-seven cities compared to the Commission's eighteen cities.¹²⁴ DuMont also used this "light map" in demonstrations before consulting engineers and attorneys in Washington, with a special well attended demonstration

¹²²DuMont, Allen B. laboratories, comments on Third Notice of further Proposed Rule making on Dockets 8736, et al. Television Digest, Supplement 72, May 12, 1951, p. 4.

¹²³Television Digest, Vol. 7, No. 18, May 5, 1951, p. 4.

¹²⁴Television Digest, Vol. 7, No. 20, May 19, 1951, p. 4. A later report has it that the DuMont proposal would supply fifty-three cities (49 per cent of the population) with four TV stations, whereas the FCC plan would give four stations to only twenty-one cities (32 per cent of population). Television Digest, Vol. 7, No. 33, August 18, 1951, p. 10).

for members of the Senate Commerce Committee.¹²⁵

Although the large number of opposition comments from the industry were popularly construed as indicating widespread disapproval of the DuMont plan, there were far fewer oppositions to DuMont's proposal than to the FCC's, largely because the DuMont plan provided for more VHF stations. Most of those disagreeing with DuMont liked his philosophy but preferred their own implementations of it.¹²⁶ DuMont had done on a national scale what most participants who commented on the Third Notice had done on a local or regional basis: squeezed the Commission's "loose" separations (which ranged about 220 miles on the average) closer to the 180-mile minimum, deleted educational reservations, and moved channels to cities where they could be used.¹²⁷

The only major antagonism to the DuMont proposals came from the Commission itself. Bowles points out that, although it is not apparent in context, the FCC's 6th Report and Order criticized the second or "salvage plan with acerbity--(but) it neglected to point out, however, that it was the salvage plan and not the original 1949 plan to which its criticisms referred."¹²⁸ The FCC objected on the following dubious grounds:

¹²⁵Television Digest, Vol. 7, No. 22, June 2, 1951, p. 3.

¹²⁶Television Digest, Vol. 7, No. 35, September 1, 1951, p. 3.

¹²⁷Television Digest, Vol. 7, No. 22, June 2, 1951, p. 4.

¹²⁸U. S. Senate Commerce Committee, Bowles Report, pp. 21, 100.

A basic objective of the DuMont assignment plan is to provide major metropolitan centers with multiple VHF stations. In particular, DuMont seeks the assignment of four VHF channels to such communities--an objective directly related to DuMont's contention that this is necessary to promote network competition. By the assignment of four VHF channels in the largest markets, DuMont assumes that it would thereby obtain an outlet for its network operations in the most important centers. Contrariwise, DuMont fears that if only one or two VHF channels are assigned in these markets, it would be unable to obtain affiliates in such centers and would be in the position of dependence on UHF outlets. Because of the time required to develop UHF stations, DuMont contends that it would be placed at a severe competitive handicap in relation to other networks.¹²⁹

The Commission argued that the DuMont plan was defective in its handling of UHF assignments, its denying of educational reservations, and particularly in its insistence that "emphasis should be placed on locating the assignments, particularly VHF channels, so that the largest number of people will have television service but not necessarily that the largest number of communities should have one or more television stations of their own."¹³⁰ The Commission conceded that the DuMont plan (as a matter of fact, not of policy) did make at least one assignment to practically every community listed in the Third Notice. However, the FCC held against "DuMont's premise that the major cities with their large populations are certain to be able to support expensive television facilities" to the partial exclusion of smaller communities,¹³¹ since the "Commission. . . believes that on the basis of the Communications Act it must recognize the importance of making it possible. . . for a large number of communities to obtain television

¹²⁹U. S. FCC. 6th Report and Order in Dockets 8736, et al., para. 73.

¹³⁰Ibid., para. 78.

¹³¹Ibid.

assignments of their own."¹³² The Commission concluded by finding that:

. . . the principles of assignment which DuMont advocates are inadequate in that these principles do not recognize specifically the need to provide an equitable apportionment of channels among the separate states and communities and they do not provide adequately for the educational needs of the primarily educational centers.¹³³

The Commission's decision to ignore the DuMont plan, and to base its own assignment plan on coverage of area rather than population, created a great deal of unfavorable comment. An outstanding consulting engineer bitterly complained that this proposal "for the first time in television history. . . (gives) square miles priority over people in the assignment of channels."¹³⁴ Bowles comments that the FCC's "not-invented-here attitude" toward the DuMont proposal "gives the impression of arbitrariness and capriciousness."¹³⁵

Although the DuMont proposal for four stations in every large city was patently designed to help the struggling DuMont television network secure outlets in all major markets, and would

¹³²Ibid., para. 79. It should be noted that Chairman Coy, at that NAB convention in April 1949, called for the use of "booster" or "secondary" outlets for those smaller communities in the nation, since not all communities could support a full-fledged station. (Crater, Rufus. "TV booster outlets." Broadcasting, Vol. 36, No. 16, April 18, 1949, p. 25.)

¹³³Ibid., para. 81.

¹³⁴Bailey, Stuart L. Television--why the deep freeze? Washington; Jansky & Bailey, January 1950, (mimeo), p. 9.

¹³⁵U. S. Senate Commerce Committee, Bowles Report, pp. 100-101.

benefit chiefly DuMont and ABC, the proposal to minimize intermixture was one which could affect each and every television station, licensed or to be licensed. The concept of intermixture was either ignored or attacked. In one of the earliest unfavorable comments, a representative of a Toledo applicant stated:

Equipment is not available, nor will it likely be soon available for any adequate transmission or reception at the UH frequencies.

This will result in a monopoly of access to the public by existing VHF station.

If three is to be the number of channels for Toledo, they should all be in one range or the other; anything else is bad allocation, disrupts competition, establishes disparate coverages and imposes undue burdens upon the public and the licensees.¹³⁶

At the same time, "many engineers" thought intermixture, which occurred in about 115 communities under the 1949 FCC proposal, "undesirable from an economic standpoint."¹³⁷

As was to be expected, intermixture's deleterious effects on the development and use of the UHF, on the sale of sets in the communities involved, and on the two smaller networks, were attacked by both ABC and DuMont.¹³⁸ Yet another opponent of intermixture, Senator Johnson, thought that television could progress as a competitive system if UHF stations were assigned to some cities and VHF to others, but not both to one city.¹³⁹

¹³⁶Segal, Paul M. (Toledo Blade Co.) Comments on proposed FCC allocation plan in Dockets 8736 et al. (FCC 49-948). "Allocation Furor: industry carefully studies proposals." Broadcasting, Vol. 37, No. 4, July 25, 1949, p. 42.

¹³⁷"Allocation furor: industry carefully studies proposals." Broadcasting, Vol. 37, No. 4, July 25, 1949, p. 42.

¹³⁸"UHF-VHF hearing: postponed by FCC to Sept. 26." Broadcasting, Vol. 37, No. 5, August 1, 1949, p. 43.

¹³⁹"Color: Sen. Johnson reaffirms public should make final choice." Broadcasting, Vol. 37, No. 20, November 14, 1949, p. 65.

The Commission chose to disregard these views, on grounds that seem specious in hindsight. In the Third Notice, the FCC pointed out that the problems which would be faced by UHF stations were not unique since "similar problems confronted the VHF broadcasters prior to increased receiver distribution in their respective areas." The Third Notice went on to claim that intermixture would stimulate the manufacture of all-channel sets and would enable early competition between stations in a given community, since otherwise "it would be necessary to limit many areas to one or two VHF stations even though UHF assignments were available for those areas." The FCC thus took no account of the nationwide DuMont assignment plan, and concluded that "the adoption of an assignment table based on non-intermixture constitutes a short-term view of the problem and is inadvisable."¹⁴⁰

In the 6th Report and Order the Commission reaffirmed its decision to intermix, minimizing the possible difficulties with propagation characteristics and transmitting and receiving equipment saying:

Because television is in a stage of early development and the additional consideration that the limited number of VHF channels will prevent a nationwide competitive television service from developing wholly within the VHF band, we are convinced that the UHF band will be fully utilized and that UHF stations will eventually compete on a favorable basis with stations in the VHF. The UHF is not faced, as was FM, with a fully matured competing service. In many cases UHF will carry the complete burden of providing television service, while in other areas it will be essential for providing competitive service. In view of these circumstances, we are convinced that stations in the UHF band will constitute an integral part of a single, nationwide television service.

¹⁴⁰U. S. FCC. Third Notice of Further Proposed Rule Making in Dockets 3736, et al., Appendix A-I-C.

With respect to the propagation characteristics. . . we believe that such differences as exist will prove analogous to those formerly existing between the higher and lower portions of the VHF television band.

Further, there is no reason to believe that American science will not produce the equipment necessary for the fullest development of the UHF.

In any event, it is clear that in formulating an assignment table which will be the basis for the over-all development of television broadcasting in this country, the public interest requires the Commission to take a long-range view of the future of television.¹⁴¹

Educational Channel Reservations

A sub-allocation within both the UHF and VHF bands to non-commercial educational television broadcasting¹⁴² had the effect of further restricting the number of channels assigned for commercial use in a given community. Reservation of certain channels in the table of allocations for education was considered by educators to be an advance over the practices on the AM band. It did not go as far, however, as the educational allocation for FM, which consisted of a separate allocation of twenty inviolate channels continuous to the commercial FM band, and receivable on any FM set.

This television sub-allocation, or rather, assignment criterion, was promoted almost single handedly by Commissioner Hennock, who, with the aid of educational organizations such as the Joint Committee on Educational Television, persuaded the Commission to adopt the reservation principle. First enunciated in

¹⁴¹U. S. FCC. 6th Report and Order in Dockets 8736, et al., paras. 197-200.

¹⁴²The rationale behind such an allocation, although of importance to the public interest and welfare, is outside the scope of this thesis.

the Third Notice,¹⁴³ the criterion for establishing a reservation was reiterated in the 6th Report and Order. When more than three assignments were made to a city, one would be for education; except for educational centers (forty-six of which were named, twenty-six to receive VHF--the only VHF channel in the community in twenty-three cases); a UHF channel was proposed where there were fewer than three VHF assignments; if there were more than three VHF assignments, one would be for education unless all were already occupied, in which case a UHF channel would be reserved.¹⁴⁴

Opposition to these reservations was strong but unsuccessful. It came chiefly from those (such as DuMont) fearful of establishing a condition of channel scarcity in major markets. Other objectors included the television division of National Association of Radio and Television Broadcasters (NARTB, nee NAB), which suggested that "voluntary cooperation" between broadcasters and educators would be satisfactory to both,¹⁴⁵ and Senator Johnson, whose desires for competitive broadcasting led him to the suggestion that commercial licensees be required to give a certain amount of time per day to educators.¹⁴⁶ The latter proposal was rejected by the Commission on legal grounds, as were proposals by educational

¹⁴³U. S. FCC. Third Notice of further proposed rulemaking in Dockets 8736, et al., Appendix A-VI.

¹⁴⁴U. S. FCC. 6th Report and Order in Dockets 8736, et al., Para. 33-47.

¹⁴⁵Ibid., Paras. 34, 46.

¹⁴⁶Ibid., Paras. 47, 48.

institutions to operate on a partially commercial basis to enable the station to be self-sustaining.¹⁴⁷

In a final move (possibly inspired by the emphatic approval of educational television by President Truman)¹⁴⁸ the Commission refused to put any definite time limit on the educational reservations, although procedural paths for protest or change of an educational reservation to a commercial reality were to be opened after one year.¹⁴⁹ These educational reservations are still fulfilling their purpose of giving slow-moving educational institutions an opportunity to obtain television licenses, but they are also helping to restrict access to new commercial broadcasters.¹⁵⁰

Pressures to end the freeze

Throughout the three and a half years of the freeze, a determined group of participants--manufacturers, small networks,

¹⁴⁷Ibid., Paras. 50-59.

¹⁴⁸Television Digest, Vol. 8, No. 26, June 23, 1952, pp. 1-2.

¹⁴⁹U. S. FCC. 6th Report and Order in Dockets 8736, et al., Para. 36, 209-214.

¹⁵⁰Although this is very annoying to those desirous of entering television with a VHF channel, and to the networks wishing to compete with CBS and NBC on the same basis in a given community, (and to those worried about the sight of any portion of the spectrum remaining unused for any length of time), established television broadcasters in a community often favor an educational reservation in their community just because it does restrict access for potential competition (either restrict it absolutely, or limit it to the "unwanted" UHF). In communities such as New York and Los Angeles, there has never been any opportunity for an educational station due to the occupancy of all VHF channels and the impossibility of persuading the public to convert to UHF just for a few educational programs a week. (There is nothing to stop the use of UHF for strictly in-school viewing, however.)

and station applicants--hoped to lift the freeze at the earliest possible moment. The FCC, having incorporated virtually all of its television problems into one omnibus hearing docket, was not inclined to let slip the leash on new television stations until decisions had been made on all of the problems. Thus, we have the spectacle of deliberations over a choice between three color television systems holding up consideration of the questions of utilization of the UHF, technical standards, allocation and assignment. It was not necessary for the one group seriously interested in retaining the freeze for its own sake, the prefreeze broadcasters, to come into the open. In fact, the heterogeneity of this group was such as to make unanimity impossible, since the network owned-and-operated stations (some 15 per cent of the total) would favor the interests of their parent networks, which were to gain more affiliates and thus increase their nationwide saleable "circulation." Rather, the freeze was delayed by people like Senator Edwin C. Johnson, Chairman of the Senate Commerce Committee, who insisted that the color issue be decided before the allocation phase came to hearing. Johnson told a group interested in ending the freeze (led by former Chairman Fly) that "color would be set back a generation" if it weren't decided first.¹⁵¹

¹⁵¹ Television Digest, Vol. 6, No. 19, May 13, 1950 (n.p.). It is amusing to note that Senator Johnson's tune changed when addressing his constituents, who were without television throughout the freeze (Denver was the largest city without prefreeze television.) In a broadcast interview over a Denver station, he said: "Color had nothing to do with the imposition of the freeze. However, the Commission, for some reason or other, decided to settle the color problem before holding hearings on the allocation and certification of new channels and that decision has kept the freeze from being lifted sooner." As Television Digest (Vol. 7, No. 22, June 2, 1951, p. 3) commented: "It's no secret--to Johnson, as well as to industry--that 'some reason or other' was himself."

Although generally approved by the industry when it was initiated,¹⁵² the freeze was questioned by some from the start, with the clamor growing as the months went by. One argument used by those desiring an end to the freeze was the comment by Commander Craven that there was more data in 1948 concerning performance of television in the UHF than there was with respect to VHF operation when the lower-band system began.¹⁵³ RCA expressed the opinion that "the interest of the public in the maximum utilization of the twelve VHF channels will best be served if the Commission will promptly lift the 'freeze'. . . ."¹⁵⁴ RCA also apparently favored, or sponsored, the flood of petitions and over 300 postal cards which poured in on the FCC from members of the United Electrical, Radio & Machine Workers of America (CIO) local in Camden, New Jersey, site of a mammoth RCA manufacturing installation. These petitions asked for an end to the freeze on the grounds that it "is affecting the job security of the workers in the industry and threatens the welfare of the entire community."¹⁵⁵ Still later, during the color phase of the hearings, RCA took pains to point out that its system of color television would not need to cause

¹⁵²"TV Freeze generally approved by industry." Broadcasting, Vol. 35, No. 15, October 11, 1948, p. 28.

¹⁵³Craven, T. A. M. Testimony during Industry-Commission Conference on Dockets 3736, et al., September 24, 1949. Quoted in: Crater, Rufus & Larry Christopher. "TV expansion: move appears imminent after FCC hearing." Broadcasting, Vol. 34, No. 13, September 27, 1949, p. 72

¹⁵⁴Siling, Philip F. Testimony during Engineering Conference on Dockets 3736, et al., quoted in Christopher, Larry, "Engineering Conferences: sessions held in Washington," Broadcasting, Vol. 35, No. 23, December 6, 1948, p. 65.

¹⁵⁵"Workers ask lift of TV freeze." Broadcasting, Vol. 37, No. 11, September 12, 1949, p. 71.

any changes in allocation policy, since offset carrier, etc. would help color as much as it would monochrome. Thus, the Commission could go ahead with assignments without having to worry about different mileage separations for stations which might use color.¹⁵⁶ Other manufacturers, such as Philco, on the lookout for a lucrative transmitter market as well as the receiving set market, agreed with RCA that the FCC should lift its VHF freeze "in order that additional communities can be served with television programs and this great new industry can grow and prosper."¹⁵⁷

At first the Commission courteously turned down proposals to lift the freeze in selected areas (where there would be sufficient co-channel separation) and answered the proponents of the thaw in detail.¹⁵⁸ But in later months they were unable to do little more than file the many protests. Chairman Coy's prognosticating abilities failed to save him from seeing one "target date" after another for ending the freeze go by without fulfillment.

The first concerted pressure upon the Commission to lift the freeze came in the early part of 1950, after seventeen months of freeze. Manufacturers eager for new markets, potential broadcasters, and the networks all quietly started to urge lifting the freeze. Not so quiet were new voices such as Jack Gould of the

¹⁵⁶Television Digest, Vol. 6, No. 1, January 7, 1950, p. 2.

¹⁵⁷Balderston, William (President of Philco). Speech before Philco national distribution convention, quoted in "UHF-VHF hearing: postponed by FCC to September 26," Broadcasting, Vol. 37, No. 5, August 1, 1949, p. 43.

¹⁵⁸"TEA request for TV thaw denied." Broadcasting, Vol. 37, No. 4, July 25, 1949, p. 40.

New York Times,¹⁵⁹ and the director of Labor's League for Political Education (AFL), who wrote the FCC that labor was worried lest the freeze curtail employment in the manufacturing industry.¹⁶⁰ Other campaigners for lifting the freeze, such as Dr. DuMont, went directly to their Congressmen to ask for action which would protect the small manufacturer and the "thousands of jobs" represented. Dr. DuMont also made a speech in which he attacked Senator Johnson and Commissioner Jones for their insistence on tackling color first:

There are two men in Washington whose refusal to face reality has mired TV in a rainbow-hued swamp that can soon have our industry crawling on its knees.¹⁶¹

As the freeze progressed, the Commission hoped that other Congressmen would not follow the lead of Rep. Kelley (Dem.-Pa.), who declared that there was no need to continue the freeze since

¹⁵⁹See Television Digest, Vol. 6, Nos. 5 and 7 (February 4 & 18, 1950). Jack Gould's columns in the New York Times for January 26, 1950 aroused the ire of Senator Johnson, who disliked Gould's characterization of the FCC as being at the "back and call" of the Senator. What Gould termed "pertinent parts" of Johnson's letter were published in Gould's column on February 12, 1950. The Senator used this failure to include his entire letter as an excuse for a blistering speech on the Senate floor on February 16, 1950. In this speech he attacked Gould, DuMont, RCA's Jolliffe and Philco's Smith. He implied that Gould's column was being "prostituted," since most of the industry was also in favor of lifting the freeze. This speech is a very illuminating exposition of Johnson's thinking and position, its very title being: "The propaganda drive to lift the 'freeze'."

¹⁶⁰Keenan, Joseph. Letter to FCC, quoted in Television Digest, Vol. 6, No. 5, February 4, 1950 (n.p.).

¹⁶¹Television Digest, Vol. 6, No. 6, February 11, 1950, pp. 1-2. Senator Johnson, in a Senate speech on February 16, 1950, spoke of DuMont's "machine-gun-like innuendos and distortion" and "mischievous rantings" while pointing out DuMont's motivating need to expand his television network.

it was generally agreed that color could be gotten into a 6-mc. band.¹⁶² It also became curter in refusing to change the freeze policy, denying a Chicago City Council petition by saying in effect that if it lets one in it must let all, and if Chicago's prospective telecasters had not sat on their hands, they would have received a grant before the freeze.¹⁶³ The Commission, with the aid of Senator Johnson, was able to keep the pressures to end the freeze at a reasonable level for almost a year. Chairman Coy was willing to brave TV-less areas such as Portland, Oregon, and Denver, Colorado,¹⁶⁴ and delivered speeches in these cities that pointed out the need for deliberation since:

In opening up the UHF we would be going into TV's last reserve. If we were going to have color, this was the only place we could hope to have it--at least in our time. The kind of standards we set for the VHF and the UHF might tie our hands with regard to future color. We might be ruled by the dead hand of the past. For color, it was now or never. And coincidentally, color, which had for some years seemed rather remote, was now reported to have made sudden strides. . . . In TV no city lives unto itself alone. To jump the gun and begin making piecemeal allocations now would not be calculated to insure the stability of what should be one of America's greatest industries. . . . The Commission cannot make any assumptions on so important a matter except on the basis of all the testimony. . . .¹⁶⁵

It became evident that Senator Johnson's views on color television, monopoly, and those who wished to lift the freeze were a prime reason for calling the freeze as well as the chief support

¹⁶²Television Digest, Vol. 6, No. 13, April 1, 1950 (n.p.).

¹⁶³Television Digest, Vol. 6, No. 22, June 3, 1950 (n.p.).

¹⁶⁴It is interesting that Denver had the first postfreeze VHF station; Portland the first UHF.

¹⁶⁵Coy, Wayne. "Whys and wherefores of the TV freeze," addresses for delivery before Portland (Oregon) City Club, May 19, 1950 and to Denver Rocky Mountain Council, May 23, 1950. Television Digest, Special Report, May 20, 1950.

of the Commission policy for not ending the freeze. Johnson said that to lift the freeze only on the VHF band would be a "short-sighted negative policy which will play into the hands of certain interests and will do irreparable harm even to those licensees who have applications now pending for low-band TV stations."¹⁶⁶

He also complained:

Lately, certain elements in the television industry are getting ants in their pants. The freeze, they cry, let's get rid of the freeze! Let television go ahead! Forget a nationwide competitive system; forget color; forget using the higher bands! These things can come later; right now let's get television stations operating in another 30 or 40 cities! The Commission, they shout, is stifling progress! The Commission is slow, hesitant, and lackadaisical; it ought to be investigated! . . .

Of course, what some of these manufacturers want is a freeze of their own, but their freeze would be entirely different. They want television to go down a blind alley based on the present wholly insufficient twelve channels which will not permit the building of a nationwide competitive television service. They becloud the issue by talking only about wanting to furnish the "dear people" with television programs, but no one hears who is to furnish the service; to what extent monopoly control will flourish; and most important of all, which cities will get service and which won't.¹⁶⁷

In addition to Senator Johnson's "supervision" of the FCC, paperwork and processing time also added to the length of the freeze,¹⁶⁸ as did Commissioner Hennock's insistence on reserving

¹⁶⁶Johnson, Senator Edwin C. Letter to Jack Gould, February (?) 1950. Published in the New York Times, February 12, 1950.

¹⁶⁷Johnson, Senator Edwin C. Speech in U. S. Senate, February 16, 1950 (mimeo., pp. 6 & 3).

¹⁶⁸Legal procedural requirements for comments, rebuttals, hearings, etc. made the shortest possible time to take care of the city-by-city assignments approximately six months, if no cases involving possible judicial review were undertaken.

25 per cent of all channels for educational television, which delayed the issuance of the Third Report by some weeks.¹⁶⁹

After the FCC rejected its own proposal¹⁷⁰ to lift the freeze insofar as the UHF and assignments in Alaska and Hawaii were concerned,¹⁷¹ even Senator Johnson got anxious. Joining in principle DuMont and RCA, Johnson expressed concern at the April 1951 NAB convention over the slowness with respect to obtaining television for his native Colorado.¹⁷² Just before the 6th Report and Order was released, Johnson lost all caution and informed his eager constituents that they would have television "in time for the World Series" of 1952.¹⁷³

¹⁶⁹Television Digest, Vol. 7, No. 5, March 17, 1951, p. 1.

¹⁷⁰U. S. FCC. Third notice of further proposed rule making in Dockets 8736, et al., Para. 10.

¹⁷¹U. S. FCC. Third Report of Commission in Dockets 8736, et al., June 21, 1951, para. 5 (FCC 51-640).

¹⁷²Television Digest, Vol. 7, No. 16, April 21, 1951, p. 3. The NAB (National Association of Broadcasters) had changed its name by that time to National Association of Radio and Television Broadcasters (NARTB). It has since changed back, so that in text it will always be referred to as "NAB."

¹⁷³Television Digest, Vol. 8, No. 2, January 12, 1952, p. 1. To the amazement of all, Denver did receive its first grant in time to have its first station on the air by the World Series. A great deal of work on the part of the Denver applicants, the eventual licensee, the FCC and the transmitter manufacturer was necessary. See footnote 177.

At the same time as Senator Johnson's prediction of a rapid end to the freeze, an anonymous attorney was quoted as saying: "There's only one method of getting fast grants in Denver or any city like it. That's by locking up all applicants in a hotel room, permitting them no liquor or cigarettes, and telling them to come out with no more applications than channels available--through merger or murder." (Television Digest, Vol. 8, No. 2, January 12, 1952, p. 1.)

Johnson also tried to speed up the end of the freeze and the necessary time for processing competitive applications by holding hearings on the subject before his Committee on Interstate and Foreign Commerce.¹⁷⁴ At these hearings the various philosophies of the individual commissioners (e.g., Jones believed there should be no assignment table at all; Hennock wanted 25 per cent for education) received a thorough airing. The Senators became better briefed and acquired a reputation for "doing something about the freeze," but little else transpired.¹⁷⁵

Dr. DuMont, "hater of sham, impatient with govt. bureaucracy, fearless of reprisal from Washington," was still attacking the Commission and asking for an immediate lift of the freeze as late as the end of November, 1951.¹⁷⁶ Although the freeze was finally lifted in April 1952, there was a long road of application processing ahead before new stations (either VHF or UHF) could get on the air in any number.¹⁷⁷

¹⁷⁴U. S. Senate, Committee on Interstate and Foreign Commerce. FCC Policy on Television Freeze and other communication matters. Hearings, 82nd Congress, 1st Session, July 18, 1951.

¹⁷⁵Of course, some "television stocks" did rise as soon as the magical words "end of freeze" were heard. (Television Digest, Vol. 7, No. 29, July 21, 1951, p. 3.)

¹⁷⁶Television Digest, Vol. 7, No. 46, November 17, 1951, p. 3.

¹⁷⁷By the end of 1952 (eight and a half months after the freeze was lifted) only seventeen new stations (eleven VHF, six UHF) of the 175 authorized by the FCC had been able to get on the air (three of them during the last three days of December). A year later, however, in December 1953, there were 353 stations on the air (232 VHF, 121 UHF) and the end of the application backlog was in sight. (Figures from Television Digest.)

City-by-city assignments

Once the mileage separations for each television band had been determined, the assigning of channels to specific communities became a matter of routine, albeit difficult of execution at times. In the middle 1940s the Commission had decided that a "table of allocations" or assignments would be necessary to efficiently utilize the spectrum. This decision successfully withstood legal attack,¹⁷⁸ since without such a table an applicant for a station in an eastern state would be in competition with applicants throughout the country east of the Mississippi.¹⁷⁹

To protect this principle, the Commission established a rule in the Third Notice that an adopted allocation table would not be subject to amendment for a period of one year.¹⁸⁰ This was reiterated, with some minor exceptions, in the 6th Report and Order.¹⁸¹ In addition, the Commission held that persons desiring to apply for a channel not specified in the allocation table "would first be required to secure an amendment thereof through appropriate rule making proceedings."¹⁸² The lengthy and costly proceedings

¹⁷⁸U. S. FCC. 6th Report and Order in Dockets 8736, et al., paras. 12-18; also see 1 Pike and Fischer, Radio Regulation, para. 53:606(A); Validity of television allocations, 7 Pike and Fischer, Radio Regulation, 371 (1951); Memorandum Opinion in Dockets 8736, et al., July 13, 1951 (FCC 51-709).

¹⁷⁹Television Digest, Vol. 8, No. 26, June 28, 1952, p. 2.

¹⁸⁰U. S. FCC. Third notice of further proposed rule making in Dockets 8736, et al., Appendix A-II-B-2.

¹⁸¹U. S. FCC. 6th Report and Order in Dockets 8736, et al., paras. 209-213.

¹⁸²Ibid., paras. 201-203; also see Yankee Network, Inc., 12 FCC 751, 1043.

necessary to change the rules are a major deterrent to anyone hoping to make such changes. The Commission did allow some flexibility, by allowing cities not on the table to apply for UHF "flexibility channels," and by allowing an unlisted city within fifteen miles of a city in the table to apply for the second city's channel(s).¹⁸³

The great amount of maneuvering among applicants for real or imaginary advantages of channel assignment or speed of obtaining license need not concern us here. Neither should the great number of comments received concerning the specific assignments made via Appendix "C" of the Third Notice as dwelled upon. These were considered at length and disposed of in one way or another in hundreds of pages (paras. 249-980) of the 6th Report and Order. It should be noted that the Commission did not permit deviations as small as one mile in its standards of minimum separation. The FCC reiterated its decision to intermix and would not make major changes in the allocation table solely in order to prevent such intermixture.

One excellent example of the impatience with which the industry awaited the end of the freeze was the near-unanimous (DuMont opposed) decision to forego all oral arguments before the Commission on the city-by-city assignments. Instead, the Commission "provided all parties with an opportunity to file sworn statements or exhibits. . . ."¹⁸⁴ This move, which speeded up

¹⁸³U. S. FCC. 6th Report and Order in Dockets 8736, et al , para. 182.

¹⁸⁴U. S. FCC. Order of July 25, 1951 in Dockets 8736, et al. (FCC 51-739).

the assignments considerably, was first broached by the Commission at the end of June 1951. Within a week the FCC got what it was looking for: a petition from the NAB calling for these written or "paper" hearings. As Television Digest put it, the "clincher came. . . when Chairman Coy asked if anyone in lawyer-packed room had any 'legal' objection to written procedure," and only one minor objection was heard.¹⁸⁵ Thus, the "paper" hearings were adopted in a "spirit of cooperation" which was "truly extraordinary--for an FCC procedure."¹⁸⁶

Color Television Standards

The broad outlines of the color television situation were described in this chapter's introduction, while the details are outside the scope of this study. The question of color during the period 1949-1953 is but a continuation of the battle between RCA and CBS over this subject which started in 1940-41 and continued through the late 1940s. It is an example of the strategies and tactics of two large corporations in attempting to establish one of two competing systems. Additionally, the color dispute of 1949-53 is of interest due to the important role of the manufacturing industry in refusing to accept an administrative fiat promulgated by the Commission. The implications of this successful defiance of the FCC's desire to innovate CBS color are applicable when considering the current problem of persuading manufacturers

¹⁸⁵ Television Digest, Vol. 7, No. 29, July 21, 1951, pp.1-2. See also Television Digest, Vol. 7, Nos. 26, 27, and 30.

¹⁸⁶ Television Digest, Vol. 7, No. 29, July 21, 1951, p. 2.

to produce all-channel receivers.

The impetus for color television in 1949 came from Commissioner Jones and Senator Johnson, both of whom were enthusiastic about this new service.¹⁸⁷ On May 26, 1949 the Commission issued a call for hearings on the "optional use of 6 megacycle color in all channels,"¹⁸⁸ hearings started before the Commission en banc on September 26, 1949, and concluded on May 26, 1950. The Commission heard the testimony of fifty-three witnesses, compiling 9,717 pages of transcript during sixty-two actual days of hearing.¹⁸⁹

These hearings were marked by a series of agile moves by both major protagonists of a color system,¹⁹⁰ always prodded by Johnson and Jones. In August 1949, CBS attempted to circumvent the antagonism expressed by manufacturers in 1947 over the possibility of having to pay royalties to CBS, by suggesting that a new corporation be formed to foster development of color television to include other companies besides CBS as founders.¹⁹¹ The next

¹⁸⁷ See: "Color TV prediction: FCC Comr. Jones sees its imminence," *Broadcasting*, Vol. 35, No. 22, November 29, 1948, p. 27; and Crater, Rufus, "FCC taken to woodshed: 'prostituting,' Johnson charges." *Broadcasting*, Vol. 36, No. 17, April 25, 1949, p. 23.

¹⁸⁸ U. S. FCC. Public Notice of May 26, 1949 in Dockets 8736, et al. (Quoted in Crater, Rufus. "Video standards showdown: freeze end in 1950?" Vol. 36, No. 22, May 30, 1949, p. 44.) Also, U. S. FCC, Notice of further proposed rulemaking in Dockets 8736, et al. (FCC 49-948) July 11, 1949.

¹⁸⁹ U. S. FCC. First report of Commission (color television issues) in Dockets 8736, et al., (FCC 50-10(4) September 1, 1950, para. 24.

¹⁹⁰ As mentioned in an earlier footnote, Color Television, Incorporated (CTI) also had a system represented in the hearings, but this concern was unable to muster the financial or political strength of the other two contestants.

¹⁹¹ "Color video: firm to develop CBS system is planned."

week, RCA countered with a "transcendental announcement" that its new compatible color television system was ready for production.¹⁹² These announcements, sparked by comments from Senator Johnson that previous advocates of color systems "suddenly have become very cold to further efforts in this direction" and also prompted by letters from Jones to CBS asking why so little color equipment was being made available for testing,¹⁹³ drew one important dissent. The Radio Manufacturers Association took this opportunity to remind the Commission that millions had been spent by its members in research, but that RMA wanted introduction of color "to be orderly and to carry the assurance of satisfaction technical quality at a reasonable cost."¹⁹⁴ The somewhat reluctant entrance of RCA and CBS into the color phase of the hearings obscured the fact that color was at best a long range investment, since the set manufacturers--including RCA--were extremely busy with the profitable manufacture of black-and-white sets. The lack of enthusiasm for anyone's color was reflected in the RMA recommendations to the FCC that pointed out that much laboratory, field, and factory work needed to be done, despite the claims of RCA and CBS.¹⁹⁵

Broadcasting, Vol. 37, No. 8, August 22, 1949, p. 40; and "FCC hearing: color inevitable--CBS," Broadcasting, Vol. 37, No. 15, October 10, 1949, p. 52.

¹⁹²"RCA color TV ready," Broadcasting, Vol. 37, No. 9, August 29, 1949, p. 15; and "RCA plan: no change in transmission standards needed, firm says," Broadcasting, Vol. 37, No. 9, p. 18, etc.

¹⁹³"CBS Color: Stanton appears at FCC Friday," Broadcasting, Vol. 37, No. 9, August 29, 1949, pp. 53 & 71.

¹⁹⁴"RCA color TV ready," ibid., p. 18.

¹⁹⁵"RMA's case: Cosgrove to present data at FCC TV hearings," Broadcasting, Vol. 37, No. 13, September 26, 1949, p. 67.

This attitude of the RMA and the Joint Technical Advisory Committee that color was not yet ready for standardization was "met with a fire of questioning which indicated that some commissioners, at least, fear the industry is not really pushing color development."¹⁹⁶ In particular, Commissioners Jones and Hennock were highly critical of RCA's lack of technical data to back up its claims.¹⁹⁷ At the same time, CBS argued that the Commission should not get lost in a "maze of conflicting technical data," and that color should be authorized immediately since the true test of a color system is what the viewer sees and the price he must pay for it.¹⁹⁸

The Commission's "inquisition into TV research, development and manufacturing" drew the ire of Broadcasting magazine, which called for FCC concentration on allocations, and not upon making a good record for the Senate Commerce Committee to view. In addition:

This marks the first time that the FCC has attempted to assert its jurisdiction over manufacture and research in the broadcast fields. The FCC does not license manufacturing. It can determine the allocation standards. It is up to art and industry to do the rest.¹⁹⁹

The first phase of the color television hearings continued for a total of seven weeks, whereas only three weeks had been

¹⁹⁶"Color TV: industry position probed by FCC." Broadcasting, Vol. 37, No. 14, October 3, 1949, p. 23.

¹⁹⁷"FCC is critical of RCA color attitude." Broadcasting, Vol. 37, No. 14, October 3, 1949, p. 4.

¹⁹⁸"Color TV--this week's summary." Broadcasting, Vol. 37, No. 15, October 10, 1949, p. 24.

¹⁹⁹"FCC's TV spot" (editorial). Broadcasting, Vol. 37, No. 15, October 10, 1949, p. 42.

scheduled.²⁰⁰ Time was taken up by demonstrations of the systems of both contestants;²⁰¹ critical comments by engineers and commissioners, and lengthy expositions by all concerned.²⁰² DuMont was particularly critical of color television, and argued that color television was ten to twenty years away. He lost no opportunity to belittle the systems of both RCA and CBS. For example, DuMont engineers gleefully exhibited before the FCC a television set equipped with the giant four foot in diameter wheel (driven by a five horsepower motor) required for the CBS color system, if twenty inch picture tube sets were to be manufactured.²⁰³

On October 20, 1949, RCA petitioned the FCC for a two month delay in comparison testing and demonstration of the CBS, RCA and CTI color systems.²⁰⁴ Although the Commission compromised by scheduling two sets of hearings, CBS declared that the "true" basis for RCA's delay petition "may well be":

(a) that RCA considers its system inadequate and hopes in the next two months to "come upon something that will rescue RCA from its present position"; (b) that RCA "wishes to put off as long as possible the day of direct comparison" with the CBS system; (c) that RCA, as NBC's parent, would

²⁰⁰"Color hearings progress: first phase testimony ends." Broadcasting, Vol. 37, No. 20, November 14, 1949, p. 52.

²⁰¹"RCA's color: equipment completed in 77 days," (at a cost of a half million dollars). Broadcasting, Vol. 37, No. 16, October 17, 1949, p. 47.

²⁰²See reports in Broadcasting for the period from the middle of September to the middle of November, 1949.

²⁰³"Color move: FCC sets up new timetable." Broadcasting, Vol. 37, No. 18, October 31, 1949, p. 45.

²⁰⁴"Color comparison: RCA asks two-month delay." Broadcasting, Vol. 37, No. 17, October 24, 1949, p. 42.

like to extend the current black-and-white freeze for NBC's competitive advantage in single-station markets, or (d) that RCA wants to forestall "encroachment" on its "dominant patent position" ²⁰⁵

These insinuations were denied by RCA, which maintained that "the public interest can be served only by a sound decision and not necessarily by a quick decision." ²⁰⁶ DuMont, who had also been criticized by CBS, Chairman Coy and Commissioner Hennock, ²⁰⁷ claimed that "uncertainty" over color and the freeze had forced him to curtail his transmitter division and hold back set manufacture by at least one-third. ²⁰⁸ This was apparently an opening gambit in his February 1950 attempt to have the freeze lifted due to its effect on "thousands of jobs."

An unusual development which occurred at this time was the development by the FCC's own engineers of an improvement to the CBS color receivers. This automatic adapter, permitting monochrome reception on a color receiver, was developed and patented by Commission engineers while they were analyzing color receivers supplied by CBS prior to the demonstrations. When RCA protested introduction of the device by the "judicial" agency of the FCC, the Commission tartly overruled the motion, ²⁰⁹ and took the

²⁰⁵"Color move: FCC sets up new timetable." Broadcasting, Vol. 37, No. 18, October 31, 1949, p. 55.

²⁰⁶Ibid., p. 55.

²⁰⁷Ibid. With respect to DuMont's "4 foot converter wheel," Coy snapped, "We are not in the sideshow business."

²⁰⁸"Color tests: comparative demonstrations delayed to Nov. 21." Broadcasting, Vol. 37, No. 19, November 7, 1949, p. 49.

²⁰⁹"Mr. Chapin. . . is the head of our laboratory; he is not a member of the Commission, and in no way in a position to determine the vote of a single member of the Commission; nor is any other member of the staff of the Commission. . . I want to

opportunity to chide RCA for not supplying its own receivers for Commission study. Chairman Coy said:

I suspect that some of our people have capabilities of effecting some improvement in (the RCA) system and that we may, when and if we get hold of that equipment, file a patent on an improvement on that equipment, for the benefit of the government of the United States.²¹⁰

The twin developments of the Chapin switch and frequency modulated video in the Commission's own laboratories are proof of what the Commission might do in the way of its mandate to "study new uses for radio"²¹¹ However, the Commission has failed to maintain this record of engineering achievement, with the laboratory division of today largely restricted to "type approval" testing of transmitters and other equipment. Under normal conditions, the Commission relies upon various industry engineering groups. However, in December 1949, Commissioner Jones spoke out against:

. . . the vested interests, whether such vested interests are speaking through such flexible if not nebulous pseudonyms as JTAC, RMA, the former NTSC and any other pseudonym of the radio manufacturers who are here today and gone tomorrow as swiftly and seemingly as purposefully as the proverbial pea in the carnival shell game.²¹²

say. . . that I resent the suggestion very much that the Commission is influenced in its determination by the work of a single member of its staff or all of its staff when it comes to making a decision on the record in these proceedings." Crater, Rufus. "Color testing: FCC sets field plan as demonstrations end." Broadcasting, Vol. 37, No. 22, November 23, 1949, p. 36.

²¹⁰Ibid.

²¹¹Communications Act of 1934, Section 303(g).

²¹²"Comr. Jones castigates Raibourn on color." Broadcasting, Vol. 37, No. 33, December 12, 1949, p. 82.

As a result, the FCC politely brushed off a request for support of the reformed NTSC on color, pointing out the Commission's "desire to avoid any implication that (an NTSC) is to be regarded as an advisory committee named by the Commission" even though it would be welcome to testify at the hearings.²¹³

In January 1950, CBS started color demonstrations to receivers in public places in Washington. Television distributors and dealers worried over the possible downturn in black-and-white sales, and whether "CBS is really 'taking its case to the people,' or merely trying to comply with FCC's request for information on public reaction preparatory to next comparative demonstrations."²¹⁴ This "head start" worried RCA although at this time: "That big sigh of relief you hear comes from RCA. Simply stated, its color system now works."²¹⁵ This sigh of relief was echoed by the rest of the industry in a move which smacked suspiciously of following a "party line" to Commissioner Jones:²¹⁶

²¹³ Television Digest, Vol. 6, No. 1, January 7, 1950, p. 2.

²¹⁴ Television Digest, Vol. 6, No. 2, January 14, 1950, p. 1.

²¹⁵ Television Digest, Vol. 6, No. 3, January 21, 1950, p. 1.

²¹⁶ It should be pointed out that (in the words of Television Digest, Vol. 6, No. 4, January 28, 1950, p. 2) "whatever Jones' goals may be, he's not carrying torch for CBS color system per se, though that may appear to be effect of his campaign." Indeed, Jones and Stanton carried on an acrimonious exchange in the fall of 1949. It is often difficult to reconcile Jones' conservative Republican background with his "trust-buster" attitude on the Commission. One opinion is that he (and Senator Bricker, another Ohio Republican) are antagonistic toward the large broadcasting networks for various political reasons dating back to the Roosevelt administration.

However, Jones himself puts his philosophy as follows: "When private enterprise seeks out the most profitable market for the installation of clear channels and regionals in highly congested areas, I find no fault with such action. That is the kind of enterprise I have defended all my public and private life."

The RMA and everybody else is stalling around with color. You show your (tri-color) tube on the 24th of March to the Commission and its staff, and then suddenly there is not enough interest among RMA to make much of an appearance here in these hearings; everybody is for color. Even the trade press changes its tube. . . . The next day the trade press is for color.²¹⁷

As soon as the RCA color system was in satisfactory condition, RCA started the old tune of claiming that CBS had tried to hold back TV since 1941,²¹⁸ and asserted that adoption of the CBS incompatible system would "cause the bankruptcy of many of the smaller TV set manufacturers of today," jeopardize broadcasters, and would "never survive" anyway. General Sarnoff was also strongly opposed to the thought of the FCC compelling manufacturers to put various adapters into receivers so that color converters could be easily installed.²¹⁹

CBS realized that it was once again being pushed into the position of trying to persuade the entire manufacturing industry to accept an unwanted innovation and threatened to establish its own manufacturing subsidiary.²²⁰ CBS also favored the FCC's

But, when private industry attempts to use government processes to accomplish the same thing in television, or when I think it attempts to use the Commission to eliminate the natural forces of competition between established black and white and infant color, I draw the line. Likewise, when the industry tries to use the Commission to thwart or delay reliable television service for towns like Lima (Ohio), that calls for some noise and infield action." (Jones, Robert F. "Channels in the Sky," Speech before the New York Chapter of the American Marketing Association, January 17, 1950, mimeo No. 45156, p. 12.)

²¹⁷Television Direct, Color Report, April 8, 1950, p. 2.

²¹⁸Television Direct, Vol. 6, No. 16, April 22, 1950, (n.p.).

²¹⁹Television Direct, Vol. 6, No. 18, Section II, May 6, 1950.

²²⁰Television Direct, Vol. 6, No. 16, April 22, 1950, (n.p.). (Also see Vol. 5, Nos. 34, 42-43.)

compelling manufacturers to build CBS color sets (assuming the FCC had this power), with only a thirty-day grace period. Stanton also added, hopefully, that manufacturers were likely to change their tune in the event of a FCC decision favoring the CBS system.²²¹

The Commission hounded by criticisms on the length of the freeze lashed out at the industry with claims that the proponents of color wanted the FCC to "allocate on the basis of inadequate interference data in the hope that things will work out well."²²² Such data as had been submitted during the eight months of the hearings, however, indicated that the use of color would create no special allocation problems. Color was little or no more susceptible to interference than black-and-white television, and the same mileage separations should apply.

On July 11, 1950, the Commission started its deliberations on the monumental record of the color hearings. It also had before it the "proposed findings" submitted by the various contestants, as well as reply briefs of the proponents, which "reiterate their familiar arguments, attack just about everything except one another's families."²²³ An unusual document, not comprising part of the formal record, was the report of a committee formed by

²²¹Television Digest, Vol. 6, No. 16, April 22, 1950, (n.p.).

²²²U. S. FCC. Public Notice of May 26, 1950 in Dockets 8736, et al. (FCC 50-740), quoted in Television Digest, Color Report, May 27, 1950, p. 1.

²²³Television Digest, Vol. 6, No. 28, July 15, 1950, (n.p.).

Senator Johnson, with Dr. Edward U. Condon of the Bureau of Standards as Chairman, and such experts as Dean Everitt, Stuart Bailey, Dr. Newbern Smith and Donald G. Fink as members. Although the report of this group was non-committal, it contained a great deal of useful data.²²⁴ There were two other bodies that had not submitted material for the formal record: the general public, which was largely ignorant of the issues; and the television broadcasters who apparently were neither asked for nor volunteered any opinions about color television.²²⁵

On September 1, 1950, the Commission issued its first color television report,²²⁶ which stopped just short of giving CBS a clean-cut victory. Both the RCA and the CTI systems were turned down. Practically no stock was placed by the Commission on the issue of receiver compatibility, which was the chief advantage of the RCA system.²²⁷ The industry was given an almost impossible ultimatum: demonstrate a system superior to that of CBS within three months, or the final decision would go to CBS. In addition, unless receiver manufacturers promised to start building sets capable of receiving CBS color signals in monochrome, the CBS system might be adopted in its entirety within a month. Throughout this report ran a thread of distrust of the manufacturing industry's judgment and testimony. For example, referring to the

²²⁴U. S. Senate. Senate Document No. 197, 81st Congress, 2nd Session. Report of Advisory Committee on Color Television to Senate Committee on Interstate and Foreign Commerce, July 14, 1950.

²²⁵Television Digest, Vol. 6, No. 22, June 3, 1950 (n.p.).

²²⁶U. S. FCC. First Report of Commission (color television issues), in Dockets 3736, et al., September 1, 1950.

²²⁷Thus, if color were universally adopted on a compatible basis, the 9-10 million set owners would not lose their investment.

original RCA system:

We cannot overlook the fact that many of these same parties offered recommendations and expert opinions of the same kind as the basis of their advocacy in the 1946-1947 hearings of the simultaneous system--a system which never survived field testing.²²⁸

. . . the Commission cannot overlook the obvious fact that one of the easiest methods of defeating an incompatible system is to keep on devising new compatible systems in the hope that each new one will mean a lengthy hearing so that eventually the mere passage of time overpowers the incompatible system by the sheer weight of receivers in the hands of the public.²²⁹

Reactions to this Commission report were violent. The manufacturers looked to RCA for leadership, while wondering about the implications of the FCC report. The general tone of the manufacturers was one of resentment and resistance; a definite desire to fight the Commission because it would virtually force them to market something they did not believe in.²³⁰ Although virtually the entire industry investigated the idea proposed by the FCC of "bracket standards"²³¹ (sets capable of receiving both 405 line CBS color signals in black-and-white, other color or experimental signals, and standard black-and-white 525 line signals), they unanimously²³² refused to actually build any sets to these

²²⁸U. S. FCC. First Report of Commission in Dockets 3736, et al., para. 139.

²²⁹Ibid., para. 148.

²³⁰Television Digest, Vol. 6, No. 36, September 9, 1950, p. 2.

²³¹U. S. FCC. Second notice of further proposed rule making in Dockets 8736, et al., September 1, 1950, Public Notice 50-1065.

²³²With due regard for the anti-trust laws, the RMA was careful to tell its members to make up their own minds. Thirty-six manufacturers filed replies or comments with the FCC, with all "independent" comments sounding remarkably similar.

specifications.²³³ "Compatibility" was the chief rallying cry of the manufacturers, although the Commission had decided that a bird in the hand was worth a compatible system in the bush.²³⁴ Accordingly, the Commission (bristling somewhat at the unexpected amount of criticism from the manufacturers) authorized CBS color on October 11, 1950.²³⁵ This second color report made colorcasting "permissive," not mandatory, for broadcasters at first and did not close the door to consideration of substantial technical advances by other parties.

Once again, with the exception of a few very small companies such as Tele-tone, the manufacturers refused to cooperate. CBS was also left with the burden of promoting color, and broadcasting it as well.²³⁶ RCA filed suit for an injunction in a Federal court in Chicago,²³⁷ giving both CBS and the FCC more headaches.

²³³Television Digest, Vol. 6, No. 39, September 30, 1950, p. 1. Also Television Digest, Special Digest, October 7, 1950. "Digests of industry responses to FCC proposals for 'bracket standards'."

²³⁴A "key FCC executive" is quoted as saying that RCA never had a look-in, particularly in view of the poorly designed prototype sets it rushed into commissioners' homes. Television Digest, Vol. 6, No. 37, September 16, 1950, p. 4.

²³⁵U. S. FCC. Second report of the Commission in Docket 8736, et al., (FCC 50-1224) October 11, 1950, and Order amending engineering standards to include CBS color system, (FCC 50-1225), October 10, 1950.

²³⁶Television Digest, Vol. 6, No. 41, October 14, 1950. See entire issue for quotes from FCC, manufacturers, distributor-dealers, telecasters, press and radio.

²³⁷Television Digest, Vol. 6, No. 42, October 21, 1950, pp. 1-2. RCA based its case on a claim of arbitrary behavior by the FCC in jeopardizing the sale of ten million dollars in sets now on assembly lines, as well as labeling as "biased" the testimony of Chapin, the FCC engineer who developed the dual-standards switch.

During the rest of October and November 1950, opposition to CBS color strengthened. CBS President Stanton and RTMA President Sprague debated on the radio; the RTMA discussed a one million dollar "war chest" to counter the CBS publicity; CBS and Tele-tone took full page advertisements in various major cities claiming that color television through the use of converters would be available within three months; while Pilot and Admiral put out advertisements and flyers claiming that a converter for a nineteen-inch set would look like a "flying saucer," and that "there will always be black and white television."²³⁸ The press was divided, with the New York Times on October 18, 1950 editorially opposing the FCC action. The Times also took issue with a letter by Stanton it published on October 20. The New York Herald Tribune on October 13, 1950 halfheartedly supported the Commission.²³⁹ The trade press and the major manufacturers were, however, unanimous in their disapproval.²⁴⁰ Particularly annoyed were the engineers, who deeply resented aspirations placed upon them by the Commission. Commissioner Jones, in particular, was accused of rejection as intentionally dishonest any testimony which disagreed with his own notions.²⁴¹ The Commission fought back, particularly against advertisements which seemed to them to be hitting below the belt.

²³⁸Television Digest, Special Color Report, October 21, 1950. Stanton's radio speech was on October 15, 1950, Sprague's on October 22. This special report contains full scripts of the radio talks, facsimiles of advertisements, cartoons, and newspaper editorial comment.

²³⁹Ibid.

²⁴⁰Television Digest, Vol. 6, No. 43, October 23, 1950, pp. 3-5.

²⁴¹Television Digest, Vol. 6, No. 43, October 23, 1950, p. 6.

One ad by Hallicrafters with the headline "The color television blunder: 5 men against the American way," drew a retort from Chairman Coy, calling it "pretty contemptible."²⁴²

By this time, the pressure on RCA to produce a compatible system equal or better in quality than the CBS system was enormous. It was clear that the FCC had a fight on its hands, with all major manufacturers and most telecasters opposing the Commission.²⁴³ Nevertheless, the deadline for suggesting radical new developments before the CBS system went into effect was December 5, 1950 and at the same time the FCC was pressuring RCA to make available to CBS a tri-color tube so that the mechanical disc aspects of the CBS system could be eliminated.²⁴⁴

As time passed RCA developed its system and fought the CBS system in the courts, where it won a temporary restraining order.²⁴⁵ In the middle of December, an excellent compatible color picture was shown by RCA. The industry gave highest praise

²⁴²Coy, Wayne. Letter to Mr. W. J. Halligan, President, The Hallicrafters Company, November 2, 1950. FCC No. 56350, November 3, 1950. Also published in Television Digest, Special Report, November 4, 1950, with facsimile of advertisement.

²⁴³Television Digest, Vol. 6, No. 44, November 4, 1950, p. 4. For FCC retaliatory measures, see Television Digest, Vol. 6, No. 47, November 25, 1950, p. 3.

²⁴⁴Television Digest, Vol. 6, No. 44, November 4, 1950, p. 4. Also see FCC Public Notice 57349, December 7, 1950. Letter of December 6, 1950 from Chairman Wayne Coy to Mr. W. F. Kennedy explaining how RCA had offered tube on several occasions, yet had never actually delivered one. RCA turned this request into a publicity advantage, suggesting that it was analogous to the Phillies requesting the Yankees to give them Joe DiMaggio. The tube was henceforth called the "DiMaggio" in RCA publicity releases.

²⁴⁵Television Digest, Vol. 6, No. 47, November 25, 1950, pp. 6-7.

to the demonstrations, and RCA went on the offensive, although Sarnoff contented himself with suggesting that the public decide between the two methods,²⁴⁶ and passing information to newspapers that in turn questioned the activities and decisions of the Commission.²⁴⁷ Although there seemed "to be a veritable obsession, among a very powerful FCC clique, to put across the field-sequential system" (CBS), there was but little chance of that, despite the fact that a Federal Court of Appeals in Chicago had upheld the FCC's color decision on December 22, 1950. (RCA promptly appealed to the Supreme Court, the case was placed on the docket and heard with startling speed, with a decision in favor of the FCC rendered on May 28, 1951--a remarkable speed, welcomed by all, for different reasons.)²⁴⁸

In early 1951 CBS was still trying to innovate its color system. At an annual meeting of the Institute of Radio Engineers, CBS was conspicuous by its absence at a session on color television.²⁴⁹ In a more important move, CBS purchased Hytron Radio and Electronics Corporation--a tube manufacturer with television receiver production facilities. Its motives were apparently four-fold: (1) to establish itself in the extremely profitable manufacturing industry; (2) to capitalize on its own great trade name; (3) to build up its own resources in the hope that its color system

²⁴⁶Television Digest, Vol. 6, No. 49, December 9, 1950, pp. 6-9.

²⁴⁷Television Digest, Special Color Report, December 9, 1950.

²⁴⁸Television Digest, Vol. 7, No. 7, February 17, 1951, p. 3. Also, Opinion of the Supreme Court of the United States, October Term 1950, No. 565, published by Television Digest as Special Color Report, May 28, 1951.

²⁴⁹Television Digest, Vol. 7, No. 10, March 10, 1951, p. 2.

will prevail, so that it might produce color receivers itself²⁵⁰ if the rest of the industry remained unenthusiastic; and (4) as another facet of its intense rivalry with RCA.²⁵¹ The favorable Supreme Court decision still left CBS with the questions: "Can CBS get anywhere, almost single-handedly, with a system that can't be picked up by any of the nearly 13,000,000 TV sets in use?" and "How soon will the 'right' compatible system, backed by overwhelming majority of industry, be welcomed by FCC through its 'open door'?"²⁵²

The answer to the first of the above questions is apparently: "CBS isn't really trying." Although programming demonstrations went ahead, neither CBS--Hytron, and its "Air King" subsidiary--nor Tele-tone showed any great desire to manufacture color sets in quantity. The NTSC was fast approaching the point where it could present a workable set of compatible color standards to the FCC, while RCA was refining its own system, later incorporated into that of the NTSC.²⁵³ The view of the major manufacturers that they might even accept the CBS system's "technical inferiority" and incompatibility, if they thought a profit could be made in color sets,²⁵⁴ apparently affected CBS' thinking as well.

²⁵⁰CBS' only manufacturing ally was Tele-tone. See Television Digest, Vol. 7, No. 15, April 14, 1951, p. 9.

²⁵¹Television Digest, Vol. 7, No. 15, April 14, 1951, p. 2.

²⁵²Television Digest, Special Color Reports, June 2, 1951.

²⁵³Television Digest, Vol. 7, No. 24, June 16, 1951, pp. 5-7.

²⁵⁴Television Digest, Vol. 7, No. 26, June 30, 1951, p. 3.

On October 19, 1951, two months after the Commission started to mend its bridges with the industry by sending engineers to NTSC demonstrations²⁵⁵ (while a second highly successful series of over-the-air demonstrations of RCA's compatible color system was still in progress),²⁵⁶ and a few days after the very first color sets trickled from the CBS-Columbia production line, CBS was able to "get off the hook" with respect to its own color system. On this date, CBS President Stanton announced that at the request of mobilization director Charles E. Wilson, in order to conserve critical materials CBS would immediately stop all color set production and programming "in the national interest. . . for the duration of the emergency."²⁵⁷ Although a critical shortage of certain materials and skilled engineers did exist as the result of the Korean War, it was rumored in the trade press that CBS Board Chairman Paley had engineered the move himself, through the good offices of National Security Resources Board Chairman Symington.²⁵⁸

Although CBS and anyone else was permitted to continue experimentation on color, few thought that the spectre of incompatible television would again be raised. Of course, not everyone was pleased with this National Production Administration order. On

²⁵⁵Television Digest, Vol. 7, No. 31, August 4, 1951, p. 4; No. 33, August 18, p. 2.

²⁵⁶Television Digest, Vol. 7, Color Report, October 13, 1951. (Earlier demonstrations reported in Television Digest, Vol. 7, No. 28, July 14, 1951, pp. 1-3.)

²⁵⁷Television Digest, Vol. 7, No. 42, October 20, 1951, pp. 1-3, 5.

²⁵⁸Ibid., p. 2.

one side, Senator Johnson blasted the NPA for being part of a "plot" against color TV in general and CBS in particular, with administration of the NPA material control order in the hands of a former official of the RCA Service Company.²⁵⁹ On the other side, Sarnoff also blasted the NPA, claiming that the order "came out of a situation artificially created by one company to solve its own perplexing problems," a statement which stung CBS president Stanton into charging that Sarnoff was "ignoring the truth" and that "everybody knows that CBS has been the leader in the long and difficult struggle to bring color TV to the public, despite the persistent opposition of Mr. Sarnoff. . . ." ²⁶⁰

This exchange was in reality the closing gun of a long war, since by the end of 1952 even CBS had joined the NTSC in its efforts to perfect a compatible color system²⁶¹ based on, but improved over, the RCA system. Eventually, on December 17, 1953, the Commission approved the NTSC compatible color system.²⁶²

Although CBS had not been able to innovate its color system, "in a sense it had won the war." Not only had it been "saved" by the NPA order without serious loss, "but at a crucial stage in TV development it had won time to prepare itself for television competition with RCA and NBC in the manufacturing as well as in

²⁵⁹Television Digest, Vol. 8, No. 4, January 26, 1952, pp.4-5.

²⁶⁰Television Digest, Vol. 8, No. 6, February 9, 1952, p. 3.

²⁶¹Television Digest, Vol. 8, No. 52, December 27, 1952, p. 3.

²⁶²U. S. FCC. Public Notice in Docket No. 10637, in the matter of amendment of the Commission's rules governing color television transmissions. (FCC 53-1663, mimeo 98948) December 17, 1953.

the network field."²⁶³ RCA inherited the mantle of possessing "the" color system, as well as the difficulties in persuading the broadcasting and manufacturing industries to accept color.²⁶⁴ The FCC, which had been "under strong pressure from Congress to 'do something'" (about color) calculated that it could relieve the pressure by approving the CBS system, "either to genuinely provide a new public service, or to let its defects"²⁶⁵ (chiefly incompatibility) prove its own undoing. The FCC also discovered that:

No amount of political pressure can force the successful production of complex electronic equipment or compel the public to buy them until the technical problems have been solved; and second, judicial findings cannot overrule scientific fact.²⁶⁶

All that the Commission could do, when these facts had been driven home, was to try to take revenge on the recalcitrant manufacturers by instigating a Department of Justice grand jury probe of the electronics industry, with particular reference to color and FM. This investigation faded out with the outgoing Truman administration in January 1953, after the industry had been harrassed for a year.²⁶⁷

Perhaps the "neatest" summation of the entire color television imbroglio appeared in John Crosby's column in the New York Herald Tribune:

²⁶³Head, Sydney W. Broadcasting in America. Boston: Houghton Mifflin, 1956, p. 163.

²⁶⁴To this day, even with RCA's backing and resources, color television is a dismal commercial failure.

²⁶⁵Head, op. cit., p. 162.

²⁶⁶Television Digest, Vol. 8, No. 12, March 22, 1952, p. 15.

²⁶⁷Television Digest, Vol. 9, No. 4, January 24, 1953, pp. 8-9.

And God said, Let there be light: and there was light.

And God saw the light, that it was good: and God divided the light from the darkness.

And the FCC saw color and said, "Let there be color," and there was color. Or at least there was an edict decreeing color. And the public tried to divide the black and white from the color and discovered only confusion. Next to the FCC's, God's problem was comparatively simple.²⁶⁸

Conclusions

During the three-and-a-half-year-freeze, a vital young industry was developing. As the number of stations and receivers increased, the freedom to change grew smaller and smaller. The presence of a large investment, particularly by the public, acted as a bar to changes in allocation, assignment or standards. With this in mind, it became obvious that if changes had to be made (and with the interference between stations prevalent in 1948, some change was absolutely necessary) they should be made as quickly as possible, in order that dislocation be at a minimum and the "cement" of public investment not be allowed to harden.

Instead of a quick determination of the correct mileage separations necessary to avoid tropospheric interference, this breathing spell was used as a time to settle all the questions about television allocations and standards that had arisen since 1945. Thus, technical questions of mileage separations became intertwined with policy decisions between rival color television systems.

A large class of participants, including prefreeze broadcasters, manufacturers and the two larger networks realized that

²⁶⁸Crosby, John. New York Herald Tribune, October 24, 1950. Quoted in Television Digest, Vol. 6, No. 43, October 23, 1950, p. 5.

the freeze was a blessing in disguise. They now had an opportunity to entrench themselves before some, or additional, competition arrived. This same class of participants, whenever possible, tried to insure a future disparity of facilities (in terms of an entire network, a given community, etc.) which would be in their favor when and if competition did develop. As a rule, the most advantageous strategy available to this group was delay. The longer the freeze lasted, the more receivers were sold capable of picking up the then-existing channels, the more experience was gained, and the greater profits were garnered.

On the other side of this struggle were the "have nots" and the "Johnny-come-latelys." The existence of the DuMont and ABC networks depended upon the rapid acquisition of affiliates. Under freeze conditions, the 108 stations could play one network off against another, with NBC and CBS often sharing the outlet to the exclusion of DuMont and ABC. Any interest CBS had in the innovation of its color television system required rapid Commission action, or, as actually happened, RCA would develop an equal or better system and innovate it with the near-unanimous assistance of the rest of the manufacturing industry. Most unfortunate were the applicants unable to obtain station grants until the freeze was lifted, since they did not even have a fighting chance to make any money from the broadcasting end of television.²⁶⁹

²⁶⁹Community antenna systems, an important part of the television broadcast structure today, were first suggested and developed as a means of "beating the freeze" and establishing some modicum of television service in cities otherwise without television.

From the above "lineups" it can be seen why engineering "facts" rarely were determining with respect to the questions raised during the freeze. Thus, the Commission's suggestions for improving the interference situation came in form of increased mileage separations (which would have the effect of restricting the number, and hence the competition between, stations on the VHF band) rather than in attempts to supply the most television to the most people through the use of techniques such as offset carrier. Analysis of separations might better have been on the basis of population rather than area.²⁷⁰ It required a great deal of maneuvering before the separation was reduced once again from 220 to the present 170 miles--a compromise with little to recommend it, since the average separation is closer to 200 miles.

With respect to the addition of the UHF band, a clean break with the past and its mistakes could not be made. The Commission was determined, no less than the telecasters themselves, to protect both the existence and the channel assignments of the prefreeze broadcasters insofar as possible. This made it impossible to move all television to the UHF band, even if the Commission had disregarded the public investment in receivers as it did when FM was shifted "upstairs." Although many engineers had felt that all television should have been moved to the UHF in 1945, and a suggestion from the floor at a 1950 meeting of radio engineers

²⁷⁰The analysis by Bernard C. O'Brien, which concluded in favor of 150-mile separations, has never been adequately refuted. This would have brought separations back to the May 1948 (never adopted) proposal, but would have provided VHF service to a considerably larger number of communities and percentage of the population than the present assignment and allocation plan.

that "TV be started anew in UHF with room for broad-band color and monochrome got huge hand from audience, startled panel and visiting Comrs. Hennock, Sterling, Webster,"²⁷¹ there was little discussion in public and before the Commission of the desirability of this move. It was understood that the existing VHF assignments were not to be disturbed, an understanding that also led to the oft-warned-about policy of intermixture.

Although intermixture was destined to cause a great deal of difficulty for UHF television stations, particularly since the four years of the freeze gave 108 VHF stations a "head start," there is a possibility that the freeze helped UHF as well as it hurt it. Assuming retention of the VHF band, would the manufacturers have built any UHF sets at all in 1949 or 1950? Not only was there a paucity of information on propagation characteristics, manufacturing techniques, and the like, but there was still the enormous unfilled demand for VHF sets in those cities lucky enough to have prefreeze stations. Remembering the refusal of the manufacturers to build CBS color sets in the period 1950-53, and the subsequent lukewarm reception given to NTSC (RCA) color since, even the trickle of UHF receivers now produced may be a flood in relation to the number that may have been if the UHF had been opened in 1949.

Although television survived the freeze with ease, the next chapter describes the difficulties it has faced as a result of decisions made during the freeze. Color is little more than a

²⁷¹Television Digest, Vol. 6, No. 10, March 11, 1950, (n.p.). Describing National Television Conference in Chicago, March 7, 1950.

novelty today, although at the time it held up the end of the freeze for a year and a half it assumed great importance in shaping the structure of television. This delay, punctuated by clashes between RCA and CBS, allowed millions of black-and-white VHF sets to be sold, and millions of dollars to be made by the prefreeze stations, the manufacturers and the other groups lucky enough to get into television before the freeze.

A pattern repeated often in later years has been the prodding of the Commission and the industry by Committees of Congress. Senator Johnson is an archtypical example of the kind of force that can shake the FCC into a frenzy of activity. The Commission, and the industry, learned well that a letter, a telephone call, or a formal hearing by a Congressman was something to be reckoned with.

The clearest lesson to emerge from the freeze years is that the industry is composed of individual units and groups of units, many of which are fighting one another. The Commission found that it could no longer rely upon "the industry" for the information it had to have, and was unwilling to accept the plans of individual members of the industry such as DuMont and O'Brien. As a result, the decisions which were made during the freeze had a serious tendency to float aloft, borne up by the opposing pressures, having very little contact with the terra firma of sound engineering and economic fact and theory. This responsiveness to the opposing views of elements of the industry and the Congress marks the start of a period of "no decision" toward television policy on the part of the Commission. The delay in ending the

freeze, although punctuated by a strong stand by the Commission--urged by some members of Congress--in favor of color, is but the easily visible prototype of the years which followed, during which the FCC more subtly delayed or avoided any actions which would promote more television competition on a nationwide scale.

CHAPTER VI

INEQUALITY COMPOUNDED: 1952-1959

Introduction

The Commission's Sixth Report and Order in early 1952 was its most ambitious effort toward establishing a truly nationwide competitive television system. Presumably, this action opened up some seventy new channels¹ in the UHF, to provide a sufficiency of channels in all areas and markets for true competition between stations and networks to develop.²

The Sixth Report and Order did not create competition. At best, the FCC could create conditions and facilities for competition and hope that entrepreneuring broadcasters would supply actual competition. However, the Commission established unequal conditions, which necessarily meant unequal competition. As the first UHF stations went on the air, they discovered that the original FCC policy of equality of facilities in a given market had been discarded. The most radical and disturbing item was intermixture, particularly in cities that already had one or more VHF stations operating. In addition to the numbers of VHF sets

¹U.S. FCC. Sixth Report and Order in Dockets 8736, et al. (April 14, 1952), Paras. 26-32.

²Actually, Channels 66 through 83 were reserved by the FCC as "flexibility channels" for future assignment. (Only eight stations were on the air on these eighteen channels in the spring of 1958.) Low power TV "translators" are the chief occupants of the higher UHF channels.

already in operation in such communities, the established viewing habits of the audience, and the existence of network affiliation contracts with prefreeze stations, a UHF operator in competition with a VHF station had to neutralize or overcome the greater coverage area or range of the VHF transmission. Both networks and advertisers relied on the concept of unduplicated population coverage, or "circulation," in dispensing their favors, without which a broadcaster could not survive.

This basic inequality was aggravated by the Commission's moves to permit VHF stations to increase antenna height and power, while the state of the art was such that the transmitter manufacturers were unable to construct high powered UHF transmitters to keep up with the VHF stations. More important, despite promises to the contrary, only a small percentage of all receivers were able to pick up any UHF channels.

In many respects, post-1952 might be called the "do nothing era" of the FCC's history. The Commission's attitude was expressed by Commissioner Doerfer:

We can't be concerned with individual inequities. The only time you can invoke the regulating function is where the whole industry is threatened and the public interest is involved.³

The Commission was too busy processing applications and issuing Construction Permits to worry much about the industry-wide plight of the UHF station operators until several years later, and the outcry from Congress was becoming loud and clear. Since 1953 members of Congress have made Senator Johnson's earlier "overseeing" of the FCC appear like a hasty glance. At times several committees

³Doerfer, John C. Address to Maryland-D.C. Broadcasters, December 1953. *Television Digest*, Vol. 9, No. 51, December 19, 1953. p. 4.

of both the House and the Senate, were studying or investigating television. Individual congressmen were highly responsive to the needs or complaints of their television-hungry constituents. It was this responsiveness that brought pressure to bear on the FCC to grind out permits with the utmost speed in 1952 and 1953, a situation hardly conducive to study of the policy implications of their actions.

The operators of VHF stations, particularly the networks, were basking in the financial sunshine of little or no competition coupled with wide coverage in a given market. It was much like the pipedream of many AM operators in previous years: every station a "clear-channel" outlet, with no local competition. Naturally, the VHF operators organized to maintain or even improve their advantageous positions, arguing for some form of the status quo before the Commission and the Congress.

The UHF operators who survived (over half of the UHF stations that went on the air later gave up) had little on their side but hope. Faced with competition from VHF stations, satellites and boosters, and community antenna systems--particularly those fed by microwave rather than off-the-air programming--and facing the problems of obtaining network affiliations, sponsors, and the conversion of purchase of receivers, the UHF operators lived from day to day. Indicative of the hope sustaining UHF operators were cases of those that "went dark," and later returned to the air as a result of "financial reorganization" or "public demand." Behind these seemingly irrational acts was the belief that if a station could hold on long enough, the government would do something to make a UHF station the profitable venture it should be.

Among the possible cures or palatives which might help the situation were: 1) deintermixture, 2) conversion to an all-UHF system,⁴ 3) promoting the manufacture and sale of all-channel sets by removing the excise tax on them or by forbidding the transport of VHF-only receivers in interstate commerce, and 4) limiting the coverage of VHF stations so that they would be comparable to UHF. Although a tentative start was made on extremely limited, selective, deintermixture, UHF operators are still existing chiefly on hope and the audience crumbs left them by the larger VHF stations, while the FCC deliberates and waits for "study groups" such as the Television Allocations Study Organization (TASO) to finish their work. Since the FCC has shown little inclination to act in this situation, most UHF operators place their faith in the Congress.

In analyzing the attempts of the VHF operators to keep competition at a low level, and the efforts of the UHF operators to survive, this chapter will examine both the participants involved and the action or inaction that was taken, or could be used to reduce the basic inequalities. Starting with things as they were when UHF stations were first licensed in 1952, we shall examine what has happened to UHF broadcasting, and to the groups (such as manufacturers, networks, advertisers, community antenna systems, VHF boosters, and VHF station operators) which had most

⁴There is also a great deal of agitation to switch to an all-VHF system, by lowered interference and separation standards and by finding additional channels in the VHF. While this would permit the present UHF operators to compete (insofar as range is concerned) with present VHF stations, it is not a complete solution. Considering that additional VHF channels would give rise to the same problems of set conversion, more problems might be created than solved by this proposal.

to do with UHF. The second part of this chapter is devoted to the various proposals which have been suggested to remedy the inequalities (particularly an all-VHF system, an all-UHF system, and deintermixture) together with the two main forums for these ideas, the Congress and the Commission.

Inequality: 1952

If the UHF band had been given the go-ahead when the freeze started, many of the inequalities which developed at the end of the freeze would have been absent. In 1948 even less was known about how to generate power on the UHF band than was known in 1952, and the range of a UHF station would be even more restricted than it was when the freeze finally thawed. Nevertheless, the greatest inequalities (receiving sets and entrenched VHF stations) would not have been nearly so detrimental to UHF. For example, at the start of the freeze, September 30, 1948, only thirty-seven⁵ stations were on the air, serving a mere 741,000 receivers.⁶ Only three months later there were fifty-one television stations, plus another 426,000 receivers. By the end of the freeze, 108 stations were serving over eighteen and one half million receivers. Tables VI-1 and VI-4 show the increase in television stations and receivers over time. One conclusion from these tables is that the situation

⁵These data on number of television stations are from various FCC Annual Reports (giving data as of June 30 of each year) of the "FCC Roundup" or "box score" section of Broadcasting magazine. Individual citations will not be made hereafter. Figures include estimated prewar production of 8,000.

⁶These data on receiver production are from the Electronics Industries Association (EIA, nee RMA) figures quoted in Television Factbook (published semiannually by Television Digest). Note that a minimum of 10-20 per cent of these sets are in warehouse, distribution lines, etc., at any given time.

had been largely stabilized by the end of 1950, when 107 of the 108 "prefreeze" stations had commenced operations, and approximately 11.6 million receivers had been produced.

A formidable handicap for UHF stations-to-come was the distribution of television receivers. Twenty-four of the twenty-five most populous cities⁷ already had television, with New York, Los Angeles, and Chicago all possessing their full quota of stations. The existence of seven stations each in New York and Los Angeles, and the millions of receivers in these cities, coupled with the Commission disinclination to shift any of these existing outlets, made it most unlikely, if not impossible, for any UHF station there to become a success (if, indeed, one were assigned and later licensed).

Of particular importance to UHF stations in their efforts to compete with VHF stations was a disparity in transmitter power. Although UHF stations were permitted to operate with 1000 kw of power (as opposed to 316 kw on channels 7-13 and 100 kw on channels 2-6), this "advantage" was more apparent than real. In the first place, using a 1000 foot antenna with maximum power, a UHF station could hope to put a Grade B signal out to fifty-nine miles, as against the sixty-three to seventy miles range of a VHF station also using a 1000 foot antenna.⁸ This additional range, translated into terms of square miles of coverage and population served, looked

⁷The largest city without television during the freeze was Denver.

⁸Television Digest, Supplement No. 80, May 17, 1952. "Handy Reference Tables: Maximum powers with various heights and service contours in miles." Prepared by CBS Engineering Department on basis of FCC rules.

quite imposing to advertisers. Then, too, it was not until 1954 that powers on the order of 200 kw became possible, with much lower power the rule.⁹ Although the first megawatt station went into operation in the closing hours of 1954,¹⁰ there were but a handful of maximum-power UHF stations operating at the end of 1955, despite the promotion and ingenious technical efforts of transmitter makers GE and RCA. Thus, the UHF stations on the air rarely were able to approach the range of the VHF station, a situation not alleviated until higher-powered transmitters were built for those UHF stations with enough capital to purchase them.

Although one important reason for retention of the freeze well into 1952 was to avoid "stacking the deck" with respect to the technical differences between VHF and UHF stations, this principle was partially discarded by the Commission in the middle of 1951 when it permitted any TV station not using its equipment (transmitter or antenna) to full advantage to boost power up to 50 kw ERP, as long as the stations did not invest in equipment for facilities which would not be finally approved until the end of

⁹Effective Radiated Power-ERP, a product of antenna "gain" and transmitter power. Discussions of TV power are most understandable if everything is described in terms of ERP. However, transmitter powers are often mentioned in conjunction with the "gain" or number of times the transmitter power is multiplied by the antenna. For instance, the RCA "1,000,000 watt" transmitter is actually a 25 kw transmitter feeding into a 46-gain antenna, while GE obtains the same ERP by means of a 45 kw transmitter and a 25-gain antenna. Another confusing aspect of terminology in this area is that the FCC talks in terms of "db above 1 kw" or "dbk" powers. Since "db" is a logarithmic function, 30 dbk equals 1 million watts.

¹⁰Television Digest, Vol. 11, No. 1, January 1, 1955, p. 6. (WBRE, Wilkes-Barre, Pa.).

the freeze.¹¹ Although the Commission emphasized that these changes were temporary and subject to change at the end of the freeze,¹² Commissioner Jones dissented from the ruling on the grounds of possible prejudice of final decisions and "after three years of freeze, the first to benefit are the existing stations. I don't think that's right."¹³

With new equipment installed, the prefreeze stations involved were able to avoid in large part the logjam of equipment shortages at the end of the freeze. Particularly fortunate were the thirty prefreeze stations shifted by the Commission to new channels in its Sixth Report and Order. These stations were permitted to go to maximum power-height when they shifted, receiving the highest priority in the FCC's processing line.¹⁴ As a result, maximum power was available for VHF stations long before UHF grants were made or high-powered equipment made ready.

When the FCC made assignments in its Sixth Report and Order, it distributed 2051 channels (606 VHF and 1445 UHF) to 1275 communities. There were to be 110 VHF-only communities, 910 UHF-only, and 255 intermixed. This seemingly proportionate distribution showed a definite bias in favor of prefreeze VHF when the

¹¹U.S. FCC. Fifth Report and Order in Dockets 8736, et al., July 26, 1951, (FCC 51-752).

¹²"Permanent" changes made during 1948-1952 were not to upset the status quo. For instance, if a station increased its antenna height, it had to reduce its power so that it would not cover any more area than before the change. However, under the Fifth Report and Order, it could then petition for "temporary" authorization to raise its power as well.

¹³Television Digest, Vol. 7, No. 30, July 28, 1951, p. 2.

¹⁴U.S. FCC. Sixth Report and Order in Dockets 8736, et al. Para. 986 and Appendix C-1 (amendment of Commissions Rules and Regulations, (a) to Footnote 10 to Sec. 1.371.)

nation's top 162 markets are examined. In this category were 298 VHF channels--almost half the total, supposedly spread evenly over 1275 cities--and a mere thirty-one UHF-only markets, 123 of the 131 remaining markets being intermixed.¹⁵ It was in these intermixed markets that the prefreeze stations established their advantage.

Although Commissioner Jones dissented violently, claiming that potential UHF operators "had better study astronomy to figure up their balance sheets and buy lots of red ink" and that the FCC plan "throws the heaviest financial burden upon those least able to pay,"¹⁶ the majority of the Commission (less Commissioners Jones and Hennock) placed considerable faith in the future of UHF television broadcasting under an intermixed plan of assignments:

Because television is in a stage of early development and the additional consideration that the limited number of VHF channels will prevent a nationwide competitive television service from developing wholly within the VHF band, we are convinced that the UHF band will be fully utilized, and that UHF stations will eventually compete on a favorable basis with stations in the VHF. The UHF is not faced, as was FM, with a fully matured competing service. In many cases UHF will carry the complete burden of providing television service, while in other areas it will be essential for providing competitive service. In view of these circumstances, we are convinced that stations

¹⁵Television Digest, Vol. 8, No. 15, April 12, 1952, p. 4.

¹⁶U.S. FCC. Sixth Report and Order in Dockets 8736, et al. (Commissioner Jones's dissent). Section I. Jones particularly protested the closer spacing of VHF channels, claiming that the majority policy "literally shrinks the twelve VHF channels...to the equivalent of four in the northeastern part of the United States... ." In addition, wide spacings on the VHF place the UHF channels at a disadvantage in coverage not compensated for by the higher power permitted on UHF. His opponents claim that he exaggerated the average spacings in the allocation table, and is inconsistent in claiming that closer VHF separations would help UHF, since there would be much less need for UHF if closer separations (and more stations) existed on the VHF. (See: Television Digest, v.8, No. 15, April 12, 1952, p. 7.)

in the UHF band will constitute an integral part of a single, nationwide television service.¹⁷

With respect to the propagation characteristics of the UHF band, as compared to the VHF, we believe that such differences as exist will prove analogous to those formerly existing between the higher and lower portions of the VHF television band.¹⁸

Using hindsight (with Commissioner Jones's dissent as a guide) it is difficult to see how the majority of the Commission could have arrived at its optimistic conclusions on the future of the UHF. It is apparent on its face that the Sixth Report and Order used every care to provide VHF channels to the larger markets and avoid disturbing any of the prefreeze stations. UHF channels were merely used to "fill in the gaps." It is hard to see how the Commission could have believed that this hodge-podge could become a nationwide competitive television service.

What has happened to UHF broadcasting

There is an interesting dichotomy in attitudes toward television stations. The early (prefreeze) VHF stations are hailed as courageous pioneers, while UHF station operators are often looked upon by the trade as being reckless gamblers.¹⁹ Whatever their designation, several hundred applicants filed for UHF stations following the issuance of the Sixth Report and Order. The Commission established a complex and often changing priority

¹⁷U.S. FCC. Sixth Report and Order in Dockets 8736, et al. Para. 197.

¹⁸Ibid., Para. 198.

¹⁹U.S. Senate, Committee on Interstate and Foreign Commerce, 83rd Congress, 2nd Session, Hearings on Status of UHF and multiple ownership of TV stations. (Hereafter referred to as U.S. Senate Commerce Committee, Fotter Hearings.) Statement of Commissioner Hennock, pp. 1063-1064.

schedule for processing these applications.²⁰ Granting of UHF construction permits received both an informal priority--since they were not as much in demand as VHF and fewer competing applications were received, eliminating the need for lengthy hearings--and a formal priority since the Commission felt that:

all present receivers require at least some modification to receive stations in the UHF band; this precedence will help enable the younger service to make a firm start, a matter of great importance...²¹

As a result of this arrangement, thirteen of the first eighteen CP's granted (on July 11, 1952) were for UHF stations. The first of these UHF stations²² went on the air in Portland, Oregon, on September 16, with equipment formerly used by the RCA experimental UHF station in Bridgeport.²³ By the end of the year, some six UHF and eleven VHF stations had taken to the air. The high point, insofar as number of operating UHF stations is concerned, came almost exactly two years after the end of the freeze, when Broadcasting magazine reported a total of 127 UHF stations on the air for the week of March 17, 1954. Table VI-1 shows the changing numbers of both UHF and VHF stations.

²⁰U.S. FCC Sixth Report and Order in Dockets 8736, et al. Paras. 983-990 & Appendix C-1. Two processing lines, operated concurrently, were to bring service to towns without television service and towns already having some service. In this latter group, UHF received priority.

²¹Ibid., para. 988.

²²The first post-freeze station was VHF station KFEL-TV of Denver, which incredibly got on the air on a limited basis one week after its CP was granted. Television Digest, Vol. 8, No. 29, July 19, 1952, pp. 1-2.

²³Television Digest, Vol. 8, No. 38, September 20, 1952, pp. 1-2.

TABLE VI-1
NUMBER OF STATIONS--UHF AND VHF^a

Date (end of last month)	Operating Stations			Deleted (Returned) CPs		
	UHF	VHF ^b	Total TVc	UHF	VHF	Total ^d
3rd Quarter 1952	1	109	110			
4th Quarter 1952	6	120	126			
1st Quarter 1953	19	135	154			
2nd Quarter 1953	41	153	194	4	2	6
3rd Quarter 1953	61	169	230	13	6	19
4th Quarter 1953	115	231	346	23	8	31
1st Quarter 1954	125 ^e	247	371	50	12	62
2nd Quarter 1954	120	256	376	72	14	86
3rd Quarter 1954	120	279	399	80	17	97
4th Quarter 1954	116	296	412	94	21	115
1st Quarter 1955	107	308	415	110	26	136
2nd Quarter 1955	103	313	416	114	30	144
3rd Quarter 1955	103	332	435	123	30	153
4th Quarter 1955	100	341	441	124	32	156
1st Quarter 1956	96	348	444	134	32	166
2nd Quarter 1956	94	360	454	136	32	168
3rd Quarter 1956	90	372	462	140	33	173
4th Quarter 1956	91	378	469	142	33	175
1st Quarter 1957	91	383	472	142	33	175
2nd Quarter 1957	88	389	477	144	33	177
3rd Quarter 1957	87	401	488	144	33	177
4th Quarter 1957	83	414	497	144	33	177
1st Quarter 1958	86	424	510	144	33	177
2nd Quarter 1958	83	425	508	144	33	177
3rd Quarter 1958	85	426	511	144	33	177
4th Quarter 1958	81	435	516	167	44	211
1st Quarter 1959	80	439	519	167	44	211
2nd Quarter 1959	79	441	520	167	44	211

^aThese data are drawn from Broadcasting magazine's weekly summaries, which in turn are derived from material in the FCC files. Although every effort has been made to present comparable data, different methods of reporting over the years makes it difficult to certify them as more than approximate.

^b108 of these stations were prefreeze.

^cThis total is only of commercial TV stations, and excludes educational television stations. The first ETV station went on the air toward the middle of 1953, and by the end of June 1959, there

TABLE VI-1 (continued)

were thirty-three VHF and ten UHF educational television stations. (One UHF ETV station returned its CP.) 18 per cent of all educational channel reservations are occupied, compared to 28 per cent of all commercial channels (81 per cent of all commercial VHF channels are in use, only 6 per cent of UHF).

^dIn addition, at the end of the second quarter 1959 there were eight licensed stations not broadcasting. Thirty-seven deleted CP holders had actually gone on the air before giving up.

^eThe peak of 127 UHF stations was during the week of March 17, 1954.

TABLE VI-1-A

NUMBER OF POSTFREEZE COMMERCIAL TV STATIONS IN OPERATION^a

(July 1952 through April 4, 1959)

Time Period	Number of VHF Stations			Number of UHF Stations		
	Going on air	Going off air	Total on air at end of period	Going on air	Going off air	Total on air at end of period
July 1952-Dec. 1953	121	1	120	123	2	121
Jan.-Dec. 1954	69	3	186	25	29	117
Jan.-Dec. 1955	49	0	235	9	27	99
Jan.-Dec. 1956	37	0	272	6	14	91
Jan.-Dec. 1957	28	0	300	12	19	84
Jan.-Dec. 1958	27	2	325	4	11	77
Jan.-April 4, 1959	<u>3</u>	<u>1</u>	<u>327</u>	<u>1</u>	<u>3</u>	<u>75</u>
Total ^b	333	6	327	165	90	75

^aU.S. FCC. Recommendations to Congress (Senate Commerce Committee) on allocations, April 23, 1959. Published as a Special Supplement by Television Digest, April 27, 1959, App. A., Table 3.

^bThese columns do not add to the totals shown, since some stations were on the air and off the air more than once. Totals reflect the number of different stations which went on the air or off the air during the entire period. Does not include 108 preefreeze stations.

TABLE VI-1-B
ANALYSIS OF COMMERCIAL TV STATION
GRANTS MADE SINCE JULY 1952^a
(As of April 4, 1959)

	VHF	UHF	Total
Total Postfreeze CPs Issued	408	369	777
Number Cancelled:			
Before going on the air	37	131	168
After going on the air	<u>5</u>	<u>46</u>	<u>51</u>
Total	42	177	219
Number Outstanding:			
On the air	327	75	402
Not on the air			
a. Had been on the air but now off the air	1	44	45
b. Never had been on the air	<u>38</u>	<u>73</u>	<u>111</u>
Total	366	192	558
<u>Summary</u>			
Total stations that went on the air	333	165	498
Number of stations now off the air	6	90	96
Per cent of stations now off the air	1.8%	54.5%	19.3%

^aU.S. FCC. Recommendations to Congress (Senate Commerce Committee) on allocations, April 23, 1959. Published as a Special Supplement by Television Digest, April 27, 1959, Appendix A, Table 2.

The steady continuing growth in the number of post-freeze VHF stations was matched by an equally steady decline in the number of UHF stations after the start of 1954. The reason for this decline is evident upon examination of Table VI-2, which lists the number of stations showing either profit or loss for selected years. Although many VHF stations did not show a profit either, apparently the prospects and "staying power" of VHF stations were sufficient to make them stick. In this belief, the post-freeze VHF stations had before them the example of the pre-freeze stations: only four of which out of ninety-seven in operation made a profit for the year 1949, but more than half reporting a profit in 1950, and all but a dozen or so enjoying financial success thereafter.

Most apparent in Table VI-2 is the large number of stations which were unprofitable in a profitable industry. Four out of ten post-freeze VHF television stations did not make a profit in 1957.²⁴ Although over two-thirds of the UHF stations listed showed a loss, the situation is actually much worse since nine UHF stations in operation only part of the year showed a loss, and eleven stations ceased operation altogether during the year. When these facts are taken into account, it becomes evident that of the UHF stations on the air sometime during 1957 (and reporting to the FCC), sixty-eight out of ninety-one, or 75 per cent, showed a loss. At the same time, 65 per cent of all 405 VHF stations in operation sometime during 1957 showed a profit.

²⁴U.S. FCC. Annual TV broadcast financial data (mimeo).

Table VI-2

PROFIT AND LOSS OF TELEVISION STATIONS¹
(number of stations)

Year	Prefreeze VHF		Postfreeze VHF		UHF	
	Profit	Loss	Profit	Loss	Profit	Loss
1950	54	52	--	--	--	--
1951	93	13	--	--	--	--
1952	94	14	(Postfreeze stations not included)			
1953 ²	97	13	8	36	8	35
1954 ³	(not available)		33	55	13	74
1954 ⁴			52	92	18	104
1955	96	12	104	80	28	57
1956	(not available)					
1957	97	11	162	109	23	48

¹Data from FCC annual reports of TV broadcast financial data (mimeo). Only comparable data are included in Table VI-2. Breakdowns as between VHF and UHF in terms of station numbers are not available in many cases, and some stations did not supply the material to the Commission. Only stations on the air for the full calendar year are reported, so that the numbers on this table will not correspond with those of Table VI-1.

²Postfreeze data as of August, 1953; responses from 83 of 103 stations. Television Digest, Vol. 9, No. 51, December 19, 1953 p. 4.

³First three months only. Data supplied by FCC to Senate Commerce Committee, Potter Hearings, p. 159.

⁴First nine months only. U.S. FCC. Third survey of post-freeze television stations. Public Notice 23055, August 10, 1955.

A fact not shown in Table VI-2, but clearly evident from the original data, was that stations in one-station communities, regardless of size of community, rarely showed a loss. In 1952, for example, not one of the forty stations in one-station communities showed a loss, whereas nine of the fourteen stations in New York and Los Angeles reported losing money. These data clearly show why pre-freeze VHF stations were opposed to competition. Within certain limits, it is the amount of competition and not the size of the market that determined profits or losses for television stations.

TABLE VI-3
TELEVISION STATIONS EARNINGS^{a, b}
 (in millions of dollars)

Year and Class	Networks and Owned and Operated Stations		
	No. of Networks	No. of Stations	Earnings or loss ^c
1948 total	4	10	(6.4)
1949 total	4	14	(12.1)
1950 total	4	14	(10.0)
1951 total	4	15	11.0
1952 total	4	15	9.9
Prefreeze			
Postfreeze			
1953 total	4	16	18.0
Prefreeze			
Postfreeze VHF			
UHF			
1954 total	4	16	36.5
Prefreeze			
Postfreeze VHF			
UHF			
1955 total	4 ^d	16 ^e	68.0
Prefreeze			
Postfreeze VHF			
UHF			
1956 total	3	16 ^e	85.4
Prefreeze			
Postfreeze VHF			
UHF			
1957 total	3	16 ^f	70.7
Prefreeze			
Postfreeze VHF			
UHF			

^aData derived from FCC TV Broadcast Financial Data (annual mimeo). Earnings are before Federal taxes.

^bSee also Table VI-5-A.

^cParentheses indicate loss.

^dThe DuMont network ceased operations on September 15, 1955.

^eIncludes one postfreeze UHF station.

^fIncludes three postfreeze UHF stations.

TABLE VI-3 (continued)

Other Stations		Total	
<u>No. of Stations</u>	<u>Earnings or loss</u>	<u>No. of Stations</u>	<u>Earnings or loss</u>
40	(8.5)	50	(14.9) 1948
84	(13.5)	98	(25.3) 1949
93	.8	107	(9.2) 1950
93	30.6	108	41.6 1951
107	45.6	122	55.5 1952
93	45.8		
14	(.2)		
318	50.0	334	68.0 1953
92	60.5		
114	(4.2)		
112	(6.3)		
394	53.8	410	90.3 1954
92	67.6		
177	(3.8)		
125	(10.0)		
421	81.5	437	150.2 1955
93	81.9		
225	4.8		
103	(4.5)		
459	104.2	475	189.6 1956
95	89.7		
269	16.4		
95	(1.9)		
485	89.3	501	160.0 1957
95	82.0		
302	10.8		
88	(3.5)		

Another way of looking at the financial difficulties of UHF stations is to examine the earnings before taxes of each class of stations. Table VI-3 is compiled from the annual financial data released by the Economics Division of the FCC Broadcast Bureau.²⁵

Tables VI-1, 2 and 3 together unfold a sad tale to the supporters of UHF. Although over 75 per cent of the nation's population is supposedly within range of two or more television stations,²⁶ this is a far cry from the goals set forth in the Sixth Report and Order. For instance, although channels were assigned to 1275 communities, only 308 communities actually had stations in operation on June 5, 1958.²⁷ It might just as easily be said that 18 per cent of the population, those living within the service range of New York City and Los Angeles, received service from seven stations.

It is noteworthy that the many VHF stations showing a steady loss manage to "hang on," while UHF Construction Permits are often turned in as soon as they are granted. In addition, since 1952 there have been over 100 CRs not on the air. Most of these are on the UHF band, and, if operating, would greatly change the structure of American television. For example, if all the authorized (licenses or CRs) commercial television broadcasting stations in some of the larger cities were operating, thirteen markets,

²⁵The original tables include figures on broadcast revenues from all sources, and broadcast expenses for both networks and stations.

²⁶U.S. FCC. 24th Annual Report--1958, p. 101.

²⁷Ibid.

containing 40 per cent of the U.S. population, would receive five or more commercial services.²⁸ Actually, only four of these markets (26 per cent of the population) have five or more commercial stations in operation.²⁹ In all fairness, even within these four markets, programming and other considerations (particularly network affiliation) gives some stations a larger share of the market than others. For example, while the average prime time hourly rate for the three network stations in New York is \$7,200, the average for the four non-network stations is only \$2,250. All of these stations operate with theoretically comparable facilities from a common antenna atop the Empire State Building in New York City; all are VHF and over nine years old.³⁰

The reasons why

The almost complete stasis of growth in number of UHF stations, and the poor financial position of those on the air are due to many causes. Most of these stem from three primary situations: 1) the technical inequality of the UHF stations with respect to coverage, 2) intermixture, and the vast inertia of millions of VHF-only receivers, and 3) lack of confidence in the capabilities of and need for UHF television.

The first two of these basic causes have been discussed in

²⁸Ibid., p. 130. Market population estimates from J. Walter Thompson Company.

²⁹Stations-in-operation data from Television Factbook No. 27, Fall-Winter, 1958.

³⁰Ibid. Comparability of facilities is only approximate; although five of the stations atop the Empire State Building claim they are 1465 feet above the ground level, each measures "height above average terrain" differently, with figures ranging from 1300 to 1445 feet.

previous chapters, and will be taken up later. The third factor, confidence, will be mentioned in the future primarily as it relates to the confidence of manufacturers and advertisers, in the UHF television broadcasting industry. There is, in addition, the lack of confidence which UHF operators themselves feel toward their medium.

While the readiness of UHF CP holders to surrender their permits following adverse financial showings has been mentioned in preceding pages, this apparent indication of mistrust of the eventual success of UHF could also be interpreted as the natural result of insufficient capital and "staying power" of the applicants, many of whom were small businessmen who were generally not representative of the sort of large corporation that pioneered the VHF band before and during the freeze.³¹ Another exhibition of lack of confidence was the practice of many UHF stations to go on the air with "flea-power" transmitters ranging from 100 watts to 1 kw. Although there was a severe shortage of high-powered UHF transmitters in 1952-54, many station operators used low-power and minimum antenna height from choice and more particularly due to financial stringencies. Such minimum technical facilities further reduced coverage capabilities, and caused an appreciable amount of ill-will both among purchasers of UHF-VHF sets who had trouble receiving the low-power stations, and among the retail dealers who had either to try to explain the situation or to remedy it by means of expensive antenna systems, etc. This ill-will existed

³¹The cost of prosecuting a competing application through the FCC hearing process caused many smaller applicants to turn to the less-desired UHF channels.

whether the station intended to continue using low-power, or whether it was just an interim measure while waiting for high-power equipment to become available.³² In a market such as Roanoke, Virginia, the low-powered (1 kw) UHF station served the town itself perfectly, but was unable to reach over the surrounding mountains. When a VHF station opened up with a higher antenna elevation and power, the UHF station found itself utterly unable to compete with the VHF for both national and local advertisers, due to the larger audience reached by the new VHF station.³³ Nevertheless, when the Commission released trial balloons about raising the "floor" of minimum power for UHF stations, it ran into opposition from many UHF stations not wishing to invest in higher powered transmitters.³⁴

The suggestion that many UHF station operators did not have confidence in UHF, supported in part by the number of UHF operators who turned in their CPs in order to gamble and apply for VHF channels in the same locality regardless of the number of competing applications, should not detract from the very real difficulties

³²Photofact index and technical digest, Vol. 3, No. 4, July-August 1953, p. 126. (Howard W. Sams, publisher). Much of this issue, designed for the radio and television serviceman's use, deals with UHF principles and problems.

³³U.S. Senate Commerce Committee, Potter Hearings, pp. 29-38. Or see Broadcasting, July 13, 1953, Vol. 45, No. 2, "What Happened in Roanoke?"

³⁴Television Digest, Vol. 10, No. 9, February 27, 1954, pp. 1-2. The "trial balloons" were launched by Commissioner Sterling at a meeting of the Institute of Radio Engineers. Sterling commented that: "I am not sure but what the FCC would be doing UHF a favor if it suspended authorizing any more 1-kw UHF transmitters." Television Digest, Vol. 10, No. 8, February 20, 1954, p. 1.

faced by these stations. The following sections will analyze some of these factors in detail, focusing attention upon those factors reported by UHF CP holders as the reasons for their actions in turning in their permits. In 1954, the Potter Committee sent letters to these firms and individuals. Some fifty replies were received, and inserted in the record of hearings. The reasons expressed (many reported more than one) included the following:

- 20 couldn't get network affiliations, "good" network affiliation, permanent affiliation, or affiliation on good financial terms.
- 17 saw little opportunity for successful competition with VHF stations, either in the same community or as far as 70 miles away.
- 9 felt that the market or area was too small, couldn't support any more stations even if they were VHF, in many cases.
- 8 couldn't get national and/or local advertisers, in addition to network troubles.
- 10 thought that set manufacturers weren't pushing UHF; that sets, converters, and conversions were too costly and of inferior quality.
- 4 blamed unavailability of equipment and delay in receiving transmitters, while
- 8 made disparaging remarks about transmitting equipment cost, probable obsolescence; and quality.
- 3 blamed lack of public acceptance of UHF,
- 5 had zoning or antenna site difficulties,
- 3 suffered from lack of capital, and

several other reasons were given, such as FCC red tape, approval of "quickie mergers" which permitted competing applicants for a VHF channel to merge and thus start a VHF station before the UHF station could become established, general "economics" of UHF, programming, and so on. Five of the respondents to the Potter Committee questionnaire said they gave up their CPs to apply for

VHF stations in the same general locality.³⁵

These immediate reasons for giving up UHF permits stem largely from the 1952 intermixture decision and from the technical differential between UHF and VHF. They break down into the attitudes and actions of the manufacturers, the roles of networks, and advertisers, and the unexpected competition from far-ranging VHF stations, boosters, satellites, and community antenna systems.

The role of the manufacturing industry

As the television "freeze" neared its end, the electronics manufacturing industry prepared for the expected demand for UHF transmitters and receivers. Although most manufacturers had at least initiated studies of the new principles to be incorporated into their existing sets, three factors led to a serious initial bottleneck in the production of UHF equipment. First, although the principles of UHF transmitting equipment were known (especially to those firms familiar with high-power radar and other UHF and SHF services), there were only a few--notably RCA and GE--that were willing to invest time and money in developing UHF transmitters, particularly those above 1-kw.³⁶ Second, many firms, and particularly their research and development staffs, were engaged in war work to the extent that little television engineering work could

³⁵The letters from these fifty respondents will be found in: U.S. Senate Commerce Committee, Potter Hearings, 1954, pp. 4-57.

³⁶In February 1952, the following UHF transmitter availabilities were reported by the manufacturers: DuMont, a 1-kw unit in "mid-1952"; Federal, a 1.5-kw unit by "mid-year"; GE, 100 watts by "third quarter" 1952; RCA, 1 kw due in "fourth quarter," 1952. Each was expecting to produce 10-12 kw units in 1953. Television Digest, Vol. 8, No. 5, February 2, 1952, p. 3. (Actual availability was in 1954.)

be done. Third, television receiver manufacturers³⁷ were, as a general rule (excepting "summer slumps" in sales), doing very well with VHF-only sets. Despite these reasons for expecting some difficulty in obtaining UHF receivers and transmitters, a survey of the industry in March 1952 brought out little information, but still led to the conclusion that UHF sets were "on tap," but waiting for UHF markets to open, since several minor attempts to market UHF sets before UHF stations were operating had been unsuccessful. Although the closed-mouth reaction to this survey was nigh-universal, there was good reason to believe that some sort of converter or all-channel set would be optionally supplied by virtually every manufacturer as soon as the freeze was lifted.³⁸

With all this optimism, it was something of a shock to the rapidly building UHF station operators that the manufacturers were "caught with their tuners down" when the first UHF station went on the air in Portland, Oregon.³⁹ For several weeks there was an acute shortage of sets, resulting in the introduction of all sorts of "field expedients" by the manufacturers. RCA, which supplied the transmitter, had the necessary forewarning, but still had to ship in its first 300 sets by air freight. Many other manufacturers discovered the new market when their distributors started

³⁷Financial troubles, sales slumps in the early 1950s, and the profitability of war work had caused a reduction in the number of TV manufacturers from 140 in 1950 to 110 in 1951 and 94 in 1952. Electronic Industries Association, Electronics industry fact book: 1959, p. 42.

³⁸Television Digest, Vol. 8, No. 11, March 15, 1952, pp. 1-3.

³⁹Television Digest, Vol. 8, No. 38, September 20, 1952, p. 8.

making frenzied demands for sets to sell.⁴⁰ Various types of converters and all-channel sets were sold, with varying pricing policies. Some manufacturers (notably Admiral) shipped carloads of VHF-only sets to Portland, planning to install strip converters before delivering them to dealers. A small advertising "war" took place, threshing out the merits of the "continuous tuner" sets and the convenience of "strip converters" which enabled only specific channels to be picked up. (Different interchangeable strips were to be purchasable in different UHF communities.) Television Digest commented that most "engineers generally agree that most of the present UHF devices are interim," and that both strips and hastily engineered tuners would give way to completely new built-in tuners within a year or two.⁴¹

Manufacturer experiences in Portland led to enthusiastic comments. Not only were thousands of sets sold, but the manufacturers' own field engineering crews could see for themselves that UHF would "do a job." Although most manufacturers had tried out prototype sets using the experimental RCA signal at Bridgeport, they waited until Portland set owners were reporting good reception and no complaints before publicly going all-out for UHF. Philco's TV sales head was quoted as saying "I'm frankly excited about UHF."⁴² Even RCA, which was extremely conservative in its initial estimates of the quality and coverage of the Portland UHF signal

⁴⁰The Portland demand was expected to be even greater than Denver, since metropolitan Portland (pop. 702,829) was nation's twenty-first market, while the Denver area, with a population of 563,832 was twenty-eighth--though the city of Denver itself had 415,786, Portland only 373,628.

⁴¹Television Digest, Vol. 8, No. 40, October 4, 1952, p. 3.

⁴²Television Digest, Vol. 8, No. 39, September 27, 1952,

(perhaps as a result of having more experience in broadcasting on UHF than anyone else), finally climbed on the "bandwagon" after analyzing its engineering reports and claimed that: "UHF looks better every day...First optimistic reports from Portland--which to many seemed almost too good to believe--are being solidly confirmed as more evidence comes in."⁴³ While waiting for more UHF markets to open, the manufacturers used Portland as a proving and battle ground for the various methods of translating a UHF signal into a TV picture. Continuous tuners, strips, "matchbox" converters--both "inboard" and "outboard"--were used. Selling receivers--"anything...that will pick up UHF"--was no problem in Portland, but the set and tuner manufacturers were staking their reputations while jockeying for position in the whole new nationwide UHF field.⁴⁴ As a result, when the Portland station owner came out in favor of continuous tuners rather than strips, he aroused the ire of some manufacturers and dealers already annoyed because of the suddenness with which he took the air. It was noticeable that he "became more noncommittal in his statements regarding efficacy of various types of tuning devices" after dealer protests reached him.⁴⁵

Some dealers were displeased with the manufacturers as well.

⁴³Television Digest, Vol. 8, No. 40, October 4, 1952, p. 3.

⁴⁴Portland did not suffer from the "dumping" of outmoded television sets in the way that Denver (first post-freeze market) did. The sale and attempted sale of "distress" merchandise caused the Denver franchised distributors and the Better Business Bureau to establish methods for informing the public. Television Digest, Vol. 8, No. 33, August 16, p. 9, and Vol. 8, No. 42, October 18, 1952, p. 3.

⁴⁵Television Digest, Vol. 8, No. 42, October 18, 1952, pp. 1-3.

At a convention of the National Electronic Distributors Association, "distributors were frankly impatient with manufacturers' inability to deliver the UHF goods." Some typical questions raised were: "Two stations will probably come on the air in our city (York, Pennsylvania) before anybody has equipment to receive them; what should we tell our customers?" "Why didn't you learn anything in Bridgeport?" "Why did the manufacturers miss the UHF boat--didn't they know it was coming?"⁴⁶

In addition to shortages of receivers, transmitters and such necessary items as antenna lead-in wire for the UHF frequencies, the quality of some of the apparatus produced for UHF was poor. It was agreed within the industry that current UHF sets weren't nearly as sensitive as the 1952 VHF receivers, thus further restricting the useful coverage area of the UHF station. At the NEDA convention, some 2,000 electronic distributors were told that: "Your customers should be made aware that they are pioneering UHF--that the early installations are not the ultimate."⁴⁷ The owner of the Portland UHF station wrote the RTMA that the electronics manufacturers' association should investigate UHF equipment with a view to establishing "minimum standards (to which) the manufacturers and service companies should be required to adhere."⁴⁸ That this was a continuing problem was evidenced in the angry 1954 letter from a UHF station operator in Asbury Park, New Jersey, to thirteen top receiver manufacturers, complaining of

⁴⁶Television Digest, Vol. 8, No. 39, September 27, 1952, p. 10.

⁴⁷Ibid., pp. 10-11.

⁴⁸Television Digest, Vol. 8, No. 42, October, 18, 1952, p. 3.

both quantity and quality, stating that he found:

a very, very definite sparsity of sets equipped to receive UHF..As a matter of fact, most of your dealers have no UHF sets and tell their customers (and our potential listeners) that it will be many months before they can serve them. (Converters supplied by the set makers are) admittedly inefficient, and in many cases inoperative...This equipment, which in theory is to receive our signal under all normal conditions, is so badly engineered that it takes the optimum conditions of installation to bring in a satisfactory signal... (and, the manufacturers service organizations are) badly trained, ill-prepared, disinterested, and generally lethargic.⁴⁹

In 1955, FCC Chairman McConaughy announced that the Commission was interested in the possibility of "improving the sensitivity of UHF receivers," using moral suasion on the manufacturers.⁵⁰ The development of more sensitive UHF receivers apparently continued, with the greatest advance coming between 1954 and 1956 when "significant progress had been made in the reduction of inherent receiver noise for UHF receivers." Still, in terms of voltage sensitivity, UHF sets were only one-half as sensitive as VHF.⁵¹ Little improvement was reported by a Television Allocation Study Organization (TASO) Panel in late 1958, which reported that the average UHF set, while susceptible to engineering improvements, was inferior in many respects to a VHF-only receiver.⁵²

⁴⁹Television Digest, Vol. 10, No. 39, September 25, 1954, p. 9.

⁵⁰Television Digest, Vol. 11, No. 22, May 28, 1955, p. 10.

⁵¹U.S. Senate Commerce Committee, Bowles Report, pp. 242-244.

⁵²Television Digest, Vol. 14, No. 45, November 8, 1958, p. 15. The following criteria were used and in each case UHF was inferior: antenna and transmission line efficiency, noise factor, image ratio performance, tuner bandwidth and five-minute warmup drift.

TABLE VI-4
TELEVISION RECEIVER PRODUCTION^a

Year ^b	Total Sets in Use ^{c,d,e}	Per Cent Satur- ation ^f	Production		
			Total Production ^g	UHF Production ^h	
				No.	% ⁱ
1946	5,000	.02	6,476	--	--
1947	150,000	.4	178,571	--	--
1948	1,010,000	2.3	975,000	--	--
1949	3,660,000	9.0	3,000,000	--	--
1950	9,690,000	23.5	7,463,800	--	--
1951	15,300,000	34.2	5,384,798	--	--
1952 ^k	20,830,000	44.7	6,096,279	100,000	1.6
1953 (total)	26,140,000	55.7	7,214,787	1,459,475	20.2
1st half			3,626,046	556,961	15.7
3rd quarter			1,898,324	362,941	19.1
4th quarter			1,690,417	539,573	31.9
1954 (total)	31,820,000	64.5	7,346,715	1,383,486	18.8
1st quarter			1,447,110	337,429	23.3
2nd quarter			1,398,037	n.a.	
3rd quarter			1,888,168	n.a.	
4th quarter			2,613,400	n.a.	
1955 (total)	37,435,000 ^l	71.8	7,756,521	1,181,788	15.2
1st quarter	33,269,000		2,188,252	n.a.	
2nd quarter	34,011,000		1,740,541	n.a.	
3rd quarter	33,353,000		1,931,713	n.a.	
4th quarter	(37,466,000)		1,996,015	n.a.	
1956	42,360,000	78.5	7,387,029	1,035,236	14.0
1957	46,015,000	83.2	6,421,804	779,800	12.2
1958 (total)	49,715,000	85.8	4,920,000	418,256	8.5
1st quarter	46,898,000		1,221,299	121,213	9.9
2nd quarter	47,229,000		946,631	88,513	9.3

^aFigures for 1946-1949 may be understated by 15-20 per cent, as they only apply to EIA (RMA) membership. Figures after 1950 are estimates for the entire industry.

^bData as of end of period or year listed.

^cSets-in-use data by Frank W. Mansfield, Director of Marketing Research, Sylvania Electric Products, Inc. Printed in Television Factbook. No. 27.

^dDoes not agree with NBC sets-in-use figures. (Note: Several thousand pre-war sets in use.)

^eNot including color sets (435,000 in use end of 1958; 275,000 in 1957; 150,000 in 1956).

^fSaturation estimates from NBC Research Department, printed in Television Factbook.

TABLE VI-4 (continued)

Factory Sales ^j			Factory Inventory ^j		
Total Factory Sales	UHF Factory Sales	%	Total Inventory	UHF Inventory	%
	No.	%		No.	%
n.a.	--	--	n.a.	--	--
n.a.	--	--	n.a.	--	--
n.a.	--	--	n.a.	--	--
n.a.	--	--	n.a.	--	--
7,355,100	--	--	143,800	--	--
5,311,888	--	--	216,710	--	--
6,193,644	n.a.	n.a.	119,345	n.a.	n.a.
6,870,068	1,339,914	19.5	(465,104)	(147,542)	(31.7)
3,260,118	487,931	15.0	693,490	23,135	3.3
1,862,849	360,381	19.3	520,748	99,571	19.1
1,747,101	491,602	28.1	465,104	147,542	31.7
7,404,578	(1,471,480)	19.9	(407,241)	(59,548)	(14.6)
1,610,320	379,192	23.5	301,894	105,779	35.0
1,151,612	263,705	22.9	548,319	141,101	25.7
1,997,875	349,724	17.5	438,612	79,232	18.1
2,644,771	478,859	18.1	407,241	59,548	14.6
7,738,062	1,175,428	15.2	(425,700)	(65,588)	(15.4)
2,140,977	316,153	14.8	454,516	77,433	17.0
1,175,766	151,142	12.9	919,291	150,735	16.4
2,348,197	377,882	16.1	502,807	82,014	16.3
2,073,122	330,251	15.9	425,700	65,588	15.4
7,351,040	1,026,985	14.0	461,689	73,839	15.9
6,387,762	773,291	12.2	473,272	80,348	17.0
5,051,060	435,116	8.6	362,510	58,906	18.6

^eData from EIA. Annual data in Television Factbook.

^hData from EIA. U.S. Senate Commerce Committee, Potter Hearings, p. 216; FCC Recommendations on Allocations, to Congress, April 23, 1959, Statistical Appendix A.

ⁱPercentages apply to total production, factory sales or inventory.

^jData from EIA. Ibid., p. 217; U.S. Senate Commerce Committee, Television Inquiry, Hearings, 84th Congress, 2nd Session, Part 2, p. 724; 1956-1959 data from letter to the author from W. F. E. Long of EIA, March 18, 1959.

^kFreeze ended, April, 1952; first UHF station on air, Sept.

^lRevised figures from Television Factbook No. 27, quarterly figures from No. 26.

TABLE VI-4-A

TELEVISION RECEIVER PRODUCTION: UHF AS PER CENT OF TOTAL

Date	UHF as Per Cent of Total Production	UHF as Per Cent of Factory Sales	UHF as Per Cent of Factory Inventory
1952 total	1.6	n.a.	n.a.
1953 January-June	15.7	15.0	3.3 (3.7 in May)
1953 July	12.5	17.7	14.9
August	17.2	16.6	15.6
September	25.1	22.0	19.1
October	29.8	25.7	25.2
November	35.2	32.4	28.4
December	31.0	26.6	31.7
1954 January	28.6	26.5	35.6
February	21.6	23.0	37.9
March	20.8	21.3	35.0
April	16.3	17.5	32.2
2nd Quarter	n.a.	22.9	25.7
3rd Quarter	n.a.	17.5	18.1
4th Quarter	n.a.	18.1	14.6
1955 1st Quarter	n.a.	14.8	17.0
2nd Quarter	n.a.	12.9	16.4
3rd Quarter	n.a.	16.1	16.3
4th Quarter	n.a.	15.9	15.4
1956 January	n.a.	13.4	16.4
1956 total	14.0	14.0	15.9
1957 total	12.2	12.2	17.0
1958 January ^a	11.8	n.a.	n.a.
February	9.2	n.a.	n.a.
March	8.7	n.a.	n.a.
April	7.4	n.a.	n.a.
May	11.0	n.a.	n.a.
June	9.8	n.a.	n.a.
1958 total	8.5	8.6	18.6
1959 January ^b	n.a.	9.7	16.2

n.a. = not available

^aData from EIA, U.S. Senate Commerce Committee, Television Inquiry, Hearings, 85th Congress, 2nd Session, Part 6, p. 4199.

^bData included in letter to author from EIA, March 18, 1959.

In spite of the problems of inefficient equipment, the prime need of UHF station operators was audiences. The manufacture of all-channel sets of any quality was encouraged, together with the conversion of existing receivers. The manufacturers, in the first flush of enthusiasm over Portland, expanded their receiver production. The proportion of UHF receivers rose from 15.7 per cent in the first half of 1953 to a high point of over 35 per cent in November of that year. By that time, however, UHF stations were beginning to realize their inability to compete with VHF stations in the same market. The demand for receivers capable of picking up UHF declined, as inventories in factory warehouses mounted. (See Tables VI-4 and VI-4-A). Various presidents of the RETMA (formerly RMA, later EIA) maintained that:

It is apparent...that manufacturers generally have maintained a more than adequate supply of UHF sets....a greater supply of UHF sets than consumers demand.⁵³

The set manufacturers have made and sold as many VHF-UHF receivers as the public will buy. The statistics indicate that for a while we made substantially more VHF-UHF sets than we were able to sell, and the manufacturers were forced to reduce their optimistic UHF production schedules.⁵⁴

The statistics summarized in Tables VI-4 and VI-4-A apparently justified this conclusion by the manufacturers. During the first quarter of 1954, UHF-equipped sets represented 23.5 per cent of factory sales, but they also made up 35 per cent of factory inventories, a sure sign of overproduction.

⁵³Hoffman, H. Leslie, President of RETMA, Testimony before U.S. Senate Commerce Committee, Television Inquiry hearings, March 16, 1956 (Part II, p. 716).

⁵⁴McDaniel, Glen, President of RETMA, Testimony before U.S. Senate Commerce Committee, Potter Hearings, May 19, 1954, p. 216.

By 1956, the RETMA estimated that some 22 per cent of all receivers could pick up UHF signals, while approximately 21 per cent of all households were within range of a UHF station.⁵⁵ It is not to be expected that all of these receivers were equipped for UHF at the factory. Millions of VHF-only sets were converted in the field, by means of various devices--chiefly strips which could be installed upon existing tuners of some types, or complete tuning converters that were mounted within or near the television set and connected to the original antenna terminals--which differed with manufacturers. In 1953, the ratio of factory equipped to field converted sets was on the order of three conversions for every two factory-equipped receivers.⁵⁶ April 1954 estimates proclaimed that there were over two million field conversions, as compared to about 1,645,000 VHF-UHF sets produced.⁵⁷ By the end of 1956, it was estimated that over 4.5 million sets capable of UHF reception had been turned out, and some four million sets had been converted in the field.⁵⁸ The early preponderance of field conversions led the industry to adopt the term "conversion" as meaning the ratio of all-channel to VHF-only sets in any given market.

These conversions, which were absolutely necessary in those

⁵⁵Hoffman, H. Leslie, Testimony before U.S. Senate Commerce Committee, Television Inquiry, March 16, 1956, Part II, p. 715.

⁵⁶Television Digest, Vol. 9, No. 45, November 7, 1953, p. 6.

⁵⁷Television Digest, Vol. 10, No. 17, April 24, 1954, p. 6.

⁵⁸Hoffman, H. Leslie, Testimony before U.S. Senate Commerce Committee, Television Inquiry, March 16, 1956, Part II, p. 715.

markets where VHF had had a head start and a large number of VHF-only sets were in the hands of the public, were the greatest handicap of a UHF station operator. If he had the cooperation of the local receiver dealers and distributors, complete UHF set ownership could be expected after the end of the usual seven to eight year "wear-out" period. No station owner, of course, could afford to wait that long, with no guarantee of profits even with full conversion, if there was to be competition with more than one VHF station. Even strenuous NBC efforts in Buffalo to achieve UHF success with its station WBUF were of no avail, with a \$100,000 promotional campaign for conversions showing slow response (a rise from roughly 30 per cent to 60 per cent in a year).⁵⁹

One of the chief problems of set conversion was the cost of installing the converter and, in most cases, a new antenna. Utilizing wholesale prices and minimum equipment, conversion to receive a local station would cost about \$20, while the more typical installation, including converter, antenna and service calls, ran about \$50. This high cost (even higher in the case of stations more than 20-25 miles away) led to special UHF installment or finance plans,⁶⁰ and also to a blast from the president of WRTV, Asbury Park, New Jersey, who complained of "Cadillac

⁵⁹Television Digest, Vol. 12, No. 32, August 11, 1956, p. 4; Vol. 12, No. 38, September 22, 1956, p. 9; Vol. 13, No. 7, February 16, 1957, p. 5. Despite major efforts, low-cost converters and door-to-door canvassing, NBC was unable to break even with this UHF outlet in the face of competition from two VHF stations. Accordingly, the station went off the air on September 30, 1958, about two and a half years after NBC purchased it. (Television Digest, Vol. 14, No. 24, June 14, 1958, p. 2). For details of the promotion plan of WBUF, see Weakley, Thomas E. "UHF." Printers Ink, December 7, 1956.

⁶⁰Television Digest, Vol. 9, No. 51, December 19, 1953, p. 13.

prices" and called the overcharges "shortsighted business and detrimental to the entire TV industry."⁶¹ To combat this situation, he established a "WRTV Seal of Approval" which was awarded to dealers and servicemen making quality installations at realistic prices.⁶²

In spite of the manufacturing industry's claim that they built all the sets the public demanded, UHF station operators complained with a great deal of justification that one reason for poor public demand was that the manufacturers were not "pushing" UHF. For instance, although RCA claimed to be making all-channel receivers at a rate 40 per cent above the industry average, there was little sign of any promotion of UHF by RCA on anything like the same scale as its relatively unsuccessful and expensive promotion of color.⁶³

Since UHF was a phenomenon of a limited number of local markets serving less than one-fifth of the population, little in the way of national advertising was conducted by the set manufacturers. It was left largely to the local station to promote the use of UHF, with whatever local distributor and dealer help he could muster. The most ambitious scheme proposed on this level

⁶¹Television Digest, Vol. 10, No. 2, January 9, 1954, p.13.

⁶²Television Digest, Vol. 10, No. 13, March 27, 1954. This scheme was unsuccessful, with the station owner writing a previously mentioned very critical letter to each of thirteen major manufacturers about set availability, quality and price. WRTV left the air in March 1955, with only some 8-12 per cent conversions due chiefly to the proximity of New York City's seven VHF stations. (Television Digest, Vol. 11, No. 13, March 26, 1955, p. 4).

⁶³Engstrom, Elmer W. (RCA). Testimony before U.S. Senate Commerce Committee, Television Inquiry, March 15, 1956, Part II, p. 691.

was to "seed" an area with a large proportion of free or very low price converters in order to both provide an initial audience and also stimulate further conversions. The great cost of such an undertaking restricted consideration of "seeding" to wealthy potential station operators like Benedict Gimbel in Philadelphia,⁶⁴ and Storer Broadcasting Company in Miami.⁶⁵ In Philadelphia, the cost was deemed much too high, even at a mass-produced one-channel converter price of \$10. There is reason to believe, however, that some UHF operators did arrange to sell converters at wholesale through regular dealer and serviceman channels.⁶⁶ Most dealers were willing to forego the profit on a converter if antenna and installation work increases resulted, and if future (after the initial "seeding") converter or all-channel sales were theirs.

Some station owners ran into difficulties with converter manufacturers and local dealers in their attempts to obtain greater set conversion. For instance, this Texas operator had applied for his UHF channel with the plan of broadcasting to the Spanish speaking population of San Antonio and vicinity. He:

had the promise of the industry that they would supply sufficient converters at the extreme expense to my people from \$50 to \$79 to convert their sets, so they could view Spanish television....A year later, gentlemen, converters started playing haywire and no equipment was available. The servicemen went out and charged them for every call \$7, and told them 'Well, you need a tube, but there are none to be had.' The converter we used was Mallory--it is discontinued. The merchant would not see fit to bring in complete television bands

⁶⁴Television Digest, Vol. 8, No. 18, May 3, 1952, p. 3.

⁶⁵Television Digest, Vol. 10, No. 49, December 4, 1954, p. 6.

⁶⁶Television Digest, Vol. 10, No. 9, February 27, 1954,

for UHF because they carried about \$20 to \$27 more than the regular VHF band. So my people had those expenses and threw them all away. The results are at this stage, we don't have 10,000 viewers in our television station.⁶⁷

Except for a few months in 1953 and 1954, the manufacturing industry has conducted a "holding operation" with respect to all-channel receivers. Although roughly enough sets were produced annually to meet the demand, the industry did little or nothing to stimulate this demand or promote the sale of all-channel receivers in intermixed areas. This is in contrast to the industry's activities in the late 1940s when television was new to the public or the extensive RCA promotion of color television today.⁶⁸ Along with this lack of enthusiasm on the part of the manufacturer, the UHF station operator must also overcome active promotion of VHF-only sets, meet problems of obtaining the desired merchandise at the desired time, a relatively large price differential between VHF-only and all-channel sets, and, to add to his woes, poor technical quality in all-channel television receivers.

The roles of the networks and advertisers

As early as NBC's 1952 affiliation of the first UHF station on the air (Portland), there was talk that the networks and

⁶⁷Cortez, Raoul A. (President KCOR, Inc., San Antonio, Texas). Testimony before U.S. Senate Committee on Interstate and Foreign Commerce, Educational Television, Hearings, 85th Congress, 2nd Session on S. 2119. April 24, 1958, pp. 78-79. KCOR is still on the air, but it is easy to see why Cortez said, in discussing converters: "That to me, gentlemen, forgiving the word, is a racket." (p. 81).

⁶⁸However, it so happens that virtually all of the thousands of color sets made by RCA have included all-channel tuners. A pledge to this effect was made by RCA in 1953 to the FCC in its Petition of Radio Corporation of America and National Broadcasting Company, Inc. for approval of color standards for the RCA color television system. June 25, 1953, p. 19.

station representatives were actually "lukewarm" towards UHF.⁶⁹ On the surface, NBC, CBS, and ABC had all signed affiliation contracts with various UHF stations, and NBC had already filed a petition looking forward to owning a UHF station,⁷⁰ yet rumblings of standoffishness were being heard by UHF grantees from network station-relations men.

The relation of network to station and station to network is a matter of life or death for both. A network cannot survive without outlets in the various major markets of the land. A station finds it difficult (and a UHF station finds it practically impossible) to survive without network affiliation. The advertiser on a national network wants the greatest possible audience--which is dependent both upon quality of programming and coverage by the individual stations which make up the network. The pattern which emerges from this welter of demands is one that favors the already-strong network or station.

Intermixture proved to be a major stumbling block in the path of both networks and stations. Due to the disparity of coverage of UHF and VHF transmissions, the number of VHF stations in the market largely determined the number of networks to have outlets, regardless of the UHF channels assigned that market or UHF stations operating. In turn, the absence of a network affiliation was fatal to most UHF stations in competition with affiliated VHF stations.

⁶⁹Television Digest, Vol. 8, No. 39, September 27, 1952, p. 3.

⁷⁰Television Digest, Vol. 8, No. 1, January 5, 1952, p. 1. The then-current FCC rules on multiple ownership restricted owners to five stations. NBC's petition asked that that limit be lifted to enable it to acquire some UHF stations.

With an affiliation, a UHF station could usually hold its own with unaffiliated VHF stations, due to the superior programming obtainable, network revenues, and the sale of "spots" adjacent to network programs.

During the freeze, when markets containing more than two stations were scarce,⁷¹ the average station reveled in a favorable position. The networks were in the position of trying to gain more and more outlets, and were often forced into accepting secondary affiliations of a sort which gave them no assurance that a station would be likely to clear time for their programs. The two strongest networks, CBS and NBC, had both financial resources and programming, based on radio network successes for the most part. The other two television networks, DuMont and ABC, had to be grateful for the secondary affiliations they so often had to accept. The only factor that kept four networks in operation with only 108 stations, was the expectation of success and profits after the end of the freeze, when new markets would open up, and there would be a sufficient number of stations in each for all four networks.

Unfortunately for the two smaller networks, the principle of intermixture made it doubtful whether three networks could find enough competitive (e.g., all VHF) outlets in the same major markets, much less four. DuMont, realizing its peril as a network,

⁷¹The 108 pre-freeze stations were distributed as follows: two seven-station communities, two four-station communities, eight three-station communities, eleven two-station communities, and thirty-nine one-station communities. Thus, each of the four networks could have an exclusive affiliate in only four communities (New York, Los Angeles, Washington, and Chicago).

had labored throughout the freeze hearings to get the FCC to adopt its allocation plan, which called for non-intermixed communities wherever possible, with a larger number of communities assigned four channels than the FCC's plan called for.⁷² Under the Sixth Report and Order, only seven four-VHF-channel communities existed, hardly enough to support four networks. If four, or even three, nationwide networks were to exist, the UHF must be used and:

it must be obvious that during the not inconsiderable growth period of UHF, network A with UHF outlets in Chicago, San Francisco, and Boston would be under a crippling competitive disadvantage vis a vis network B with VHF outlets in those three cities and it is quite possible that the Commission's allocation plan will as a matter of practical necessity permit the development during the critical formative years of only two full nationwide competing television networks...⁷³

Such proved to be the case. One of the four networks, DuMont, dissolved in 1955, while ABC (with a large number of UHF affiliates) was in serious financial difficulties until a merger with a motion picture company (United Paramount) and the improved programming which came with better financing gave it a new lease on life. The DuMont network, which was estimated to have lost

⁷²The DuMont plan established 172 four-station markets, non-intermixed (ninety-seven all-VHF, seventy-five all-UHF), with all but twelve of the top 100 markets assigned at least four stations. In contrast, the Sixth Report and Order only allowed for fifty-one communities with four stations, all but seven of them intermixed! The FCC plan did provide an additional fifty-six communities with at least three commercial channels, thirty of them intermixed. Thus, the FCC plan provided only thirty-three communities where even three networks could compete, each with its own affiliate, using equal (VHF) technical facilities (or 107 communities on an intermixed basis). In fairness to the Commission it must be remembered that it allowed for a number of educational reservations which were ignored by DuMont. If the fact that some channels were reserved is ignored, there would be ninety-two four-station communities and seventy-two three-station communities, for a total of 164 as compared to DuMont's 201. Most of the FCC's assignments were intermixed, however.

⁷³U.S. FCC. Sixth Report and Order in Dockets 8736, et al Para. 256 (d).

some sixteen million dollars since its formation (over five million dollars in 1954 alone),⁷⁴ was cut back from a nationwide network with some 213 affiliates (mostly secondary) to some fifteen cities (plus some off-the-air pickups and filmed programs on a non-synchronous basis) in the first month of 1955.⁷⁵ This followed hard on the sale of the DuMont-owned Pittsburgh station (WDTV) to Westinghouse for the unprecedented sum of \$9,750,000, a profitable sale on a short-term basis but hardly of help to the network, which had been supported largely on the earnings of the DuMont-owned New York, Washington, and Pittsburgh outlets.⁷⁶ In March, DuMont further curtailed the network to provide live service only to those stations between New York and Washington,⁷⁷ with the entire network formally ending operations on September 15, 1955. At this time, the DuMont broadcasting operation was separated from the parent manufacturing and laboratory company, and was later to operate under a new name, but not as a network.⁷⁸ Few stations suffered as a result of the DuMont network demise, as only a few programs were carried on any but the half-dozen or so key stations of the network, with most broadcasters relying upon CBS, NBC, and ABC.

p. 2. ⁷⁴Television Digest, Vol. 11, No. 33, August 13, 1955,

3-4. ⁷⁵Television Digest, Vol. 11, No. 1, January 1, 1955, pp.

p. 1. ⁷⁶Television Digest, Vol. 10, No. 49, December 4, 1954,
See Table VI-B-A.

⁷⁷Television Digest, Vol. 11, No. 13, March 26, 1955, p. 3.

p. 16. ⁷⁸Television Digest, Vol. 11, No. 42, October 15, 1955,

TABLE VI-5
 NETWORK TELEVISION BILLINGS^a
 (1949-1958)

Year	CBS	NBC	ABC	DuMont	Total
1949	\$ 3,446,893	\$ 6,500,104	\$ 1,391,991	\$ 955,525	\$ 12,294,513
1950	12,964,531	21,185,692	6,628,662	n.a.c	40,778,885
1951	42,470,844	59,171,452	18,585,911	7,761,506	127,989,713
1952	69,058,348	83,242,573	18,353,003	10,140,656	180,794,780
1953	97,466,809	96,658,551	21,110,680	12,374,360	227,610,400
1954	146,222,660	126,074,597	34,713,098	13,143,919	320,154,274
1955	189,018,121	163,384,796	51,393,434	3,102,708 ^d	406,899,059
1956	223,520,382	187,921,123	76,726,129	---	488,167,634
1957	239,284,899	193,845,383	83,071,284	---	516,201,566
1958 ^b	247,782,734	215,790,729	103,016,938	---	566,590,401

^aData from Publishers' Information Bureau, reported in Television Factbook No. 28, Spring-Summer, 1959. These figures do not represent revenues to the networks, which do not divulge their actual net dollar incomes. They are compiled on the basis of one-time network rates, or before frequency or cash discounts, so in terms of dollars actually paid may be inflated by as much as 25 per cent. The 1952 figures also do not include revenues from July national political conventions.

^b1958 data from TV Bureau of Advertising (TvB), on the same basis as the PIB reports for 1949-1957.

^cNot available, but Television Factbook reports that DuMont reported total 1950 network revenue as \$4,500,000.

^dEffective September 15, 1955, DuMont (now Metropolitan Broadcasting Corp.) changed from a national network to a local operation, after operating on an extremely limited basis throughout 1955.

TABLE VI-5-A

PROFITS OF NETWORK-OWNED STATIONS AND NETWORKS
BEFORE FEDERAL INCOME TAXES--1953-1955^a

Network	1953		
	Stations	Network	Total
CBS ^b	\$ 7,008,030	\$ 4,877,123	\$11,885,153
NBC ^c	8,464,222	382,111	8,846,333
ABC ^d	2,478,078 ^e	(4,383,799)	(1,905,721)
DuMont ^e	2,988,940 ^h	(3,807,362)	(818,422)
1954			
CBS	12,276,443	13,101,169	25,377,612
NBC	12,018,394	4,017,896	16,036,290
ABC	4,318,823	(6,823,085)	(2,504,262)
DuMont	2,852,795 ⁱ	(5,140,061)	(2,287,266)
1955			
CBS	14,505,459 ^f	20,365,378	34,870,837
NBC	15,576,533	14,602,816	30,179,349
ABC	5,108,314	481,138	5,589,452
DuMont	(1,048,753) ^j	(1,521,865) ^k	(2,570,618)

Note: All network owned-and-operated stations excepting those mentioned in footnotes f through j were profitable. () represents loss.

^aSources: 1953 and 1954 from U.S. Senate Commerce Committee. The Network Monopoly, Report by Senator John W. Bricker, 84th Congress, 2nd Session (April 30, 1956), Appendix Chart I. 1955 data compiled by Television Digest, Vol. 12, No. 28, July 14, 1956, pp. 1-2, from data supplied to the Anti-trust Subcommittee of the U.S. House Committee on the Judiciary.

^bOwned stations in New York, Los Angeles, Chicago, and a UHF station in Milwaukee purchased in 1955.

TABLE VI-5-A (continued)

(Footnotes)

^cOwmed stations in New York, Los Angeles, Chicago, Washington, and Cleveland.

^dOwmed stations in New York, Los Angeles, Chicago, San Francisco, and Detroit.

^eOwmed stations in New York, Washington, and Pittsburgh.

^fIncludes Milwaukee UHF, which showed a loss of \$129,642 for 1955. The most profitable station in 1955 was WCBS-TV in New York, which made a profit of \$9,375,339.

^gLos Angeles and New York showed a loss between them of \$1,094,049.

^hIn 1953, Washington showed a loss of \$23,648; New York made a profit of only \$34,246.

ⁱNew York and Washington, between them, lost a total of \$171,080 in 1954.

^jPittsburgh, the only profitable DuMont station, was sold for \$9,750,000 in December 1954 to Westinghouse.

^kThe DuMont network operation did not operate extensively in 1955, ceasing operations entirely on September 15.

The relative positions of the four networks, in terms of gross billing (which is an index of relative amount of commercial business rather than an absolute figure of the network's profitability), is shown in Table VI-5. In every case, much if not all actual profit of a network broadcaster comes from the stations it owns and operates, rather than the network business per se. Table VI-5-A offers profit and loss figures for the networks.

Although the two smaller networks had problems of equal access to major markets, the UHF stations had even more trouble obtaining network programming. In the thirty-four intermixed cities of March 1954, sixteen UHF stations (of a total of forty-three) in fifteen of the cities carried an average of only 2.6 hours of the eleven network hours which contained the "top ten programs" (all of which happened to be on CBS and NBC). All the other hours were carried on the VHF outlets in these intermixed communities, where thirty-nine stations broadcast the "top ten" programs an average of five hours apiece. When total network hours are considered, the disparity between network program availability between UHF and VHF is even more striking. In the thirty-four intermixed cities, the thirty-nine VHF stations carried an average of 44.6 hours of network programs per week, while the forty-three UHF stations only carried an average of 13.9 hours, with four of the UHF stations carrying no network hours at all.⁷⁹ When all communities are analyzed, comparable 1954 figures indicate that in cities over

⁷⁹Statistical appendix to the testimony of Chairman Hyde of the FCC before the U.S. Senate Commerce Committee, Potter Hearings, May 19, 1954, compiled from data in Tables 11 and 11-a, on pp. 163-164.

250,000 a UHF station will carry, on the average, only half as many network hours as a comparable VHF station.⁸⁰

The tendency of the networks to prefer affiliation with VHF stations rather than UHF, even if it means that the VHF station must be shared with another network or networks, was the largest single source of complaint by UHF station operators during the Potter Committee hearings. Nearly every UHF witness described the difficulties he had in obtaining, trying to obtain, or retaining a network affiliation in the face of VHF competition.⁸¹ Without network affiliation it was virtually impossible to obtain any national spot advertising, without which no television station has been able to operate at a profit, regardless of local business.

The attitudes and interrelations of the networks and the advertisers were clearly expressed by FCC Chairman McConnaughey under questioning by the House Appropriations Committee in 1957:

Rep. Yates: Do broadcasting chains draw a distinction between UHF's and VHF's? Are they more inclined to give their franchises to a VHF than to a UHF?

Chairman McConnaughey: It is basically the buyers of time.

Yates: I know that.

McConnaughey: Their wishes will be reflected. That is reflected in what the chains do and, therefore, what chance has a UHF got?

⁸⁰Ibid., Table 10, p. 163.

⁸¹Due to the many shared-time and "first-call on programs" network affiliation contract types, it is difficult to present meaningful statistics. However, the number of networks serving the 108 prefreeze stations was as follows: six stations had none (New York and Los Angeles), forty-seven had one, fourteen had two, twenty-four had three, and seventeen had four affiliations on May 31, 1954. In 1950, thirty-nine had one, seventeen had two, fourteen had three and thirty-one had four. (U.S. Senate Commerce Committee. Potter Hearings, p. 547, Exhibit 8 to testimony of Benedict Cottone, representing UHF interests.)

Yates: What chance?

McConnaughey: It has a pretty difficult time except in a UHF area. In other words, let us suppose that you are the buyer for Coca-Cola. You are not interested in John Jones or Bill Green in the hinterland. You are buying time on VHF because you will get the most coverage with VHF.

Yates: Do you have control over the broadcast networks?

McConnaughey: None whatsoever, only over their stations..

Yates: ...Counsel just stated that the Federal Communications Commission Act was a competitive act.

Commissioner Doerfer: The broadcasting feature of it.

Yates: Well...it was pointed out that the networks are, in accordance with the wishes of their buyers, inclined to give their programs to the VHF stations. Isn't this a factor in the whole competitive picture which would permit Commission jurisdiction to attach?

Doerfer: I doubt whether under the provisions of the act we could tell a network that it must give an affiliation contract to any station, whether UHF or VHF....

Yates: Has the Commission ever tried to regulate the networks?

FCC General Counsel Baker: To a degree, indirectly, because of the fact that every network presently is a station licensee. There is no question that if the networks were not station licensees, the Commission could not regulate them at all.⁸²

By August 1953 the problem of both major networks stringing along with the same VHF station (even when there was a UHF station in the same market) had become acute. The FCC was reported to be quietly looking into the problem, as a result of informal yet bitter complaints by UHF operators in markets with a

⁸²U.S. House Committee on Appropriations. Hearings on Independent Offices Appropriations for 1958, 85th Congress, 1st Session, Part 2, Federal Communications Commission, February 15, 1957, pp. 1259-1261.

VHF station. Some UHF operators threatened to see what could be done about licensing the networks, or in some way regulating them, as far as their affiliation policies were concerned. The position of the networks was best expressed by CBS station relations vice-president Herbert Akerberg:

We're convinced that the time is coming when the public won't differentiate between VHF and UHF. But we have an obligation to the public, which bought VHF sets in good faith; we'd be the last ones to pull the cork, to tell these people, "If you want to see Lucy, Godfrey and the Wednesday night fights you'll have to spend \$25, \$50 or \$80 to convert your set." The public is the most important factor.

Our second obligation is to our advertisers. They want maximum circulation. And we can't take our shows off VHF--losing our audience while we wait for conversion of sets--and still remain competitive.

When a UHF station can demonstrate substantially equal circulation to the VHF, at as good or better cost per thousand viewers, there's no problem. But we can't go whole hog merely to build up an audience for UHF stations at the expense of the viewing public.⁸³

With this point of view, it is no wonder that CBS established a policy of settling for a secondary affiliation with a VHF station rather than give primary affiliation to UHF, which could never compete in terms of the criteria quoted above. However, the threatened FCC investigation (which never got to hearing stage) caused the larger networks partially to reverse their policy and supply programs to UHF stations on an ever-increasing scale, while still preferring VHF stations as primary affiliates wherever possible. ABC was affiliating a great many UHF stations to gain market access. Early "showcase" affiliations were CBS signing a UHF station in intermixed Milwaukee, and NBC switching affiliation

⁸³Television Digest, Vol. 9, No. 31, August 1, 1953, Pp. 1-3.

from a VHF station to a UHF station in Norfolk, Virginia.⁸⁴ Although the FCC sent out a series of "fact-finding" letters to networks, stations and manufacturers, this was not enough encouragement to stem the tide of UHF stations returning their construction permits (see Table VI-1), even though the Commission's economic study reported that both postfreeze VHF and UHF were losing money at about the same rate (see Table VI-2).

To counteract the bad impression of the networks left by UHF testimony during the Potter Hearings and the bitter statements made by UHF stations leaving the air, the networks publicly stated their own views before the Potter subcommittee. In general, their "solutions" included deintermixture and stimulation of all-channel receiver production (through excise tax removal), as well as allowing multiple-station owners. All the networks opposed suggestions that they be regulated by the FCC in such a way as to give UHF stations an equal chance for network programming. CBS President Stanton, in particular, reiterated his position that many proposals aimed at helping UHF would actually depress all television to the lowest common denominator and would ultimately help only the competing media. ABC, more vitally concerned about network access to markets, suggested that three additional VHF channels could be obtained from the FM band, leaving the remaining two megacycles "to accommodate all the FM stations now in operation, and squeeze in additional VHF channel assignments by use of directional antennas, lower power, and commercial use of unused

⁸⁴ Television Digest, Vol. 9, No. 35, August 29, 1953, p. 4.

educational reservations.⁸⁵ DuMont also favored equal access to VHF stations in all markets for the four networks, suggesting a plan whereby all stations would get equal amounts of network programs and networks would get equal time on all stations within a given market, with the entire scheme under over-all Federal control.⁸⁶ The network position was supported by the supervising time-buyer of the giant J. Walter Thompson advertising agency who claimed that the agencies "are extremely anxious that UHF be successful" because advertisers needed TV very badly in areas where there had been no television or only one VHF station. Breaking down some of the J. Walter Thompson agency's typical network shows, he pointed out that one used forty UHF stations, while others used sixteen, fourteen, eleven, ten, and nine. He concluded by saying that agencies judged UHF stations "in exactly the same manner as other local media."⁸⁷

Once it appeared that the networks had little to fear from Senator Bricker's views on network regulation (Democratic victories at the polls in 1954 removed Bricker from the Senate Commerce Committee chairmanship), CBS and NBC appeared willing to alleviate the programming problems of smaller stations, both UHF and VHF. The "Extended Market Plan" (CBS) and the "Program Service Plan" (NBC) each provided many smaller stations, not normally ordered by

⁸⁵Television Digest, Vol. 10, No. 25, June 19, 1954, pp. 4-5.

⁸⁶Television Digest, Vol. 10, No. 21, May 22, 1954, p. 4.

⁸⁷Luce, Jim. "Is Madison Avenue selling UHF short?" from Broadcasting, cited in Television Digest, Vol. 10, No. 31, July 31, 1954, p. 6.

advertisers, with network programming. This provided an opportunity for the station to sell spots adjacent to the network programs to local or national advertisers.⁸⁸ At the same time, however, affiliations were being switched from some of those UHF stations lucky enough to have them,⁸⁹ to new VHF stations in such cities as Miami,⁹⁰ Jacksonville,⁹¹ and Raleigh,⁹² among others. To most stations, losing a network affiliation was the death knell, even though the station may have been profitable up to that time.

One policy of the networks (CBS and NBC in particular), was the purchase and operation of UHF stations of their own. NBC's announcement at the start of 1952 that it intended to buy

⁸⁸Television Digest, Vol. 11, No. 15, April 9, 1955, pp. 3-4. The Extended Market Plan (E-M-P) sold a selected group of small stations to network advertisers at extremely low rates, at no profit to the network whatsoever. The NBC Program Service Plan made network programs available to affiliates which the sponsor did not order, and permitted the stations to delete network commercials and sell commercials on their own on a local or spot basis. Neither of these plans really constituted affiliation, since only a limited number of programs were available under the plans, and the network did not pay the station any portion of its rate card. They were strictly means of getting network programs on small stations.

⁸⁹In 1954 (Television Digest, Vol. 10, No. 49, December 4, 1954, p. 7) CBS was attacked by an Albany-Schnectady-Troy UHF station claiming that CBS had a "secret understanding" to switch affiliations when and if a VHF station in nearby Vail Mills, N.Y. were started by CBS commentator Lowell Thomas and associates. As a further example, it was charged that CBS switched affiliations when Gene Autry, "an important member of the CBS talent family" acquired stations in Arizona.

⁹⁰Television Digest, Vol. 12, No. 28, July 14, 1956, p. 9. In the Miami case, the VHF station of former NBC President Niles Trammell received the NBC affiliation formerly held by Storer's Miami UHF station.

⁹¹Television Digest, Vol. 13, No. 42, October 19, 1957, p. 9. (NBC switched to the VHF in August, 1957.)

⁹²Television Digest, Vol. 13, No. 52, December 29, 1957, p. 6. (CBS switched.)

and operate UHF stations was a big lift to those interested in getting into television via UHF. Even the "anti-monopolists" in the Commission saw far less danger of concentration of control by this means than if UHF failed and the then-current VHF monopoly continued.⁹³ The first UHF station actually owned by a network was KCTY, in Kansas City, which was acquired by DuMont on January 1, 1954, for one dollar. The station was about to go dark, since the presence of three VHF stations resulted in a paucity of conversions. The original owner (Herbert Mayer, who established the first UHF station in Portland, Oregon) had placed the station on the market, but gave it to DuMont rather than salvage what he could from the sale of equipment and property, since that would have a depressing effect of UHF.⁹⁴ DuMont only operated the station for six weeks, closing it down in the middle of February in the interest of "sound business judgment," since it appeared that Kansas City viewers were adequately served by the three VHF outlets. Although DuMont claimed that the problems were "peculiar to Kansas City and not necessarily fundamental limitations of UHF broadcasting in general,"⁹⁵ it is noteworthy that he never acquired another UHF station, even though DuMont only owned three stations and did not need a special waiver of the multiple-ownership rules.

⁹³Television Digest, Vol. 8, No. 1, January 5, 1952, p. 1

⁹⁴Television Digest, Vol. 10, No. 1, January 2, 1954, pp. 3-4.

⁹⁵Television Digest, Vol. 10, No. 7, February 13, 1954, p. 2.

After a great deal of deliberation, interrupted by the Potter Hearings, the FCC issued its new rule on multiple-ownership, permitting one owner to operate five VHF stations and two UHF~~s~~ as well.⁹⁶ As soon as the new rules became effective, CBS announced the purchase of a UHF station in Milwaukee, the nation's seventeenth market.⁹⁷ (Soon afterward, the UHF station in Milwaukee which had been the CBS affiliate suspended operations.)⁹⁸ In January 1955, NBC bought a Connecticut UHF station, and immediately announced plans to boost power to 1,000,000 watts.⁹⁹ Soon afterward, NBC also purchased a defunct UHF station in Buffalo, New York, and launched an expensive promotion campaign to obtain set conversions and local business.¹⁰⁰ NBC President Weaver claimed that this purchase was "further proof...of NBC's faith in the future of UHF as a broadcasting medium."¹⁰¹ With the purchase of a second UHF by CBS in the Hartford, Connecticut region and competitive with NBC's recently acquired UHF in that area,¹⁰² both major networks had their limit of UHF stations and had given UHF owners and applicants a considerable boost in morale.

⁹⁶Television Digest, Vol. 10, No. 38, September 18, 1954, p. 1.

⁹⁷Television Digest, Vol. 10, No. 43, October 23, 1954, p. 1.

⁹⁸Television Digest, Vol. 11, No. 6, February 5, 1955, p.

⁹⁹Television Digest, Vol. 11, No. 2, January 8, 1955, pp. 1-2.

¹⁰⁰Television Digest, Vol. 11, No. 11, March 12, 1955, p. 3.
See also Weakley, Thomas C. "UHF." Printers Ink, December 7, 1956.

¹⁰¹Ibid.

¹⁰²Television Digest, Vol. 11, No. 28, July 9, 1955, pp. 1-2

Unfortunately, this did not last long. On September 30, 1958, NBC's UHF station in Buffalo left the air.¹⁰³ Despite assurances that other network-owned UHF stations would remain, CBS' Hartford UHF station, WHCT, was abandoned as of November 15, 1958.¹⁰⁴ On April 1, 1959, CBS closed down Milwaukee UHF station WXIX. Although the Hartford CBS station was purchased by another party and placed again in operation (at least temporarily), the last NBC UHF station, WNBC in Hartford, was "being considered" for sale.¹⁰⁵ With the networks themselves unable to compete with two or more VHF stations, the canards about "poor management" being responsible for UHF failures were scotched, but in a way that was small comfort to the UHF operators--on or off the air.

Through the period following the Sixth Report and Order, the advertising agencies were reflecting the desires of their clients, which were solely interested in mass circulation according to Commissioner Lee.¹⁰⁶ A survey by Tide magazine, covering some 1200 advertising executives, showed about 70 per cent reporting difficulty in getting network time, 72 per cent in getting spot television openings. Yet, no less than 48 per cent said that they didn't know enough about the VHF-UHF allocation problem to comment!¹⁰⁷

p. 8. ¹⁰³Television Digest, Vol. 14, No. 39, September 27, 1958,

p. 1. ¹⁰⁴Television Digest, Vol. 14, No. 41, October 11, 1958,

p. 1. ¹⁰⁵Television Digest, Vol. 15, No. 9, February 28, 1959,

¹⁰⁶Television Digest, Vol. 11, No. 34, August 20, 1955, p.6

p. 3. ¹⁰⁷Television Digest, Vol. 12, No. 49, December 8, 1956,

The advertisers apparently let the networks do their thinking about the television allocation problem. The networks testified at length before the FCC and Congress, but suggested deintermixture (a solution favored by 9 per cent of the advertising men in the Tide survey) rather than a radical move such as shifting the entire television service to the UHF (favored by 29 per cent of the admen).

Although the proposals put forth by the networks changed from time to time, there was a definite bias in favor of the VHF. In 1955, while ABC favored deintermixture, CBS submitted plans which proposed VHF "drop-ins" and relegating UHF to a minor role; or, if three more VHF channels could be obtained from the government and FM, to drop UHF entirely.¹⁰⁸ In support of these plans, CBS published two studies: one on the cost of shifting the entire UHF service to UHF,¹⁰⁹ and the other on the number of stations (600) that the nation could support.¹¹⁰ By 1956, ABC suggested a reappraisal of the old DuMont proposal for mandatory network sharing of time on stations in communities with less than three VHF channels. CBS promoted its own plans, virtually unchanged from the 1955 FCC presentation; while NBC suggested selective deintermixture, boosters, higher UHF power and multiple ownership.¹¹¹

¹⁰⁸Television Digest, Vol. 11, No. 41, October 8, 1955, p. 1.

¹⁰⁹Columbia Broadcasting System. "Cost of shifting the U.S. television system to UHF-only," September 22, 1955 (mimeo).

¹¹⁰Columbia Broadcasting System. "How many television stations can the United States support economically?" October 5, 1955 (mimeo).

¹¹¹Television Digest, Vol. 12, No. 13, March 31, 1956, p. 5.

However, all of the networks agreed that the root of the "network monopoly" problem was the current television allocation plan, and that it was the duty of the FCC and not of the networks to make needed changes.¹¹²

The most important reason for dwelling on the networks are the effects they have had on making UHF stations competitive with VHF stations. The American Research Bureau, in analyzing the number of UHF sets in various markets, concluded unequivocally that the main stimulus to UHF conversion was the amount of good network programming on UHF which did not duplicate available VHF fare. For example, in 1954, of the thirty-three markets with better than 80 per cent conversion, twenty-seven were beyond "easy reception range" of any VHF stations. In the twenty cities where programs of all four networks were being carried on UHF stations, there was an average conversion rate of 74 per cent, whereas in the ten cities where only one network's programs were on UHF, conversion averaged a mere 45 per cent.¹¹³ The availability of programs rather than the availability of stations has always been the major consideration of public support of a broadcast medium. Once the public is equipped with sets, advertising support of the medium will follow, leading to a profitable spiral which theoretically should lead to better (or at least well financed) programming, larger audiences, and greater profits for broadcaster and station. It was this realization that caused the networks to "prime the pump" with programs that "signalled the

¹¹²Television Digest, Vol. 12, No. 24, June 16, 1956, p. 3.

¹¹³Television Digest, Vol. 10, No. 5, January 30, 1954, p. 6.

start of television as a major industry back in June of 1949... without the networks' courage in taking enormous financial risks and investing vigorous energy, there would not have been the programs to stimulate the public at the rate it did."¹¹⁴ Although the networks deserve much of the credit for television as a mass communications phenomenon, their own self-interest caused them to fight vigorously for the criterion of "maximum unduplicated coverage,"¹¹⁵ thus sounding the death knell for most UHF stations which had the temerity to enter intermixed communities.

Auxiliary television services: Community antenna systems, boosters, etc.

The question of how best to provide television service to small or isolated communities has always been a vital one. Rural areas have a disproportionate (in reference to population) influence upon the political fabric of the United States. Few legislators can afford to let the FCC slight the more sparsely settled regions of the country. Soon after the 1952 allocation decision, it became evident that a station could rarely obtain the necessary economic support from a small community, although there have been exceptions, excluding the stations licensed to small communities but actually serving a much larger one. The two chief methods used

¹¹⁴New York Herald Tribune, December 22, 1956. Quoted by CBS President Frank Stanton in testimony before the U.S. Senate Commerce Committee, Television Inquiry, June 12, 1956, Part IV, pp. 1712-1713. (Also published by CBS under the title Network Practices, pp. 10-11.)

¹¹⁵Salant, Richard S. (Vice-President, CBS). "Application of Commission Rules and Regulations to Network Organizations." Statement before the FCC in the matter of Study of Radio and Television Network Broadcasting, Doc. No. 12285, mimeo. n.d. (1958) p. 11.

to fill these gaps or "white areas" in national television coverage are community antenna systems (CATV), or a broadcast continuum ranging from semi-satellites and satellites through translators and boosters. (See Chart VI-2 on the following page.) These two approaches are highly competitive, with particularly strained relations between boosters which are illegal on the VHF band (but widely used), and CATV which does not use the radio spectrum for transmission.

Any of the auxiliary broadcast services can be of help to the small town station either in filling in its own gaps, or extending coverage in a more economical manner. They can also be damaging if operated by or in behalf of "outside" stations. With translators and satellites under the supervision of the FCC, there is much less chance of economic injury to a station than there is with the use of unlicensed "boosters," which are likely to cause both economic and engineering disturbances to a station and benefit only the small number of people who receive their television service by this method.

Although a broadcast auxiliary service may enter into "unfair" competition with a local station by supplying competitive programming without the need of major investment in facilities, local programming, and the like, the Commission has endeavored, with varying success, to maintain the coverage of a station to the same area as that possible if the station were using maximum allowable power and height in a terrain which did not produce "shadow" effects.¹¹⁶ This is true whether the station made use of

¹¹⁶Thus, competition suffered by a "small town" station from such auxiliary media would be no greater than potential competition from any "big town" or "nearby town" station (usually VHF),

CHART VI-1
AUXILIARY TELEVISION SERVICES¹

Type	Totals		Channels	Legal Status	Locations	Started
	1958	1957				
Community Antenna Systems (CATV)	610	522	Non-Broadcast	Not Regulated	See Note A	1949
Translators	150	92	UHF: Ch.# 70-83	FCC grants	See Note B	1956
Boosters	Estimated 1000-1500		VHF: Ch.# 2-13 See note C	FCC has declared illegal	Largely in Far West	circa 1946
Satellites and Semi-satellites	34	28	Some UHF; mostly VHF	FCC grants	Small Market Areas	1954
Experimentals	12	13	Both UHF and VHF	FCC grants	See Note D	1928

Note A: Chiefly in mountain states of East and West, but the only states without CATV are Connecticut, Delaware, Georgia, North Carolina, North Dakota, Rhode Island, South Carolina, and D.C.

Note B: Arizona, California, Colorado, Idaho, Iowa, Maryland, Minnesota, Montana, New Hampshire, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, Utah, Washington, Wyoming.

Note C: No UHF boosters presently authorized (some have been on experimental basis in past) but FCC is considering their use to help UHF stations fill out coverage.

Note D: Connecticut, Illinois, Indiana, New Jersey, New York, Pennsylvania, Texas, Washington.

CHART VI-1 (continued)

Estimated Audience	How Operated
1,250,000	Elaborate receiving antenna on high site picks up signals of stations too distant for ordinary reception and feeds programs to subscribers' home sets via cable. (Rates \$2- 7 7.50 mo., sometimes plus installation charge ranging up to \$125.) When TV station is too far away for direct reception by CATV's antenna, FCC sometimes authorizes microwave relays between stations and CATV antenna.
900,000	Low-power (up to 100 watts) automatic repeaters pick up and relay TV signals. Usually operated by civic and non-profit groups. Uses UHF Channels 70-83 only.
Not Determined	Automatic very low-power repeaters set up usually by private groups and entrepreneurs.
Not Determined	Regular TV station facilities which repeat programs of parent station. Operated with minimum personnel. Semi-satellites have a few local originations.
Not Determined	Usually operated by equipment manufacturers in research programs. Generally not intended for public reception (although some, notably color experiments, were).

¹After "Background" chart (No. 1) on "Television Auxiliary Services--January 1959" in Television Digest, Vol. 15, No. 3, January 17, 1959, p. 16.

auxiliary means or not, whether the auxiliary is under the station's control as in the case of a satellite, or not as in the case of an unlicensed booster. Of course, the auxiliary methods, particularly in mountainous country, are a great deal less expensive than maximum power and antenna height. On the other hand, the Commission has expressly stated that CATV systems do not "broadcast" within the meaning of the Communications Act definition of that term,¹¹⁷ and hence has no regulatory authority over them. Since most state public utility regulatory agencies have also disclaimed authority (some of them on the grounds of Federal preemption of the field!), and the question of property rights in the actual program material is still before the courts, the CATV entrepreneur has a greater degree of liberty than any other television disseminating medium.

Community antenna systems had their start on an informal basis during the period of the freeze, when small communities (largely in Pennsylvania), unable to obtain satisfactory reception from any of the 108 prefreeze stations due to terrain or the expense of installing individual antennae on towers 100 feet or more tall, established a large, accurately aimed and engineered antenna on a convenient hilltop within line-of-sight of the desired

and should be considered as such. See section on "Competition from VHF stations."

¹¹⁷Neither did the FCC consider CATV to fall under the definition of "common carrier." FCC Public Notice 58-311 (April 1958) finds several cogent reasons for the Commission to avoid handling CATV in any manner whatsoever. See Television Digest, Vol. 14, No. 14, April 5, 1948, p. 2.

station(s), and then distributed the programs by cable (after amplification) to homes in the valleys.¹¹⁸

Only a few of these "antidotes to the freeze" were reported in the early 1950s, though several large companies such as Philco and Jerrold were interested in the possibilities of this method of transmitting television signals to larger audiences.¹¹⁹ In late 1951, there were reports that AT&T was interested in entering the field. If this had occurred, there might have developed a monopoly with local telephone companies in isolated communities supplying television service as a supplement to telephone service, since the majority of poles needed to string CATV distribution lines were under the control of AT&T and its subsidiaries. However, material shortages caused by the Korean War, attacks by broadcasters upon AT&T inter-city television relaying rates (which would be sure to mount in intensity and perhaps effectiveness if AT&T had established any more of a hold on the industry), and the expectation of a safer profit by renting use of poles to CATV entrepreneurs at stiff rates and under stringent conditions, kept AT&T out of the CATV field itself.¹²⁰

Late in 1951, the most controversial aspect of CATV was

¹¹⁸Many of the illegal boosters were similar to the usual CATV system, with the difference that a signal was re-radiated (usually on the same channel as the original) rather than distributed through wire lines.

¹¹⁹Television Digest, Vol. 7, No. 2, January 13, 1951, p. 2.

¹²⁰Television Digest, Vol. 7, No. 27, July 7, 1951, p. 6. These conditions were so stringent that at least one operator later sold his plant to the telephone company and then leased it back.

proposed. A CATV operation in Poplar Bluff, Missouri, asked for FCC permission to install common carrier microwave facilities to bring programs from St. Louis and Memphis stations to towns served by CATV.¹²¹ This would, in effect, supply a limited number of subscribers to the CATV system with programs from stations far beyond the maximum pickup range, even with sensitive receiving equipment. The stations would then have the benefit of a larger audience beyond their normal coverage area, while any small stations to be built near Poplar Bluff would have to overcome the programming of large stations far outside its market area. This use of microwave facilities (which was also seized upon by AT&T as another way to profit from CATV)¹²² infuriated local station operators, who claimed that the FCC, by allowing microwave relay for this purpose, was breaking down its own principles written into the allocation table of the Sixth Report and Order.

By the end of the freeze, it was reported that some sixty-six CATV systems were already in service or under construction.¹²³ At the end of 1953, there was an estimated 299 systems.¹²⁴ The more stations that came on the air, the more community antenna systems appeared, as if appetites were merely being whetted by "off-the-air" home service. By April 1959, some 555 operating

¹²¹Television Digest, Vol. 7, No. 40, October 6, 1951, pp. 1-2.

¹²²Television Digest, Vol. 9, No. 31, August 1, 1953, p. 8.

¹²³Television Digest, Vol. 8, No. 19, May 10, 1952, p. 1.

¹²⁴Television Digest, Vol. 10, No. 2, January 9, 1954, p. 5.

systems served about 549,000 American homes.¹²⁵ These CATV systems appeared to their operators to have a potential of some 952,000 homes.¹²⁶ At four people per household, approximately 2.2 million persons now receive all or part of their television from CATV systems. Despite their growth and profitability,¹²⁷ CATV systems only serve some 1 per cent of the national television audience at the present time.

Despite this minor role in the national scheme of television, CATV systems have often brought life (when used to extend an audience) or death (when used to bring in outside competition) to smaller television stations.

The first attacks on CATVs came during the Potter Hearings when a West Virginia station owner complained that the CATV operation misled the public into not converting for UHF by the promise

¹²⁵Canada had 144 systems serving 125,000 people of its own.

¹²⁶Television Digest, Vol. 15, No. 14, April 6, 1959, p. 4. The following figures illustrate the growth of CATV. All data from Television Digest as indicated:

Date	Estimated No. of Systems	Estimated Homes Served	Television Digest
May 10, 1952	66		Vol. 6, No. 19
July 3, 1952	94		Vol. 8, No. 27
February 28, 1952	149		Vol. 9, No. 4
July 11, 1953	240		Vol. 9, No. 28
January 9, 1954	299		Vol. 10, No. 2
December 25, 1954	302	150-200,000	Vol. 10, No. 52
July 9, 1955	392	250-300,000	Vol. 11, No. 28
July 14, 1956	480	292,000	Vol. 12, No. 28
August 3, 1957	522	398,000	Vol. 13, No. 31
March 15, 1958	556	448,000	Vol. 14, No. 16
September 20, 1958	610	492,000	Vol. 14, No. 38
April 6, 1959	555	549,000	Vol. 15, No. 14

¹²⁷This was partially highlighted by the number of multiple CATV owners; e.g., those forty entrepreneurs or investors controlling 148 CATV systems. See Television Digest, Vol. 15, No. 2, January 10, 1959, p. 12. Few CATV systems have failed.

that the system would feed the station into homes--but only carried the station's signals for two days. It was also charged that the Commission's then recent grants of microwave facilities to CATV operators "opens new towns and areas to community cable systems at the expense of the UHF hometown, grassroots, television stations."¹²⁸ Another complaint was that some CATV systems were planning to insert their own commercials and compete directly with the local station for the local advertising dollar.¹²⁹ The additional investment in equipment and personnel for program origination has kept this type of operation from gaining much of a foothold.

Other problems faced by CATV operators included a request for state regulation of CATV systems by the residents of Walnut Creek, California,¹³⁰ and a decision by the Wyoming public utilities commission that CATV fell under their jurisdiction¹³¹ (after court action, CATV operators managed to get this ruling reversed).¹³² The CATV operators organized to wage war on their particular competition: the illegal booster¹³³ and found their organizations useful in a more important fight. The Magnuson Committee

¹²⁸Beacom, J. P. Testimony before U.S. Senate Commerce Committee, Potter Hearings, May 21, 1954, pp. 434-435.

¹²⁹Television Digest, Vol. 10, No. 35, August 28, 1954, p. 7.

¹³⁰Television Digest, Vol. 10, No. 50, December 11, 1954, p. 8.

¹³¹Television Digest, Vol. 10, No. 51, December 18, 1954, p. 9.

¹³²Television Digest, Vol. 14, No. 39, September 27, 1958, p. 7.

¹³³Television Digest, Vol. 11, No. 15, April 9, 1955, p. 5.

Television Inquiry hearings were looked upon by many UHF station operators as the "last chance" for UHF. In concert with small-town VHF stations, particularly in the far west, an all-out campaign was waged against the non-regulated competition typified by illegal boosters and legal CATV systems.

The first attacks in this new battle came from a group of station owners who complained to the FCC that CATV systems should be licensed and treated as public utilities, that their effect on the nationwide allocation plan be considered, and that they be estopped from otherwise interfering with the development of small stations.¹³⁴ After two years of deliberation, the FCC appeared to wash its hands of the entire CATV affair, concluding that CATV systems would not fall under the common carrier provisions of the Communications Act.¹³⁵ In light of this decision, and as the result of the demise of a small Montana station on the grounds that it could not compete with a CATV system, a group of small-town station operators started a serious fight to weaken or eliminate competitive CATV.¹³⁶ In a matter of weeks this group had stirred up the MAB convention,¹³⁷ persuaded the Senate Commerce Committee to take a hand,¹³⁸ and prompted the FCC to initiate a full-

¹³⁴Television Digest, Vol. 12, No. 14, April 7, 1956, pp. 2-3.

¹³⁵Television Digest, Vol. 14, No. 14, April 5, 1958, p. 2. The Commission Memorandum Opinion and Order was dated April 2, 1958. (In the Matter of Frontier Broadcasting Co., et al. vs. J. E. Collier, et al.)

¹³⁶Television Digest, Vol. 14, No. 18, May 3, 1958, p. 4.

¹³⁷Ibid.

¹³⁸Television Digest, Vol. 14, No. 21, May 24, 1958, p. 2. Some congressmen, particularly from the Northwestern U.S., fought the CATVs because the CATVs fought the (illegal) VHF boosters

scale investigation.¹³⁹ The NAB, which had been somewhat indifferent to the difficulties of smaller stations, voted to back appeals to the courts and to the FCC with respect to property rights in program material and the granting of microwave facility permits to CATV operators.¹⁴⁰ Arguments were particularly loud inside the Senate Commerce Committee hearing room,¹⁴¹ and resulted in a staff report that supported the contention that something should be done to prevent CATV systems from "cutting the heart out" of the already-small market areas of many television stations.¹⁴²

At the present time, questions of microwave grants and property rights are under discussion before the courts and in Congress.¹⁴³ Although a service which affects only 1 per cent of the population is raising a storm out of proportion to its real importance, CATV systems are important for their effect on existing and potential small-town stations (particularly if UHF is ever

operated by and for their constituents. (Television Digest, Vol. 14, No. 18, May 3, 1958, p. 9.)

¹³⁹U.S. FCC. Notice of Inquiry in Docket 12443, In the Matter of Inquiry into the Impact of Community Antenna Systems, TV Translators, TV "Satellite" Stations, and TV "Repeaters" on the Orderly Development of Television Broadcasting, May 22, 1958, (FCC 58-483).

¹⁴⁰Television Digest, Vol. 14, No. 25, June 21, 1958, p. 16.

¹⁴¹U.S. Senate Commerce Committee. Television Inquiry, Hearings, Part 6 (May 27, 28, 29, June 3, 4, 24, 25, 26, and July 1, 1958).

¹⁴²U.S. Senate Commerce Committee. The television inquiry: the problem of television service for smaller communities. Staff Report prepared by special counsel Kenneth A. Cox, December 26, 1958. (85th Congress, 2nd Session, Committee print.)

¹⁴³Television Digest, Vol. 15, No. 18, May 4, 1959, p. 2.

abandoned) and as living proof that segments of the American public would be willing to supplement or substitute a direct-pay system for our traditional "free" broadcasting.

Boosters, translators and satellites are still providing service where advertising-supported full-service stations cannot survive. The entire question of small-town television will be discussed more fully in the sections on the Congress and the Commission, with particular reference to the "great booster fight."

Competition from VHF stations

All of the troubles of the average UHF station today stem from the real or potential competition of VHF stations. What has been described previously in this chapter could possibly be interpreted as all due to a VHF-UHF "war." This would be an oversimplification, since the real struggle is between those favoring more stations (and the resulting competition on an equal technical footing), and those favoring the maximum possible service from a minimum number of stations in each of the larger cities. If it were not for the many entrenched VHF stations, UHF stations would possibly have a share of the lucrative "big-city" markets; manufacturers would have a larger market for all-channel receivers; and network affiliations would give stations on the UHF band a much greater opportunity to operate successfully. UHF stations suffer from the twin handicaps of technological inferiority and intermixture. If there were no VHF stations covering all or part of an area where UHF stations are assigned, the technological inferiority would cease to matter, since facilities would be equal. The FCC Sixth Report and Order, and subsequent actions favoring the principle of maximum service from stations operating with

maximum power and antenna height, has determined the place of the UHF operator (and actually, any smaller community station--UHF or VHF --that is within range of a more powerful station) to be at the bottom of the television profit hierarchy.

A UHF station can survive, and even make a profit, when it either is the only signal in a community, or when it is in competition only with other UHF stations. When an outside VHF signal from a larger community is in competition with a UHF station the inclination of advertising timebuyers and networks for "maximum coverage with the fewest possible stations" favors the VHF station. The intrusion of the VHF signal may be directly from a neighboring community, through means of a CATV system (possibly using signals from a long distance away transmitted by microwave relay), boosters, translators, or satellites. Of course, the most damaging competing signal for a UHF station is from a VHF station in the same community. This is true whether or not there are enough networks to serve all the stations in that community. For example, there are thirty-six markets within the 103 top television markets that have less than three VHF stations authorized. Of these thirty-six markets, seventeen have never had a UHF station attempted, UHF stations are on the air in eleven, and UHF failed in eight.¹⁴⁴ In the eleven markets where UHF stations are now on the air in competition with VHF stations "the UHF operators

¹⁴⁴U.S. FCC. Recommendations on Allocations presented to the Senate Committee on Interstate and Foreign Commerce, released April 23, 1959. (Published by Television Digest as a special supplement, April 27, 1959.) In many of the cities where UHF was "never attempted," construction permits have been held for UHF stations but the station was never built.

TABLE VI-6
 ANALYSIS OF COMMERCIAL UHF OPERATING EXPERIENCE, BY TYPE OF MARKET
 (As of April 4, 1959)

	Number of TV Markets	Per Cent of Total
1. All TV markets in which UHF went on the air.....	114	100%
<u>All UHF stations have gone off the air.....</u>	59	52
Some UHF stations have gone off the air and some are still on the air.....	9	8
All UHF stations are still on the air.....	46	40
<u>TV markets which are UHF-only^b.....</u>	52	100%
A. All UHF stations have gone off the air.....	19	36
Some UHF stations have gone off and some are still on. All UHF stations are still on the air..... ^b	3	6
B. All UHF stations which are intermixed (VHF-UHF) ^b	30	58
All UHF stations have gone off the air.....	62	100%
Some UHF stations have gone off and some are still on. All UHF stations are still on the air.....	40	64
<u>The 62 intermixed markets classified by whether UHF operation was before or after the VHF operation.....</u>	16	26
A. UHF before VHF.....	28	100%
All UHF stations have gone off the air.....	16	57
Some UHF stations have gone off and some are still on. All UHF stations are still on the air.....	3	11
B. UHF after VHF.....	9	32
All UHF stations have gone off the air.....	24	100%
Some UHF stations have gone off and some are still on. All UHF stations are still on the air.....	24	71
	3	9
	7	20

^aU.S. FCC. Recommendations to the Senate Commerce Committee on Allocations, Statistical Appendix A, Table 4, April 23, 1959.

^bThese classifications refer only to the types of assignments available in the immediate TV market, i.e., whether such assignments are UHF-only or intermixed.

in most of these communities have filed petitions with the Commission alleging inability to survive and urging the Commission to provide relief...."¹⁴⁵ Outside of these top 103 markets, there are only thirty-three communities where UHF stations are operating, making a total of sixty-nine UHF markets. All but five of these are UHF-only, i.e., non-intermixed.¹⁴⁶

The broad outlines of the interrelationships between network affiliations, number of VHF signals available in a town with a UHF station, set saturation and conversion, as well as profits were known and examined several years ago.¹⁴⁷ The picture is most clearly seen upon examination of Table VI-6, which brings up to date the effects VHF stations have had upon UHF stations in the same markets.

Actions which might remedy the inequalities

Minor proposals.--The drift away from using the UHF to provide a competitive, nation-wide system did not occur without warning, nor without suggestions for reversing the trend or changing the allocation structure to make it possible to reach the goals of the FCC Sixth Report and Order. As we shall discuss later, these suggestions have remained largely at the "talk" stage in the Congress and the Commission, with little implementation expected before some general policy is put into effect.

¹⁴⁵Ibid.

¹⁴⁶Ibid., Appendix A--Statistical Appendix.

¹⁴⁷For example, see the Statistical Appendix to Chairman Hyde's testimony in the Potter Hearings, pp. 157-171; also see U.S. FCC. Third Survey of post-freeze television stations, Public Notice 23055, August 19, 1955.

As mentioned in the introductory chapter, there are three basic proposals for revising the television allocation structure in the United States. These envision the creation of an all-VHF system, an all-UHF system, or, as a compromise, selective deintermixture. There are also some suggestions that do not fall strictly within any one of the above. Most of these latter suggestions are minor in nature, and insignificant in effect. They are generally put forward as means of "helping UHF along," or conversely, as means of enabling the television industry to operate with even less of the UHF. Any and all of these "minor" suggestions could be used to support one or the other of the major schools of thought. In the following paragraphs they will be described and considered without respect to their possible role in the larger scheme.

The minor proposals (e.g., not the suggestions for an all-VHF or an all-UHF system or deintermixture) can be divided into four groupings. While most of them are "favorable" to the idea of using the UHF, it should be noted that the VHF stations could profit from them at the same time, or under conditions of VHF monopoly. Many of the following proposals are interrelated, as those made by the supporters of an all-VHF system, or expanding the number of stations on a given channel which depend upon such devices as directional antennae, cross-polarization, reduced separation, etc. The four groups of proposals are: 1) technical suggestions not degrading to the present allocation scheme; 2) technical suggestions which are potentially degrading to the present plan; 3) methods for extending existing stations' service; and 4) proposals for encouraging the quality, availability, and sale of UHF receivers.

1. Technical suggestions not degrading the present allocation scheme

a. Cross polarization.--Both transmitting and receiving antennae have directional characteristics with respect to the plane of transmission. In the United States, television signals are propagated in a horizontal plane, directed at right angles from the transmission tower toward the horizon. In some cases, the FCC has allowed a "tilting" of this horizontal plane, in order to allow a station with a tall antenna to serve more effectively the area beneath it and to one side. With horizontal polarization, the signal may be thought of as radiating in a manner graphically illustrated by a dinner plate (up to some 70 miles in radius) balanced on the head of a pin representing the transmitting antenna tower. Although horizontal polarization may be better for obtaining longer ranges, it is quite possible to propagate a signal outward from the tower in a vertical plane. This is the most common method used in mobile services where the vertical "whip" antenna is the only practical mounting for a motor vehicle and is used by some television broadcasting stations in Belgium, France, and the United Kingdom.

This discussion has valuable implications for television allocation when it is realized that receiving antennae, too, are directional insofar as polarization is concerned. This means that a receiving antenna oriented in a horizontal plane (as are all in the United States) will be most efficient at picking up signals from a transmitting antenna radiating in a horizontal plane. In fact, there will be a tendency to reject a vertically radiated signal. The British have some stations radiate vertically and

some horizontally. Although to receive the station requires a properly oriented receiving antenna (in terms of vertical or horizontal attitude as well as surface direction or bearing), the British are thus able to place their stations closer together than is the practice in this country. Very little interference is experienced in overlap "fringe" areas, since the viewer may select the station he desires by properly orienting his antenna on either the horizontal or the vertical plane.¹⁴⁸

To be applicable in this country, cross-polarization would require some new investment in antennae, and designation of those stations which would be required to operate with vertical polarization (much as the various offsets of carrier frequencies of TV stations now are designated by the Commission). The reduction of interference between stations on the same channel would no doubt permit the "drop-in" of stations, particularly along the Eastern seaboard, without much of the co-channel interference normally experienced from stations which are located close together.

b. Precision offset carrier.--It was shown in Chapter V how the use of offset carrier greatly reduced the amount of co-channel interference between stations on the same channel. If the 10 kc offset is maintained with precise accuracy, interference is even further reduced, since it is changes in signal relationship between stations which provide much of the disturbing interference.

¹⁴⁸European standards from Broadcasting stations of the world. U.S. Foreign Broadcast Information Service, Part IV, March 1954 edition. British television information from: Sound and television broadcasting services in the United Kingdom, n. 3302, March 29, 1956, Reference Division, Central Office of Information, London. (Disseminated by British Information Service, New York.)

The use of precision offset carrier would prevent the unavoidable differences between two stations on the same channel from causing undue interference, even if the distance between the stations were considerably reduced from the essentially conservative FCC standards of separation.

c. Reduction of vestigial sideband.--A signal transmitted over the air normally consists of a carrier wave and sidebands. The sidebands carry the actual intelligence or information. There are two of these sidebands in a normal transmission, each a mirror image of the other. Since one sideband actually could carry all the necessary information, many radio services in the past few years have taken to eliminating one sideband, and thus use only a little more than half the ordinary channel width. Television in this country does not go as far as this single-sideband (SSB) operation, neither does it use two full sidebands. When television standards were adapted in 1941, to use both sidebands would have required nine megacycles for the picture, in addition to a sound channel. Accordingly, the standards reduced one sideband to the narrowest width possible at that time (one-and-one-fourth megacycles as opposed to the four and a half megacycles needed for a full sideband), and thus squeezed the entire signal into a six megacycle channel.

It is now within the realm of engineering feasibility to further reduce the narrow or vestigial sideband for black-and-white signals, but not for color. It might be feasible to save approximately three-quarters of a megacycle per channel in this way, thus possibly permitting an additional channel in the upper VHF region (Channels 7 through 13). But it is doubtful whether the

dislocation and necessity to retune receiver channel selector or tuning devices (not to mention the complete loss of color television) would be worth the gain of a single channel. However, if the vestigial sideband were reduced, and the carrier frequency so shifted that the saved bandwidth were equally distributed to both sides of the channel, it might be possible to assign stations without much regard for adjacent channel interference, since there would be a small gap between each pair of channels unless they were transmitting color. This would enable the Commission to assign channels in the crowded areas of the nation with more flexibility.

2. Technical proposals potentially degrading to present allocation plan

a. Directional antennae.--Although the discussion of polarization made some mention of directional antennae, the difference between horizontal and vertical polarization has little effect upon directionalizing a signal in a desired surface direction of bearing. It is possible to send a signal in a desired direction, or to suppress it in an undesired one. This has been used widely on the AM band, where directional arrays are the rule rather than the exception. In directional operation, the normal circular pattern of a station's coverage area is modified so that (for example) the signal reaches much farther in a north-south than an east-west direction, preventing interference with stations located to the east and west.

Although the Commission has steadfastly refused to allow directional antennae on the TV band, except in a few places where it was considered desirable to suppress a portion of the signal going over the ocean and direct it inland, there are many who claim

that directional antennae would enable a great many more stations to operate on the same channel in the more populous areas. However directional antennae, which are not perfect in their operation, would reduce by a great deal from the theoretical maximum the coverage area of any one station using such a device. Since it is unlikely that the Commission would permit existing stations to lose part of their coverage, the entire reduction of area and cost of directionalizing the signal would be borne by the "drop-in" station. It is questionable whether a station with such a reduced area would (except in a few cases) be able to serve an audience large enough to make it pay.

b. Specific drop-ins.--A drop-in is a station not originally assigned by the Commission in the Sixth Report and Order. Most VHF drop-ins (particularly in the Northeastern United States) would have to resort to directional antennae since the Commission did not reserve any VHF channels for possible future developments in the way that the top UHF channels were.¹⁴⁹ Some VHF drop-ins have taken place to circumvent the Commission's adamant refusal to allow any breakdown of the mileage separation requirements. Thus, Pittsburgh received its fourth VHF service through the assignment of Channel 4 to Irwin, Pennsylvania, an extremely small town some 15 miles away, after the Commission turned down assignment of that Channel for Pittsburgh or Braddock, Pennsylvania,

¹⁴⁹U.S. FCC. Sixth Report and Order in Dockets 8736, et al Paras. 26-32. Of course, not every VHF channel assignment was made, since drop-ins would then be impossible. However, only Channels 66-83 were specifically reserved for future developments, and were used at first for communities which could prove they were slighted in the Third Notice, or for additional educational reservations and the like. Currently, the top fifteen channels are being used for the TV Translator service.

since they were both less than the required 170 miles away from Columbus, Ohio, where Channel 4 was in use. Braddock was only .61 of a mile shy of the required separation. In another case, Channel 10 was "dropped into" the town of Vail Mills, New York, to serve the Albany-Schenectedy-Troy area--from a town too small to have a post office! It should be emphasized that neither directional antennae, nor reduced power or antenna height were required for these "drop-ins." However, in a slavish adherence to the technological principles of non-interference, the principle of channel assignment to communities able to use them was largely ignored. Also ignored in many cases was the effect that the new VHF drop-in might have upon UHF stations operating in nearby communities. The new station, in such a situation, can only prosper at the expense of the old UHFs, since the out-of-the-way geographical locations associated with drop-ins cannot support a station by themselves.

c. General reduced separations.--While drop-ins may have disastrous effects upon the economic structure built up by the Commission's allocation plan, generally they do not degrade an existing signal appreciably. A general reduction of separation mileages for co- and adjacent-channel interference prevention would, on the other hand, have very serious consequences for those persons unlucky enough to live in the "fringe" areas which would then be subject to overlapping interference. It is felt by those favoring this reduction of separation mileages that the service to the majority of the public which would result from more stations in the larger markets would far outweigh the service lost by those persons who only receive interference where they once received a useable signal. This is much the position taken by Bernard C. O'Brien during the freeze, and by Commissioner Jones in his dissent.

to the Sixth Report and Order.¹⁵⁰ (In 1959, the Commission as a body came around to this point of view after a fashion, and suggested an interim plan to provide more facilities which would require disregarding the VHF separations.)¹⁵¹ The same drawback mentioned in the previous paragraph still holds, since the coverage area of some stations may be so reduced that they cannot obtain enough advertising revenue to survive. This is not nearly so real a threat as in the case of specific drop-ins, where the dropped-in station may find itself required to protect the normal service area of so many stations through directional antennae or reduced power or antenna height, that it is unable to compete with them on an anywhere near equal basis. If all stations have their service area reduced in crowded areas by means of mileage separation reduction,¹⁵² then all VHF stations in that community will once again fight for the advertisers dollar on an equal technical footing.

3. Methods for extending coverage of existing stations

In many parts of the country outside Zone I, the problem a station faces to obtain advertising support involves the sparsely

¹⁵⁰See Chapter V.

¹⁵¹U.S. FCC. Recommendations on Allocations presented to the Senate Commerce Committee, and released by the Committee on April 23, 1959. Published by Television Digest as a Special Supplement dated April 27, 1959.

¹⁵²It should be remembered that the crowded conditions which lead to allocation or assignment difficulties are in Zone I almost entirely. (Zone I runs from Maine to Virginia and east of the Mississippi.) With the exception of some individual communities (and the lower portion of California) there are and have been roughly enough channels on the VHF to fill the demand outside of Zone I.

settled nature of that area. Often, the population living in mountainous terrain finds it difficult or impossible to receive signals which would be within range in a flatter region. Both the stations and the people or communities at the receiving end have resorted to a variety of methods for providing television service. Among these are CATV systems, illegal boosters (which usually re-radiate a signal on the same frequency channel as the station itself,¹⁵³ thereby extending its range manyfold), satellites (full-fledged stations except for the fact that they originate no programs and obtain their program fare by off-the-air or microwave pickup from a "mother" station), and translators (which translate a received signal, and re-radiate on one of the upper UHF channels). Essential elements of each of these methods for extending the range of a station, or enlarging its audience, have been described in Chart VI-1. Stations usually restrict themselves to satellites and translators, while often encouraging the development of boosters and CATV systems by local enterprise. Boosters, now illegal, although in the process of legalization, were experimented with as an economical method for filling in the holes of a station's coverage, particularly in the mountains. When used by or in behalf of a station, any of these methods can be helpful in expanding the effective coverage of that station. However, with the exception of UHF satellites and a scattering of translators and CATV systems, the Northeastern United States is unable to make use of these range expanding systems, chiefly

¹⁵³A growing number of more sophisticated boosters are really VHF translators, operating on a different channel.

because stations are close together and already utilizing their maximum permissible (without interference) range.

4. Suggestions for encouraging quality, availability, and sales of all-channel receivers.

a. Improvement of quality.--One of the most bitter complaints of UHF station operators is that the manufacturers of receiving sets do not produce the same quality product for UHF as they do for VHF. In 1952-1953 there was some excuse for this, since VHF receivers had been developed over a period of ten years. As time went on, however, there was little improvement in the quality of UHF equipment, even though various new devices such as "parametric" and "varactor" amplifiers, were developed by Bell Laboratories,¹⁵⁴ and the tubes for UHF worked on by GE were announced to the trade. It was considered a triumph when a new oscillator tube was developed in 1957 that had a life expectancy of three years as opposed to the former average life of three months--a factor which had been doing little to win friends for UHF.¹⁵⁵ The cost of these new devices, when not placed into quantity production, acted as a deterrent to sales. Therefore, UHF tuning components actually underwent little change, although a great deal of improvement was possible with these new developments.

¹⁵⁴Television Digest, Vol. 14, No. 25, June 21, 1958, p. 13.

¹⁵⁵Television Digest, Vol. 13, No. 47, November 23, 1957, p. 14. General Electric was the most active developer of tubes for UHF. See Television Digest, Vol. 12, No. 9, p. 6 (1956); Vol. 11, No. 42, p. 2 (1955).

TASO, in 1959, reported that:

...the noise factors of current UHF receivers are markedly poorer than those of VHF receivers. This is largely because of the lack of good, reasonably priced tubes and/or other electron devices for use in UHF tuners. If the commercial demand existed, it might be possible to develop such tubes, but this is uncertain for the present.¹⁵⁶

Although a great deal could be done to improve UHF signals on both the transmitting and receiving ends, the increased cost further lessened the number of people willing to convert or buy all-channel sets. On the other hand, people were being forced away from UHF (and others living within nominal range could not receive UHF) because of the poor quality and short life of UHF receiving equipment.

b. Setting of receiver standards by the government.--Although a basic tenet of the UHF operator's position was that the government should in some way require the manufacture of all-channel receivers, the FCC was extremely wary of this approach. After the fiasco of "bracket standards" during the color television hearings in 1950, the Commission apparently felt that the manufacturers would resist to the utmost any attempts at regulating their products. During the 1956 hearings of the Senate Commerce Committee some Senators suggested that the manufacturers should be forced into producing only all-channel sets. The Commission indicated "reluctance" at attempting to enter the field of manufacturer control without clear legal authority.¹⁵⁷

Two other possible approaches at manufacturer regulation,

¹⁵⁶Television Digest, Vol. 15, No. 2, January 10, 1959,
p. 6.

¹⁵⁷Television Digest, Vol. 12, No. 8, February 25, 1956,
p. 2.

intended to force the manufacture of all-channel receivers, were suggested at different times. One of these proposed the use of Federal Trade Commission powers to require that VHF-only sets bear a label identifying them and pointing out to the consumer that these receivers could pick up less than 15 per cent of all television channels. Even more drastic was the proposal to ban the movement of VHF-only receivers in interstate commerce. This movement became particularly active in the early part of 1959, when the FCC proposed to Congress that television sets shipped in interstate commerce be required to receive all channels, and that the Commission be empowered by legislation to:

set reasonable standards in the public interest with reference to the quality of the receivers. Pursuant to such a mandate, after a given period to permit a changeover, the Commission might, for example, withhold type approval of UHF tuners which were substantially inferior to VHF receivers.¹⁵⁸

Although the Association of Maximum Service Telecasters (AMST), representing some 120 of the nation's most influential television stations, came out in support of the proposal, the general attitude of those most involved (the set manufacturers) was one of unconcern. Television Digest reported that most set makers and the EIA were "just plain disinterested," and that the proposal did not stand a chance.¹⁵⁹ Even if this proposal were enacted into law, the set manufacturers could pass any blame for higher receiver

¹⁵⁸U.S. FCC. Recommendations to Allocations presented to Senate Commerce Committee and released by the committee on April 23, 1959. Published as a Special Supplement by Television Digest, April 27, 1959, p. 6.

¹⁵⁹Television Digest, Vol. 15, No. 17, April 27, 1959, p. 20. Commissioner Hennock had made suggestions to this effect in 1954 and had been thoroughly ignored.

prices on to the Congress. The dangers of the proposal were not ignored, however, by some set manufacturers, who visualized the results as a "commercial nightmare" and as forcing the public to pay for circuits they might never use. It was pointed out that a New York manufacturer could sell as many VHF-only sets in New York State as he liked, while a competing Chicago set maker would have to sell the more expensive all-channel sets in New York.¹⁶⁰ One of the most attractive aspects of this proposal, insofar as the FCC was concerned, is that it would "pass the buck" to Congress, since legislation would be required before anything would be done.¹⁶¹

Another method open to the Commission in its effort to stimulate the production of all-channel receivers is that of regulation of the manufacturers who happen to own and operate various types of radio or television stations.¹⁶² This would be analogous to regulation of the networks on the grounds that they own and operate stations. Major manufacturers such as RCA, Westinghouse and GE would be affected by such regulation, as would such lesser set or tuner makers as Sarkes Tarzian, CBS, and Crosley. Many other manufacturers would also be affected, since they operate experimental or industrial stations for various purposes. Although the Commission has precedent for such regulation,

¹⁶⁰Television Digest, Vol. 15, No. 11, March 14, 1959, p. 2.

¹⁶¹Ibid.

¹⁶²This was advocated by Commissioner Henock in comments to the Senate Commerce Committee in 1955 (dissenting from the majority view of the Commission). Henock, Frieda B. Separate comments submitted to the Senate Committee on Interstate and Foreign Commerce, April 29, 1955, mimeo (68 pp.).

there has been no attempt to test its power along these lines.

A common tactic of the government when trying to obtain industry cooperation is the use of moral suasion or persuasion. At one time or another, virtually all FCC commissioners have suggested to the industry that all-channel sets were desirable. One of the earliest, most forceful and concise statements along these lines was issued by Commissioner Hyde in August 1952:

I do not wish to seem bureaucratic, but I feel strongly that every purchaser of a new TV set is entitled to a set providing complete TV service. And, a receiver which is not designed for UHF reception, does not offer complete television service.¹⁶³

Another effort along the same lines was Senator Magnuson's 1955 request for all TV set manufacturers to meet with him and "take the pledge" to put an all-channel tuner in every receiver.¹⁶⁴ After meetings between the Senator and six leading tuner manufacturers and some twenty-five set makers, it was concluded that there was no possibility of a "voluntary agreement" among set makers. Even Magnuson conceded that it would be impossible--and perhaps illegal under the anti-trust laws--to draw any such pledge from the manufacturers.¹⁶⁵

The chief result of Commission activities with respect to improvement of UHF receivers¹⁶⁶ was the initiation of industry

¹⁶³Hyde, Commissioner Rosel H. Address at the Western Electronic Show and Convention, Long Beach, California, August 29, 1952. Television Digest, Vol. 8, No. 35, August 30, 1952, p. 4.

¹⁶⁴Television Digest, Vol. 11, No. 12, March 19, 1955, p. 4.

¹⁶⁵Television Digest, Vol. 11, No. 17, April 23, 1955, pp. 2-3; Vol. 11, No. 18, April 30, 1955, p. 3.

¹⁶⁶With the exception of the expressed annoyance by the Commission (Television Digest, Vol. 11, No. 13, March 26, 1955, p. 2) and adoption of rules (Vol. 11, No. 52, December 24, 1955) relating to interfering radiation from television receivers.

research activity that was expected to lead to the improvement of UHF transmissions and reception. In 1956, Chairman McConnaughey suggested to the NARTB that it would be "a good idea to begin a crash research development program on UHF immediately."¹⁶⁷ This idea resulted in the establishment of several small-to-medium scale projects by groups of broadcasters and manufacturers,¹⁶⁸ culminating in the organization of TASO (Television Allocation Study Organization) which formed under Commission sponsorship, and was composed of the Association of Maximum Service Telecasters (ASMT), Joint Committee on Educational Television (JCET), Committee for Competitive Television (CCT), the National Association of Radio and Television Broadcasters (NARTB, later NAB), and the Radio Electronics and Television Manufacturers Association (RETMA, later EIA). This group restricted itself to obtaining data, which it reported to the Commission in 1959. The member groups, particularly the EIA, were very careful to avoid breaking the anti-trust laws, and specifically avoided the development of "approved" types of equipment within the framework of TASO.¹⁶⁹ The data on UHF propagation and receiver characteristics and quality supplied by TASO were extremely useful to the Commission in facing Congressional questioning,¹⁷⁰ even if not yet used to

¹⁶⁷McConnaughey, George C. "The FCC and the broadcast industry's growing pains," address at the 34th Annual Convention of the National Association of Radio and Television Broadcasters, Chicago, April 17, 1956.

¹⁶⁸Television Digest, Vol. 12, No. 32, August 11, 1956, pp. 1-2.

¹⁶⁹U.S. Senate Commerce Committee. Bowles Report, pp. 230-233.

¹⁷⁰Television Digest, Vol. 14, No. 50, December 13, 1958, 3.

improve the lot of UHF broadcasting.

c. Minor proposals to encourage the sale of all-channel receivers.--Since there is a price differential between VHF and all-channel sets, there have been suggestions to make the purchase of all-channel sets more desirable or even mandatory on a selective basis. The two chief proposals for accomplishing this are to require all color receivers to pick up UHF, and to allow subscription television operations only on the UHF.¹⁷¹ Neither of these has been accepted, although RCA has made a practice of including all-channel tuners in its color receivers. While the various proponents of subscription television (including FCC Commissioner Lee) hailed pay-TV as a panacea for the ills of UHF, it was pointed out by the opposition that in order for subscription television to succeed "the Commission cannot restrict the authorization...to UHF stations....In fact, subscription television, with conversion problems of its own, would be of no immediate aid to conversion-hungry UHF stations." It was pointed out that no proponent of Pay-TV would commit itself on the possibility of using only stations in the UHF band.¹⁷²

Despite the lack of commitment to UHF on the part of the proponents of subscription television, several UHF stations made strong representations to the Commission, arguing that only "exceptionally high quality, unique and different programming"

¹⁷¹Senator Bridges was a proponent of this scheme. Television Digest, Vol. 10, No. 19, May 8, 1954, p. 10.

¹⁷²Joint Committee on Toll Television. Comments before the FCC in Docket No. 11279 (to provide for subscription television service). June 6, 1955, Paras. 46, 47.

could stimulate mass conversion to UHF, and that pay-TV would provide such programming.¹⁷³

d. Removal of the excise tax on all-channel receivers.---

A popular proposal for encouraging the sale of all-channel sets was to eliminate the price differential between all-channel and VHF-only sets by manipulation of the excise tax. This tax, 10 per cent of the retail price, approximately equalled the twenty dollar differential. The first major proposal to remove the 10 per cent excise tax was introduced by Senator Edwin C. Johnson (then ranking minority member of the Senate Commerce Committee) during the Potter Hearings in May 1954.¹⁷⁴ It was enthusiastically accepted by most of the industry, only to be rejected when the Senate Finance Committee voted to take no action on any proposal to change an excise tax--one day after the Potter subcommittee had adopted a resolution urging exemption of all-channel sets.¹⁷⁵ About the only industry opposition to the proposal came from the president of a defunct UHF station in Dayton, Ohio, who reminded the Committee that he and many others had

signed the petition to this Congress asking you to remove the theater tax, under the assumption that the price of movies would come down. I am sorry to say in my town, since you have removed the tax, all the theaters have done is stuck that tax in their pocket, and I think the same thing would happen in this case.¹⁷⁶

¹⁷³Television Digest, Vol. 9, No. 41, October 10, 1953, p. 11.

¹⁷⁴Television Digest, Vol. 10, No. 20, May 15, 1954, p. 3.

¹⁷⁵Television Digest, Vol. 10, No. 22, May 29, 1954, p. 1.

¹⁷⁶Woodyard, Ronald B. Testimony before Senate Commerce Committee, Potter Hearings, May 21, 1954, p. 367.

Another objector to the excise tax proposal was the owner of a UHF station in San Francisco, who excoriated set makers for "asking for a handout," and suggested that excise taxes from TV sets be distributed as a subsidy "to the dying patient, the UHF telecaster."¹⁷⁷

These minority comments were ignored by the Committee, which passed another resolution calling for the exemption.¹⁷⁸ This time the Senate Finance Committee accepted a compromise which would allow a tax credit of seven dollars on all-channel sets, the seven dollar figure being a "realistic" estimate of the manufacturing cost difference between the two types of tuner.¹⁷⁹ Although this particular bill was not acted upon by the Senate during that session of Congress, it was reintroduced (with others having the same intent) the following February.¹⁸⁰

At the start of the 84th Congress, Senator Magnuson and the Senate Commerce Committee became the champions of the several bills to eliminate the excise tax on all-channel sets. Even the majority and minority reports of the Communications Subcommittee of the 83rd Congress (Potter Committee) agreed that UHF would be greatly helped by the excise tax exemption. Notwithstanding the fact that Senator Magnuson's April 1955 meeting with set manufacturers failed to bring forth a pledge to build all-channel sets

¹⁷⁷Patterson, S. H. Testimony before Senate Commerce Committee, Potter Hearings, May 21, 1954, p. 456.

¹⁷⁸Television Digest, Vol. 10, No. 30, July 24, 1954, p. 2.

¹⁷⁹Television Digest, Vol. 10, No. 31, July 31, 1954, p. 1.

¹⁸⁰Television Digest, Vol. 11, No. 8, February 19, 1955, p. 12.

exclusively, it did place on record the unanimous support of the television set makers who held that if such a tax proposal were adopted it would result in disappearance of VHF-only sets from the marketplace.¹⁸¹ Administration opposition to tax legislation in that session of Congress effectively killed the bill to exempt all-channel receivers, with the Treasury Department objecting not only to the loss of \$100,000,000 in revenue, but to the basic principle.¹⁸² An attempt to push the bill through the House Ways and Means Committee also failed,¹⁸³ although the RETMA attacked the Treasury's stand that removal of the excise tax would constitute a "concealed subsidy."¹⁸⁴

In the following session of Congress, the manufacturers tried again to obtain tax relief, despite the Administration's fear of loss of revenue. Both the manufacturers and the Senate Commerce Committee worked hard at pushing the bill through, but failed once again. Even a last-ditch all-industry attempt, with support from Magnuson and the Commission, failed to obtain passage of the relief bill over Treasury Department opposition.¹⁸⁵

¹⁸¹Television Digest, Vol. 11, No. 18, April 30, 1955, p. 2

¹⁸²Television Digest, Vol. 11, No. 27, July 2, 1955, p. 2.

¹⁸³Television Digest, Vol. 11, No. 31, July 30, 1955, p. 3.

¹⁸⁴Television Digest, Vol. 11, No. 42, October 15, 1955, p. 14.

¹⁸⁵Television Digest, Vol. 12, No. 2, February 13, 1956, p. 13; Vol. 12, No. 11, March 17, 1956, p. 2; Vol. 12, No. 13, March 31, 1956, p. 2; Vol. 12, No. 19, May 12, 1956, p. 1; Vol. 12, No. 47, November 24, 1956, p. 2; Vol. 12, No. 48, December 1, 1956, pp. 1, 5; Vol. 12, No. 50, December 15, 1956, p. 9; Vol. 13, No. 13, February 9, 1957, p. 4.

Another attempt to remove the excise tax on all-channel receivers was made by Senator Magnuson, Representative Harris (Chairman of the House Commerce Committee), Representative Ikard, and the Committee for Competitive Television in the spring of 1957.¹⁸⁶

In early December, 1957:

The four-year drive to eliminate Federal excise tax on all-channel TV receivers--considered by many the most constructive single move to alleviate plight of UHF telecasters--is due to reach now-or-never climax next week when House Ways & Means excise tax subcommittee votes on issue.

For three successive years, industry luffed its opportunity to get measure passed--due to an inexplicable lethargy on part of manufacturing and telecasting interests, even UHF telecasters. When voting time came up, important committee members were only vaguely aware of what proposal was all about.

This year, under leadership of UHF-organized Committee for Competitive TV, and with active cooperation of NARTB, telecasters have conducted quiet but hard-hitting campaign, taking full advantage of unanimous endorsement of tax relief by Senate and House Commerce Committees and FCC to counter-balance Treasury Dept.'s opposition. Set manufacturers, through Electronic Industries Assn., have again endorsed the measure this fall.¹⁸⁷

Although this extensive lobbying was beginning to show signs of success, the appearance of the Soviet earth satellite and reports on the inadequacies in our national defense posture removed all possibility of tax relief once again.¹⁸⁸

While the proposal to remove the excise tax on sets capable of receiving UHF is not dead (the FCC's April 23, 1959

¹⁸⁶Television Digest, Vol. 13, No. 29, July 20, 1957, p. 7; Vol. 13, No. 31, August 3, 1957, p. 7; Vol. 13, No. 33, August 17, 1957, p. 8.

¹⁸⁷Television Digest, Vol. 13, No. 50, December 14, 1957, pp. 3-4.

¹⁸⁸Television Digest, Vol. 13, No. 51, December 21, 1957, p. 2.

allocation recommendations also called for tax relief) it appears no closer to passage now than it did five years ago. Many of the UHF stations which had to leave the air would have been helped by a lower cost for UHF television sets, even though questions of receiver quality now loom almost as high. It has also been recognized that increasing the availability of receivers could not correct the basic imbalances of an intermixed allocations structure.

The Big Show: Major proposals and maneuverings

Major proposals.--It was pointed out previously that the present VHF-UHF intermixed system cannot provide the United States with nationwide competitive service. The minor proposals described in the preceding sections are palliative in nature and intent. At best, they can only afford a small amount of relief to the strain on the present allocation structure, unless used in conjunction with an over-all plan or proposal.

There are three major proposals, and an infinite amount of detail and variation associated with each. The three are: creating an all-VHF system, creating an all-UHF system, and, as a compromise, complete or selective deintermixture. Almost no one believes that the twelve existing VHF channels can provide a nationwide, competitive service by themselves.

The all-VHF system depends upon obtaining additional VHF channels, preferably contiguous to one of the existing VHF television bands. Since the military (chief user of the VHF band, apart from television and FM broadcasting) desires to keep what it has, unofficial offers of the entire UHF television portion of the

spectrum in exchange have not borne fruit. As the number of additional channels which might thus be obtained is small, the proponents of an all-VHF system suggest that channel sharing devices such as directional antennae, cross-polarization, drop-ins, and the like be employed. Spokesman for the group which would prefer the condition of scarcity to continue insofar as competitive VHF television channels are concerned, is the Association of Maximum Service Telecasters, with the support of the networks and other large VHF operators. Advertisers, in general, also favor the principle of maximum coverage by a limited number of stations. This group believes in an all-VHF system in preference to an all-UHF system or deintermixture, since under any sort of an all-VHF system the condition of channel scarcity is likely to continue, and in any event, the advantages of extensive range and preferred status with advertisers are likely to continue unless the existing VHF stations are disturbed and are forced to shift to a more competitive situation with reduced audience potential.

The backers of the all-UHF system are not numerous. Many of the most energetic members of such organizations as the Committee for Competitive Television or UHF Industry Coordinating Committee favor deintermixture, but do not favor an all-UHF system, possibly since they may hope to obtain a VHF channel under deintermixture. Theoretically, an all-UHF system would enable all stations to start out with the same technical potential,¹⁸⁹ much

¹⁸⁹ At the present time there are differences between the high and low ends of the UHF band which have not been overcome. Although the Commission has stated several times (see Television Digest, Vol. 10, No. 11, March 13, 1954) that it recognizes no differences between UHF channels, it has had to grant many petitions to shift from high UHF channels to lower UHF channels in

as FM broadcasting did. Although there has been some doubt expressed (as far back as the Sixth Report and Order) that the seventy UHF channels are sufficient, they would certainly provide more service to the nation, if properly spaced, than the twelve present VHF channels. The greatest handicap the proposal to move to an all-UHF system has to face is the tremendous investment in both receivers and transmitting equipment. It is certain that a good many years would be needed to effect a change over to an all-UHF system. Nevertheless, an all-UHF television system would meet the Commission's goal of nationwide, competitive, broadcasting--while still allowing maximum service from each station and thus an equal chance to gain economic support in the same community with other stations--better than either of the two alternative major proposals.

Selective deintermixture has been the most frequently advocated major plan for alleviating the plight of UHF stations, and thus salvaging the present VHF-UHF eighty-two channel system of television. Although the Commission has blown both hot and cold, UHF station operators have maintained a united front favorable to this suggestion. In efforts to obtain some action, the

order to keep the petitioning stations from leaving the air (see Television Digest, Vol. 11, No. 1, January 1, 1955, p. 7). The FASO report clearly points out the differences in reception and propagation between these frequencies. An even more disturbing situation may develop, as for example the repeated burning out of its antenna by a station on Channel 73, which concluded that the physical dimensions of a Channel 73 antenna do not allow enough insulating space to handle high power operation (Television Digest, Vol. 10, No. 30, September 4, 1954, p. 14). However, in the early days of television the differences in propagation between the low VHF (Ch. 2-6) and the high VHF (Ch. 7-13) bands were considered to be even greater, and more likely to prevent equal competition between stations on the two bands. There is still a slight tendency to prefer a low-band VHF channel over a high-band VHF channel.

UHF operators have become quite sophisticated in their maneuverings back and forth between the FCC and the various committees of Congress. Selective deintermixture is also favored by the networks since it would give them additional markets with three or more stations, enabling them to pick and choose their affiliates with more care as well as to cover additional segments of the population. Selective deintermixture, as opposed to complete or general deintermixture, would affect only a limited number of markets. This would keep the basic advantages of the networks and larger stations relatively stable compared to the dislocations of general deintermixture or shifting to an all-UHF system.

Maneuverings: Congress, the Commission and the UHF-VHF problem:

The proposals described in the previous section, and their proponents and opponents, were very active from 1954 to the present time. Even in 1952 and 1953 undertones of forthcoming conflicts were evident. As time went on, two opposing groups took form, typified by the members of the Association of Maximum Service Telecasters and the Committee for Competitive Television. The former represented the bigger VHF stations in the larger communities, while the latter represented many of the struggling UHF station owners. A third force, the Congress, represented the desires of its constituents for continuation of television service by any feasible means. The FCC chose delay as the path of least resistance, allowing many of its decisions to be made by Congressional committees.

With the Commission, the networks, advertisers, and AMST all counseling or advocating the status quo, it was up to the UHF

operators to lobby for action which would improve their position. To this end, the UHF (and VHF stations in the smaller communities which were also fighting the inroads of large VHF stations) scurried from Commission to Congress and back again, fighting for many causes, such as excise tax exemption for all-channel receivers, deintermixture, a crackdown on illegal VHF boosters, and the like. Self-interest ruled, and the multiplicity of "fact-finding" advisory and study groups were unable to agree upon a course of action which would be of maximum benefit to the nation as a whole.

The most active bodies in the fray were the various committees of Congress to whom constituent clamor gave some excuse for being interested in the publicity-value-loaded subject of television. Although at first the committees (typified by the Senate Committee on Interstate and Foreign Commerce) were only interested in speeding up Commission application processing lines to get service to their constituents more rapidly, they soon turned to the plight of the small businessman as well as the number of program services available to their constituents. To this end, the UHF operator's complaints were listened to sympathetically by the various committees--until or unless the suggested corrective actions would interfere with the immediate benefits or desires of the constituents of the individual Senators or Representatives involved. For example, many Senators favored the principle of deintermixture--as long as it was some city in another Senator's district that had to be switched to an all-UHF area. An additional role of the Congress, which had an indirect effect upon allocations and the efficient functioning of the Commission as well, was

that of moral overseer of the FCC. No less than four investigations into the functioning of the Commission and possible unfair or underhanded decisions and dealings were conducted in this period. These investigations did turn up several "unfortunate" and even apparently dishonest¹⁹⁰ dealings on the part of the Commission; the resulting outcry and scrutiny making the FCC even more cautious than usual in its deliberations.

In the beginning

Although the television freeze lasted for over three and a half years, the Commission was under tremendous pressures that led to "awkward elephantine haste"¹⁹¹ and possibly slipshod work at the end. Indicative of this haste were a number of errors in mileage computations and the like,¹⁹² and failure to take time to answer the scathing charges brought by Commissioner Jones in his carefully documented dissent to the Sixth Report and Order. It was this latter failure, rather than a lack of painstaking effort with details, which has caused the FCC great difficulty since 1952. At the time the Commission was unwilling to spend even a day (Commissioner Jones's views were submitted to his colleagues on April 10, 1952, and the Sixth Report and Order was

¹⁹⁰Commissioner Mack was indicted in 1958 for conspiracy arising out of the grant of a Miami television station as the result of the (Harris) Subcommittee on Legislative Oversight of the House Committee on Interstate and Foreign Commerce investigation into the Federal regulatory commissions and agencies. The first trial resulted in a hung jury.

¹⁹¹Television Direct, Vol. 8, No. 15, April 12, 1952, p. 1.

¹⁹²Television Direct, Vol. 8, No. 18, May 3, 1952, p. 2.

adopted on April 11th) in re-evaluation of the majority's collective judgment in light of Jones's criticisms. Not only were the broadcasting and manufacturing industries, the networks, the communities with limited or no television service, and potential applicants by the score waiting for the end of the freeze, but Senator Johnson (whose home state of Colorado was without TV, but who kept the color issue burning, thereby lengthening the freeze considerably) was threatening to pry a decision loose by a legislative "Caesarian."¹⁹³

Congressional prodding began quite early in the freeze, reaching serious proportions in the spring of 1951 when Senator Johnson began to ask the Commission to hurry up its decision.¹⁹⁴ Special hearings were held in the summer of 1951 on the subject of the freeze and its possible terminal date.¹⁹⁵ During the early part of 1952 the clamor grew, with Senator Johnson wondering why the FCC had not asked for funds to hire new hearing examiners, who would be needed to make initial decisions between applicants in competition for specific channels.¹⁹⁶ At hearings on the nomination of Commissioner Bartley, Senator Ken complained, "But when we asked the FCC if it needed any remedial legislation to speed things up, they didn't come to us." Other Senators, such as

¹⁹³Television Digest, Vol. 6, No. 15, April 12, 1952, p. 2.

¹⁹⁴U.S. Senate Commerce Committee. Hearings on the Renomination of Wayne Coy to the FCC, May 29, 1951.

¹⁹⁵U.S. Senate Commerce Committee. FCC policy on television freeze and other communication matters. Hearing, 82nd Congress, 1st Session, July 18, 1951.

¹⁹⁶Television Digest, Vol. 6, No. 2, January 8, 1952, p. 2.

McFarland, Bricker, Tobey, Lyndon Johnson, Hunt, Magnuson, McMahon and Capehart echoed these sentiments, with Senator Edwin Johnson commenting that the FCC's belated request for greater appropriations to augment its television staff

stands as a monument to the stupidity of the Commission itself. It has just rocked along all this time without coming to Congress and asking for help. I don't know whether I dare go home. The people of my state don't like to be considered second class citizens. Their patience is exhausted.¹⁹⁷

The same line of comment was heard during the hearings on the nomination of Commissioner Hyde, with the Senators openly incredulous that the House Appropriations Committee would have cut two million dollars from the FCC budget if the FCC had not presented extremely weak testimony.¹⁹⁸ This desire of a generally budget-slashing Senate for increased FCC activity was probably accounted for by two reasons: 1) the incessant demands of TV-hungry constituents, and 2) the example of Senator Kefauver, who became a top presidential aspirant through the power of television.

The FCC needed a great many additional persons on its TV staff, since the processing load in non-contested applications was enough to overwhelm it, not to mention the effect of competing applications for the same facility. The haste with which the FCC operated during the months which followed the end of the freeze led to difficulty, however. A Court of Appeals decision in 1955

¹⁹⁷U.S. Senate Commerce Committee. Hearings on the nomination of Robert T. Bartley to the FCC. February 29, 1952. (See Television Digest, Vol. 8, No. 9, March 1, 1952, p. 4.)

¹⁹⁸U.S. Senate Commerce Committee. Hearings on the nomination of Rosel H. Hyde to the FCC. May 14, 1952. (See Television Digest, Vol. 8, No. 20, May 17, 1952, pp. 1-2.)

condemned the FCC, and held that the Commission's desire to expand TV service after the long freeze was no excuse for hasty action; that the FCC had the duty to explore far more deeply into every application than was sometimes done during 1952 and 1953.¹⁹⁹ The necessity to process applications rapidly in order to forestall industry and Congressional complaints (and other forms of political and economic pressure) did not let up until 1956, when the "hard core" of competitive hearings, some with "records of nine, ten and twelve thousand pages,"²⁰⁰ were mostly all decided. Not only were the Commissioners under pressure from individual Congressmen to clear rapidly the freeze-produced application backlog, but Senator Tobey even took advantage of his position as Chairman of the Senate Commerce Committee to delve into the entire question of the FCC workload²⁰¹ and the Commission's policy with respect to educational television reservations.²⁰²

During 1953, the FCC worked away at its application backlog, with very few changes made in the fabric of the Sixth Report and Order. In addition to the abortive network-UHF relations study by the FCC mentioned in an earlier section,²⁰³ the

¹⁹⁹Television Digest, Vol. 11, No. 25, June 18, 1955, p. 3.

²⁰⁰U.S. House Committee on Appropriations. Hearings, 84th Congress, 2nd Session on Independent Offices Appropriations for 1957 (Federal Communications Commission), February 15, 1950, p. 1481.

²⁰¹U.S. Senate Commerce Committee, Hearings, 83rd Congress, 1st Session on Workload of the Federal Communications Commission, May 18, 1953.

²⁰²U.S. Senate Commerce Committee, Hearings, 83rd Congress, 1st Session on Educational Television, April 16 and 21, 1953.

²⁰³See page 333 and Television Digest, Vol. 9, No. 31, August 1, 1953, p. 1; Vol. 9, No. 33, August 15, 1953, p. 1;

Commission issued minor proposals such as assigning some thirty-five UHF channels to "tight" cities to eliminate hearings and speed grants,²⁰⁴ changes in the method of measuring mileage separations (between transmitters rather than postoffices wherever possible)²⁰⁵ and the like.

The Commission also stood firmly behind its policies and procedures laid down in the Sixth Report and Order. It remained adamant on its rules that no petitions for changes in the allocation table would be entertained until a year had passed,²⁰⁶ that educational channel reservations were practically inviolate,²⁰⁷ and that the Commission had no intention of letting UHF stations or construction permit holders apply to switch to VHF without first giving up their UHF channel and receiving a "black mark" for that.²⁰⁸

The latter proposal had been one of the first moves of the newly formed Ultra High Frequency TV Association (UHF TV Assn.), formed in October of 1953 to promote all aspects of UHF. This

Vol. 9, No. 34, August 22, 1953, p. 6; and Vol. 9, No. 35, August 29, 1953, p. 4.

²⁰⁴Television Digest, Vol. 9, No. 37, September 12, 1953, p. 4.

²⁰⁵Television Digest, Vol. 9, No. 38, September 19, 1953, p. 3. This applied only in the case of an existing station's operating site.

²⁰⁶Television Digest, Vol. 9, No. 5, January 31, 1953, p. 5.

²⁰⁷Walker, Paul A. (FCC Chairman) Testimony before U.S. Senate Commerce Committee Hearings, 83rd Congress, 1st Session on Educational Television, April 16, 1953, pp. 2-24.

²⁰⁸Television Digest, Vol. 9, No. 44, October 31, 1953, p. 12.

organization's activities in its first few months included petitions to the FCC to avoid further intermixture (there was pending at that time a proposed assignment of additional VHF channels to such basically UHF cities as Milwaukee), to drop processing procedures that permitted granting of VHF applications at a faster pace than originally contemplated (such as rapid approval of mergers between two or more applicants for the same channel), and permitting application for a VHF channel while occupying a UHF assignment in the same city.²⁰⁹ The UHF TV Association also sounded out policies of advertising agencies and networks toward UHF,²¹⁰ organized a "UHF Information Center,"²¹¹ and asked for a "realistic" depreciation base for tax purposes on the rapidly-
obsolescent UHF transmitting equipment.²¹²

During the early part of 1954, there was much sparring as the positions of the various protagonists became clearer. Senator Johnson questioned the FCC's proposed rule to permit multiple ownership of five VHF and two UHF stations.²¹³ Commissioner Sterling, an engineer, suggested the licensing of commercial boosters and satellites and other technical and

²⁰⁹Television Digest, Vol. 9, No. 43, October 24, 1953,
p. 7.

²¹⁰Television Digest, Vol. 9, No. 46, November 14, 1953,
p. 5.

²¹¹Television Digest, Vol. 9, No. 51, December 19, 1953,
p. 6.

²¹²Television Digest, Vol. 9, No. 52, December 26, 1953,
p. 8.

²¹³Television Digest, Vol. 10, No. 3, January 16, 1954,
p. 3.

procedural assists to UHF.²¹⁴ The FCC proposed a "floor" on UHF power standards considerably higher than the one then in effect, only to meet with UHF station opposition.²¹⁵ The Commission also proposed a couple of ineffectual rule changes to make it easier for UHF stations to obtain network affiliation,²¹⁶ and worked toward adoption of the rule on multiple ownership. The UHF TV Association was active, condemning the "invasion" of UHF markets by VHF stations in a letter to the FCC,²¹⁷ and writing Senator Johnson to ask that Congress impose a small-scale "freeze" in all markets where UHF stations are in operation and VHF applications were pending. Speaking for himself, the President of the

²¹⁴Television Digest, Vol. 10, No. 5, January 30, 1954, p. 5; and Vol. 10, No. 8, February 20, 1954, p. 1.

²¹⁵See pp. 291-292 & 306, also Television Digest, Vol. 10, No. 8, February 20, 1954, p. 1; Vol. 10, No. 9, February 27, 1954, p. 1; Vol. 10, No. 16, April 17, 1954, p. 6; Vol. 10, No. 17, April 24, 1954, p. 11; Vol. 10, No. 48, November 27, 1954, p. 9; also U.S. House Committee on Appropriations, Hearings, 84th Congress, 2nd Session, on Independent Offices Appropriations for 1957 (Federal Communications Commission), February 15, 1956, p. 1335:

Rep. Boland: As I understand it, last August the Commission increased the power of UHF stations and that was poison to a lot of hometown television stations. Is that right?

Chairman McConaughy: And reversed it right away. It never went into effect.

Rep. Boland: I commend the FCC for its reversal. There is a big problem in zone I. I am sure the FCC is composed of gentlemen who are concerned with the survival of hometown television stations. I know there are a lot of factors that have to be taken into consideration, but it does seem it should be given more thought by the Commission. The activities of the hometown television stations and their suggestions to the Commission I believe require study and some favorable action. Monopoly in TV must be discouraged if the public interest is to be protected. The public interest demands a fair shake for the small individual hometown station.

²¹⁶Television Digest, Vol. 10, No. 14, April 3, 1954, p. 3.

²¹⁷Television Digest, Vol. 10, No. 4, January 23, 1954, p. 14.

Association said that "it would be hopeless to reason with the FCC along these lines."²¹⁸

Potter Committee Hearings, 1954

Television's biggest event of 1954 was the series of hearings by the Potter (Communications) Subcommittee of the Senate Commerce Committee on "Status of UHF and Multiple Ownership of TV Stations."²¹⁹ UHF station operators strove to form a united front in strategy and tactics even though two separate organizations were in existence. The UHF TV Association's counsel, William A. Roberts, played a large part in the 1955 Allocation Hearings and afterwards served as counsel for the TBA and for DuMont. The UHF Industry Coordinating Committee hired former FCC General Counsel Benedict Cottone as its representative.²²⁰

Armed with the results of an FCC survey of the financial situation for post-freeze television stations²²¹ and the fact that UHF stations were leaving the air in alarming numbers,²²²

²¹⁸ Television Digest, Vol. 10, No. 9, February 27, 1954, p. 7.

²¹⁹ U.S. Senate Committee on Interstate and Foreign Commerce. Hearings before the Subcommittee on Communications, 83rd Congress, 2nd Session on The status of UHF television stations and S. 3095, a bill to regulate multiple ownership of television stations. May 19, 21, 21, June 15, 16, 17, 18, and 22, 1954. (Herein cited as U.S. Senate Commerce Committee Potter Hearings.)

²²⁰ Television Digest, Vol. 10, No. 16, April 17, 1954, p. 3.

²²¹ Television Digest, Vol. 10, No. 21, May 22, pp. 2-3. Also U.S. Senate Commerce Committee, Potter Hearings, pp. 157-171.

²²² In the first four months of 1954, eleven UHF stations went on the air, six quit; at the end of the year there had been twenty-five new starters but twenty-nine failures. Television Digest, Vol. 10, No. 16, April 17, 1954, p. 12; also see Table VI-1-k, p. 298.

the UHF representatives made a strong impression on the Senate Committee. The UHF industry suggested drastic measures, such as moving all television to the UHF band with a five year amortization period for VHF equipment; declaring an immediate freeze until a revised allocation plan was worked out; and limiting color broadcasting to UHF channels only. As an alternative, some UHF operators suggested that all television be moved into the VHF band by adding channels obtained from FII or from the government, and using directional antennae. Deintermixture, although strongly supported, did not have the adherents of the other proposals. Practically everyone supported Senator Johnson's proposal to exempt all-channel receivers from the federal excise tax.²²³

Assured of support from Senator Bricker, who had introduced a network regulation bill just before the Potter Hearings opened, most UHF operators cast the networks as the villains of the piece,²²⁴ while holding recriminations against the FCC to a minimum--characterizing intermixture as an "honest mistake."

One blistering attack was made against the Congress itself during the questioning of FCC members. Television Digest reported Commissioner Hennock's "hysterical outburst" as follows:

"I'm going to take my hair down and blame the Senate as much as the Commission," she shouted, her voice strident, her face growing bright red. Bursting into sobs, she blurted: "I blame the Senate because of Senatorial pressure--when you Senators call up and tell us 'hurry up and give us quick grants for our communities and do it by the most disreputable manner known to man.'"²²⁵

5. ²²³Television Digest, Vol. 10, No. 21, May 22, 1954, pp. 4-

²²⁴Television Digest, Vol. 10, No. 20, May 15, 1954, p. 1.

²²⁵Television Digest, Vol. 10, No. 21, May 22, 1954, pp. 4-

That this contention had some merit was admitted by Senator Potter, who later remarked that he realized that the FCC "had been under great pressure from Congress and others to expedite grants," and that this had contributed to the plight of UHF stations. "The average member of Congress," he confided, "acts as the wind blows."²²⁶

Other members of the Commission were quizzed by Senators Hunt, Johnson and Potter as to their views on the possibility of shifting all television to the UHF. Chairman Hyde maintained that it would be difficult to provide "adequate coverage for congested areas" under such a plan, a view also held by Commissioners Sterling, Webster and Lee.²²⁷

During the May hearings, the Senators were so impressed by the showing made by the proponents of UHF that the drastic remedies proposed by Colonel Roberts were seriously considered as a basis for committee action "immediately after the June hearings are over."²²⁸ The only voice raised in dissent was that of Sarkes Tarzian, tuner manufacturer and VHF broadcaster, who likened the UHF TV Association proposals to "trying to take away something from some people who were, let's say, foresighted enough or fool-hardy enough or crazy enough to go into television in the early

6. Commissioner Hennock's testimony (looking quite palid without the description of her emotional activity) may also be found on pages 322-323 of the U.S. Senate Commerce Committee Potter Hearings (May 21, 1954).

²²⁶ Ibid.

²²⁷ U.S. Senate Commerce Committee. Potter Hearings, May 21, 1954, pp. 320-323.

²²⁸ Television Digest, Vol. 10, No. 21, May 22, 1954, pp. 3-4.

days and set up a service."²²⁹

Stung by the testimony of UHF supporters and worried by the apparently favorable reception given this testimony by the Senate Committee, the "hopping-mad VHF telecasters" prepared their counterattack and made a "united, if tardy" effort to present the strongest possible case when their turn came during the June phase of the Potter Committee hearings. This "united front" was organized by the VHF stations and the networks, with tactical planning under the direction of the law firm of Pierson and Ball. This organization took place "off the floor" during the annual NARTB meeting,²³⁰ and led to some UHF complaints that the NARTB (which represented both VHF and UHF stations) was beginning to take an "anti-UHF" stand. UHF annoyance was directed particularly toward NARTB President Harold Fellows, who had taken a public position opposing the Bricker network control bill, and also at the NARTB TV Board which voted to appear before the Potter committee and "offer factual material of pertinence to a complete record." UHF TV Assn. counsel Roberts stated heatedly that: "There can be no doubt now of the intention of the 'fat cats' to

²²⁹Tarzian, Sarkes. Testimony before U.S. Senate Commerce Committee, Potter Hearings, May 21, 1954, p. 419.

²³⁰An interesting example of Commission dissention took place at a round-table discussion between six Commissioners at the NARTB convention. Commissioner Hennock insisted on inserting her views favoring an all-UHF system. Commissioner Sterling angrily took issue with her and drew cheers by saying, "I consider that a direct attack against the engineers of the FCC staff and the industry." Commissioner Doerfer also disapproved of Hennock's stand and commented, "I dissent from all of that except the part against sin." Television Digest, Vol. 10, No. 22, May 29, 1954, p. 3.

use their enormous power and resources to prevent any salvation for UHF TV."²³¹

The informally organized VHF organization settled upon a platform asking the Senate not to help UHF by hurting VHF. Specifically objected to were the proposals for deintermixture, reimposition of the freeze, moving all television into the UHF, and any steps to reduce power of VHF stations. Constructively, the group advocated boosters and satellites for both UHF and VHF stations and "encouraged" production and distribution of all-channel tuners.²³² The VHF group emphasized that no one was forced to go into television, and that the UHF operators only wanted to eliminate competition. Although the testimony stressing "free enterprise" and the dangers of too much regulation impressed many of the Senators, attorney Pierson aroused some Senatorial resentment²³³ when he concluded his presentation by saying:

Many of these (allocation) problems are vastly more complex and complicated, both with respect to social and economic factors than one could expect five busy Senators to solve in a 7-day hearing. We...suggest...that you submit this record to the Commission without recommendations.²³⁴

The networks also made their points during the second phase of the Potter hearings, by supporting deintermixture,

²³¹Television Direct, Vol. 10, No. 22, May 29, 1954, pp. 1-2.

²³²Television Direct, Vol. 10, No. 23, June 5, 1954, pp. 2-3.

²³³U.S. Senate Commerce Committee, Potter Hearings, June 18, 1954, p. 801. Senator Potter replied, "To carry your suggestion to the extreme, we would destroy representative government, wouldn't we?"

²³⁴Ibid.

removal of the excise tax on all-channel sets, and multiple ownership expansion, but otherwise presenting plans based on the needs of each particular network. For instance, ABC's first priority was to find enough VHF channels to support adequately three networks. CBS was not sure that deintermixture would work, pointing out that about one million homes would probably lose television service, but that the proposal was worth looking into. CBS denounced, with considerable cost data, shifting all television to the UHF. Sniping between the networks was very striking, with attacks derived from the disparate competitive positions held by ABC and DuMont in relation to CBS and NBC. The Bricker network control bill also came under network attack, but the DuMont plan whereby all stations would get equal amounts of network programming and networks would get equal time of all stations drew the strongest fire.²³⁵

The Potter subcommittee was unwilling to take upon itself the responsibility of demanding an immediate reallocation or a freeze since only Commissioner Hennock disapproved strongly of the existing allocation. The deliberations of this committee, which also considered Commissioner Bartley's suggestion that a committee be set up to investigate the use of frequencies by the Federal government,²³⁶ came up with two recommendations: 1) to establish an ad hoc advisory committee for further fact finding on allocations, and 2) to urge the full Commerce Committee to endorse

²³⁵Television Digest, Vol. 10, No. 25, June 19, 1954, pp. 4-5.

²³⁶Television Digest, Vol. 10, No. 29, July 17, 1954, p. 4.

the excise-tax exemption on all-channel sets.²³⁷ Soon afterwards, the committee seemingly bogged down in Republican political wrangles between Bricker (an "old guard" Republican) and Potter (an "Eisenhower liberal").²³⁸ While the committee had held hearings and had considered its findings, some eight UHF stations left the air. With Senator Bricker in the driver's seat, the networks absorbed the Senate Commerce Committee's attention for a few months, with little attention being paid to the UHF-VHF problem itself.

Deintermixture and networks, 1954-1956

While Bricker investigation of network operations continued quietly,²³⁹ the FCC arena was also relatively quiet. The Commission did propose the establishment of satellite stations (which would be the first breach in the Commission's duopoly rule--e.g., two stations under the same ownership covering an overlapping area), and also pushed ahead with its new rule permitting an owner to have two UHF stations in addition to the previous limit of five VHF stations.

In September 1954, the next tempest began to form. Selective deintermixture emerged as the major strategy of financially

²³⁷Television Digest, Vol. 10, No. 30, July 24, 1954, p. 2.

²³⁸Television Digest, Vol. 10, No. 31, July 31, 1954, p. 1.

²³⁹This probe developed into the Magnuson Television Inquiry hearings of the 84th through 86th Congresses. Under Bricker's direction, the majority and minority counsel of the committee (ex-Commissioner Jones and ex-Assistant General Counsel Plotkin of the FCC) turned in their Reports, and Senator Bricker himself submitted his report on the Network Monopoly in 1956.

pressed stations in some intermixed markets. The first formal petition filed after the Potter hearings was for deintermixture of the Madison, Wisconsin, area,²⁴⁰ although petitions for cities such as Waco, Texas, and Peoria, Illinois soon were presented for FCC consideration. Even as more deintermixture petitions arrived, the Commission was deciding in the Waco case that:

It is fair and reasonable that this assignment should be changed in the manner here proposed only upon a clear showing that the public interest requires such a change (and we) are of the view that such a showing has not been made.²⁴¹

This rejection by the FCC of the first deintermixture petitions (Peoria and Waco) kindled the interest of the Senate Commerce Committee which questioned the new FCC chairman, George McConnaughey, about the Peoria decision. McConnaughey declined to comment, saying he would first "have to make a study of it."²⁴² Later in the hearing, Senator Monroney said that McConnaughey had voted in the Peoria case for the VHF side, rather than not participating or asking more time for study.²⁴³ When a second hearing on his nomination was held (this time under a Democratic Chairman), the question of deintermixture came up again, with Senator Pastore of Rhode Island adding his comments favoring deintermixture to those of Senators Johnson and

²⁴⁰Television Digest, Vol. 10, No. 36, September 5, 1954, p. 8.

²⁴¹Television Digest, Vol. 10, No. 43, October 23, 1954, p. 4.

²⁴²U.S. Senate Committee on Interstate and Foreign Commerce. Hearing, 83rd Congress, 2nd Session, on Nomination of George C. McConnaughey to Federal Communications Commission, November 9, 1954, p. 10.

²⁴³Ibid., p. 14.

Monroney. This time McConnaughey replied that:

I think that very likely it would be wise...that the Commission should consider rulemaking, on a selective basis, possibly in deintermixture. As you well know, that involves a good many problems. When you start to de-intermix, and you just willy-nilly say we will intermix, it is not that easy, because there are too many problems involved with reference to the public who already have hundreds of thousands of VHF receiver sets.²⁴⁴

Early 1955 was a worrisome time for the networks and the VHF station operators. Senator Magnuson (the new Senate Commerce Committee chairman) proposed a major extension of the Potter and Bricker probes into the UHF-VHF problem and the networks.²⁴⁵

There was an unfounded scare that the military were asking for use of some of the lower VHF television channels.²⁴⁶ The most important event in the first weeks of 1955 was the issuance of the so-called "Plotkin Report" on Television network regulation and the UHF problem.²⁴⁷ In this report, the ex-Assistant General Counsel

²⁴⁴U.S. Senate Commerce Committee, Hearing, 84th Congress, 1st Session, on Nomination of George C. McConnaughey to Federal Communications Commission, February 23, 1955, p. 5.

²⁴⁵Television Digest, Vol. 11, No. 2, January 8, 1955, p. 5. Magnuson planned to spend \$100,000 on the investigation, utilizing a staff of nine. In addition, the co-author of the Communications Act of 1934, ex-Senator Dill, was asked to "take the Plotkin Memorandum and make legislative recommendations for changes in the Communications Act."

²⁴⁶Television Digest, Vol. 11, No. 5, January 29, 1955, p. 2.

²⁴⁷U.S. Senate Commerce Committee. Television network regulation and the UHF problem. Memorandum prepared for the committee by Harry L. Plotkin, Special Counsel, Committee Print, 84th Congress, 1st Session, February 1, 1955.

of the FCC made several suggestions about network practices, including forced affiliation to stations serving any area not yet served by a network affiliate, and restricting the amount of time any VHF station in a market with fewer than four VHF outlets can devote to any one network. Plotkin felt that it was now too late for the desirable all-UHF allocation, but that selective deintermixture and removal of the excise tax²⁴⁸ would be of help to existing stations operating in the UHF.

Close on the heels of the Plotkin Report came another staff report, this one by Republican minority counsel and ex-FCC Commissioner Robert F. Jones.²⁴⁹ It was originally expected in the trade that Jones would live up to his reputation as a Commissioner and deliver a blistering report condemning the networks. In fact, Television Digest reported that the fears of the networks were "considerably allayed" when Plotkin was appointed to the staff as (then-minority) counsel.²⁵⁰ Instead, it was the Plotkin Report which caused heavy criticism from the networks, and apparently was a "revived manifestation of the strict-control policy of...New Deal days as against the laissez faire policy now more or less prevailing," being the result of antagonism by

²⁴⁸Plotkin's plan for excise tax exemptions had an added feature. He would exempt only if the manufacturer devoted his entire output to all-channel television sets, with certification by a governmental agency needed before approval.

²⁴⁹U.S. Senate Committee on Interstate and Foreign Commerce Investigation of Television Networks and the UHF-VHF Problem. Progress Report prepared for the committee by Robert F. Jones, Special Counsel, Committee Print, 84th Congress, 1st Session, February 10, 1955.

²⁵⁰Television Digest, Vol. 11, No. 7, February 12, 1955, p. 3.

"UHF losers" of affiliations against the networks.²⁵¹ The Jones Report, on the other hand, was a tentative, quiet, and information-seeking study. Although both Jones and Plotkin felt that the networks had too much financial power over the television broadcasting industry, and that the FCC's allocation plan and post-freeze policies were wrong, Jones claimed that there was too little information available for Congress to make any recommendations. As far as the UHF-VHF problem was concerned, Jones felt that the networks could best help UHF by some form of voluntary action, as opposed to Plotkin's demands for government regulation. Accordingly, the Jones Report received much less of the network's ire than did the Plotkin Report.²⁵²

The Commission's comments on the Plotkin and Jones memoranda came a month later. In a letter to the Senate Commerce Committee on March 18, 1955, the FCC claimed that it was doing everything possible, with the exception of selective deintermixture, and that moving all stations to the UHF or adding more VHF channels would:

involve such tremendous dislocation of existing operations and have such a severe impact on millions of viewers that such action should be considered as a possible alternative only if Congress itself were to determine that the long-run benefits to the public required adoption of such drastic remedies.²⁵³

²⁵¹Ibid., pp. 4-5.

²⁵²Television Digest, Vol. 11, No. 8, February 19, 1955, pp. 1-3. Senator Bricker considered that the Jones Report confirmed his anti-network position, and that the networks should be strictly regulated. It should be noted that the Senator hired Jones (an Ohio Republican like himself) personally.

²⁵³U.S. FCC. Letter of March 18, 1955 to Senate Commerce Committee. Television Digest, Vol. 11, No. 12, March 19, 1955, pp. 2-3.

Although the FCC carefully placed the "hot potato" of major changes in the allocation structure in the hands of Congress, it showed annoyance that Congress had not given it credit for the expansion of television since the freeze. The Commission appeared quite proud of its record of changes in multiple ownership rules to permit financially able parties to acquire two UHF stations, authorization of low power satellites, adjustments of the policy on permitting stations to operate their own microwave links to connect with the network, and so on.²⁵⁴ However, passing to Congress the responsibility for any major changes in the television allocation picture fits in with other indications that the initiative in controversial policy matters had passed from the FCC to the Senate Commerce Committee. Reasons attributed to this change were: a Democratic-controlled Congress desiring to keep an eye on a Republican-majority administrative agency, and heavy pressure on Senators and Representatives with respect to the UHF situation from their constituents.²⁵⁵ Indicative of the Commission's urge to please Congress was McConnaughey's reversal of position on the subject of deintermixture during the second set of hearings on his nomination, and the Commission's action in inviting comments on a reconsideration of its denial of previous deintermixture petitions for Peoria, Madison, Evansville (Indiana), and Hartford.²⁵⁶

²⁵⁴Television Digest, Vol. 11, No. 12, March 19, 1955, pp. 2-3.

²⁵⁵Television Digest, Vol. 11, No. 9, February 26, 1955, p. 2.

²⁵⁶Television Digest, Vol. 11, No. 14, April 2, 1955, pp. 2-3.

Although deintermixture continued to occupy the most attention-getting place in the allocation field, other developments were occurring in 1955. General Electric had established an organization, National Affiliated Television Stations, Inc., to provide direct financial assistance, management counsel, national sales organization and a basic film library to stations (particularly UHF) in financial difficulty.²⁵⁷ The Senate Commerce Committee convened an Ad Hoc Advisory Committee on Allocations²⁵⁸ that produced the Bowles Report in 1958. The UHF proponents reiterated their idea for immediate relief in the form of a freeze, as a prelude to deintermixture.²⁵⁹ The Commission took steps to eliminate illegal boosters,²⁶⁰ set a higher power ceiling for UHF (5000 kw) without setting a floor,²⁶¹ and examined the possibility of adding VHF channels obtained from the government.²⁶² In keeping with this latter investigation, "solely to stimulate interest" and without answering the basic question of who was going to pay for moving government stations of VHF channels, Commissioner Lee urged complete reallocation of the

p. 1. ²⁵⁷Television Digest, Vol. 11, No. 12, March 19, 1955,

p. 2. ²⁵⁸Television Digest, Vol. 11, No. 25, June 18, 1955,

p. 3. ²⁵⁹Television Digest, Vol. 11, No. 24, June 11, 1955,

p. 5. ²⁶⁰Television Digest, Vol. 11, No. 14, April 2, 1955,

p. 10; ²⁶¹Television Digest, Vol. 11, No. 22, May 28, 1955,
Vol. 11, No. 20, June 25, 1955, p. 10.

p. 2. ²⁶²Television Digest, Vol. 11, No. 23, June 2, 1955,

spectrum as a "long-range permanent solution" to the allocation problem. One sample allocation plan he suggested included forty-seven contiguous television channels beginning at 60 mc. (Channel 3) and running up to 342 mc.²⁶³ Commissioner Doerfer also presented an allocation plan; suggesting that if the Commission really wanted to help UHF it should go all the way, and move all stations in the major markets, including New York City, to UHF. Favoring the principle of deintermixture, Doerfer claimed to feel that existing deintermixture proposals didn't go far enough, and wondered (with tongue in cheek, according to some observers) why a resident of New York City should enjoy seven channels without conversion costs.²⁶⁴

Letting the question of deintermixture wait, the Commission held meetings with RETMA engineering officials planning what eventually developed into TABO. At these meetings, proposals were considered ranging from the "triangular lattice" plan proposed by O'Brien and Jones during the freeze to the idea of moving all television to UHF.²⁶⁵ However, there appeared to be developing a definite Commission bias in favor of drop-ins on the VHF band, with Commissioners Hyde, Lee and Doerfer making proposals along these lines.²⁶⁶ One action that stirred up a

²⁶³Lec, Commissioner Robert E. "Speaking of the Spectrum," Address before the Engineering Group, NARTB Convention, Washington, D.C., May 26, 1955, mimeo 20219.

²⁶⁴Television Digest, Vol. 11, No. 30, July 23, 1955, p. 5.

²⁶⁵Television Digest, Vol. 11, No. 32, August 6, 1955, p. 5.

²⁶⁶Television Digest, Vol. 11, No. 35, August 27, 1955, p. 1; Vol. 11, No. 36, September 3, 1955, p. 3; Vol 11, No. 37,

tremendous outcry from the UHF Industry Coordinating Committee was the FCC decision to raise maximum VHF antenna height in Zone 1 from 1000 to 1250 feet,²⁶⁷ an act which "renders sterile the solemn commitments made by the Commission to the U.S. Senate, to the public and the broadcast industry concerning measures the Commission had under consideration for remedying the plight of UHF stations."²⁶⁸

In October 1955, the Commission got underway once again on the over-all allocation problem. As an indication of FCC thinking, it is significant that its first concrete action was to ask the Director of the Office of Defense Mobilization to explore the possibility of obtaining some more VHF channels from government users.²⁶⁹ Further evidence of the disrepute of UHF as a medium came when ABC and CBS proposed VHF drop-ins as a major solution, and CBS suggested abandoning the UHF completely if more VHF channels could be obtained.²⁷⁰ Even UHF operators urged the Commission not to make any decisions (even with respect to deintermixture) pending a complete evaluation of the

September 10, 1955, p. 3.

²⁶⁷U.S. FCC. Report and Order in Docket No. 11181, In the matter of amendment of Section 3.614 (b), Rules Governing Television Broadcast Stations, July 20, 1955. This order was rescinded by a Further Report and Order, dated December 1, 1955, adding the antenna height question to the general rulemaking proceeding on television allocations. (Docket 11532)

²⁶⁸Television Digest, Vol. 11, No. 35, August 27, 1955, p. 4.

²⁶⁹Television Digest, Vol. 11, No. 41, October 2, 1955, p. 1. ODM had been delegated the presidential powers over governmental frequency assignment, vice IRAC.

²⁷⁰Ibid.

allocation problem.²⁷¹ The long-awaited Commission report on deintermixture was issued on November 10, 1955. In this report, the Commission voted down the principle of selective or "piece-meal" deintermixture by a vote of four to two. In addition, a drop-in VHF assignment was made to Vail Mills, New York, a tiny community in the Albany-Schenectady-Troy area, in the middle of a basically UHF region.²⁷² The Commission also issued a Notice of Proposed Rule Making recommending general proceedings to cover the entire allocation question.²⁷³ In addition, the Commission issued an order stating that no freeze on authorizations for new television stations will be adopted during consideration of petitions for changes in channel assignments.²⁷⁴ This meant that VHF drop-ins would be considered during the pendency of deintermixture petitions, as in the Elmira case, where, as Commissioner Hyde mentioned in his dissent: "The majority is apparently willing to further aggravate the intermixture problem by piecemeal additions,

²⁷¹Television Digest, Vol. 11, No. 42, October 15, 1955, pp. 1-2.

²⁷²U.S. FCC. First Report and Order on deintermixture, Dockets 11236, 11333, 11334, 11335, and 11336, In the matter of Amendment of Section 3.606. Table of Assignments, Rules Governing Television Broadcast Stations. November 10, 1955, Public Notice 55-1125. (Hereinafter referred to as "U.S. FCC. First Report on Deintermixture, Dockets 11236, et al.")

²⁷³U.S. FCC. Notice of proposed rule making in Docket No. 11532, In the matter of Amendment of the Commission's Rules and Regulations Governing Television Broadcast Stations. November 10, 1955 (FCC Public Notice 55-1124).

²⁷⁴U.S. FCC. Memorandum opinion and order, In the matter of Amendment of Part 3 of the Commission's Rules and Regulations governing television broadcast stations, November 10, 1955 (FCC 55-1126).

but unwilling even to consider corrective action on the same basis."²⁷⁵

The obvious intention of the Commission to get more VHF grants on the air²⁷⁶ was fought fiercely by the UHF operators. Efforts before the Commission, Congress and the courts were successful in a limited way, with the final decisions on granting VHF channels in Madison and Fresno held up by last-minute petitions from the UHF forces.²⁷⁷ In another action, the Court of Appeals issued an order staying the effectiveness of the Vail Mills drop-in assignment.²⁷⁸ This had the effect of holding up all VHF grants in communities where deintermixture petitions were pending, until the court agreed with the Commission that decisions to permit VHF grantees to go ahead in newly intermixed communities were "the sort of quasi-legislative policy decision which is virtually immune from attack in the courts," although the question of drop-ins was something else again.²⁷⁹

²⁷⁵U.S. FCC. Report and Order in Docket No. 1194 (Elmira deintermixture case), November 30, 1955. Vote against deintermixture was four to three, with Hyde, Webster, and Bartley dissenting.

²⁷⁶At this point there was evidence (Television Digest, Vol. 11, No. 47, November 13, 1955, p. 3) that the FCC was negotiating extensively with OLI, and was considering drop-ins on a large scale, and even cross polarization and directional antennae.

²⁷⁷Television Digest, Vol. 11, No. 49, December 3, 1955, p. 2.

²⁷⁸Television Digest, Vol. 11, No. 50, December 10, 1955, p. 2.

²⁷⁹Television Digest, Vol. 12, No. 7, February 18, 1956, p. 4.

Magnuson hearings and post-1956 events

In the spring of 1956, the Magnuson Television Inquiry²⁸⁰ finally got underway, with many Senators grilling the FCC about its deintermixture decision, but at the same time being anxious to keep VHF stations in their own states.²⁸¹ These hearings ran for many months, with testimony generally divided into allocations, network practices, and subscription television.²⁸² In the bulk of testimony by members of the FCC, and going on to the clashes between UHF operators, networks, and VHF operators, these 1956

²⁸⁰ U.S. Senate Committee on Interstate and Foreign Commerce. Television Inquiry. Hearings, 84th Congress, 2nd Session, pursuant to S. Res. 13 and 163. January-July 1956. (Subsequent hearings, pursuant to S. Res. 26, 85th Congress and S. Res. 224, 85th Congress, 2nd Session, were conducted in 1957 and 1958. These Hearings include testimony relative to various versions of Senator Bricker's network control bill; S. 825, 84th Congress, 2nd Session, and S. 376, 85th Congress, 2nd Session.)

²⁸¹ Television Digest, Vol. 12, No. 4, January 28, 1956, p. 2.

²⁸² The Television Inquiry hearings have been published in seven volumes (thus far through June 1958). In addition, several reports have been issued. The Hearing volumes are as follows:

Part 1: UHF-VHF Allocations Problem--testimony of Federal Communications Commission. January 26, February 7, 20, and 21, 1956.

Part 2: UHF-VHF Allocations Problem--testimony of public and industry witnesses. February 27, 28, 29, March 2, 14, 15, 16, 26, 27, 28, May 14, 15, and June 11, and July 17 and 18, 1956.

Part 3: Subscription Television. April 23, 24, 25, 26, 27, and July 17, 1956.

Part 4: Network Practices. March 26, 27, 28, May 14, 15, June 11, 12, 13, 14, 15, 18, 19, 20, and July 17, 1956.

Part 5: Allocations--testimony of FCC; Additional supplement on network practices. March 5, 14, and 15, 1957.

Part 6: Review of allocation problems; special problems of TV service to small communities; S. 376, to authorize FCC to regulate networks. May 27, 28, 29, June 3, 4, 24, 25, 26, and July 1, 1958.

Part 7: Television Rating Services. June 26, 1958.

hearings were, in general, an enlarged version of the Potter hearings of 1954, with most of the same participants and issues.

The urgency of the 1954 hearings gave way to a sense of frantic grasping at straws in 1956. Between fifty and sixty UHF stations had left the air, and literally hundreds of construction permits had been returned. Although, with this trend, it seemed that nothing short of Senator Bricker's proposed bill to move all television to the UHF over an eight-year period²⁸³ would save UHF, the UHF operators apparently would have been pleased to get the lesser boons of deintermixture, excise tax removal, and possibly some governmental action to force the manufacturers to produce more all-channel sets. Above all, the UHF operators pleaded for immediate action, whether in the form of deintermixture or enough VHF drop-ins so that all may compete on equal terms.²⁸⁴ To add strength to their pleas, a new group called the Committee for Competitive Television was formed by the UHF Industry Coordinating Committee and the Committee for Hometown TV. The major tactic of this group was to stir up "grassroots" support and pressure upon local Congressmen.²⁸⁵

While the Magnuson committee hearings were in progress, the FCC was holding its own hearings on the television allocation problem. Testimony was heard generally from the same participants as in the Senate probe. Some participants virtually wrote off UHF, as did CBS vice-president William B. Lodge, who advanced two

²⁸³Television Digest, Vol. 12, No. 3, January 21, 1956, p. 2.

²⁸⁴Television Digest, Vol. 12, No. 9, March 3, 1956, p. 6.

²⁸⁵Television Digest, Vol. 12, No. 11, March 17, 1956, p. 2.

plans: one calling for a large number of drop-ins, and the other for procurement of seven additional VHF channels. Others, such as NBC's Joseph V. Heffernan, thought that deintermixture was just a "holding operation" and that excise tax relief for UHF color sets was "offering the UHF people what they are looking for" and, of course, might help RCA sell some slow-moving color receivers. Carefully on the lookout for its own interests, ABC revived the old DuMont proposal that stations share their service equally among the three networks that were left.²⁸⁶

The Commission's hopes for additional VHF channels were dampened by an Office of Defense Mobilization report to the effect that "National security requirements ...preclude the release for non-Government use of any of the very high frequencies now utilized by the Federal Government."²⁸⁷ Accordingly, the Commission turned to a closer examination of deintermixture and to the establishment of the UHF translator service for rebroadcasting commercial programs from a "mother" station as both an aid to UHF and as a means of replacing the large number of illegal VHF boosters.²⁸⁸ Through the spring of 1956, the "great debate" over allocations went on, with the Senate Commerce Committee examining

²⁸⁶Television Digest, Vol. 12, No. 12, March 24, 1956, p. 5.

²⁸⁷U.S. FCC. Public Notice 30856. "Interdepartment study concludes that government can't release any of its VHF spectrum space." April 30, 1956.

²⁸⁸U.S. FCC. Report and Order in Docket No. 11611. In the matter of amendment of the Commission's rules and regulations to permit the operation of TV translator stations in conjunction with the primary transmitter. May 23, 1956.

virtually every facet. The Commission still considered deintermixture as more VHF stations began operating in previously non-intermixed UHF areas.²⁸⁹ The Commission also considered a proposal to drop the allocation table and permit VHF stations to be established wherever room could be found, much as the A₁ band is organized today;²⁹⁰ and to make the entire crowded Eastern portion of the United States UHF over a ten year transition period.²⁹¹ The latter suggestion had particular engineering merit due to the absence of mountain and rural areas more than forty miles from markets large enough to support a station.

Although the Senate resisted the pressure to "instruct" the FCC to come up with an allocation plan involving deintermixture,²⁹² there was no doubt that the Senate Commerce Committee was anxious during the FCC deliberations, and pleased when the Commission appeared to be planning to do something "definite, positive and soon."²⁹³

What the Commission did was to say that the VHF band alone was inadequate, that the intermixed situation was undesirable in many cases, but deintermixture was not the only answer and more study was needed. However, while planning to:

²⁸⁹Television Digest, Vol. 12, No. 19, May 12, 1956, p. 2.

²⁹⁰Television Digest, Vol. 12, No. 21, May 26, 1956, p. 2.

²⁹¹Television Digest, Vol. 12, No. 18, May 5, 1956, p. 1.

²⁹²Television Digest, Vol. 12, No. 14, April 7, 1956, pp. 1-2.

²⁹³Television Digest, Vol. 12, No. 25, June 23, 1956, p. 3.

undertake a thorough, searching analysis of the possibilities for improving and expanding the nationwide television system through the exclusive use of the UHF band throughout or in a major portion of the United States,

the FCC proposed to allow a limited amount of deintermixture as well as a limited number of drop-ins. Maximum power on the UHF band was raised to 5,000 kw, and restrictions were retained on antenna height and power on the VHF band.²⁹⁴ On the day following the issuance of the Second Report on Deintermixture, the FCC issued orders granting VHF permits for markets which were the subject of deintermixture petitions--and then told the grantees that they could not build until the deintermixture rule-making proceedings were ended. The Commission also planned to take away channels from three stations already holding permits (two licensed, one building), an act which was bound to cause the affected stations to fight hard to retain their VHF channels.²⁹⁵

While any decision on this most difficult matter from the FCC was good news to the UHF camp, experts on both sides wondered whether the inconsistencies in the report were indications that the Commission really did not mean what it said.²⁹⁶ Even within the Senate Commerce Committee there was enough opposition to the FCC action to temporarily block passage of a laudatory report.²⁹⁷

²⁹⁴U.S. FCC. Second Report and Order in Docket No. 11532, in the matter of amendment of the Commission's rules and regulations governing television broadcast stations (deintermixture), June 25, 1956. Quote from Para. #25.

²⁹⁵Television Digest, Vol. 12, No. 26, June 30, 1956, pp. 1, 7.

²⁹⁶Television Digest, Vol. 12, No. 27, July 7, 1956, pp. 2-3.

²⁹⁷Television Digest, Vol. 12, No. 28, July 14, 1956, p. 4.

But when the Commission denied a big batch of petitions for VHF drop-ins as being detrimental to UHF,²⁹⁸ and Chairman McConaughy was quoted as saying at the hearings on television of the Anti-Trust Subcommittee of the House Committee on the Judiciary: "Use all seventy UHF channels--that's the answer to the whole problem,"²⁹⁹ it is not surprising that the Senate Committee decided to issue an interim report that:

- (1) Generally approved the action of the Federal Communications Commission in adopting a long-range program looking toward the shift of all, or a major part of television to the UHF band, and urged that the Commission move rapidly to the accomplishment of its stated objective.
- (2) Specifically approved the Commission's interim program of selective deintermixture, urging that this essential preliminary step be pursued as broadly and rapidly as possible.
- (3) Advised that it will follow very closely the Commission's progress toward achievement of both its interim and long-range proposals, and that it will call for periodic reports as to such progress.
- (4) Urged the Congress to eliminate the excise tax on all-channel color sets, at the very least.³⁰⁰

For several months there was a great deal of bustle, but little actual progress. The "blocked" or "frozen" VHF grantees in possibly-soon-to-be intermixed communities went to court to try to win the right to build. The FCC's call for a "crash program" of research into UHF transmitting and receiving equipment got started--in low gear.³⁰¹ Many organizations and individuals

²⁹⁸ Television Digest, Vol. 12, No. 29, July 21, 1956, p. 4

²⁹⁹ U.S. House Committee on the Judiciary. Monopoly problems in regulated industries, Part 2: Television, Hearings before the Antitrust subcommittee (Subcommittee No. 5), 84th Congress, 2nd Session, June, July and September 1956. Vol. 1. See Television Digest, Vol. 12, No. 28, July 14, 1956, p. 4.

³⁰⁰ U.S. Senate Commerce Committee. The television inquiry: allocation stage. Interim Report, July 23, 1956, published as Senate Report No. 2769, 84th Congress, 2nd Session, p. 14.

³⁰¹ Television Digest, Vol. 12, No. 38, Sept. 22, 1956, p. 1.

prepared themselves for the FCC hearings on the deintermixture rule making. Chairman McConnaughey expressed the opinion that an all-UHF system was possible,³⁰² Dr. DuMont favored an entirely deintermixed system to an all-UHF,³⁰³ the networks presented various plans with ABC suggesting three-station competitive service as the primary goal,³⁰⁴ W. R. G. Baker supported full utilization of the UHF channels,³⁰⁵ and the industry and the Commission joined to clear up some engineering "anomalies" and to obtain some more information on UHF propagation.³⁰⁶ The lack of propagation data produced the formal organization of TAGO, while the AMST (large VHF station operators) gathered data on population and area coverage that was reminiscent of the testimony of clear channel radio broadcasters in AM allocation hearings.

With differences of opinion among stations, between stations and networks (as well as other segments of the industry), and with the political uncertainties resulting from the 1956 elections which presaged the continuation of a watchful Congress and a laissez faire FCC,³⁰⁷ the rule-making proceeding appeared destined to reach a compromise very close to the status quo. Even if the Commission were ready to vote on thirteen key cases

³⁰²Television Digest, Vol. 12, No. 33, August 18, 1956, p. 6.

³⁰³Television Digest, Vol. 12, No. 34, August 25, 1956, p. 6.

³⁰⁴Television Digest, Vol. 12, No. 30, July 28, 1956, pp. 2-3.

³⁰⁵Ibid., p. 3.

³⁰⁶Television Digest, Vol. 12, No. 36, Sept. 8, 1956, p. 3.

³⁰⁷Television Digest, Vol. 12, No. 45, Nov. 10, 1956, p. 1.

(involving deintermixture, drop-ins, or addition of VHF channels to a city already having some VHF), the basic questions of allocations policy could not be settled until TASO, AMST, and the FCC's own study of allocations from 25 to 890 mc were completed.³⁰⁸ Even the large amount of data collected by these groups would not answer all of the Commission's questions as to UHF, since TASO (in apprehension of the antitrust laws) restricted itself from the area of pooled applied technical research to improve UHF equipment.

At the end of 1956, Commander Craven, who had rejoined the Commission in July, after a twelve-year period as a consulting engineer in private practice, proposed a controversial allocation plan.³⁰⁹ Craven felt that the Commission's thirteen pending deintermixture cases, no matter how they were decided, would not make any difference with respect to encouraging the manufacture of all-channel receivers. Therefore, although existing UHF areas would be strengthened, the heart of American television allocation should be the VHF band, with some twenty-five to thirty additional assignments made to large cities with two VHF stations

³⁰⁸ Television Digest, Vol. 12, No. 49, December 3, 1956, p. 1.

³⁰⁹ When asked his opinions on deintermixture at the Senate hearings on his nomination, Craven stated: "I prefer to keep an open mind in the matter. However, I might state at this time that I realize that something has to be done to rectify the existing situation, and I realize that the problems in that rectification are rather tremendous and involve not only engineering matters but several other matters of policy." U.S. Senate Committee on Interstate and Foreign Commerce. Hearings on nomination of T. A. M. Craven to Federal Communications Commission, June 7, 1956, printed in Summary of Nominations, 84th Congress, p. 70.

or less. His basic concept was to abandon the allocations table and to consider applications wherever filed, as long as they complied with engineering standards on separations, powers and antenna heights.³¹⁰ This plan aroused violent opposition, particularly from educators who were not willing to let the allocation table (and hence their educational channel reservations) be taken away.³¹¹ Another opposition group was the Association of Maximum Service Telecasters, which claimed that the allocation table was the "keystone" of today's "good television service." Even the networks, appreciative of the speed and flexibility inherent in a discard of the allocation table, were lukewarm to the proposal, probably because of the loss in coverage which might be suffered by their owned-and-operated stations.³¹² Generally, the big stations wanted the status quo; smaller VHF stations with an eye toward migrating to larger cities favored the plan; some UHF's (those with little VHF competition) liked things the way they were; other UHF's hoped the Craven plan would enable them to latch on to a VHF channel. CBS, the only network that favored the plan, said that it made a more efficient use of channels and that the old allocation plan had served its purpose.³¹³ Self-

³¹⁰ Television Digest, Vol. 12, No. 52, December 29, 1956, p. 6.

³¹¹ Television Digest, Vol. 13, No. 1, January 5, 1957, p. 3. The plan was later revised to protect NTV reservations.

³¹² Television Digest, Vol. 13, No. 22, June 1, 1957, p. 2.

³¹³ Television Digest, Vol. 13, No. 23, June 8, 1957, p. 7.

interest of individual stations and networks was the keystone of the comments, splitting otherwise homogenous groups apart. For example, thirty-two TV stations were for the plan, forty-six against; six applicants and CP holders were for, two against; one network for, two against; nineteen law firms against, eight for. All in all, forty comments were received by the Commission against the plan, twenty-nine for it, and eight were neutral.³¹⁴ Eventually, the Craven plan, which once appeared likely to be approved by the Commission,³¹⁵ was dropped because although "the original proposal was sound, the time isn't ripe."³¹⁶

After this sizable opposition, the Commission settled down to wait for the TASO report. While waiting, the Commission and the industry took up a variety of minor and inconclusive allocation matters. When the FCC made a decision, it was a signal for any disaffected parties to appeal to the Commission, the Courts, or the Congress. Certain groups such as the military, the EIA and AMST planned their own allocation studies to either supplement the TASO and Senate (Bowles) work along these lines, or to gather ammunition with which to attack them. The Commission made decisions to deintermix several communities such as Peoria and Springfield, Illinois. Although the initial decisions were

³¹⁴Television Digest, Vol. 13, No. 24, June 15, 1957, p. 7.

³¹⁵U.S. FCC. Notice of proposed rulemaking in Docket No. 12005, in the matter of amendment of Part 3, Subpart B, Television Broadcast Stations, April 24, 1957. FCC Public Notice 57-407.

³¹⁶Television Digest, Vol. 13, No. 37, September 14, 1957, p. 3.

made in 1957, litigation was still in progress in 1959, partly as a result of charges of "improper influence" growing out of a 1958 investigation of the FCC.³¹⁷ One of these initial decisions was to deintermix the Albany-Schenectady-Troy area. This would have had the effect of removing from the VHF not only pioneer (1939) General Electric GE station WRGB, but also the newly assigned Channel 10 drop-in at Vail Mills, New York. Although the WRGB management immediately set out to fight the decision, it is ironic that one of deintermixture's staunchest supporters was General Electric vice-president W. R. G. Baker, for whom the station was named.³¹⁸ While most of the other cities that were switched to UHF are still nominally in that status, the Albany area was changed from all-UHF to all-VHF in the fall of 1957, thus avoiding the necessity to shift WRGB.³¹⁹

Toward the middle of 1958, the Commission again held hearings on the allocation problem. At this time, particular attention was given to the subject of small community television, also under the scrutiny of the Magnuson committee. ABC presented a plan for converting fourteen two-VHF cities to three-VHF cities. Commander Craven presented another plan, intended to get three stations in each major market through drop-ins, channel shifts, and deintermixture as a short term goal. His long range goal was to shift all television into a twenty-five channel continuous band

³¹⁷U.S. House Committee on Interstate and Foreign Commerce. Investigation of regulatory commissions and agencies. Hearings, 85th Congress, 2nd Session.

³¹⁸Television Digest, Vol. 13, No. 9, March 2, 1957, p. 2.

³¹⁹Television Digest, Vol. 13, No. 31, August 3, 1957,

starting with present VHF channel No. 7.³²⁰ However, Craven, like most of his colleagues, was willing to wait for the TASO findings before making any major decisions.³²¹ During the Senate Committee hearings, it was clearly brought out that the Commission was badly split, some deintermixture decision votes going four to three and others, three to four.³²² Senator Pastore, conducting the hearings almost single handedly, complained: "You never reach a decision. This has been going on for four years. You march up the hill and march down again." Then he asked, dramatically: "Who's for deintermixture? Stand up." Television Digest reports that Commissioners Hyde, Bartley, Lee, and Ford "rose promptly." In response to the query "Who's against it?" Commissioner Doerfer raised his hand, Commissioner "Cross rose slowly; Craven rose even more slowly."³²³ Doerfer explained his position, saying that even if the FCC deintermixed all thirteen areas, as proposed, it would not be enough to promote UHF effectively.

If this Commission voted to deintermix, the first time they took out a V I will guarantee you would have every Congressman and every Senator from that market down here screaming at the FCC taking away television from the rural or the small town people--and that is precisely what is going to happen. When you get all through, I contend--if we use the seventy channels you have in UHF today, with as much as we know about it, when you get all through you will have less television service than you have today.³²⁴

³²⁰Television Digest, Vol. 14, No. 23, June 7, 1958, p. 2.

³²¹Television Digest, Vol. 14, No. 22, May 31, 1958, pp. 3-4.

³²²Television Digest, Vol. 14, No. 26, June 28, 1958, p. 3.

³²³Television Digest, Vol. 14, No. 26, June 28, 1958, p. 9. Also see U.S. Senate Commerce Committee, Television Inquiry, Part 6, June 25, 1958, p. 3993.

³²⁴U.S. Senate Commerce Committee. Television Inquiry.

Obtaining more VHF channels

The 1958 hearings on the Television Inquiry drew a great deal less attention from the press and industry than did the 1954, 1956, and 1957 hearings of the same committee. Many Senators did not bother to attend the sessions until a newsworthy topic came under discussion. The most newsworthy, or most promising, topic was that of military use of VHF channels. Most other grounds had been rehashed again and again for a period of four years with little or nothing to show for it. The Senators apparently got excited about the concept of obtaining more VHF channels from the military, with Senator Magnuson planning to consider a resolution by Senator Potter to establish a special group to study the whole spectrum, which had been pigeon-holed for more than a year.³²⁵ Although the FCC felt that there was a chance the military might relinquish some VHF channels in exchange for UHF space, the staff director for communications in the office of the Secretary of Defense pointed to the enormous investment of the military in certain bands and indicated that there was not a chance of television getting any appreciable portion of the Government's part of the spectrum.³²⁶ After this, the Senators were willing to strongly support the Potter Resolution to establish a "Commission to investigate utilization of radio frequencies

hearings, Part 6, June 25, 1958, p. 3994. (Testimony of Chairman Doerfer.)

³²⁵Television Digest, Vol. 14, No. 27, July 5, 1958, pp. 2-3.

³²⁶Television Digest, Vol. 14, No. 28, July 12, 1958, pp. 1-2.

allocated to the government."³²⁷ And, to forestall some of the opposition from the military, Senator Potter expressed willingness to amend the concept to include a study of civilian as well as military utilization of the spectrum.³²⁸ It was thought that the Office of Defense and Civilian Mobilization would thus be more willing to go along with a study it had no use for a year before.³²⁹ As it happened, the Senate passed the resolution (S.J.Res. 106, 85th Congress, 2nd Session) so quickly that Senator Potter never had a chance to amend it to include evaluation of civilian usage- which would have made the resolution less onerous to the Defense Department.³³⁰ To remedy this "oversight," the administration urged the House to amend the Senate resolution to include the study of civilian usage.³³¹ However, a group of influential telecasters, worried that the Government moves were leading to a commission which would be stacked against them, mobilized "with remarkable speed" to kill the resolution. The group feared that the military had designs on VHF Channels 2 to 6,³³² and that it would be dangerous to let them have the chance to get at them. Although both the FCC and the EIA favored the resolution, its

³²⁷Television Digest, Vol. 14, No. 28, July 12, 1958, p. 6.

³²⁸Television Digest, Vol. 14, No. 29, July 19, 1958, p. 4.

³²⁹Television Digest, Vol. 13, No. 33, August 17, 1957, p. 8.

³³⁰Television Digest, Vol. 14, No. 30, July 26, 1958, p. 2.

³³¹Television Digest, Vol. 14, No. 31, August 2, 1958, p. 2.

³³²Actually, the government has full power to take over any frequencies in time of war or other emergency. As a matter of fact, the military does use the VHF television band for various purposes on a "non-interference to television" basis.

opponents felt that "the industry had everything to lose and nothing to gain" by it.³³³

The 1959 allocations proposals

The defeat of the Potter Resolution made it impossible even to consider obtaining additional VHF channels from the military. Suggestions that the FM band be carved up into a maximum of three additional television channels met with strong opposition from FM interests (who were just starting to profit due to the public interest in high-fidelity), and from the Commission.³³⁴ A free-for-all fight started between ABC, which proposed drop-ins with reduced mileage separations, and the AMST.³³⁵ The Commission returned to its deliberations.

These deliberations were enriched by the receipt of the first extensive reports from TASC, and were enlivened by the courage of Commissioner Lee, who formally proposed shifting all television to the VHF band, but could find no one to second the scheme.³³⁶ On the contrary, Chairman Doerfer maintained that "Expansion in a continuous VHF band is the logical solution and would create the least dislocation for the public."³³⁷ Perhaps the most extensive body of expert opinion as to the most practical

³³³Television Digest, Vol. 14, No. 32, August 9, 1958, pp. 3-4

³³⁴Television Digest, Vol. 14, No. 29, July 19, 1958, p. 4.

³³⁵Television Digest, Vol. 14, No. 30, July 26, 1958, p. 2; Vol. 14, No. 32, August 9, 1958, p. 8.

³³⁶Television Digest, Vol. 15, No. 3, January 17, 1959, p. 1.

³³⁷Television Digest, Vol. 15, No. 6, February 7, 1959, p. 1. (Doerfer address before New York Radio-TV Executives Society)

solution for the allocations problem comes from off-the-record comments of consulting engineers. Although they speak in their clients' interests before the FCC, when questioned anonymously their reaction is to "cut VHF mileage spacing, vary powers and heights, use directional antennas--all within the present twelve VHF channels," e.g., a system equivalent to that used on AM radio.³³⁸

What the Commission actually came up with was a series of alternatives that required further data and coordination with Government users before any one alternative could be chosen. These alternatives were:

- a. A fifty-channel VHF system, retaining the present twelve VHF channels.
- b. A continuous fifty-channel VHF system, retaining the present VHF Channels 7-13 and withdrawing Channels 2-6 from television use.
- c. A contiguous twenty-five-channel VHF system, retaining Channels 7-13.
- d. The present eighty-two channel VHF-UHF system.
- e. A seventy-channel all-UHF system.

The FCC also repeated its earlier conclusions that (1) deintermixture alone was not sufficient, and (2) "no arrangement of the twelve VHF channels can provide for a nationwide, competitive television system." But the Commission held that some "interim" action, like adding VHF assignments to those communities with only one or two VHF stations and little UHF set conversion, was

³³⁸ Television Digest, Vol. 15, No. 6, February 21, 1959, p. 1.

desirable. This would require reduced separation, precision offset, directional antennae, and so on. Although the majority of the commission favored the first alternative, Commissioner Lea still insisted on an all-UHF system, and Commissioner Bartley also expressed concern lest UHF be bypassed. However, the "interim plan" would be effective whether the eventual home of television were in the UHF or the VHF (albeit more expensive if everything moved to the UHF). The Commission also passed the buck to the Congress by proposing a law which would forbid the shipment of television receivers that could not receive all channels. "All channels" meant the present-day VHF, proposed new VHF, and UHF. Blame for the extra (and possibly useless) cost to the consumer could be placed on the Congress.³³⁹

It was noted earlier that the relationships between the FCC and the Congress have stabilized at a point where the Congress makes most of the major policy decisions. In the past few years the Commission has been quite content to allow the Congress, and particularly the Senate Commerce Committee, to provide leadership. The Commission found it had to spend countless man-hours attending Congressional hearings and doing Congressional bidding, explaining to a Senator why installing an FM tuner in a UHF television receiver would not cause hordes of people to rush out and buy the all-channel set,³⁴⁰ and testifying before Congressional Committees

³³⁹U.S. FCC. Recommendations on Allocations, presented to the Senate Commerce Committee, and released by the committee on April 23, 1959. Published as a Special Supplement by Television Digest on April 27, 1959.

³⁴⁰Television Digest, Vol. 7, No. 10, March 10, 1954, p. 4. (The Senator was Senator Edwin C. Johnson.)

seemingly intent on prying into all facets of one's professional and personal life.³⁴¹ In the latter instance, the disclosures of the Harris Committee, subsequent resignations of Commissioner Mack and Chairman McConnaughey, and the indictment of Mack, gave an amount of moral ascendancy over the FCC, not only to the Senate but to the industry.

Boosters and Congress

Although the Commission acceded to the Congress many times over matters like limited deintermixture, the chief example of the relationship between the two bodies is illustrated by the case history of the illegal boosters used to bring service to many mountainous portions of the United States, particularly in the west.

These boosters (which receive and rebroadcast programs on the same channel as the "mother" station, using low power)³⁴² are simple to construct and maintain, and offer a fair grade of service within an area of a few square miles. However, since they use VHF channels almost exclusively and are not incorporated in the FCC's allocation table, it is clear that this method would cause considerable interference in some areas. This interference

³⁴¹Of the multitude of hearings which took place since 1952, three major ones were full fledged investigations into the actions and moral conduct of the FCC. These three were: the House Select Committee on Small Business, 84th Congress; the Anti-trust subcommittee of the House Committee on the Judiciary (Celler Committee), 84th Congress, 2nd Session; and the Harris Committee investigation of regulatory commissions and agencies, 85th Congress, 2nd Session. See Bibliography for full citations.

³⁴²Some are now actually VHF translators, e.g., retransmitting on another channel.

was protested strongly by NABT and other organizations as a threat which "could result in substantial impairment if not a complete breakdown of the allocations plan."³⁴³

Illegal boosters got their start during the freeze, about the same time as their arch-enemy, the community antenna systems. Born out of the desire of the public for television service at that time, they could be pointed to as a further example of the Commission's failure to lead in getting television to the American people outside the pre-freeze cities. Although favoring in principle the concept of UHF boosters, the Commission's insistence upon local programming (or facilities for local programming) wherever possible had led to FCC support of satellites and translators (in that order) to bring television to smaller communities. Since satellites are full-fledged stations in everything but program origination facilities, they could "grow up" into such stations with little difficulty. Translators, while they do not follow a pre-arranged allocation plan as do stations and satellites, are restricted to the top channels in the UHF band, where they do not cause any interference to full-fledged stations and promote the sale of UHF receivers at the same time. The Commission allowed several groups to experiment with VHF boosters (notably one associated with WNCN-TV, Nashville), but withdrew authorization after the stations notified the FCC that it had finished experimenting, and wanted permission to conduct commercial programming.³⁴⁴

³⁴³Television Digest, Vol. 14, No. 3, January 18, 1958, p. 8.

³⁴⁴Television Digest, Vol. 12, No. 22, June 5, 1954, p. 4.

Notwithstanding the Commission's steadfast refusal to grant approval to any of the VHF booster operations (which are estimated in the thousands),³⁴⁵ and that it has taken every measure to remove them from the air (including cancellation of any amateur radio operator licenses held by the booster operators, etc.), feeling within the Commission was not unanimous. For example, an examiner's decision, later reversed by the Commission, held that booster stations did not cause harmful interference and in practice afford a larger and more effective use of broadcast channels.³⁴⁶ Commissioner Craven, after a visit to Colorado, proposed that boosters be classified as a "limited radiation device," not requiring a license.³⁴⁷

The Commission repeatedly tried to cajole or threaten VHF booster operators to stop their illegal operations. But with the majority of Congressmen from the Northwest (including Senators Johnson and Magnuson) in favor of anything which would bring television to their more isolated constituents, the Commission moved slowly. The FCC repeatedly offered virtual "amnesty," and the right to build satellites or translators to the small communities affected,³⁴⁸ with little effect. At one time, Governor

³⁴⁵U.S. FCC. Notice of Inquiry in Docket No. 12443, in the matter of inquiry into the impact of community antenna systems, TV translators, TV "satellite" stations, and TV "repeaters" on the orderly development of television broadcasting. May 22, 1956. (FCC 58-483) Para. 5.

³⁴⁶Television Digest, Vol. 13, No. 43, October 22, 1955, p. 4.

³⁴⁷Television Digest, Vol. 13, No. 44, November 2, 1957, p. 8.

³⁴⁸The U.S. Court of Appeals, while supporting the FCC's effort to silence illegal boosters with a "cease and desist" order,

(ex-Senator) Edwin C. Johnson, of Colorado, turned himself into a "one-man FCC" and licensed boosters himself, claiming that they caused no interstate interference, performed a useful task, and that he had every right to add booster operators to his "personal communications staff."³⁴⁹

After considerable inquiry, lasting several years,³⁵⁰ the FCC finally banned (by the surprisingly large margin of six to one) the use of VHF boosters, calling upon booster operators to file applications for UHF translators within ninety days or the Commission would "take steps" to move them off the air.³⁵¹ This order preceded by a few days a Senate Commerce Committee staff report which urged legitimation of VHF boosters,³⁵² and thus presented the Senate with both a fait accompli and an answer to the charges of inaction brought against the FCC.

held that a new "home" in the spectrum should be found for them first. Television Digest, Vol. 13, No. 18, May 4, 1957, p. 3.

³⁴⁹Television Digest, Vol. 12, No. 34, August 25, 1956, p. 16; Vol. 12, No. 35, September 1, 1956, p. 5.

³⁵⁰After the FCC initially cracked down on illegal boosters in 1955 and 1956, the booster operators went to court, won a delay, and persuaded the FCC to take another look. In 1957, one month after deciding that boosters were illegal, and after a great deal of political pressure from Gov. McNichols of Colorado and other Western officials, the Commission reversed itself and started new rulemaking proceedings, with the decision to ban boosters reached in December 1958.

³⁵¹U.S. FCC. Report and Order in Docket No. 12443, December 31, 1958 (Notice 56-1236).

³⁵²U.S. Senate Commerce Committee. The television inquiry: the problem of television service for smaller communities. Staff Report, 85th Congress, 2nd Session, prepared by Special Counsel Kenneth A. Cox, December 26, 1958.

Apparently many Congressmen would have preferred the FCC inaction on boosters, because a very strong movement was started to "rescue" the booster operators. Led by Colorado's Senators, many Representatives and Senators joined in expressing the desire to have boosters legalized.³⁵³ As Television Digest put it:

Power of political pressure to influence FCC--the subject of much pious indignation in Congress during last year's House investigation of TV licensing practices--was never more convincingly demonstrated than by members of Congress themselves this week, operating openly.

FCC was stopped cold in its determination to outlaw illegal TV booster stations by March 30. And it took only some gestures of defiance on Capital Hill--not even back-stage maneuvering--to do it.

After four years of rule-making wrestling with problem--and coming to a 6-1 decision that the "public interest" can't be served by unlicensed VHF stations--FCC needed only a touch of political pressure to reconsider. No Congressional hearings on the subject were held or even scheduled. No new technical evidence was produced to disprove case against unauthorized repeaters. But Commission nevertheless voted--unanimously this time--to give operators six months instead of ninety days to apply for UHF translators or shut down. Commission said it now finds it needs to "give further study to the legal and technical aspects of the problem."³⁵⁴

With virtually the only support coming from CATV interests, the NAB, and Senator Fullbright (who believed that the FCC, as the "expert body" should be left alone to handle the problems),³⁵⁵ the

³⁵³Television Digest, Vol. 15, No. 4, January 24, 1959, p. 5. Over twenty-five bills and resolutions dealing with boosters were placed in the hopper in the House alone.

³⁵⁴Television Digest, Vol. 15, No. 5, January 31, 1959, p. 1.

³⁵⁵Television Digest, Vol. 15, No. 6, February 7, 1959, p. 2; Television Digest, Vol. 15, No. 10, March 7, 1959, p. 2. It is quite possible that the "stubbornness" shown by the Commission during the late spring and summer of 1959 with respect to its strict interpretation of the "equal time for political candidates" provision (Sec. 315 of the Communications Act) was largely due to resentment over its treatment by Congress in the booster argument. The Commission did not take kindly to being raked over the coals for inaction and succumbing to outside "influence" and pressures in its actions--only to be on the receiving end of very strong

Commission decided to capitulate, and asked Congress to pass amendments to the Communications Act which would permit the boosters to operate legally. The Commission planned to establish rules which would minimize interference that might otherwise be caused, while still hopefully pointing out the advantages (greater range) of UHF translator service.³⁵⁶

Conclusion: Inequality compounded (1959)

The brave hopes that the Commission had for UHF broadcasting in 1952³⁵⁷ were largely frustrated. The net number of UHF stations has declined, together with the manufacture of all-channel sets, since the high point in 1954. Incentives for the manufacture of all-channel receivers or the establishment of UHF stations have diminished, except in the very few localities where

Congressional pressure as soon as an action (entirely within its area of competence and authority) is taken with respect to boosters. Of course, the Commission's rigid position may also be thought of as but a random choice in a situation where they would be "damned if they do and damned if they don't" accede to the wishes of Congress and the industry with respect to Section 315. It is interesting that Congressman Oren Harris, one of the Commission's staunchest critics, disagreed with the FCC's interpretation of Section 315, but praised the Commission for "sticking to its guns."

³⁵⁶Television Digest, Vol. 15, No. 16, April 20, 1959, p. 4.

³⁵⁷"Because of the basic fact that the VHF is too limited to meet the nationwide demand for television, the Commission has been confident that UHF would establish itself notwithstanding the problems it faces....It is believed that the intermixture of VHF-UHF channels throughout the country, the fact that the UHF band contains seventy channels as against twelve in the VHF band, and the fact that many areas will receive only UHF service will prevent (the UHF from having the same troubles as FM)....We have every reason to expect that the UHF will provide a very adequate service." Answers by FCC Chairman Hyde to questions asked by members of the U.S. Senate Committee on Interstate and Foreign Commerce. Hearing, 83rd Congress, 1st Session on Workload of the Federal Communications Commission, May 18, 1953, pp. 44-50.

UHF deintermixture has been implemented, because of the smaller audiences to UHF and the ability of VHF signals to reach most markets.

The advertisers, and thus the networks, prefer the largest coverage they can get with the smallest number of stations. With the extensive use of VHF satellites, boosters, and CATV systems, it is unnecessary for many people in nominally UHF areas to bother buying all-channel tuners. Although much of the UHF operator's plight is the result of psychological timidity on his part and not-necessarily-valid aversion on the part of the advertisers, the UHF problem is tied in with another problem which has only recently received attention from Congress and Commission, and then not to the extent it deserves. This problem is that of the concept of local or "hometown" television.

The term, "local" television, may need some explanation. The Sixth Report and Order had as its first priority the reception of television service by the entire nation. This has been accomplished. However, without even considering the goal of competitive services in the larger markets, the goal of providing every community with a local "voice" has been largely bypassed. Satellites, boosters, translators, and CATV systems do not make provision for local origination of programs, being content to merely rebroadcast the programs supplied by other stations.³⁵⁸

The philosophy of United States domestic broadcasting policy has

³⁵⁸ Even network affiliated stations must conduct a reasonable amount of local programming; the FCC has refused to grant a license to an otherwise qualified applicant who planned to "plug in" the network in the morning and "plug out" at night, with no local originations.

always been to "provide a fair, efficient, and equitable distribution" of broadcasting service to the several states and communities.³⁵⁹ It is questionable whether this goal is reached, in spirit, under the conditions prevailing in television today, where local outlets for expression are limited to the larger markets, and where local advertisers (or talent) have no outlet within their own community because of high cost or lack of program origination facilities. When looked at in this way, it is apparent that the problems of UHF are, to a large extent, the problems of any television station in a small community. Without encouragement, regulation or legislation remedying the conditions of receiver availability and intermixture, the UHF station is doomed (except for a very few areas) to being a subsidiary service located in a marginal market.

The blame for this situation can be laid to lack of foresight or judgment on the part of the Commission and the industry; or, as some UHF supporters put it, the situation could be blamed on lack of courage on the part of the regulatory agency when the opportunity came during the freeze to move all television to the UHF band. Failure to remedy the situation has come about from excessive timidity on the part of the Commission, a lack of authoritative data as to the capabilities of UHF (remedied after a needless delay of several years by the TASO findings), the pressures exerted by Congressmen to prevent their own constituents from losing service through either full deintermixture or moving everything to the UHF, and the conflicting interests of the

³⁵⁹Communications Act of 1934, Sec. 307(b).

various trade organizations. For example, the EIA would like to have the additional markets for receivers that would result from full utilization of the UHF band, but rejects any suggestion of government control that might interfere with the manufacturers' judgment as to the kinds of sets to produce. The AMST is generally pleased with the current situation, since it represents chiefly the larger VHF stations in the bigger markets. AMST works actively against any efforts to alleviate the conditions of scarcity of competitive channels.

The Committee for Competitive Television bands together UHF stations in the hope that centralized lobbying efforts in Congress and high-quality representation before the FCC will somehow improve their situation. Although some CCT members prefer an all-UHF system, others would be happy with effective deintermixture since they are only concerned with their own particular market. Some UHF operators would give almost anything to obtain a VHF channel, regardless of the future course of television allocation policy. CATV operators fight booster operators and vice versa. The public as a whole wants television service, and does not know nor care how it comes to them.

Congress also has a vested interest in television: if "the Government" removed television service from a constituent through deintermixture or any other means, or if the expense of converting to UHF were added with no apparent reason, any elected official identified in the public mind with "the Government" (which encompasses every legislator in Washington) would suffer to some extent. Then, too, those Congressmen fortunate enough to sit on Committees which could investigate television in some way

(Interstate and Foreign Commerce, Government Operations, Judiciary, Small Business, and Appropriations at last count, in both the House and Senate) are able to garner a great deal of valuable political publicity. The Commission, having permitted itself to lose status as a truly "independent" agency by its dependence upon Congress, is in the "damned if they do and damned if they don't" situation where it is unable to receive support for "doing its job" in an impartial manner. Vulnerable to political pressure from Congress to do a job in one way, and also vulnerable to the public relations tactics available to communications corporations as large as the ones in the television industry, the Commission apparently has decided that "no decision is better than any," delaying (by means of long, drawn-out proceedings, and the establishment of a multiplicity of "fact-finding" advisory and study groups) the final decision to an allocation problem for as long as possible.

Despite the sound and fury that was heard between 1952 and 1959, the conflicting forces have apparently balanced out, and little has happened in this seven year span to change availability of television service to the nation.

CHAPTER VII

CONCLUSIONS

The electromagnetic spectrum is a natural resource, reserved for the benefit of the people of the United States.¹ Demands upon the limited amount of spectrum space by private parties and government departments led to the establishment of the Federal Communications Commission as an independent Federal regulatory agency to allocate frequency bands to the various services (except Federal Government users), to assign channels to particular localities or users, and to license stations to use these channels. Although television broadcasting is a relatively new service, it has already affected our entire culture and has become the largest user of the civilian portion of the radio spectrum, and occupies half of all the frequencies below 1000 mc. National socio-economic goals for broadcasting, as stated in the Communications Act, include a "fair, efficient and equitable"² distribution of frequencies to the several states and communities. The FCC, which is also charged with encouraging new uses for electronic communication,³ has interpreted its priority goal for

¹Every sovereign nation has an equal right to the entire spectrum, subject only to mutual cooperation and sharing with other nations. Title in this country is held in the name of the people of the United States.

²Communications Act of 1934, Sec. 307 (b).

³Communications Act of 1934, Sec. 303 (g).

television broadcasting to be the establishment of a service which would bring television to all the people. It has also established that the second priority for national television development should be provision for local television outlets, able to serve the needs of a specific community. The third goal aims at competitive program sources at all levels--stations and presumable networks.⁴

To achieve these goals for television broadcasting, and to make full and efficient use of the crowded radio spectrum, the national interest requires both extensive planning, and firm, efficient regulation. Ten years ago, Edelman said:

The independent regulatory commission appears to be an adequate device for maintaining a continuing surveillance over the growth and operations of the radio industry and the use of the frequency spectrum.⁵

In 1947, the time of which Edelman was speaking, television was entering a period of chaos and indecision. Instead of being an "adequate device" for the planning and control needed to make full use of the spectrum⁶ and the potentialities of television, the FCC has been the source of a series of haphazard, short-term decisions, compromises and equivocations, which have led thus far to frustration of the major policy goals for television broadcasting.

⁴U.S. FCC. Sixth Report and Order in Dockets 8736, et al., Para. 63.

⁵Edelman, Murray. The licensing of radio services in the United States, to 1947. Urbana: University of Illinois Press, 1950, p. 219.

⁶It should be noted that the Commission only has authority over civilian uses of the spectrum; all military and other governmental radio users not only have priority over non-Federal Government users, but distribute frequencies among themselves on a "courtesy" basis without over-all planning.

In American government today, it is inescapable and desirable that the regulated should have some voice in matters that may affect them. In television broadcasting, not only the regulated broadcasters but also the unregulated⁷ advertisers and receiver manufacturers use any forms of pressure and communication channels available to them to obtain "favorable" action from the FCC, which is the only legally qualified "expert" body for making decisions affecting broadcasting. It has become accepted practice for virtually every group with a special interest in television, from members of Congress to manufacturers, networks, broadcasters, advertisers and community antenna system operators to attempt to influence or by-pass the Commission and its announced decisions and policies.

The public at large, with the greatest social and financial stake, has had little interest in the "hows" and "whys" of television. As long as a minimum of television service was available, the average person neither understood nor cared for other considerations of national television allocation policy. Despite this public ignorance and uninterest in national communication policy, the technology and the entire social political and economic context of television, it is the "people at large" that the Commission is supposed to represent. Under the law, the FCC is required to make its decisions on the basis of the "public convenience, interest, or necessity."⁸ Private economic factors, no matter how large, should be only secondary in the Commission's deliberations.

⁷Unregulated by FCC.

⁸Communications Act of 1934, Sec. 303.

However, since 1944, the FCC has thrown most weight to the factor of economic investment and dislocation when making allocation decisions. In the absence of advance planning, consistency and continuity of action⁹ with respect to television development, the Commission has issued its formal decisions largely on the basis of relative strength of partisan sources in adversary proceedings rather than from impartial knowledge and analysis. At best, this method is akin to the role of an umpire rather than an expert impartial administrator, and at worst, the Commission resembles an umpire favoring the team with the strongest backing rather than the team whose cause is just.

Actually, it is not only the FCC that determines the course of television allocation or other aspects of television broadcasting. Congress has often directly determined allocation policy. Many decisions have been made not only in the crucible of opposing interest groups, but by the groups themselves. For instance, documentary research tells us that the FCC decided in favor of the CBS color television system in 1950, but a thorough analysis shows that the decision not to innovate or support this system on the part of the manufacturing industry was far more crucial to the eventual course of color television than the Commission's Report of October 11, 1950.

For a "decision-making body" to make decisions in the public interest, it must possess three things: 1) clear authority or prerogative jurisdiction over the matter in question;

⁹This inconsistency has been remarked upon in other works. See: Warner, Harry P. Radio and Television Law (Revised edition) New York: Matthew Bender & Co., 1953, pp. 176, 182, 190, 796-797; and Jaffe, Louis L., "The scandal in TV licensing," Harpers, September 1957, p. 77.

2) sufficient information to be able to judge the situation and sufficient knowledge of the subject to analyze and discriminate between and among the facts and opinions included in the body of information; and 3) power with which to enforce its decisions. The FCC possesses none of these attributes in full or sufficient measure.

The Commission's authority and jurisdiction over the radio spectrum is indistinct in several instances. For example, the Interdepartmental Radio Advisory Committee (now part of the Office of Civil and Defense Mobilization) exercises a virtually autonomous sway over those frequencies used by Federal Government stations. In addition to this uncertainty of jurisdiction, which makes over-all planning for efficient use of the entire spectrum impossible, the Commission is bound by provisions of a great number of international treaties affecting the allocation or assignment of domestic radio¹⁰ stations. Even more important, in recent years, has been the status of the Commission as an independent body. The FCC, like all independent regulatory commissions was created by Congress to deal with the policy determinations and the routine of a complex field. In theory, the Commission is independent of all three branches of government (executive, judicial and legislative), while partaking of some of the attributes of each. In recent years, Congress, particularly the Senate Committee on Interstate and Foreign Commerce, has attempted to exert direct authority over the Commission.

¹⁰In a technical sense, the term "radio" subsumes the term "television." The "electromagnetic spectrum" contains the "radio spectrum" in which television broadcasting is located.

At Senate confirmation hearings, in front of the various investigating committees interested in television, and before the House Appropriations Committee¹¹ the FCC has been constantly reminded that it was a "creature of the Congress," established to do a job that Congress no longer felt able to spare the time for. In addition, the Senate Commerce Committee has kept the FCC and television allocation problems under continuous observation since 1948 and sporadically prior to 1948. Congressional committees have taken it upon themselves (usually as the result of industry pressure) to demand that the Commission adopt one point of view or another. The form this pressure, or resumption of delegated authority, has taken ranged from formal "sense of the Senate" resolutions to threats of investigation, introduction of bills and speeches on the floor and to some "friendly" telephone calls. Whenever an FCC decision is disliked by some members of Congress, it is the Commission that is put under attack rather than the clause in the Communications Act causing the difficulty. After at least five full-fledged investigations,¹² the Commission has been on the defensive.

¹¹The following exchange is arch-typical:
Rep. Evins: "Do you consider your agency a quasi-legislative agency, Mr. Chairman?"
Chairman McConnaughey: "I think it is also looked upon and interpreted by the courts as being quasi-judicial. And it is also a factfinding agency. Some people say it is a fine point whether it is an arm of the executive or an arm of the legislative. Personally, I have always looked upon it as an arm of the Congress." U.S. House Committee on Appropriations. Hearings, 84th Congress, 2nd Session, on Independent Offices Appropriations for 1957, February 15, 1956, p. 1534.

¹²House Select Committee to Investigate the FCC in 1943 and 1949; Evins (House Small Business) committee in 1956; Celler (House Antitrust) committee in 1956; and Harris (Legislative Oversight) committee in 1957-1958.

These investigations concerned the Commission itself, its actions and its integrity, rather than problems arising from the industry or the Act. Whenever the Commission is attacked in Congress, few will rise to defend the right of this independent agency to "call them as it sees them," and even fewer will defend the Commission actions.¹³

The FCC has never had the resources to gather its own information on allocation problems. Although the Commission does have a small Technical Information Division assigned to keep abreast of technological developments in the marketplace and in the laboratories of industry, this division is about as adequate as a solitary streetcleaner assigned to police New York's Fifth Avenue after a parade. In most rule making proceedings and major investigations the Commission must depend upon the self-serving testimony of groups or individuals who have an interest in the outcome of the proceedings. Even supposedly impartial fact-finding organizations like the RTPB and NSSC often arrive at their conclusions on the basis of the relative strengths of the corporations sponsoring the engineer-members of the advisory group rather than upon strict engineering concensus or fact. Omission of important evidence, distortion and misplaced emphasis, and even false testimony have marked some of the Commission's technical hearings on allocation.

As to familiarity with the subject matter, few Commissioners are really qualified (or remain on the Commission long enough)

¹³After the "illegal booster" fracas in 1959, only Senator Fullbright and Representative Harris backed the Commission's right to act. See Chapter VI.

to assimilate the highly complex technical data necessary to predict accurately the implications and possible consequences of alternate courses of action, if, indeed, the courses of action themselves are recognizable. Although some Commissioners have been on the FCC engineering or legal staff and others have had first hand experience with such allied fields as public utility regulation, the majority of Commissioners were lawyers with wide political, governmental and business experience not involving telecommunications. Despite the number of Chief Engineers or other members of the staff who have "moved up" to Commissioner, there is no tradition of promotion from the ranks to the politically appointed policy-making Commissionerships.

Under the McFarland Act,¹⁴ the Commission is severed from its own staff when acting in its quasi-judicial role. Apart from evidence presented in open hearing, a Commissioner may obtain information only from his personal staff of one administrative assistant, one legal advisor, and one engineering advisor. Insulating the Commissioners from the staff further increases the Commission's dependence upon partisan, self-serving evidence and testimony. Apart from the effect of such regulations upon the attitudes and morale of the staff, over-dependence on the regulated industry for information is not conducive to impartial determination of the public interest. Severance from the Commission's staff, and briefing only on the narrow record of specific cases and hearings has the tendency to remove the word "expert" from the phrase "expert regulatory agency."

¹⁴Communications Act Amendments, 1952.

It was mentioned earlier that the FCC has power to control only one of the three major segments of the television industry: the broadcasters, and, through their ownership of stations, the networks to a limited extent. Television advertisers and advertiser-network relationships are exempt from FCC regulation, as are the television manufacturers for the most part. The advertisers are furthest removed from FCC jurisdiction. Manufacturers are in a theoretically more vulnerable position. Although the business activities of the manufacturers are their own affair, the Commission has a vital interest in the products of the transmitter and receiver makers. Conceivably the Communications Act could be so construed or amended as to place manufacturers under the same control as the networks on the same grounds: ownership of stations. Transmitter standards may be set by the Commission without question,¹⁵ and the specifications for receivers in certain types of stations (e.g., those aboard a ship) may be enforced. However, it is doubtful if the Commission could take any effective steps under present statutes to regulate broadcast receivers owned by the general public, except insofar as to reduce incidental radiations which might cause interference.

Although the courts have held on many occasions that the FCC's decisions, if legally arrived at, are not open to question except on procedural grounds, there has been a strong tendency to appeal many of the FCC's pronouncements, including those dealing with allocation. Since some Commission decisions are reversible in the courts, this habitual use of appeal is an

¹⁵Communications Act of 1934, Sec. 303 (e).

effective tactic for delaying the effective date of some decisions. Another factor weakening the Commission's power is that it is not equipped to enforce decisions or punish by other means than "massive retaliation." Since 1934 the FCC has used its "big stick" of license revocation in a mere handful of cases. In order to be effective, any efforts at placing manufacturers, advertisers or both under some degree of Commission control would have to provide a continuum of flexible rewards and punishments, such as cease-and-desist orders, monetary fines, and license suspensions as well as revocations.

An increase of confidence in the Commission, and improved procedures so as to cut down the number of appeals and the length of the inherent delay, would be helpful to its more efficient operation. The tendency to appeal to one's Congressman in the event of an adverse decision has also reduced the Commission's effectiveness by forcing delay while the Commission justified its decision to Congress.

Since the radio and television services are "free enterprise" institutions, no positive Commission decision can really be enforced upon them. The industry may be led to the UHF band but it cannot be forced to operate stations (or build sets for or advertise on UHF), unless a decision to concurrently abolish the old band is made. The Commission's affirmative power to allocate frequencies is often frustrated by the contrary opinions of members of the industry. Its negative power to delete frequency assignments has been dissipated over years of Congressional inquiry, court appeals, and general inertia.

Decision making, in the field of television frequency allocation, involves the Federal Communications Commission at all times. With the use of Congress and the courts, as well as other forums and informal means of presenting partisan information, a skillful participant in the giant "game" of decision-making may use many forums, strategies and tactics to influence the actual decision. The special interest may always count on the delay caused by his tactics, even if unsuccessful in getting certain ideas adopted, or other decisions reversed. The Commission, indecisive and delay-prone as it has been for more than a decade, can hardly be depended upon to make any decision, much less a decision with the ultimate public interest at heart in an industry known for its extraordinarily rapid growth.

After examination of the history of television frequency allocation, the hypothesis of the Commission's relative impotence is clarified and supported. Into the vacuum have spread the special interest groups, their strategies and maneuverings. The public interest was best served 1) in the 1930s, and 2) in the early 1940s. In the 1930s, there were no strong opposing groups with investments to be disturbed. The Commission, with the backing of almost all manufacturers (advertisers and broadcasters were not yet interested in television), was easily able to beat off obviously premature attempts to innovate technically inadequate television systems. In 1940, a strong FCC Chairman (with the support of most of the manufacturing industry) reversed the attempt by RCA to freeze television standards. Without detracting from Chairman Fly's strenuous efforts to place the FCC in a position of leadership and authority in the broadcasting

picture in 1940, the appearance of the FCC as a fighter for the public welfare was largely fortuitous. The real contest during the 1930s was between combinations of manufacturers and inventors, with the FCC granting a limited number of experimental frequency channels to all comers. The larger and more respectable manufacturers counselled delay in setting standards, and their views prevailed. When the RCA tried to establish commercial television on its own terms in 1940, it met with opposition from CBS and the majority of the manufacturing industry as well as from Chairman Fly.¹⁶

In the middle 1940s--in the General Allocation Hearings of 1944 and the subsequent assignment table struggle--the Commission itself took a more passive role than before. The relative positions of RCA and CBS had been reversed, with RCA now enjoying the support of most of the industry in its efforts to establish postwar television with the least possible delay. The Commission's decision in favor of the "interim" establishment of television on the VHF band in monochrome can be explained in terms of acceptance of the RCA, et al., views on the postwar economic future of broadcasting, but cannot be reconciled in terms of farsighted planning for a nationwide competitive television structure. Although the Commission had in the past granted untried channels to an existing service for it to "grow into" as it matured, the unseeming haste with which the VHF band was decided upon for commercial use with the UHF held in an indefinite

¹⁶It was at this time that the first efforts were made to develop the tactic of shifting from one forum to another. RCA, after being rebuffed, instigated an inconclusive Senate investigation of the FCC decision.

reserve, together with major errors in consideration of interference mileage separation standards, did little to instill confidence in the Commission's technical acumen or its independence of thought and action.

The coming of the freeze, in 1948, gave the FCC another opportunity to organize the television service on a competitive basis. Despite technical developments, the Commission once again recognized that it would be necessary to use the UHF to provide an adequate service that would satisfy the major policy goals for television. It is not generally realized that at one point, the Commission was only one vote away from moving all television to the UHF portion of the spectrum.¹⁷

After being sidetracked by the color television standards fight between RCA and CBS (largely at the behest of Senator Johnson, who initiated the "watchdog" relationship between the Senate Commerce Committee and the FCC), the Commission could not bring itself to a decision which would cut through the fetters (only twelve channels) of television. The Commission claimed to hold high hopes for use of the UHF band.¹⁸ However, by retaining the VHF band, refusing to shift existing VHF stations to the UHF (thus effectively closing the nation's largest cities to UHF), and making a general policy of intermixture, the future of UHF television was limited, at best. Investors in the VHF were satisfied with their efforts to retain that band, while the UHF was opened for those who had been unable to get into television

¹⁷Television Digest, Vol. 10, No. 22, May 29, 1954, pp. 1-3

¹⁸U.S. FCC. Sixth Report and Order in Dockets 8736, et al. Paras. 197-199.

up to that time. The Commission was aware of the huge investment in VHF transmitters and receivers accumulated between 1946 and 1952 but failed to consider the millions that would follow. The FCC's narrow outlook and decision brought little dissent from its basic theory (Commissioner Jones's comments were a notable exception) and most of those affected merely sounded an outcry for speed in the processing of applications.

After 1953, when the unequal status of UHF stations became obvious, the Commission tried to ignore the problem for as long as it could. With opposing forces, particularly the UHF operators and the VHF station owners, developing into a fine art their methods of shifting from one Congressional Committee to another and then back to the Commission, pressures were applied to the FCC from all sides. Equivocation, reversals of initial decisions, and establishment of the delaying device of "study groups," were the FCC's reactions to this pressure.

The situation described in Chapter VI resulted from the Commission's lack of jurisdiction, scarcity of information and absence of power to enforce decisions. The United States today does not have a competitive, nationwide television system affording fair, efficient and equitable service to the public. This thesis is not meant to be a denunciation of the Federal Communications Commission, although few of its actions with respect to television allocation since 1944 have been in accord with its stated lofty policy goals. Rather, it is a warning that a pernicious situation has developed and is growing more resistant to corrective change with every month. The present imperfect system of television allocation has developed over a period of

years, with the Commission reluctant to make any move actually favoring a quasi-monopolistic system of television service. Television was originally planned to avoid the unequal competitive system found on the AM radio band, and it is technically feasible to remedy the present unsound and faulty television allocation structure.¹⁹

To make corrections in the present system would cause a great deal of dislocation. Yet if changes are not made, the public interest will suffer as both the economic and social (e.g., programming) aspects of television solidify in a non-competitive mold. It is evident that if the present unequal situation with respect to television allocation is allowed to continue, together with Commission laissez-faire regulation, all of the pressures of the Commission and Congress to save the UHF will go for naught. So will the brave words about the public interest in the Communications Act. The United States will have what a disinterested public, a meddling Congress and a weak Federal Communications Commission have given it: a twelve-channel VHF system, all hope of equality of competition and planned coverage gone, with a small handful of program sources feeding a somewhat larger number of program outlets that are ill-equipped to allow local expression.

¹⁹To provide food for thought, the author has supplied some highly tentative recommendations which may alleviate the problems outlined in this thesis. See Appendix.

APPENDIX

RECOMMENDATIONS

Suggestions for alleviating the problems of television frequency allocation can be divided into two groups. First, the establishment of a stronger central agency for dealing with the problems (items 1-3); and second, some specific technical proposals along lines which it is hoped will prove useful (items 4-8).

1. Greater care should be taken in making appointments to the Commission. Nothing will provide more respect and authority for the FCC than the appointment of Commissioners of the highest caliber, in addition to increased pay, larger staffs, more publicity, etc. To restore some measure of Congressional confidence in the Commission, it is vitally important to choose men (or women) of considerable stature. To restore public and industry confidence in the fairness and efficiency of the Commission, its meticulous impartiality must be unquestionable.

2. Amend the provisions of the McFarland Act which prevent the Commission from making full use of its professional staff. The attempt to divorce and segregate the quasi-legislative, -administrative and -judicial roles of the Commission is a form of schizophrenia, not a guarantee of fairness and efficiency. A Commissioner is one man, whether or not he "wears three hats."

Maximum expansion of a Commissioner's knowledge, judgment, and experience, in dealing with a wide variety of problems, is far more valuable than slavish adherence to form. A regulatory commission is not a court, a legislature, or an administrative office. Under the present procedural rules the potential wealth of experience which could arise from partaking of the functions of all three branches of government is largely dissipated.

3. Information should be solicited from non-partisan sources whenever possible, as a counterbalance to the self-serving evidence advanced by opposing sides in a dispute. To achieve this, the Commission staff should be strengthened to permit more extensive research by the Economics Division and the Technical Information Division. In addition, a panel of impartial advisors and expert witnesses from the academic world, other government agencies such as the Central Radio Propagation Laboratory of the Bureau of Standards,¹ and retired consulting engineers, etc.,

¹The value of government witnesses is not always appreciated. The same Kenneth A. Norton of the Bureau of Standards who was accused by Major Armstrong of giving incorrect testimony during the 1944 hearings which moved FM "upstairs" from the 50 mc to the 100 mc band, got into another battle in the spring of 1959. Norton attacked the TASO report on allocations, and suggested that the public would receive more service if the co-channel mileage separation were cut to 100 miles rather than the minimum of 170 miles. In making his suggestion, Norton mentioned that he felt some TASO recommendations were biased by the "selfish interests" of industry engineers.

CBS Vice-president William B. Lodge made a blistering--and very revealing--reply: (underlining added)

It is my personal opinion that the industry engineers have just as much integrity and ability as your associates. I happen to believe, also, that your allocation proposal... would seriously degrade TV service to the American public. But I would not imply that your recommendation involves professional dishonesty or a desire to achieve some selfish aim. Anyone with engineering training respects the value of a theoretical approach. But it seems improper for a physicist with no

should be set up on a permanent basis by the Commission. The use of Dean Barrow, of the University of Cincinnati Law School, to head a committee of distinguished "outside" experts in the Commission's recent exhaustive study of network broadcasting² is an example of such an impartial group or panel.

As to the use of industry witnesses, several Commissioners rightly blamed much of the need for the freeze upon such testimony during the 1944 Allocation Hearings. As Commissioner Webster said about industry engineers "from the industries themselves that we are regulating":

it is true that they are honest and all that, but at the same time we are in their hands, you might say. They come up and give us information, and we have found in the past in putting all that information together from them and from other sources that we have not had the complete information we should have to make a decision....I think a Government organization such as this should have the proper engineering staff. And I do not mean by that that they must do all of the original research that is required.³

4. The Commission should be given the power to set minimum receiver performance standards. It already considers the capabilities of receivers when making some types of allocation

business experience to impugn the motives of engineers who take into account practical considerations which could hardly have received proper attention in your theoretical analysis.

...It does not seem unfair to question your expertness in matters involving the economic support and programming of TV stations. (Television Digest, Vol. 15, No. 16, April 20, 1959, p. 6.)

²U.S. House Report No. 1297, 85th Congress, 2nd Session. Network Broadcasting Report of the Network Study Staff to the Network Study Committee of the Federal Communications Commission, 1957.

³Webster, Edward M. Testimony, House Appropriations Committee, Hearings, Independent Offices Appropriations-1952, February 23, 1951, p. 507.

decisions,⁴ and, granting it power to issue certain standards of sensitivity and tuning range (e.g., any set not able to pick up all channels would be labeled "substandard") would be largely an extension of the FCC's present power to require receivers to suppress incidental radiation. In the event of a major allocation shift, minimum standards set by the Commission would enable changes over time to be reduced. Considering that American television sets rarely can make full use of the signal sent from the transmitting station in terms of definition, it might be said that minimum standards would make the receiver "key" fit more smoothly into the transmission "lock."

5. The Commission should be required to consider the public's actual listening or viewing habits and preferences when making determinations that may affect broadcast station facilities or location. With the release of portions of the TASO report on receiving habits for television, it appears that there is a psychological "cliff" or dropping-off point for television viewing far beyond where engineering curves show a lessened signal strength. In other words, out to a certain point subjective reception is about the same, due to the purchase of more sensitive receivers

⁴Brief for the United States, the FCC, and CBS in the case of RCA, NBC, et al., appellants vs. the U.S., FCC, and CBS in the Supreme Court of the United States, October Term 1950, No. 565, pp. 99 and 108. Quote:

Of course, the Commission's jurisdiction extends to the standards of broadcast transmissions, not to the equipment built by receiver manufacturers. But it does not follow that the Commission must close its eyes to receiver performance in discharging its functions. Thus, receiver selectivity determines such matters as allocations of channels among communities and interference ratios....The fact that the Commission must inevitably consider receiver performance in fixing transmission equipment standards does not at all mean that it is exercising illegal jurisdiction over receiver manufacturing.

and better antenna systems in "fringe" areas. The Commission has made an extensive examination of listening preferences only once,⁵ although often urged to do so by the local broadcasters' organizations in many of the "clear channel" AM radio allocation cases.⁶

6. The author's personal belief is that all television broadcasting should be moved to the seventy channels provided in the UHF band. The decision should be announced immediately, but it would be advisable to allow a seven to ten year "changeover" period. During part of this time stations wishing to continue on the VHF as long as possible would have to broadcast simultaneously on the UHF. Toward the end of the changeover period, VHF stations will be required to accept any incidental interference caused by the future occupants of the VHF television bands "moving in." To move all television to the UHF would at one blow provide incentive for the more efficient design of UHF receivers and high powered transmitters, eliminate the intermixture problem, provide facilities for more competition, permit simple receivers with continuous tuning, and would allow for a fourth network. It would also eliminate the VHF stations that are now the "clear channel" stations of television. However, every day of delay now means a corresponding delay at the end of the changeover period,

⁵U.S. FCC. Report on social and economic data pursuant to the informal hearing on broadcasting, Docket No. 4063, Engineering Dept., FCC. July 1, 1937.

⁶U.S. Senate Report 49, 81st Congress, 1st Session. Communications Study-Interim Report, February 10, 1949, p. 9. "We have heard much of these so called 'white areas' alleged to have little or no radio coverage. But we have yet to be convinced by a factual survey of such areas that they do not, in fact, get adequate radio coverage."

and would mean that more people would purchase VHF sets which would have to be converted or scrapped.

7. Establish a continuum of "punishments" the Commission can apply to minor offenses, those short of license revocation. These should include cease-and-desist orders, monetary fines, and suspension of license for varying lengths of time. In the case of commercial broadcast stations, only the "commercial" part of the license might be suspended, with programming to continue without revenue.

8. Reduce the amount of litigation burdening the Commission by narrowing the grounds for appeal to the Federal courts. Although there may be serious dangers in this proposal, it is possible that a more efficient regulation of the spectrum may result if FCC administrative determinations and grants were to be unreviewable by the courts except in cases calling for deletion of licenses, fraud or evidence of major procedural discrepancies not satisfactorily adjusted by the Commission itself. Right to appeal to the Commission from a hearing examiner's decision, or an initial decision by the Commission, should be given to all parties taking part in the original proceeding.

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(arranged by committee and chronology)

A. United States House of Representatives

House Report 2967, 84th Congress, 2nd Session. The organization and procedures of the Federal regulatory commissions and agencies and their effect on small business. December 24, 1956. (Report by H. Select Committee on Small Business pursuant to H. Res. 114).

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House Report 1602, 85th Congress, 2nd Session. Federal Communications Commission. Interim Report of the Subcommittee on Legislative Oversight of the House Committee on Interstate and Foreign Commerce, April 4, 1958.

House Report 2355, 85th Congress, 2nd Session. Establishing a commission to investigate the allocation, management, and control of radio and television frequencies. Report from H. Committee on Interstate and Foreign Commerce to accompany S. J. Res. 106. August 2, 1958.

1) House Committee on Appropriations

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2) House Committee on Interstate and Foreign Commerce

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4) House Select Committee to Investigate the Federal Communications Commission

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2) Senate Committee on Interstate and Foreign Commerce

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- Nomination of Robert Jones to Federal Communications Commission. Hearings, 80th Congress, 1st Session. June and July 1947.
- Nominations of Wayne Coy and George Sterling to Federal Communications Commission. Hearing, 80th Congress, 2nd Session, January 20, 1948.
- Progress of FM radio. Hearings, 80th Congress, 2nd Session, on certain charges involving development of FM radio and RCA patent policies. March, April, May 1948.
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- Amendments to Communications Act of 1934. Hearings, 81st Congress, 1st Session, on S. 1973. June 1949.
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- Use of television frequencies for educational purposes. Hearing, 82nd Congress, 1st Session on S. Res. 127. May 31, 1951.
- FCC policy on television freeze and other communication matters. Hearing, 82nd Congress, 1st Session, July 18, 1951.
- Nomination of Robert T. Bartley to Federal Communications Commission. Hearing, 82nd Congress, 2nd Session, February 29, 1952.
- Nomination of Rosel H. Hyde to Federal Communications Commission. Hearing, 82nd Congress, 2nd Session, May 14, 1952.
- Nomination of John C. Doerfer to be a member of the Federal Communications Commission. Hearing, 83rd Congress, 1st Session. April 1, 1953.
- Educational television. Hearings, 83rd Congress, 1st Session. April 16 and 21, 1953.
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- Nomination of Robert E. Lee to be member of Federal Communications Commission. Hearing, 83rd Congress, 2nd Session. January 18, 1954.
- Limitation on fees charged by FCC for licensing activities and similar services. Hearings, 83rd Congress, 2nd Session on S. 2926. March 16 and 17, 1954.
- Status of UHF and multiple ownership of TV stations. Hearings, 83rd Congress, 2nd Session on status of TV stations and S. 3095 (multiple ownership). May and June 1954. (Cited as Potter Hearings).
- Nomination of John C. Doerfer to Federal Communications Commission. Hearings, 83rd Congress, 2nd Session. June 23 and 24, 1954.
- Nomination of George C. McConaughy to Federal Communications Commission. Hearing, 83rd Congress, 2nd Session. November 9, 1954.
- Television network regulation and the UHF problem. Memorandum by Special Counsel Harry Plotkin, 84th Congress, 1st Session. February 1, 1955.

Nomination of George C. McConaughy to Federal Communications Commission. Hearing, 84th Congress, 1st Session, February 23, 1955.

Investigation of television networks and the UHF-VHF problem. Progress Report by Robert F. Jones, Special Counsel, 84th Congress, 1st Session, February 10, 1955.

Nomination of Richard Mack to Federal Communications Commission. Hearing, Published in Sundry Nominations, 84th Congress. June 16, 1955.

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Part I: UHF-VHF Allocations Problem -- testimony of Federal Communications Commission. January and February 1956. 84th Congress, 2nd Session.

Part II: UHF-VHF Allocations Problem -- testimony of public and industry witnesses. 84th Congress, 2nd Session. February, March, May, June and July 1956.

Part III: Subscription television. 84th Congress, 2nd Session, April and July 1956.

Part IV: Network Practices including testimony on S. 825. 84th Congress, 2nd Session. March, May, July and June 1956.

Part V: Allocations -- testimony of FCC; Additional supplement on network practices. 85th Congress, 1st Session. March 1957.

Part VI: Review of allocation problems; special problems of TV service to small communities; S. 376, to authorize FCC to regulate networks. 85th Congress, 2nd Session. May, June and July 1958.

Part VII: Television rating services. 85th Congress, 2nd Session. June 26, 1958.

In addition to the Plotkin and Jones reports listed earlier (Television network regulation and the UHF problem; Investigation of television networks and the UHF-VHF problem) which grew out of the 1954 Potter Hearings, the following reports should be considered part of the Television Inquiry in whole or in part (except 4th item on p. 473).

- The network monopoly. Report by Senator John W. Bricker, 84th Congress, 2nd Session. April 30, 1956. (Committee print).
- The television inquiry - allocations phase. Interim report of Senate Committee on Interstate and Foreign Commerce pursuant to S. Res. 13 and S. Res. 163. Senate Report 2769, 84th Congress, 2nd Session, July 23, 1956.
- The television inquiry - television network practices. Staff report by Kenneth A. Cox, Special Counsel, 85th Congress, 1st Session. June 26, 1957. (Committee print).
- Allocation of TV channels. Report of the (Bowles) Ad Hoc Advisory Committee on Allocations, 85th Congress, 2nd Session. March 14, 1958. (Committee print) (Cited as Bowles Report).
- The television inquiry - the problem of television service for smaller communities. Staff Report prepared by Special Counsel Kenneth A. Cox, 85th Congress, 2nd Session. December 26, 1958. (Committee print).
- The network monopoly. Report by Senator John W. Bricker, 84th Congress, 2nd Session, April 30, 1956.
- Nomination of T. A. M. Craven to Federal Communications Commission. Hearing, published in Sundry Nominations, 84th Congress. June 7, 1956.
- Nomination of Frederick W. Ford to Federal Communications Commission. Hearing, Published in Miscellaneous Nominations, 85th Congress. July 19, 1957.
- Allocation of TV Channels. Report of the (Bowles) Ad Hoc Advisory Committee on Allocations, 85th Congress, 2nd Session. March 14, 1958. (Committee print).
- Nomination of John F. Cross to Federal Communications Commission. Hearing, Published in Miscellaneous Nominations, 85th Congress. March 26, 1958.
- Educational television. Hearings, 85th Congress, 2nd Session, on S. 2119. April 24 and 25, 1958.
- Nomination of Robert Bartley to Federal Communications Commission. Hearing, Published in Miscellaneous Nominations, 85th Congress. May 7, 1958.
- Terms of office of members of certain regulatory agencies. Senate Report 1614, 85th Congress, 2nd Session, on S. 3862. May 19, 1958.

Educational Television. Senate Report 1638, 85th Congress, 2nd Session, on S. 2119. May 27, 1958.

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Commission to investigate utilization of radio frequencies allocated to the Government. Senate Report 1854, 85th Congress, 2nd Session to accompany S. J. Res. 106. July 18, 1958.

Amending the Communications Act of 1934 with respect to the issuance of licenses to non-citizens for radio stations on aircraft. Senate Report 2338, 85th Congress, 2nd Session, on H. R. 8543. -- August 12, 1958.

3) Senate Select Committee on Small Business

Daytime radio broadcasting. Hearings, 85th Congress, 1st Session. April 29, 30, 1957.

Daytime radio stations. Senate Report 1168, 85th Congress, 1st Session. September 11, 1957.

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Commission Order No. 14. Mimeo 17013, May 13, 1936.

Commission Order No. 15. Mimeo 17014, May 13, 1936.

Record of hearing. Informal Engineering Conference, Docket 3929, June 1936.

- Report on social and economic data pursuant to the Informal Hearing on Broadcasting, Docket 4063, beginning October 5, 1936. By Engineering Department of FCC, July 1, 1937.
- Report in the matter of frequency allocation to services in the frequency bands from 10 kc to and including 300,000 kc., Docket 3929, Mimeo 23415, October 13, 1937.
- Commission Order No. 18. In the matter of frequency allocation to services in the frequency bands from 10 kc to and including 30,000 kc, Docket 3929. Mimeo 23416, October 13, 1937.
- Commission Order No. 19. In the matter of frequency allocation to services in the frequency bands from 30,000 kc to and including 300,000 kc, Docket 3929. Mimeo 23417, October 13, 1937.
- Press Release 23463, October 13, 1937 (will accept applications in 20-300 mc band).
- Police Communications Conference. Engineering Department, Mimeo 24321, December 9-10, 1937.
- First report of television committee. Mimeo 34168, May 22, 1939.
- Identification of various television bands simplified. Mimeo 35541, August 3, 1939.
- Second report of television committee. Mimeo 37460, November 15, 1939.
- Revision of amateur rules, specifically authorizing TV and FM in certain bands. Mimeo 37711, November 27, 1939.
- To study possibilities of aural broadcasting on high frequencies with special reference to amplitude and frequency modulation. Mimeo 38130, December 19, 1939.
- Hearing on proposed television rules. Mimeo 38219, December 22, 1939.
- Text of proposed television rules set for public hearing January 15. Mimeo 38225, December 26, 1939.
- Notice of informal hearings before the Commission en banc on February 28, 1940, in the matter of aural broadcasting on frequencies above 25,000 kc., Docket 5805. Mimeo 38236, December 27, 1939.
- Report of February 29, 1940 (television rules).
- Order No. 65. (Cancel limited commercial television, new hearings in April) Mimeo 39922, March 22, 1940 (Public Notice March 23, 1940).

Order No. 67. (Revised allocations for FM) Mimeo 41153, May 20, 1940. (Public Notice May 22, 1940).

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Order No. 69. (Cancelling old licenses for TV) effective January 1, 1941). Mimeo 41155, May 20, 1940. (Public Notice May 22, 1940).

Report on frequency modulation. In the matter of aural broadcasting on frequencies above 25,000 kilocycles particularly relating to frequency modulation. Docket 5805. Mimeo 41119, May 20, 1940.

Report in the matter of Order No. 65, setting television rules and regulations for further hearing. Docket 5806, Mimeo 41249, May 28, 1940.

Amendment of frequency allocations. Mimeo 41458, June 7, 1940.

Orders No. 69-A through 69-K. Modifications of Order 69 (allowing some TV stations to remain on the air). July 19-August 19, 1940.

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Television report, order, rules and standards. Docket 5806. Mimeo 49851, May 3, 1941.

Memorandum opinion of April 27, 1942 (Construction freeze due to war).

Record of hearing, Docket 6651 (General allocation hearings of 1944). In the matter of allocation of frequencies to the various classes of non-government services in the radio spectrum from 10 kc to 30,000,000 kc.

Proposed report. In the matter of allocation of frequencies, etc. Docket 6651, January 15, 1945.

Final report. In the matter of allocation of frequencies, etc. Docket 6651, May 25, 1945.

Report of allocations from 44 to 108 megacycles. In the matter of allocation of frequencies, etc. Docket 6651, June 27, 1945.

Order in Docket 6780 (Original FCC plan for TV station separations). Mimeo 85053, September 20, 1945.

Report in Docket 6780. Mimeo 86536, November 21, 1945.

Television station assignments. Public Notice mimeo 87653, December 21, 1945.

Public service responsibilities of broadcast licensees, March 7, 1946. (Commonly known as the "Blue Book").

Record of hearing in Docket 6741, April 24, 1946. (Testimony of Frank Stanton, mimeo).

Record of hearing in Docket 7896. In the matter of petition of Columbia Broadcasting System, Inc., for changes in rules and standards of good engineering practice concerning television broadcast stations. December 1946, January-February 1947.

Report of the Commission in Docket 7896. In the matter of petition of Columbia Broadcasting System, etc. March 18, 1947.

Proposed report and order in Docket 8487 (Proposed plan to delete Channel 1), August 14, 1947.

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Opening statement for September 13, 1948 conference in Dockets 8975 and 8736 by FCC Chairman Wayne Coy. FCC 26714, September 13, 1948.

Notice of proposed rule-making in Docket 8972 (1 Pike and Fischer, Radio Regulation, para 91:32) 1948.

Record of hearing in Docket 8976, September 1948.

Memorandum opinion and order in Docket 8487, In the matter of amendments to the Commission's Rules and Regulations governing sharing of television channels and assignment of frequencies to television and non-government fixed and mobile services. September 16, 1948.

In the matters of amendment of Section 3.606 of the Commission's Rules and Regulations, Docket Nos. 8736 and 897. Amendment of the Commission's Rules, Regulations and Engineering Standards concerning the television broadcast service, Docket No. 9175; Utilization of frequencies in the band 470 to 890 mcs for television broadcasting, Docket No. 8976.

Material on these Dockets was cited in the text as "U. S. FCC. () in Dockets 8736, et al", and concerned the consolidation of all television questions during the 1948-1952 "freeze". Important specific reports, etc. are listed below:

a) Order of September 29, 1948 (freeze order).

- b) Public notice of May 26, 1949.
- c) Report of the Ad Hoc Committee for the evaluation of the radio propagation factors concerning the television and frequency modulation broadcasting services in the frequency range between 50 and 250 Mc.; to the Engineering Conference in Dockets 8736, et al. May 31, 1949.
- d) Notice of further proposed rule-making. FCC 49-948, Mimeo 37460, July 11, 1949.
- e) Transcript of testimony, Part 2, Vol. 55, May 4, 1950 (Sarnoff).
- f) Public Notice of May 26, 1950, FCC 50-740.
- g) Second notice of further proposed rule-making, Public Notice 50-1065, September 1, 1950.
- h) First report of Commission (color television issues). FCC 50-1064, September 1, 1950.
- i) Second report of Commission, FCC 50-1224, October 11, 1950.
- j) Order (CBS color system) FCC 50-1225, October 10, 1950.
- k) Statement by Bernard C. O'Brien, November 2, 1950 (mimeo).
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VITA

John Michael Kittross was born on April 25, 1929 in New York City. He attended the public schools of New York, graduating from Newtown High School in 1946. He enrolled at Antioch College, Yellow Springs, Ohio that year, receiving the A.B. degree in Creative Arts in June, 1951. In August 1952 he received the M.S. degree in Radio-Television Broadcasting from the Boston University School of Public Relations and Communication.

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Professional experience has included a variety of jobs in radio, theater and motion picture production largely while under the Antioch "cooperative" (work-study) plan; a quarter-time Assistantship at Boston University; and a half-time position with the University of Illinois Television-Motion Picture Service. From December 1955 until the summer of 1959 he was a Research Assistant (half or three-quarter time) in the University of Illinois Institute of Communications Research.

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Kittross remained at the University of Southern California until the summer of 1968, being promoted first to Assistant Professor of Telecommunications in 1960, and then to Associate Professor of Telecommunications and Communications in 1963. In 1968 he moved to Temple University in Philadelphia as Professor of Communications in the Department of Radio-Television-Film. He has been a visiting professor at a number of institutions, has led seminars in London and Montreal, and for the past seven years also has served as Assistant (1972-73) and Associate Dean of the School of Communications and Theater in Temple University, Philadelphia, Pa. 19122.

During the period 1960-1972 he served as Editor of the Journal of Broadcasting. He is co-author of Stay Tuned: A Concise History of American Broadcasting (Belmont, Calif.: Wadsworth, 1978); compiler of A Bibliography of Theses and Dissertations in Broadcasting: 1920-1973 (Philadelphia: Broadcast Education Association, 1978); editor of the two-volume set of Documents in American Telecommunications Policy (New York: Arno Press, 1977); senior editor of Free & Fair: Courtroom Access and the Fairness Doctrine (Philadelphia: Association for Professional Broadcasting Education, 1970); has served on the editorial boards of four series of books published by Arno Press (History of Broadcasting: Radio to Television; International Propaganda and Communications; Telecommunications; and Historical Studies in Telecommunications); and is author of numerous articles and reviews published in a variety of scholarly journals.

He has been consultant to several academic and professional institutions and organizations, is a member of numerous professional associations, is on a horrendous number of committees, has administered various research grants, and has grown a beard.

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ELECTRONIC JOURNALISM AND FIRST AMENDMENT PROBLEMS

RECOMMENDATIONS OF
COMMUNICATIONS LAW COMMITTEE
SECTION ON SCIENCE AND TECHNOLOGY
AMERICAN BAR ASSOCIATION

INTRODUCTION

In several sessions in 1975 and 1976 the Communications Law Committee of the Science and Technology Section considered the First Amendment issues raised by Government regulation of electronic journalism. The recommendations of the Committee are set forth below in summary form, and the position paper which follows discusses the background and bases of the recommendations.¹

Three preliminary observations are in order. First, the broader First Amendment issues raised by the public trustee scheme of short-term licensing in broadcasting were not the subject of Committee discussions. Second, the recommendations are pragmatic and designed for ready implementation by the Federal Communications Commission (or the courts in the case of recommendation 7, below); although Congress could also implement them, none *require* the legislative process. And, finally, while there is a consensus for the recommendations, some did not receive the support of all the members, nor was there full agreement with all the views expressed in the position paper (largely the work of Henry Celler).

¹ These recommendations constitute the work of the Committee, and do not reflect the position of the American Bar Association, which has not yet considered the matters in the Report. [Similarly, the Federal Communications Bar Association has taken no position on the recommendations.—Ed.]

RECOMMENDATIONS

1. That there be increased focus on the first requirement of the fairness doctrine (*i.e.*, that the broadcaster devote a reasonable amount of time to the discussion of controversial issues of public importance); and specifically that the FCC adopt a general percentage guideline for informational programming, the latter defined as all programming other than entertainment and sports.

2. That while the second requirement of the fairness doctrine (*i.e.*, that the broadcasters afford reasonable opportunity for the discussion of contrasting viewpoints) is constitutional, its implementation should be consistent with the First Amendment, and specifically, should conform to the basic principles that Government should intervene as little as possible in this sensitive area of broadcast journalism. Accordingly, the following approaches should be considered:

- Use of access programming to reduce the need for government oversight.
- Continuation of wide discretion in the licensee to make fairness judgments.
- Adoption of a renewal-only approach to fairness, under a standard akin to that of *New York Times Co. v. Sullivan*, 376 U.S. 254 (1964).

3. That the FCC replace its personal attack rules with a policy stating simply that where the licensee has presented a personal attack that is a controversial issue of public importance or is germane to the discussion of such an issue and has not achieved fairness or made timely plans to do so, he must notify the person or group attacked within a reasonable time period and offer the opportunity for response.

4. That the FCC revise its political editorial rules to state that where the licensee has presented a political editorial and has not achieved fairness or made plans to do so in a timely manner within the election period, he shall notify the candidate and give him or his spokesmen the opportunity to reply.

5. That in the area of alleged news distortion (*i.e.*, “staging” or slanting), the FCC follow a “hands-off” policy with only one narrowly limited exception—namely, where there is extrinsic independent evidence (*e.g.*, the statement of a station newsmen) that the licensee (*i.e.*, the principals or top management) has given instructions to slant the news; in all other instances, any complaint should be referred to the licensee, with *no* FCC follow-up.

6. That no fairness or equal opportunities responsibilities be imposed upon cable television systems where access channel capacity exists.

7. That Section 399(a) of the Communications Act of 1934, as amended, 47 U.S.C. Sec. 399(a), providing that “[n]o noncommercial educational broadcasting station may engage in editorializing or may support or oppose any candidate for political office,” is unconstitutional as a prior restraint of speech in violation of the First Amendment.

8. That the requirement in Section 396(g)(1)(A), 47 U.S.C. Sec. 396(g)(1)(A), calling for “strict adherence to objectivity and balance in all programs or series of programs of a controversial nature” made available to noncommercial broadcast stations by the Corporation for Public Broadcasting, be deleted or, if not, be narrowly construed in order to avoid governmental intrusion into the journalistic process.

ELECTRONIC JOURNALISM AND THE FIRST AMENDMENT

This memorandum considers the First Amendment issues raised by Government regulation of electronic journalism. (The broader First Amendment issues raised by the public trustee scheme of short-term licensing in broadcasting are not the subject of this memorandum.) Specifically, the paper treats briefly problems as to (1) the fairness doctrine, both in broadcasting and cable television; (2) the policies of the Federal Communications Commission (FCC) concerning slanted or staged news; (3) the ban contained in Section 399(a) of the Communications Act of 1934, as amended, 47 U.S.C. Sec. 399(a), on editorializing by noncommercial educational broadcast stations; and (4) the strict requirements of "objectivity and balance" in Section 396(g)(1)(A) of the Public Broadcasting Act of 1967. In each area, recommendations are based upon analysis of the problems.

I. The Fairness Doctrine in Broadcasting

A. *The Duty to Present Controversial Issue Programming*

The first requirement of the fairness doctrine is that the broadcaster devote a reasonable amount of time to the discussion of controversial issues of public importance.² Given the present public trustee system of broadcasting, we believe that the FCC may enforce this obligation, based on the following rationale of the Commission:

²The origins and nature of the Fairness doctrine are discussed in *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367, 375-86 (1969). See generally Kurnit, *Enforcing the Obligation to Present Controversial Issues: The Forgotten Half of the Fairness Doctrine*, 10 Harv. Civ. Rights—Civ. L. Rev. 137 (1975).

The radio spectrum is limited, and broadcasting must compete with many other uses. The FCC has allocated a very large portion of the spectrum to broadcasting, as against these other competing demands. And it has stated that a main reason why it has allocated so much spectrum space to broadcasting is because of the contribution that it can make to an informed electorate. There is also an explicit Congressional policy here. See Section 315(a). If a broadcaster does not make the above contribution, he is thus undermining a basic allocations policy. Stated differently, the FCC should not allocate spectrum to obtain specific benefits, and then be indifferent whether those benefits in fact result.³

Further, both the FCC and broadcasters have argued successfully to the Supreme Court that there is no need for any constitutional right of access by persons to the broadcast media because of the unique nature of the broadcast forum—namely, its “affirmative . . . obligation to provide full and fair coverage of public issues.”⁴

The issue then becomes how to enforce the obligation. The FCC now purports to implement its policy by examining renewal applications. However, in its entire history, it has never designated a renewal for hearing on the ground that the applicant failed to devote a reasonable amount of time to

³See Notice of Inquiry, Formulation of the Policies Relating to the Broadcast Renewal Applicant, Stemming from the Comparative Hearing Process, 27 F.C.C.2d 580, 581 (1970); Report on Editorializing by Broadcast Licensees, 13 F.C.C. 1246,1248 (1949); Storer Broadcasting Co., 11 F.C.C.2d 678 (1968).

⁴Columbia Broadcasting System, Inc. v. Democratic National Committee, 412 U.S. 94,117 (1973).

controversial issue programming. Yet the record indicates that there have been instances where FCC action was called for on this score.⁵

There is the further consideration of the comparative renewal hearing. A broadcast licensee is subject to comparative challenge when his license comes up for renewal (*i.e.*, a newcomer can compete with the renewal applicant and, if successful in the comparative hearing that must be held, obtain the license to operate on the channel in contest). The courts and the Commission have recognized that the public interest in stability of broadcast operations would suffer if the license of a broadcaster who rendered meritorious past service was not renewed when challenged by a newcomer seeking his frequency.⁶ But this, in turn, raises the question: What constitutes meritorious service in this critical allocations area of informational programming?

We recommend that in television the FCC adopt a general percentage guideline for informational programming, the latter defined as all programming other than entertainment and sports.⁷ This approach allows the licensee maximum discretion as to the choice of particular programs or program categories—yet it focuses on the basic *allocation* area. The percentage guideline chosen should therefore reflect FCC judgment and expertise as to implementation of allocations

⁵*See, e.g.*, Herman C. Hall, 11 F.C.C.2d 344 (1968), granted even though the applicant proposed *zero* programming in news/ public affairs. *See also* Renewals of Broadcast Licenses for Arkansas, Louisiana, and Mississippi, 42 F.C.C.2d 3, 17 (1973); Renewal of Standard Broadcast and Television Licenses, 14 F.C.C.2d 1, 12-13 (1968); FCC Public Notice B-13087 (1968).

⁶Notice of Inquiry, Formulation of Policies Relating to Broadcast Renewal Applicants, Stemming from Comparative Hearing Process, 27 F.C.C.2d 580 (1971); Further Notice of Inquiry, 31 F.C.C.2d 443 (1971).

⁷The aural broadcast situation, with its plethora of stations with specialized formats in any city of substantial size, calls for different treatment, and will be the subject of a further study.

The FCC in its Notice of Inquiry, *supra*, 27 F.C.C.2d 580, proposed to count only news and public affairs programming as

policy. The matter is not one of industry averages (although industry statistics should be examined as one factor in determining the reasonableness of the percentages adopted). And it is certainly not a matter of ever-advancing percentages for informational programming, to the detriment of other popular programming that the public reasonably wishes to receive, and has come to expect.

We do not find persuasive the arguments against this guideline approach. The argument that the approach emphasizes quantity over quality is shortly answered: A Government agency cannot and should not deal with quality. The approach focuses on a matter within the agency's ambit: How can a licensee be said to meet basic allocations goals in a meritorious manner if he does not devote a reasonable amount of time to these areas?

And because the guideline is limited to such a basic area, there is no violation of the First Amendment by skewing the licensee's choice of programming to government preference. Indeed, far from violating the First Amendment, the guideline is needed as a matter of law and policy in order to promote the purposes of the Amendment. *For it is not a matter of the Commission avoiding appraisal of the incumbent's programming under one approach as compared with another; under the statutory scheme, the critical issue is the incumbent's record, and programming is the essence of that record.* So the question is whether in this sensitive area involving an important press medium, the First Amendment is served by examination of an incumbent's programming without any objective standards which the licensee has the opportunity to meet.

informational programming. We would expand this category to include the programming currently designated as "other" (e.g., agricultural, instructional, and religious programming). Such programming may well not deal with controversial issues, but often it involves significant information. See *Red Lion Broadcasting Co.*, *supra*, 395 U.S. at 394; *Stone v. FCC*, 466 F.2d 316, 328, n.44 (D.C. Cir. 1972). Further, there are marked advantages in affording the licensee the greatest possible

It is also argued that however reasonable the percentage adopted may be initially, it will inevitably go up—to the detriment of the public's real interest. Or, the FCC will specify a percentage guideline not merely in this broad allocations area (and the similar one of local programming), but in other programming categories (e.g., agricultural, instructional, minority). But again there is a short answer: One should not fail to adopt sound policy today based on the supposition that a future Commission will act unsoundly.

Finally, the FCC emphasis on this first duty of the fairness doctrine would do far more to promote the goals of the First Amendment—robust, wide-open debate on matters of public concern—than any policy or ruling in the second part of the doctrine—whether the licensee has been fair in covering some particular issue. The FCC has unwisely focused its regulatory efforts on the wrong part of the doctrine.

We strongly endorse the present FCC policy of refusing to second-guess what particular matters of public concern are covered in news and public affairs programming.⁸ Absent independent extrinsic evidence that the licensee has deliberately chosen not to cover some issue for private reasons, the FCC cannot intervene by making a judgment on the basis of what topics were covered as compared with those not presented. This is a First Amendment quagmire that must be avoided. As the Court stated in *CBS v. DNC*, *supra* at 124-25, “[f]or better or worse, editing is what editors are for; and editing is selection and choice of material . . . Calculated risks of abuse are taken in order to preserve higher values.”

discretion in this sensitive area. See Geller, *The Comparative Renewal Process in Television: Problems and Suggested Solutions*, 61 Va.L. Rev. 471, 504-05 (1975). There are other means to focus attention on controversial issue coverage *per se* (e.g., requiring the TV licensee each year to list the ten controversial issues to which it chose to devote most time, with illustrative programs—see n.50, *infra*).

Finally, while valuable informational material can be presented in entertainment programming, our approach does not encompass such programming. The renewal applicant should be permitted to develop this, both in his application and certainly in any comparative hearing that might be held. See 38 Fed. Reg. 28797 (1973), question 7(B).

⁸See Letter to ABC (Democratic National Convention Television coverage), 16 F.C.C.2d 650 (1969).

B. *The Second Part of the Fairness Doctrine.*

1. Constitutionality

The second part of the fairness doctrine requires that the broadcaster be fair in the coverage of issues—that he afford a reasonable opportunity for the discussion of contrasting viewpoints.⁹ This raises the issue whether the Government (the FCC) can constitutionally regulate broadcast journalism to insure fairness.

Opponents of the fairness doctrine cite the 1974 *Miami Herald* decision¹⁰ particularly the Court's conclusion that

The choice of material to go into a newspaper, and the decisions made as to limitations on the size and content of the paper, and treatment of public issues and public officials—whether fair or unfair—constitutes the exercise of editorial control and judgment. It has yet to be demonstrated how governmental regulation of this crucial process can be exercised consistent with First Amendment guarantees of a free press as they have evolved to this time.

The Florida statute, granting a right of reply to persons attacked in newspaper editorials, has the same commendable purpose as the Commission's fairness doctrine and related rules—the right of the public to be informed on public issues. Why is the FCC's rule as to broadcast journalism consistent with the First Amendment and Florida's print statute inconsistent?

⁹Red Lion Broadcasting Co. v. FCC, *supra*, 395 U.S. at 377: Section 315(a), 47 U.S.C. 315(a) (1959), as amended (Supp. IV 1974).

¹⁰*Miami Herald Publishing Co. v. Tomillo*, 418 U.S. 241,258 (1974).

The answer is not in the relative importance of the two media. *The New York Times* or *The Washington Post* are certainly not of lesser importance than WQXR, New York, or WTOP-TV, Washington, D.C. It is not that one medium requires the act of reading and the other watching and/or listening. The sole distinction lies in the broadcast scheme of short-term licensing as public trustees: Since there are many more applicants than frequencies available,¹¹ the Government must license stations or there will be engineering chaos; Congress has chosen a system not of auction or rent but of short-term licensing on condition that those volunteering for these licenses will serve the public interest. It is this public trustee scheme that leads to the fairness doctrine and sustains the constitutionality of the doctrine.

First, basic fairness is an essential element of the public trustee notion.¹² Suppose, for example, that there are only two VHF channels in a community. While many would like to use the channels, only two parties are given the license to use them, with all others enjoined by the Government from their use (wholly unlike the case of print media). As stated, these parties do not purchase the privilege, but rather are given the short-term license to use the frequencies solely on the ground

¹¹As the Court pointed out in the *Red Lion* case, *supra*, at 396-400, in the large markets with the great majority of the U.S. population, there is not one AM, FM, or VHF broadcast frequency available, and most of the allocated UHF assignments are being used; indeed, others covet the broadcast band for nonbroadcast use. Critics of the fairness doctrine thus miss the point when they argue that there are thousands more radio broadcast licensees than daily newspapers. The matter is not a question of the scarcity of broadcast facilities as compared to daily newspapers. Whatever the economics of the daily newspaper field; it is technologically open to all. Radio is inherently not so open. The government must license or there will be a pattern of frequency interference. It chooses one licensee for a frequency and forecloses all others—a crucial difference from the print media.

¹²*See, e.g.,* Office of Communication of the United Church of Christ v. FCC, 359 F.2d 994, 1009 (D.C. Cir. 1966) (“... adherence to the Fairness Doctrine is a *sine qua non* of every licensee”).

that they will operate in the public interest.¹³ Suppose further that one or indeed both parties present only viewpoints with which they agree on matters of great public concern.¹⁴ The consequence would clearly be a pattern of operation inconsistent with the statutory scheme of a public trustee—of a fiduciary given the use of scarce radio frequencies as a proxy for the entire community.¹⁵

Second, the basic public interest licensing scheme has been held constitutional.¹⁶ This means that again unlike the case of the print media, considerable Government involvement is permitted with broadcast operations—licensing and renewal in the public interest: comparative hearings; public interest regulation such as prime time access,¹⁷ multiple ownership,¹⁸

¹³Congress provided in the Communications Act that “no . . . license shall be construed to create any right, beyond the terms, conditions, and period of the license”, 47 U.S.C. Sec. 301 (1970); that an applicant waives any claim to a frequency “because of the previous use of the same”, *id.* Sec. 304, that a renewal license may be granted for “a term of not to exceed three years”, *id.* Sec. 307(d); and that a license does “not vest in the licensee any right . . . in the use of the frequencies . . . beyond the term thereof”, *id.* Sec. 309(h). Indeed, Congress even requires a comparative hearing to choose the applicant that will best serve the public interest when there are competing applications for the same frequency. *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327 (1945).

¹⁴This is not a fanciful situation. In the *Church of Christ* case, *supra* n.12, the licensee stated that it would not cover the issue of integration for fear of inducing community violence—yet it had no trouble presenting advertisements of the White Citizens’ Council or editorializing in the strongest terms against school integration. See *Lamar Life Broadcasting Co. (WLBT-TV)*, 38 F.C.C.1143, 1146-47, 1160-63 (1965) (herein referred to as *WLBT*).

¹⁵See *Red Lion Broadcasting Co. v. FCC*, *supra*, 395 U.S. at 389.

¹⁶*NBC v. United States*, 319 U.S. 190, 226-227 (1943); *Red Lion Broadcasting Co. v. FCC*, *supra* 395 U.S. at 386-92.

¹⁷*Mt. Mansfield Television, Inc. v. FCC*, 442 F.2d 470 (2d Cir. 1971).

¹⁸*United States v. Storer Broadcasting Co.*, 351 U.S. 192 (1956).

sponsorship identification,¹⁹ etc. If the public interest regulatory scheme is constitutional, it follows that fairness—an essential and obvious element of operation in the public interest—is also constitutional, and of course the Supreme Court has so held.²⁰

Furthermore, because of the existence of this pervasive public interest regulatory scheme, elimination of the fairness doctrine would not accomplish the goal sought by its critics—placing broadcast journalism in the same position regarding the Government as print journalism. There has been legitimate concern that the Government might use improper means to “chill” critical journalistic efforts.²¹ But an Administration with such an improper purpose would be most unlikely to rely on haphazard, skewed fairness rulings, which in any event would be subject to searching judicial review.²² The Government (FCC) can affect the economic health of the licensee or network in so many important and vital respects—for example, by delaying renewal, amending the multiple ownership rules applicable to networks or large VHF stations, or changing the network programming process

¹⁹47 U.S.C. Sec. 317 (1970).

²⁰Red Lion Broadcasting Co. v. FCC, *supra*. See also CBS v. DNC, *supra*.

²¹See Brandywine-Main Line Radio, Inc. v. FCC, 473 F.2d 16, 78 (D.C. Cir. 1973), (Bazelon C.J., dissenting), *cert. denied*, 412 U.S. 922 (1973) (hereafter referred to as *WXUR*); F. Friendly, “Politicalizing TV,” *Colum. Journalism Rev.*, March-April 1973, at 9.

²²See Brandywine-Main Line Radio, Inc. v. FCC, *supra*, 473 F.2d at 52,63.

through prime time access and syndication rules.²³ Thus, so long as the public interest licensing/regulatory scheme is maintained (as contrasted with the notion of the government as only a traffic officer), elimination of the fairness doctrine will not insulate broadcast journalism from the possibility of improper Government activity, but it will have the result of leaving the public interest unprotected in flagrant situations such as *Church of Christ (WLBT-TV)*, *supra*. In short, fairness and the public trustee notion are integrally linked.

Indeed, fairness is not only consistent with the First Amendment, but it—or some form of access—may be constitutionally required. Suppose the Government were to license the use of the main park in Jackson, Mississippi, to one party, the White Citizens Council, for three years, and allow no one else to use that park for parades, rallies, etc.; and suppose black groups sought the right to present their parades or rallies. Clearly the courts would succeed in striking down such governmental action as unconstitutional. But the Government has done the equivalent as to Jackson Channel 3 by licensing one party to use Channel 3 in Jackson and enjoining all others from using that frequency. There are thus indications in *Red Lion* that some form of access by the

²³For example, a notice of proposed rule making to reduce network prime time access or VHF holdings in the top 10 markets might be issued, and thereafter an Administration official might “visit” the networks for discussion of mutual problems. For a discussion of the activities of the Nixon Administration which were deemed to be repressive of the media, see H. Ashmore, *Fear In The Air* (1973) and Barrow, *OTP and FCC: Role of the Presidency and the Independent Agency in Communications*, 43 U.Cinn. L. Rev. 291 (1974).

public is constitutionally required.²⁴ The Government has determined that fairness shall afford that access.²⁵ Perhaps it would have been wiser policy under the First Amendment to have simply afforded a specified portion of time for use by the public, on a first come, first served basis (e.g., an hour or so a week, available in ten-minute segments, on a rotating basis, and with the requirement that the material presented must meet standards of lawfulness). But that may be a matter of policy for Congress, rather than a requirement of constitutional law.

²⁴See *Red Lion Broadcasting Co. v. FCC*, 395 U.S. at 389: "Because of the scarcity of radio frequencies, the Government is permitted to put restraints on licensees in favor of others whose views should be expressed in this unique medium. But the people as a whole retain their interest in free speech by radio and their collective right to have the medium function consistently with the ends and purposes of the First Amendment. It is the right of the viewers and listeners, not the right of the broadcasters, which is paramount, [cases omitted]. It is the purpose of the First Amendment to preserve an uninhibited marketplace of ideas in which truth will ultimately prevail, rather than to countenance monopolization of that market, whether it be by the Government itself or a private licensee, [cases omitted] . . . It is the right of the public to receive suitable access to social, political, esthetic, moral, and other ideas and experiences which is crucial here. That right may not constitutionally be abridged either by Congress or by the FCC."

²⁵See *CBS v. DNC*, *supra*. Significantly, in their arguments in that case, broadcasters relied heavily upon the existence of the fairness doctrine to fend off any right of access. Similarly, in opposing restrictions on multiple ownership, broadcasters have pointed to the fairness doctrine in support of their position for liberalized standards. Thus, if the doctrine were eliminated without substitution of any new form of access, it would be necessary to re-examine several aspects of multiple ownership policy (e.g., duopoly; the 7 aural or 5 VHF TV stations limitation).

2. Implementation

While the doctrine is constitutional, its implementation should be consistent with the First Amendment, and specifically, should conform to the basic principle that the Government should intervene as little as possible in this sensitive area of broadcast journalism. Accordingly, we recommend the following approaches, discussed below:

- Substitution of access programming for Governmentally-regulated fairness. But if the latter is retained, then
- Continuation of wide discretion in the licensee to make fairness judgments.
- Adoption of a renewal-only approach to fairness, under a standard akin to that of *The New York Times Co. v. Sullivan*

a. Substitution of Access Programming for Government-Regulated Fairness.

We believe that Government intervention to regulate broadcast journalism, even accepting its necessity (pp. 10-13, *supra*) and the best of good faith, has serious drawbacks and should be kept at the very minimum required to meet constitutional and policy goals. We therefore strongly urge the use of access programming opportunities (e.g., "Op-ed" segments such as on "Sixty Minutes" or on the *New York Times* editorial page; spot announcements such as on Westinghouse's San Francisco station, KPIX). The heart of the fairness obligation, and the constitutional issue, is not that the other side be presented, but that there be *opportunity* for the contrasting viewpoint—that the licensee's "park" be shared with others. Access programming can accomplish that, generally with the need for detailed Governmental supervision

of what the licensee did on each issue. While fairness issues can still arise, the access technique should reduce such issues to the unusual situation. Further, such access programming can make a valuable contribution to the licensee's first obligation under the fairness doctrine—to cover controversial issues; indeed access programming may allow for airing of significant issues that might otherwise be overlooked.

In *radio*, for example, there is normally no shortage of available response time. Why then cannot the licensee simply broadcast announcements that contrasting views to those presented on the station will be welcome in appropriate talk periods? Other than the notification requirement in the personal attack and political editorializing rules (and here see discussion within, pp. 30-35, it is difficult to perceive why as a general matter fairness complaints should arise in the radio field. The station should welcome the added controversy or interest in presenting views on issues covered by it. Thus, in radio, the good faith provision of reasonable opportunity for access programming reflects present policy.²⁶

In *television*, the Commission should also encourage the use of access to reduce resort to the Commission on fairness matters. But because of the different nature of television, (particularly that time is much more at a premium than in radio) a more structured access program may be appropriate. For example, suppose the three TV stations in South Bend, Indiana agreed to provide a significant number of spot announcements each week and a reasonable block of prime

²⁶See Letter to Mid-Florida Television Corp. 40 F.C.C. 620, 621 (1964); Fairness Doctrine and Public Interest Standards, 39 Fed. Reg. 26372, 26377 (1974). The licensee may employ spots as well as program time for such access. Whether spots generally or on some particular issue are appropriate is a matter of licensee judgment. See *CBS v. DNC*, *supra*.

time (e.g., one half hour per week on a rotating basis—one week on station A, next week on station B, etc.) for those wishing to present contrasting viewpoints (or possibly to open the discussion of a new issue) and to make periodic announcements of the availability of this time (particularly after a discussion of a controversial issue). This would constitute compliance with the statutory requirement in Section 315(a)²⁷—to afford reasonable balance in most cases, with therefore little or no need to resort to the FCC complaint or renewal process. It could also constitute compliance with the Commission's direction in the recent Prime Time Access Report that the licensee has the duty to use the cleared time, in part, to present locally significant material.²⁸ The licensee would remain the public trustee, and could, of course, reject material on such grounds as poor taste or total lack of public significance. By proceeding with an experiment of this nature—joined in by all the stations in the community—the Commission, broadcasters, and the public would receive valuable information as to whether access works, and whether it is a better device to accomplish both goals of the fairness doctrine—that broadcasters contribute to an informed electorate and that they do so fairly.

²⁷47 U.S.C. Sec. 315(a) (1959), as amended, 47 U.S.C. Sec. 315(a) (Supp. II, 1972). In 1959 Congress amended Section 315 so as to exempt appearances by legally qualified candidates in certain news-type programs, but added that this constituted no exception "from the obligation imposed under this Act to operate in the public interest and to afford reasonable opportunity for the discussion of conflicting views on issues of public importance." *Id.*

²⁸Second Report and Order, Prime Time Access Rule, 50 F.C.C.2d 829, 852 (1975).

b. Continuation of Wide Discretion in the Licensee to Make Fairness Judgments.

The FCC has stressed that the licensee has wide discretion to make reasonable judgments, in good faith, as to the viewpoints to be presented, the appropriate spokesmen, the format of the program, and other similar programming decisions. The Commission's role in enforcing the fairness doctrine is limited to determining, upon appropriate complaint, whether the broadcaster's judgment can be considered reasonable, not whether it is wise or whether the FCC would agree with it.²⁹ And the courts have also stressed the crucial importance of giving wide scope to the licensee's judgment in this sensitive fairness area.³⁰

We strongly concur in this approach. The FCC should heavily weight the licensee's judgment, and upset that judgment only in the clear-cut case where there is no question but that the action has been arbitrary. For, it is more important that the FCC not intervene too deeply into the journalistic process than that it try to ensure fairness in every instance. Admittedly, it is difficult to articulate the approach so as to preclude such inappropriate FCC actions. It is, in effect, an expression of mood.³¹ But such a mood, if applied conscientiously by the Commission and reinforced by the Courts, should have both significance and permanence.

c. Use of the Renewal-only Approach to Fairness.

Prior to 1962, the FCC considered fairness complaints only at renewal time, and in the context of the overall

²⁹Fairness Doctrine and Public Interest Standards, *supra*: Report on Editorializing by Broadcast Licensees, *supra*.

³⁰*Straus Communications, Inc. v. FCC*, 530 F.2d 1001 (D.C. Cir. 1976). *NBC, Inc. v. FCC (The Pensions Case)*, 516 F.2d 1101 (D.C. Cir. 1974), *vacated on other grounds*; *Green v. FCC*, 447 F.2d 323 (D.C. Cir. 1971).

³¹*Cf. Universal Camera Corp. v. NLRB*, 340 U.S. 474, 487 (1951).

operation of the station.³² In 1962, the Commission changed its procedure to resolve all fairness matters as they arose and, if the station was found to have violated the doctrine, to direct it to advise the Commission within 20 days of the steps taken "to assure compliance with the fairness doctrine."³³ We believe that the Commission's practice of *ad hoc* fairness rulings has led it ever deeper into the journalistic process and has raised most serious problems.

(1) *Defining balance or reasonable opportunity.* The doctrine requires that *reasonable* opportunity be afforded the contrasting viewpoints on an issue. There has therefore been inherent in the doctrine a very difficult problem—namely, at what ratio (*e.g.* 2-to-1, 3-to-1, etc.) would the FCC say that the opportunity for presenting opposing viewpoints has not been *reasonable*? Further, how does frequency of presentations or choice of time (*e.g.*, prime or non-prime time) affect this evaluation? Not only have these problems arisen in recent years,³⁴ but this basic issue of reasonable balance has led to other difficulties.

(2) *The "stop-watch" problem.* In order to ascertain whether there has been reasonable balance, the FCC literally has used a stop-watch to time the presentations that have

³²See, *e.g.*, Dominican Republic Information Center, 40 F.C.C. 457, 457-58 (1957).

³³Tri-State Broadcasting Company, Inc., 40 F.C.C. 508 (1962).

³⁴See Concurring Statement of Chairman Burch in Complaint of Wilderness Society against NBC (ESSO), 31 F.C.C.2d 729, 734-39 (1971), *reconsideration denied*, 32 F.C.C.2d 714 (1971).

been made on the various sides on an issue.³⁵ Even more difficult can be the problem of judging whether a program segment is for, against, or neutral in regard to a particular issue. In the gray areas that are bound to arise in this respect, it is not appropriate for a Governmental agency to make such sensitive programming judgments.

(3) *The "stop-time" problem.* An associated problem arises from the fact that during and after the period in which the FCC makes a decision on a fairness complaint, a broadcaster frequently continues his coverage of an issue for a number of reasons (e.g. new developments). The FCC then finds that the circumstances upon which it made its decision have changed significantly. For example, in one case, during the period between the time of the original FCC decision on

³⁵*Id.* at 735-739. In that case the staff set forth the following "stop-watch" analysis of the material broadcast on the issue (at 739):

Date of Broadcast	Pro	Anti
June 7, 1970	4:40	5:35
September 10, 1970	:20	1:00
January 13, 1971	:06	:15
February 14, 1971	—	:10
February 16, 1971	:49	1:05
February 24, 1971	:15	1:30
February 28, 1971	1:32	—
June 4, 1971	1:58	—
July 11, 1971	:27	2:15
August 6, 1971	:45	1:10
August 26, 1971	—	:15
September 15, 1971	—	8:00
Totals	10:52	21:15

See also Sunbeam TV Corp., 27 F.C.C.2d 350, 350-351 (1971).

the complaint and the Commission's action on reconsideration, the licensee broadcast several presentations that crucially affected the Commission's judgment on whether reasonable opportunity had been presented.³⁶

Another example is the KREM-TV Spokane case.³⁷ Analysis of this case—routinely issued by the Commission—is set forth in Appendix A. It shows, we believe, a chilling effect on robust, wide-open debate as a result of the Commission's case-by-case implementation of the fairness doctrine.

In short, it does not follow that because the fairness/public trustee notion is consistent with the First Amendment (pp. 9-13, *supra*), the Government (FCC) can therefore interfere unduly or deeply with daily broadcast journalism—that the First Amendment considerations in *Tornillo* suddenly vanish. The Commission's essential duty is to insure that the broadcast licensee acts consistently with his public trustee role—that, for example, one of the two TV licensees in Jackson, Mississippi does not present only the segregationist viewpoint during its license term³⁸ or that the Media, Pennsylvania station WXUR does not flagrantly ignore the requirements of the fairness doctrine.³⁹ The Commission cannot properly strive for fairness by every broadcaster on any particular issue. That route results in undue Governmental intrusion into day-to-day broadcast journalism.

³⁶Complaint of Wilderness Society against NBC (ESSO), *supra*, 31 F.C.C.2d at 733, 735.

³⁷Complaint of Sherwyn H. Heckt, 40 F.C.C.2d 1150 (1973).

³⁸Lamar Life Broadcasting Co. (WLBT), *supra*.

³⁹Brandywine-Main Line Radio, Inc. (WXUR), 24 F.C.C.2d 18 (1970); *affirmed on other grounds*, Brandywine-Main Line Radio, Inc. v. FCC, 473 F.2d 16 (D.C. Cir. 1972), *cert. denied*, 412 U.S. 922 (1973).

This is the clear teaching of *CBS v. DNC*.⁴⁰ The Supreme Court there rejected any First Amendment right of access of individuals or groups to broadcast facilities for editorial advertisements (*i.e.*, advertisements on controversial issues). The Court pointed out that granting such a constitutional right would inevitably push the FCC into reviewing, "case-by-case", licensee operational decisions such as determining if a viewpoint or group had been given sufficient broadcast time.⁴¹ The Court's decision thus relies heavily on the consideration that a constitutional right of access for editorial advertisements would involve the Government (the FCC) far too much in the "day-to-day editorial decisions of broadcast licensees. . ."; that the essential and "unmistakable Congressional purpose [is] to maintain—no matter how difficult the task—essentially private broadcast journalism held only broadly accountable to public interest standards."⁴²

These two pegs of the Court's decision are repeatedly stressed. Thus, the opinion first establishes with great thoroughness the Congressional choice to "... leave broad journalistic discretion with the licensee" (p. 105); "... to maintain a substantial measure of journalistic independence for the broadcast licensee" (p. 116); "... to permit private

⁴⁰*Supra*. Chief Justice Burger's majority opinion consists of four parts, with four other justices concurring in Parts I, II, and IV, and two others concurring in Part III (the state action holding). The holdings cited in the above discussion command a majority of the Court. And while it is unnecessary to cite points in Part III, those relied upon here merely repeat earlier holdings in the other three points.

⁴¹*Id.* at 126-27.

⁴²*Id.* at 120; *see also id.* at 109-10, 116.

broadcasting to develop with the widest journalistic freedom consistent with its public obligation” (p. 110).⁴³ Second, it also establishes that the Governmental oversight to insure consistency with public interest obligations is to be on an overall basis. Thus, the Court states (412 U.S. at 110,120):

Only when the interests of the public are found to outweigh the private journalistic interest of the broadcasters will government power be asserted within the framework of the Act. License renewal proceedings, in which the listening public can be heard, are a principal means of such regulation. See *Office of Communication of United Church of Christ v. FCC*, 123 U.S. App. D.C. 328, 359 F.2d 994 (1966) . . .

Congress has affirmatively indicated in the Communications Act that certain journalistic decisions are for the licensee, subject only to the restrictions imposed by evaluation of its overall performance under the public interest standard . . .

Clearly, if the foregoing precepts are true as to a right of

⁴³See also, at 105 (“Congress appears to have concluded, however, that of these two choices—private or official censorship—Government censorship would be the most pervasive, the most self-serving, the most difficult to restrain and hence the one most to be avoided.”)

The legislative history support for the Court’s conclusion is fully set out in the opinion and will not be repeated here. To the same effect, see S. Rep. No. 562, 86th Cong., 1st Sess., 13. Significantly, when the Congress codified the fairness doctrine in the Communications Act in 1959 (see Section 315(a), 47 U.S.C. Sec. 315(a); H. Conf. Rep. No. 1069, 86th Cong., 1st Sess., 5 (1959)), it did so at a time when fairness was enforced only on an overall basis at renewal. Indeed, the legislative history shows explicit Congressional recognition that Commission action under the fairness doctrine was restricted to “. . . The time (broadcasters) went before the Commission for the renewal of their license . . .” See 105 Cong. Rec. 14445 (1959). See also 105 Cong. Rec. at 14440, 14662 (1959).

access by persons to broadcast facilities for editorial advertisements, they are also valid as to the application of the fairness doctrine. The doctrine deals directly with broadcast journalism, and thus the above described Congressional purpose must also be followed in its implementation. The Commission, in its implementation of the fairness doctrine, must afford broadcasting "the widest journalistic freedom consistent with its public obligations"; must not interfere with "day-to-day editorial decisions of broadcast licensees . . ."; and must generally confine its efforts to determining whether on an overall basis (*i.e.*, at renewal) the broadcaster has met its public interest obligation. Indeed, the Court in *CBS v. DNC* stated the doctrine in terms that meet the Congressional purpose:

Under the Fairness Doctrine the Commission's responsibility is to judge whether a licensee's overall performance indicates a sustained, good faith effort to meet the public interest in being fully and fairly informed (fn. citing Editorializing Report).⁴⁴

In light of *CBS v. DNC*, the Commission's present *implementation* of the fairness doctrine contravenes both the statute and the First Amendment. The Commission should therefore return to its pre-1962 practice of considering compliance with the fairness doctrine only at renewal; at such time no effort should be made to rule on particular complaints perhaps years after their receipt, and the renewal

⁴⁴*Id.* at 127, n.19. See Comment, *The Regulation of Competing First Amendment Rights: A New Fairness Doctrine Balance after CBS?*, 122 U. Pa. L.Rev. 1283, 1293 (1974) ("... Thus all of the Justices who concurred in the CBS result indicated that the broadcaster enjoys a substantial first amendment right to control the content of his broadcasts, and that the FCC review of that content is not to be on a case by case standard, but rather on an overall good faith effort standard . . .").

standard in this respect should be like that in *The New York Times Co. v. Sullivan*:⁴⁵ the absence of an indicated pattern of a flagrant nature, akin to “malice” or bad faith (e.g., the substantial claims in the *WLBT* case) or “reckless disregard” of fairness obligations (e.g., the indicated pattern in the *WXUR* case).⁴⁶

Red Lion will undoubtedly be cited as contrary to the above position, on the ground that the Court there affirmed the legality of the fairness doctrine and the FCC regulations on personal attack and political editorializing in the context of an *ad hoc* ruling. But the case involved a general attack on the doctrine and rules; the Supreme Court’s holding is that generally the doctrine and the related rules are constitutional. The Court did not pass on the *manner* of application of the doctrine or rules (i.e., *ad hoc* as against an overall basis at renewal). As the Court of Appeals noted in *NBC v. FCC (Pensions)*, *supra*, 516 F.2d at 1112, the legal point here being advanced was not raised or considered in *Red Lion*; it was considered in *CBS v. DNC*, and the latter case is controlling.

It might be argued that the personal attack rules should remain an area appropriate for *ad hoc* rulings, because they do not involve the “stop-watch” and similar consideration involved in general fairness. On reflection, however, it would appear that the Commission cannot properly proceed in the personal attack area with *ad hoc* rulings. The guiding statutory

⁴⁵ 376 U.S. 254 (1964). In order to promote robust debate, the Court there held that the First Amendment ruled out libel actions as to public figures except where there is a showing of malice (including reckless disregard of truth). If that standard is sound and necessary in the libel field, something roughly akin to it—i.e., the flagrant pattern—is clearly in order in the equally sensitive renewal-fairness area where the same goal of promoting robust debate is involved.

⁴⁶ When there is indication of such a pattern, the Commission need not await renewal which may be a year or more in the future. It can and should act to revoke the license, under Section 312(a), 47 U.S.C. Sec. 312(a). Such protection of the vital public interest would be particularly called for if the license term were lengthened to more than three years as has been proposed in recent years.

criterion is avoidance of undue intrusion into daily broadcast journalism. Even if the "stop-watch" problem is avoided, *ad hoc* administration of the personal attack rule simply cannot meet that goal. As shown by a number of cases,⁴⁷ it involves the Commission in review of such daily and sensitive licensee judgments as whether an attack has been made, whether a controversial issue has been covered, or whether the response is going too far afield, or the licensee is unreasonably restricting the response. There is thus no sound basis for exempting personal attack from the statutory scheme delineated in *CBS v. DNC*—here also the Commission should examine problems only at renewal on an overall basis and under the above-described *New York Times Company v. Sullivan* standard. Indeed, this renewal approach is required under the statutory scheme in *all* fairness areas except one—the political broadcast.⁴⁸

⁴⁷*Compare* Straus Communications, Inc., 51 F.C.C.2d 385 (1975), *reversed* Straus Communications, Inc. v. FCC, 530 F.2d 1001 (D.C. Cir. 1976), *with* Philadelphia Federation of Teachers, 31 P&F Radio Reg. 2d 36 (1974); WMCE, Inc., 26 F.C.C.2d 354 (1970); WCMP Broadcasting Co., 41 F.C.C.2d 201 (1973); University of Houston, 11 F.C.C.2d 790 (1968); J. Allen Carr, 30 F.C.C.2d 894 (1971). *See* Letter to WALG, 40 F.C.C. 632 (1965); Letter to Hon. Oren Harris, 40 F.C.C. 582, 585-86 (1963).

⁴⁸There is a clear need for prompt fairness rulings as to political broadcasts. The Congressional scheme is one of timely rulings in the equal opportunities areas. S. Rep. No. 562, 86th Cong., 1st Sess., 12 (1959). But if the equal opportunities provision is inapplicable to a political broadcast situation, Congress specifically intends to have the fairness doctrine apply in order to protect the public interest. *See* Section 315(a); H.R. Conf. Rep. No. 1069, 86th Cong., 1st Sess.; *Red Lion Broadcasting Co. v. FCC*, *supra*, 395 U.S. at 382-384; *but cf.* legislative history referred to *supra* note 43. Fairness rulings in this area, therefore, must also be prompt; it makes no sense to inform the candidate that the fairness doctrine is applicable, rather than the equal opportunities provision, if the Commission will not rule on whether or not the candidate is entitled to broadcast time during the election period. This again points up the difference between the goals of obtaining equal opportunities (and fairness) for candidates in each instance and insuring that the broadcaster operate generally in the public interest as to controversial issues. As noted in *CBS v. DNC*, *supra*, 412 U.S. at 105-09, 122, Congress rejected the notion of requiring strict equality ("... no discrimination...") in the broadcaster's coverage of public issues.

The foregoing *legal* analysis is dispositive of the propriety of the case-by-case approach, and the *policy* reasons advanced in opposition to the renewal approach are thus entitled to no weight. This is certainly so as to the policy reasons for rejecting the renewal approach, given by the Commission in its July 18, 1974 Fairness Report.⁴⁹ Thus, the Commission, just as the State of Florida, may deem it good policy to have the public informed promptly on each issue as to which there is a substantial fairness dispute, but that is a goal ruled out by the statute and the First Amendment. The Commission may wish to rely almost entirely upon fairness complaints, but it cannot properly encourage such complaints by promising to intervene into the day-to-day operation of broadcast journalism. The Commission may think it expedient to impose some inhibition upon daily broadcast journalism to lessen the chance of serious trouble at renewal (see, however, discussion at pp. 28-29, *infra*), but it cannot properly proceed in that fashion.⁵⁰

⁴⁹See Fairness Report, *supra*, 39 Fed. Reg. at 26378-79, pars. 47-48 (1974).

⁵⁰In any event, the Commission's points are not well taken, even assuming that the course of *ad hoc* consideration of every fairness complaint were legally open to it. The Commission would not have to inquire into every fairness complaint at renewal; the very great majority of such complaints would not indicate any flagrant pattern of violation, but simply a good faith licensee judgment. Furthermore, to date only two fairness renewal cases have been decided—*WLBT* and *WXUR*, *supra*, notes 14 and 39. Neither turned on individual complaints over the license years; in both the most important aspect was that the stations had been monitored for several weeks prior to renewal by listener groups. The Commission could continue to rely upon such efforts by interested groups; and rather than functioning as a monitor, it could adopt the so-called ten-issue approach. Briefly stated, this approach would require the TV licensee to list annually the ten controversial issues of public importance, local and national, which it chose for the most coverage in the prior year; to set out the offers for response made; and to note representative programming that was presented on each issue (*i.e.*, a brief description of the programming, including partisan spokesmen presented, source, and time of broadcast). This would more than compensate for any reduced complaints from listeners, and would do so without governmental intrusion into daily broadcast journalism. The FCC's present rule, 47 C.F.R. § 1.526(a)(9), does not meet this

The argument will be made by public interest groups that under this general renewal approach the public will not be afforded a reasonable opportunity to hear contrasting viewpoints by some licensees on some particular issues. That is true: the focus would be on whether the licensee has fulfilled his essential public trustee role, not on whether he has made an "honest" mistake or error in judgment⁵¹ in affording reasonable opportunity for contrasting views on some particular issue. For, as shown, to pursue the latter approach draws the FCC deeply into daily broadcast journalism. As the Commission recently stated, "... the crucial consideration is whether, on balance, Governmental intervention to attempt to secure perfect fairness will serve the public interest; [we] have concluded that it will not."⁵² Indeed, the FCC eschewed the search for "perfect fairness" in 1949, when it held that each program need not be balanced to ensure that the same audience hears both sides.⁵³ Such a rigid search for strict fairness would run counter to the goal of promoting unrestricted debate. Similarly, it is unlikely in any particular "balance" case that different audiences hearing an additional presentation of the contrasting viewpoint would receive benefits that would outweigh the fundamental detriments noted above. And the renewal approach does not gut the fairness doctrine: As shown by *WLBT* and *WXUR*, *supra*, it remains an important overall presence or mood that the broadcast licensee must take into account in the operation of the station.

Some broadcasters argue that complaints will accumulate from previous years at renewal time, particularly for stations

purpose, since it deals with "problems", not controversial issues of public importance, and does not require the above-described information.

⁵¹ Editorializing Report, *supra*, 13 F.C.C. at 1255.

⁵² Gary Lane, 39 F.C.C.2d 938 (1973).

⁵³ Editorializing Report, *supra*, 13 F.C.C. at 1250-51.

broadcasting a large amount of controversial issue programming, and that the accumulation would cause the FCC to schedule a renewal hearing. This process, it is argued, could be even more inhibiting than the issue-by-issue complaint procedure, particularly if the licensee finds itself "sandbagged" as it tries to deal with stale controversies two or more years old. But since all significant complaints will be referred to the licensees as they are received, the licensee will have a timely opportunity to react to them. The FCC could expect at renewal to have a number of complaints against the broadcaster vigorously pursuing his controversial issue responsibility; it could also expect that in some cases there may have been an honest error of judgment. That would not, however, jeopardize the station's renewal, even if there were a score of good faith, close judgments. The Commission would not be concerned with having contrasting views broadcast on some issue years later but rather with determining whether a flagrant pattern of violation is indicated—the *New York Times Co. v. Sullivan* standard noted above. No conscientious broadcaster need fear review with a standard so heavily weighted in his favor.⁵⁴

Admittedly, this is a difficult area calling for "a delicate balancing of competing interests."⁵⁵ The FCC, however, has

⁵⁴Two other points should be noted in this respect. First, even with the present *ad hoc* procedure, the broadcaster could find that the accumulation of complaints has contributed to the need for hearing. For, while the broadcaster may comply with an FCC fairness directive, his violation of the doctrine, particularly if gross or in bad faith, is not thereby excused but rather can be taken into account in the renewal process. See *Lamar Life Broadcasting Co.*, *supra*, 38 F.C.C. at 1145-46; S. Rep. No. 562, 86th Cong., 1st Sess., 12 (1959) (on S. 2424). Second, the experience with the renewal approach between 1949 and 1962 does not bear out the above fear: not one renewal application was designated for hearing on fairness grounds.

⁵⁵*CBS v. DNC*, *supra*, 412 U.S. at 117. See also *id.* at 102, 118, 125.

not charted a workable "middle course"⁵⁶—and sought "... to walk a 'tightrope' to preserve First Amendment values written into the Radio Act and its successor, the Communications Act."⁵⁷ Instead, it has pursued the *Tornillo* course of trying to insure fairness on every issue. It should cease this interference with day-to-day broadcast journalism and instead focus on the goal laid down by the statute and permitted by the First Amendment—insuring that on an overall basis the licensee remains faithful to his public trustee role in this important area of fair coverage of controversial issues. Thus, the government will be concerned with the character of the licensee—not of his particular broadcasts dealing with controversial issues.⁵⁸

3. Revision of Personal Attack and Political Editorializing Rules

Personal Attack Rule. It is important to bear in mind that the personal attack principle is a logical extension of the general fairness doctrine. When the discussion of a controversial issue involves a personal attack on some person or group, the doctrine imposes an affirmative obligation on the licensee to try to present the opposing side. It would make no sense to broadcast an announcement inviting the presentation of the contrasting view, since there is one clear

⁵⁶*Id.* at 120.

⁵⁷*Id.* at 117.

⁵⁸As a practical matter, the fairness doctrine can and should have little if any relevance to straight news reporting. The broadcast journalist necessarily must report the news as he sees it, culling out the items he deems important and emphasizing and analyzing some aspects over others. Such choice and editorial judgment are inherent in the news process (*CBS v. DNC, supra*). Government cannot and must not intervene in that process. Therefore, absent the unusual case involving independent extrinsic evidence of slanting or staging the news by the process *i.e.*, newscast or news special) by application of the fairness or related doctrines.

and appropriate spokesman to give the other side of the attack issue—the person or group attacked. Hence, the licensee should notify that person or group of the attack and offer time for a response.⁵⁹

All this applies in the case of a licensee who is relying on over-the-air announcements for compliance with the doctrine. But the fairness doctrine is satisfied if the licensee *himself* has presented the contrasting viewpoint. The personal attack rule makes allowance for this in the case of newscasts, news interviews, and on-the-spot coverage of bona fide news events (including commentary and analysis in such shows). None of these news programs comes within the personal attack rule.⁶⁰ Thus, if the licensee covers a personal attack on his newscasts, and presents (or plans to present) the side of the person attacked (*e.g.*, by having a news announcer state that side or by presenting a news clip featuring the person attacked), fairness is achieved; if he does not, he should notify the person or group attacked and offer time for response.

In the case of a personal attack made in programming outside these exempted categories, however, the rule places a different and greater burden on the broadcaster. Thus, if a personal attack occurred in a news documentary and in that documentary the licensee himself presented the opposing viewpoint to the attack exactly as he did in the newscast (*i.e.*, by having his news commentator set forth that viewpoint), the rule still requires that the person attacked be notified and given the opportunity to present his viewpoint.

⁵⁹See 47 C.F.R. § 73.123 (1974).

⁶⁰47 C.F.R. § 73.123(b) (1974).

There is a "crazy-quilt" pattern of exemptions here. As stated, news documentaries are not exempt from the rule's requirement⁶¹ but news interviews or on-the-spot coverage of a news event are exempt. Commentary in the newscast is exempt, but the same commentary repeated outside the newscast is not. Editorials as distinct from commentary of the newscaster are not exempt, even if in a newscast.

There is a rationale for having the person attacked, rather than the licensee, present the opposing viewpoint, because, as the Supreme Court noted in the *Red Lion* case⁶² that person, of course, strongly believes in his views and is thus the most effective spokesman for that side. The FCC has also set forth its rationale for the somewhat bizarre exemption pattern described above—its attempt largely to parallel the 1959 statutory exemptions to the "equal opportunities" requirement.⁶³

⁶¹A responsible broadcaster would, of course, cover the views of the person or group attacked in any documentary. But the broadcaster might well interview the person and, in exercising his journalistic judgment, use that portion he thought best fit into the limited time span of the program. The FCC has held that the person attacked should not be unreasonably restricted in his response. See Letter to WALG, 40 F.C.C. 632, 634 (1965). This could obviously lead to controversy over the portions not used, and could have the effect of requiring either a further presentation or the elimination of the attack altogether, in order to avoid this controversy. Plainly, this is an area best handled under the flexibility of the fairness doctrine.

⁶²*Red Lion Broadcasting Co. v. F.C.C.*, *supra* at 392.

⁶³See 47 U.S.C. § 315(a) (1970), *as amended*, (Supp. IV, 1974). In order not to restrict broadcast journalism, Congress exempted from the equal opportunities requirement four categories: newscasts, news interviews, news documentaries and on-the-spot coverage of new events. For the same reason, the FCC stated that it was exempting from the personal attack rule three of these categories, but not news documentaries. As to the latter, the FCC noted that they were prepared over a considerable period of time and thus could readily follow the requirements of the personal attack rule (query whether this is always the case).

But the FCC should end this detailed and tortured categorizing and return to the basic principle of fairness: namely, determining whether the licensee has afforded reasonable opportunity for the contrasting viewpoint. This would afford the responsible broadcaster greater discretion—a factor conducive to more wide-open debate, and, we believe, would not result in any significant lessening of such debate by a failure to present the side of the person attacked fairly and robustly. In any event, if the licensee can be trusted to achieve fairness as to personal attacks in important information areas such as newscasts or news interviews, why should this not be the standard in all cases? The rule, or better still, policy should state simply that where the licensee has presented a personal attack that is a controversial issue of public interest or is germane to the discussion of such an issue and has not achieved fairness or made timely plans to do so, he should notify the person or group attacked within a reasonable time period and offer the opportunity for response. The responsible broadcaster would thus have the same leeway here as he has in dealing with all other facets of fairness. To an irresponsible broadcaster who ignores his fairness duties, the revision will lead to the same result—denial of renewal for failure to comply with the requirements of the doctrine.

Political Editorializing Rule. Similar considerations call for revision of the political editorializing rule.⁶⁴ In this area also, the FCC should return to the underlying fairness concepts. Its present approach cannot be squared with the previously described concept of flexibility and great discretion afforded to the licensee under the fairness doctrine.

This can best be shown by considering the FCC's disparate treatment of candidacy and a ballot issue (e.g., a school bond or some other proposition on the ballot). A

⁶⁴47 C.F.R. § 73.123(c) (1974).

station that has presented extensive programming covering the contrasting views on a ballot issue could broadcast a brief editorial stating its support for side X for the reasons already given by that side, without any need to notify the other side and allow it further opportunity to respond. But if the station had followed an identical pattern as to another part of the ballot—the candidacy of X—it would have to notify X (if it opposed him) and afford him an opportunity to reply. Why has this marked difference in treatment occurred, particularly under a doctrine that does not require equal time but only reasonable opportunity for the discussion of the conflicting views on an issue? This approach represents a hostility to political broadcasts, because it imposes a burden, with the threat of forfeiture, that does not exist in the case of the usual editorial.⁶⁵

Here again, therefore, the FCC should revise the rule to state that where the licensee has presented a political editorial and has not achieved fairness or made plans to do so in a timely manner within the election period, he shall notify the candidate and give him or his spokesmen the opportunity to reply. This revision would make a marked difference. Thus when the licensee presents considerable material setting forth the positions of the candidates and then editorializes in

⁶⁵The number of broadcast stations engaging in political editorializing declined after the FCC's adoption of the rule on July 5, 1967. The FCC 1964 Political Broadcast Survey showed that 17 TV and 140 AM stations broadcast political editorials (p. vii, July 1965); and in 1966 the figures were 21 TV stations and 110 AM stations (Survey, p. 4, June 1967); in 1968, the figures declined to 10 TV and 80 AM stations (Survey, p. 4, August 1969). Because of this small number, the Commission dropped this question in its 1972 survey. (Note that the number of AM stations declined from 140 to 110 in the period before the rule.) No definitive conclusion can be drawn from this decline without determining the reasons why the particular stations stopped political editorializing. The FCC should attempt to obtain this information, along with current data on political editorializing.

support of one (or against one), the rule now requires that he notify the candidate(s) not supported and afford an opportunity for a response. Under the proposed revision, if the licensee had afforded reasonable opportunity for the presentation of views contrasting to those presented in his editorial, he would have no further fairness obligation. This would not solve all the problems raised by the rule,⁶⁶ but it would be a significant step toward affording the licensee greater leeway in this area, and thus promote political editorializing.

II. FCC Policies on Slanted Or Staged News

The FCC policy here was established in a 1968 ruling on complaints of TV news bias in covering the Democratic National Convention.⁶⁷ It was charged that the networks had edited their coverage of the riots during the 1968 Convention in such a manner that a distorted picture was presented. The FCC pointed out that it could not properly proceed to ascertain what "truly" had happened, and then make a finding of bias by comparing that "truth" to what the networks actually presented. In cases in which the

⁶⁶The main problem raised by the rule is the burden it imposes upon any licensee who wishes to follow the practice of many newspapers of simply listing the candidates supported by office. Where there are just a few candidates for an office, the burden is manageable. Under the above revision, either the station would not have to take any further action (if it had already presented the candidates not supported) or else it could merely invite the spokesmen of a few. But where there are many candidates, the burden becomes impractical, particularly as a brief few seconds mention by the station on some list would entitle the candidate not supported to a more reasonable time period to respond. See Memorandum Opinion and Order on Personal Attack and Political Editorializing Rules, 8 F.C.C.2d 721, 727 (1967). There is no easy answer here, as the candidate not supported certainly has a solid claim that he should be given some chance to tell his side. By striking the balance in favor of that valid consideration, the rule does have the effect of inhibiting political editorializing in the above circumstances.

⁶⁷Letter to ABC, 16 F.C.C.2d 650 (1969).

complainant's allegation is slanted news, the FCC stressed that it cannot intervene "where the charge is not based upon extrinsic evidence but rather on a dispute as to the truth of the event . . . The Commission is not the national arbiter of the truth."⁶⁸ The FCC defined "extrinsic evidence" as evidence independent of inferences from the broadcast itself (as contrasted with what should have been presented); for example, evidence by a newsman that he was instructed to slant or stage some news event.

Further, in the *CBS* case, the FCC delayed the renewal of CBS' TV licenses until it ruled in favor of the licensee. The Commission stated that ". . . in the future we do not intend to defer action on license renewals because of the pendency of complaints [on slanted news]—unless the extrinsic evidence of possible deliberate distortion or staging of the news . . . involves the licensee, including its principals, top management or news management."⁶⁹ The reason for this policy is obvious: in an extensive news operation, there is the possibility of "the occasional isolated lapse of an employee", and it would be unjust and "tend to discourage broadcast journalism" if the licenses were placed in jeopardy because of such occurrences.⁷⁰

We support the above FCC policy but believe that it does not go far enough. The Commission will not hold up renewal unless there is extrinsic evidence of top management involvement. But if the allegations of slanting or staging the news are supported by extrinsic evidence, even if top management is not involved, the FCC will now either investigate or refer the matter to the station for an investigation and report—and may further question the

⁶⁸CBS ("Hunger in America"), 20 F.C.C.2d 143, 150-51 (1969).

⁶⁹Letter to ABC, 16 F.C.C.2d 650, 657 (1969).

⁷⁰See Letter to ABC, *Id.* at 657; CBS, *supra* at 151.

efficacy of the investigation, all in the name of assuring proper licensee supervision of its policies.⁷¹

Thus, in a September 27, 1972 letter to CBS, the FCC listed six incidents of alleged slanting or staging in CBS news presentations that were referred to in testimony before the Subcommittee on Investigations of the House Committee on Interstate and Foreign Commerce, noted the CBS policies against slanting or staging, and then stated:

The Commission requests that you furnish it with your comments on the allegations made regarding the above-listed programs; that you state whether the actions of your employees in each case were consistent with your policies; that you describe your efforts to assure compliance by your employees with your policies; that you state whether you have investigated each of these incidents and, if so, that you furnish the Commission with a copy of your report on each investigation. It is requested that you supply the above within thirty days of the date of this letter, as well as any information or comment that you may wish to submit regarding other allegations during the hearings which referred to your operations.⁷²

But the Commission is intervening here in a most sensitive journalistic area. No hard-hitting journalistic enterprise can flourish in an atmosphere where there is, in effect, a deep intrusion by the Government into the

⁷¹*Id.* at 150.

⁷²FCC 72-871; *see also* Letter to ABC, FCC 72-870.

journalistic processes—either by direct FCC investigation, or by the FCC's review of the licensee's investigation.⁷³

The FCC investigation of the WBBM-TV "Pot Party" newscasts illustrates these difficulties. In this case,⁷⁴ WBBM-TV, Chicago, telecast a pot party at the Northwestern University campus to show the pervasiveness of this kind of drug violation. The party depicted was authentic in that it did involve pot smoking by students at a campus rooming house; further, the public obviously knew that "this was a televised pot party—an inherently different event from a private, nontelevised pot-smoking gathering."⁷⁵ But the FCC found that the public was incorrectly "... given the impression that WBBM-TV had been invited to film a student pot gathering that was in any event being held, whereas, in fact, its agent [a young newsman] had induced the holding of the party."⁷⁶ Since this newsman had encouraged the commission of a crime, the FCC called for stricter policy guidelines to the licensee's staff in this respect. This exhaustive hearing, during which WBBM-TV's renewal was in jeopardy, did not serve any overriding policy need. Query, however, what effect it had on other broadcasters who might have been interested in breaking new ground in TV investigative journalism. The purpose of open debate would have been much better served if the FCC had simply referred the complaint to the licensee in this case, since the case did not in any way involve top management but rather only the actions of one newsman.

⁷³Further, any investigation inevitably garners much raw material that is conjecture. But here Governmental examination and possible disclosure of the licensee's investigation with all its raw material is in the news field and could thus have an inhibiting effect in this respect also on the journalistic process.

⁷⁴CBS (WBBM-TV), 18 F.C.C.2d 124 (1969).

⁷⁵*Id.* at 133 (footnote omitted).

⁷⁶*Id.* at 134.

We urge a “hands-off” policy in this area of alleged news distortion, with only one narrowly limited exception—namely, where there is extrinsic independent evidence (e.g., the statement of station newsmen) that the licensee (*i.e.*, one of the owners or top management) has given instructions to deliberately slant the news (the so-called *Richards* issue).⁷⁷ In all other instances—and there are bound to be cases where an overambitious newsmen goes too far—the matter should be left to resolution by the media—that is, the complaint should be referred to the licensee, with no FCC follow-up. It is not imperative that the government ferret out every case of slanting or staging of news, and its efforts to do so, we suggest, can run counter to the goal of promoting robust journalism.⁷⁸

The above course is patterned on the approach urged in this paper as to fairness: to focus on the public trustee role and not the narrow or isolated incident. This course thus fits with the Supreme Court’s basic thrust in *CBS v. DNC*, *supra*, where the Court stressed the Congressional scheme to afford the broadcaster “the widest journalistic freedom consistent with its public obligations.”⁷⁹ By focusing on the *Richards* issue, the FCC would be ensuring the preservation of the public trustee role. And by not going beyond the *Richards*

⁷⁷KMPC (*Richards*), 14 Fed. Reg. 4831 (1949).

⁷⁸Under this suggested approach, the FCC would not be inquiring of CBS and ABC how they handled the investigation of certain incidents involving their newsmen in the letter referred to in footnote 69. If the networks were unaware of the incidents, the matter should have been brought to their attention, without any further FCC policing of the networks’ internal journalistic processes. As noted, such policing, in the name of assuring proper licensee supervision of anti-slanting/staging news policies, can become a vehicle for undue governmental intrusion in broadcast journalism; if top management is not involved, the gains from such a policy are dubious and the potential detriments large.

⁷⁹412 U.S. at 110.

issue to investigate every "extrinsic evidence" case of abuse by some newsman within the extensive news organization maintained by broadcasters, the FCC would be acting in accordance with the Court's admonition in the *CBS v. DNC* case that "calculated risks of abuse are taken in order to preserve higher values."⁸⁰

III. Fairness and Equal Time Requirements in Cable Television

In its First Report and Order in Docket No. 18397, 20 F.C.C.2d 201, 218-22 (1969), the FCC imposed both fairness and equal time requirements on cable television systems when engaging in origination of cable casting (*i.e.*, originating its own programming, as contrasted with access channel operations).⁸¹ This rule was adopted, however, before the 1972 regulation that imposes access obligations upon most systems in the top 100 markets or with 3500 or more subscribers,⁸² Section 76.251(a)(4), 47 C.F.R. § 76.251(a)(4);

⁸⁰412 U.S. at 125.

⁸¹Congress has never specifically considered this matter. But in enacting the 1971 Campaign Reform Act, dealing largely with the charges made for political broadcasts, Congress amended Section 315 to add the following: "(f)(1) For the purpose of this section: (A) the term 'broadcasting station' includes a community antenna television system." Act of February 7, 1972, Pub. L. No. 92-225, 86 Stat. 47, amending 47 U.S.C. § 315 (1970). Query whether the Congress inadvertently imposed equal time and fairness obligations upon cable television, and if so, is the access channel also included in this requirement? See Simmons, *The Fairness Doctrine and Cable TV*, 11 Harv. J. Legis. 629 (1974).

⁸²The Commission permits the authorities (usually local governments) responsible for franchising cable systems to include provisions in franchises requiring systems in smaller markets (*i.e.*, below the top 100) to provide access channels. Cable Television Report and Order, 36 F.C.C.2d 141, 197-98; Clarification of Rules and Notice of Proposed Rule Making in Dockets 20018-24, 39 Fed. Reg. 14287, 14289 (1974). Section 76.253 of the Commission's Rules requires "any conglomerate of commonly-owned and technically integrated cable

Report and Order in Docket 19988, 48 F.C.C.2d 1090 (1974). If the cable operator presents a program raising fairness or equal opportunities requirements, the access channels are available for response on both a free and leased basis. Further, a fairness or equal time issue can arise on access channel programming (public or leased)—yet no Section 315 requirements are imposed because of the availability of ready access.⁸³ Why should the cable operator be subject to different requirements in this aspect than a user of the access channel? Rather than automatically incorporate concepts developed for the regulation of the broadcaster as a public trustee on one channel, the FCC should have found that cable, with its larger number of available channels, calls for different regulatory treatment. We therefore recommend the elimination of the fairness and equal opportunities obligation as to all nonbroadcast cable operations.⁸⁴

television systems having a total of 3500 or more subscribers, or any system having 3500 or more subscribers which is not a part of such a system conglomerate," to have available "at least the minimum equipment necessary for local production and presentation of cablecast programs . . . and permit local non-operator production and presentation of such programs." This section applies to all such cable systems except those currently providing access pursuant to Section 76.251. Under Section 76.253(b)(2), the system is prohibited from exercising control over the content of cablecast programs which are not originated by the system operator except for preventing the cablecasting of obscene materials or lottery information.

⁸³See 47 C.F.R. § 76.251(a)(4), (9), (11) (1974).

⁸⁴In a 1974 Report, 49 F.C.C.2d 1090, 1109, the FCC revised its origination cablecasting rules but retained the "equal time and fairness obligations." The Commission refused, upon reconsideration, to delete the requirement, stating that it would be considered in a new proceeding. Capital City FM, Inc., 51 F.C.C.2d 1104, 1105 (1975); to date, the Commission has not instituted this proceeding.

IV. Section 399(a) of the Communications Act

Section 399(a) of the Communications Act of 1934, as amended, 47 U.S.C. Sec. 399(a) (1970), provides that "[n]o noncommercial educational broadcasting station may engage in editorializing or may support or oppose any candidate for political office." We believe that this provision is unconstitutional as a prior restraint of speech in violation of the First Amendment.

Congress added Section 399 "out of abundance of caution," as a "safeguard" against the Corporation for Public Broadcasting becoming a propaganda machine for political parties or presenting only a particular point of view.⁸⁵ The Congressional remarks on the floor were more direct: They indicated that Congressmen did not like any television stations, commercial or noncommercial, editorializing on candidates and wanted to prevent noncommercial broadcasters from imitating their commercial brethren.⁸⁶

The latter purpose is patently unlawful. And the stated purpose in the reports has no merit: The fairness doctrine is fully applicable to noncommercial licensees and would prevent public broadcasting from becoming a "propaganda machine" for the government or any other viewpoint. It cannot seriously be argued that the way to prevent possible abuses in this respect is to cut off all speech.⁸⁷

⁸⁵1967 C Q Almanac at 1042; See H.R. Rep. No. 572, 90th Cong., 1st Sess., 1 U.S.C. Cong. & Adm. News 1810 (1967). For a discussion of the Legislative history, see Toohey, *Section 399: The Constitution Giveth and Congress Taketh Away*, Educ. Broadcasting Rev., 33-35 (1972), and Lindsay, *Public Broadcasting: Editorial Restraints and the First Amendment*, 28 Fed. Comm. B. J. 62, 79-82 (1975).

⁸⁶See 113 Cong. Rec., H 12,177, H 12,280-82, H 26,388 (1967).

⁸⁷As a further matter, Section 399(a) proscribes editorializing even if the noncommercial station did not receive any federal funds.

And the law is clear here. See *New York Times Co. v. United States*, 403 U.S. 713,714 (1971) (“Any system of prior restraints of expression comes to this court bearing a heavy presumption against its constitutional validity”) (citing *Bantam Books, Inc. v. Sullivan*, 372 U.S. 58, 70 (1963)); *Mills v. Alabama*, 384 U.S. 214, 218-19 (1966) (striking down a ban on “last-minute” editorials in political campaigns). Significantly, in *Red Lion*, the Supreme Court stated:⁸⁸

There is no question here of the Commission’s refusal to permit the broadcaster to carry a particular program or to *publish his own views*; of a discriminatory refusal to require the licensee to broadcast certain views which have been denied access to the airwaves; of government censorship of a particular program contrary to 326; or of the official government view dominating public broadcasting. *Such questions would raise more serious First Amendment issues.* [Emphasis supplied]

That is the precise case presented by Section 399(a).

V. Section 396(g)(1)(A) of the Communications Act

Section 396(g)(1)(A) of the Public Broadcasting Act of 1967⁸⁹ authorizes the Corporation for Public Broadcasting to

⁸⁸Red Lion Broadcasting Co. v. FCC, *supra*, 395 U.S. at 396.

⁸⁹Section 396(g)(1)(A) of the Communications Act of 1934, as amended, 47 U.S.C. Sec. 396(g)(1)(A).

facilitate the full development of educational broadcasting in which programs of high quality, obtained from diverse sources, will be made available to noncommercial educational television or radio stations, with *strict adherence to objectivity and balance* in all programs or series of programs of a controversial nature. [Emphasis supplied]

This provision raises serious First Amendment concerns and poses many practical problems.

Congress apparently intended this language to mean more than the "reasonable opportunities" standard of the fairness doctrine.⁹⁰ Unfortunately, the statute offers no explanation as to how this standard is to be interpreted, nor does it set forth any procedure for determining whether the Corporation and those entities it funds have complied with the standard.

If this language is interpreted in a manner consistent with its legislative history, "balance and objectivity" calls for adherence to a quasi equal time standard. Moreover, the legislative history supports the interpretation that "programs or series of programs" mandates compliance with the standard within a specific program or series rather than within the overall programming facilitated by the Corporation. Such a rigid standard is clearly unrealistic in the field of electronic journalism. Attempts to enforce it would exert a strong chilling effect in the marketplace of ideas in which public broadcasting should play a dynamic role.

Enforcement of strict "objectivity and balance" also presents substantial procedural problems. The Commission has

⁹⁰See the legislative history set forth in Note, *Balance and Objectivity in Public Broadcasting: Fairer than Fair?* 61 Va. L. Rev. 643,654-71 (1975).

held that it does not have jurisdiction to enforce this section against the Corporation.⁹¹ Since other agencies of the federal government are prohibited from exercising “any direction, supervision, or control over educational television or radio broadcasting, or over the Corporation or any of its grantees or contractors,”⁹² it is arguable that Congress intended to exercise enforcement of this section through the budgeting process⁹³ and/or leave review of the Corporation’s compliance with this portion of its charter to the courts. In reviewing the performance of the Corporation and those program production organizations it has funded,⁹⁴ the serious First Amendment and practical difficulties posed by the application of this standard must be kept in mind.

Preferably, the Congress should remove this language from the Act and rely upon the adherence of the individual public broadcasting licensees to the fairness doctrine—a *sine qua non* for renewal by the FCC. In the absence of such an amendment, this language should be narrowly construed in order to avoid governmental intrusion into the journalistic process. Specifically, we believe that “objectivity” should be construed to mean no slanting or staging, and that review

⁹¹ *Accuracy in Media, Inc.*, 43 F.C.C.2d 851, 853 (1973), *aff’d*, 521 F.2d 288 (D.C. Cir. 1975).

⁹² Sec. 398 of the Communications Act of 1934, as amended, 47 U.S.C. Sec. 398.

⁹³ 113 Cong. Rec. 13,003 (1967) (remarks of Sen. Cotton); Note, *Balance and Objectivity in Public Broadcasting: Fairer than Fair?*, *supra* at 676 n. 146.

⁹⁴ The Act prohibits the Corporation from owning or operating “any television or radio broadcast station, system, or network, community antenna television system, or interconnection or program production facility.” 47 U.S.C. Sec. 396(E)(3).

should be strictly limited to instances where there is independent extrinsic evidence of such slanting or staging (see discussion, pp. 35-40). The term "balance" should be construed to mean "reasonable balance" in overall programming efforts. This is a more stringent requirement than fairness, inasmuch as balance must be achieved whereas fairness can perhaps be met by offers that are not accepted—yet as so interpreted, it would afford public broadcasting reasonable and required "breathing space" for robust public affairs presentations.

[Note: The Communications Law Committee of the ABA Section on Science and Technology consists of 70 members who reside throughout the United States. Those who were particularly active and participated in this Report and Recommendations are Dean Burch; Marcus Cohn (Chairman); Kenneth Cox; Paul Dobin; Ben C. Fisher; Henry Geller; Henry Goldberg; Katherine Hallgarten; Morton I. Hamburg; Richard Helmick; Albert H. Kramer; Erwin G. Krasnow; Lee Loevinger; Roy R. Russo; Leonard W. Tuft; Thomas Wall and Donald Zeifang.—Ed.]

SEPARATE VIEWS OF KENNETH A . COX

I will try to indicate my views simply by commenting on the points made at pages 2 to 3 under the heading "Recommendations", with footnote references to the body of the document where necessary.

1. I agree with the first recommendation, namely that the Commission put increased emphasis on the first requirement of the Fairness Doctrine, namely that a broadcaster must devote a reasonable amount of time to the discussion of controversial issues of public importance. I further agree that the FCC should achieve this by fixing a general percentage guideline for such programming. But I do not agree that this obligation should be stated in terms of "informational" programming, which is then defined as "all programming other than entertainment and sports." This latter approach would allow broadcasters to discharge this obligation by presenting religious programming (perhaps religious music or commercial religious programs), agricultural programming, instructional programming, and other programming (so long as it can be contended that it is not entertainment or sports). I do not denigrate such programming—it deserves a place in the schedules of many, if not most, broadcasters. But programs in these categories do not involve "the discussion of controversial issues of public importance" and do not contribute to improving the public's ability to deal with the political, economic, and social issues which face it. The only kinds of programming which serve this vitally important function are news and public affairs programs. Consequently, this obligation to comply with the first requirement of the Fairness Doctrine should be stated and implemented in terms of news and public affairs.

2. As to the second recommendation, I agree that the Government should intervene as little as possible in the sensitive area of broadcast journalism, but I believe that the FCC's present implementation of the Fairness Doctrine is consistent with this principle. I do not think the Commission intrudes any more than is necessary to protect the public's interest in seeing that licensed broadcast facilities are used to inform the public about controversial issues of public importance, and to do so fairly. With respect to the three specific recommendations made in this connection:

- (a) I have no objection to the encouragement of experiments with access programming, but do not believe it can provide a substitute for the FCC's administration of its Fairness Doctrine.¹ Access programming—even with a measure of licensee control to insure that the matters covered will be of interest to a significant portion of the public—tends to concentrate on matters of concern to activists for certain causes, those who are alienated from society, or those who are simply interested in notoriety. While such programs may serve as early-warning devices for public officials and the media, and can certainly provide a community safety valve, I do not think they are likely to deal effectively with the major problems facing a station's community of license. I think the public will be better enabled to deal with its business if trained broadcast journalists select the issues to be dealt with, the spokesmen for

¹The Committee overstates the situation when it suggests (pp. 15-16) that there is "detailed Governmental supervision of what the licensee did on each issue." There are thousands of licensees and scores or hundreds of issues, but the FCC is never asked to consider more than a minute fraction of the total—and even then does not engage in "detailed supervision". And contrary to the Committee's implication, "*opportunity* for the contrasting viewpoint" is meaningless unless "the other side [is] presented." It's what gets on the air that counts.

the various sides to be presented, etc. And I certainly think the public interest requires that the station's programming dealing with these major issues be fair and balanced. Station initiated programs are likely to be better done, and to be presented in better time, than access programs, and therefore are likely to attract larger audiences. It would be a betrayal of the public interest, and of the Commission's past endeavors in this area, if broadcasters were given to understand that they can do as they please in their news and public affairs programs as long as they make some amount of time available for public access.² Without continued application of the Fairness Doctrine, there wouldn't even be any assurance that public leaders who disagree with positions espoused in the station-produced programs would be allowed to appear on the access programs, or that if they did, their appearance there would serve to inform the public as well as it has been under the Fairness Doctrine as presently applied.

- (b) I agree to the "continuation" of wide discretion in the licensee to make fairness judgments since that involves no change in the present implementation of the Fairness Doctrine. However the statement that the FCC "should heavily weight the licensee's judgment, and upset that judgment only in the clear-cut case where there is *no question* but that

²I think it is naive to assume that all stations—even if they publicized the availability of access time, in order to get exemption from the Fairness Doctrine—would actually administer access time in such a way as to meet the objectives of the Fairness Doctrine. Suppose a leading spokesman on one side of a significant controversial issue is denied "access"—is the station's decision, however contrary to the public interest, to be final and binding? Or can the spokesman ask the Commission to enforce a right of access? If so, we will simply be back where we are now, with nothing gained.

the action has been *arbitrary*" (emphasis added) states present Commission policy too narrowly.³ There are few matters so "clear-cut" that there can be "no question" about them. And there have been cases where stations acted deliberately, for what they considered to be sound reasons, yet the Commission found that they had misconstrued their obligations under the Fairness Doctrine. "Arbitrariness" is not the proper test in such cases.

- (c) I am strongly opposed to the proposal to shift over to a renewal-only approach to fairness. When I became Chief of the Commission's Broadcast Bureau in 1961, the agency was using that approach—and it did not work! Licensees claimed, with good reason, that they were being sand-bagged by letting complaints accumulate, instead of getting them resolved on a current basis while things were fresh in everyone's mind. And if the Commission found—at the end of the three year license term—that a station had not fully discharged its duty under the Fairness Doctrine with respect to a particular issue, there was generally no way in which it could remedy the situation by requiring the licensee to inform the public as to the other side of the controversy, because the issue might no longer be a pending one. It is much fairer to the licensee involved, and much more useful to the public, to get matters resolved as quickly as possible—and that is the approach now used by the

³The Commission does not, as the Committee says (p. 18), "try to ensure fairness in every instance." Most stations' handling of controversial issues never comes to the Commission's attention, because it only passes on complaints—which represent a minute percentage of the entire fairness field.

Commission, but which the Committee proposes to abandon.⁴ Indeed, the main problem with the Fairness Doctrine today is that the FCC doesn't settle complaints fast enough. What is *really* needed is for the Commissioners to lay down criteria to be used by their staff in processing complaints—and which can, of course, be looked to by licensees to determine their rights and obligations. Once the guidelines are spelled out more clearly, the Commission needs additional staff to administer them more expeditiously. The only really valid complaint about the Fairness Doctrine is that it sometimes takes months, or even years, before a ruling is issued—and that this causes substantial expense to the licensee and imposes a drain on the time of station personnel. Every effort should be made to correct this situation, but the answer is not to defer everything for up to three years—or five years if the broadcasters' efforts to get Congress to specify a longer license period are successful—and then examine whatever complaints may have accumulated in the station's file. The complaint against KREM-TV outlined in Appendix A to the Committee's paper should have been resolved more quickly, even if a few details were not completely

⁴I do not think it is accurate to say (p. 19) that this practice "has led [the Commission] ever deeper into the journalistic process and has raised most serious problems." The great bulk of fairness complaints falls within established precedents and can be disposed of without any "deep" intrusion into the journalistic process. There have been some novel cases in which the agency has taken a closer look—and it sometimes may have acted too aggressively, as I think it did in the Pensions Case, *NBC, Inc. v. FCC*, 516 F.2d 1101 (D.C. Cir. 1975), vacated on other grounds. But this is rare, and the courts stand ready to correct error, as in other areas of Commission action.

nailed down.⁵ And license renewals should not be held up because of the pendency of a single fairness complaint—unless it seems likely that what is really at issue is the qualifications of the licensee to continue to hold the station. See *Inquiry Into WBBM-TV's Broadcast on Nov. 1 and 2, 1967, of a Report on a Marihuana Party*, 18 F.C.C. 2d 124 (1969); *CBS ("Hunger In America")*, 20 F.C.C. 2d 143, 150 (1969). If the only question is whether the station will, or will not, be required to comply with the Fairness Doctrine by making an opportunity available for the presentation of a contrasting point of view, then there is clearly no need to defer renewal, since it can be assumed that the station will comply with the Commission ruling when it is made.⁶ The Committee claims (p. 28)

⁵The delay cited is not inherent in the Fairness Doctrine, and was presumably due either to lack of staff, or absence of clear guidelines from the Commissioners themselves, or an excess of zeal on the part of someone on the staff. And while Appendix A documents the cost incurred by KREM and the time its staff had to devote to this dispute, it does not show "a chilling effect on robust, wide-open debate"—and knowing the people involved, I doubt if it curbed their willingness to deal with this or other controversial issues. If this complaint had simply been filed away until renewal time, and there were others received during the license term, then perhaps there might have been a petition to deny renewal on this basis. If the Commission designated the renewal for hearing—or even investigated the matter at length—the cost to the station, in time and money, would be much greater because of its much greater exposure in that situation.

⁶I think the Committee reads too much (pp. 22-25) into *CBS v. DNC*, 412 U.S. 94 (1973). After all, the Court there simply affirmed the Commission's action in refusing to interfere with licensees' operational decisions—the result my colleagues say the agency should have reached. It is not necessarily true that the language of the Court cited at p. 23 is automatically transferable to the different situation posed by the Commission's routine administration of the Fairness Doctrine. The Courts have passed on the present pattern of administering the Doctrine many times without ever making the statements quoted from the *DNC* case. Thus, if the Committee is right, the Court should have disposed of

that its renewal approach will not gut the Fairness Doctrine by citing the denial of renewal of the licenses of WLBT and WXUR. But these were two very unusual cases involving recalcitrant licensees who engaged in continued patterns of unfairness. They were atypical and played a far less significant part in enforcing the public's right to hear both

the *Pensions* case quite summarily by saying that it did not deal with the licensee's "overall performance". If, as my colleagues claim (p. 24), "the Commission's present *implementation* of the fairness doctrine contravenes both the statute and the First Amendment," I am quite sure the courts would have so ruled by now. And contrary to the assertion (p. 25) that *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367 (1968) "did not pass on the *manner* of application of the doctrine or rules," the Court surely knew that the Commission was enforcing them on an *ad hoc* basis, rather than considering overall performance at renewal time, and it nevertheless held that to be entirely appropriate. The Committee (pp. 24-25) urges a renewal standard—absence of a "pattern of a flagrant nature"—which it says is like that in *The New York Times Company v. Sullivan*, 376 U.S. 254 (1964). That case dealt, on an *ad hoc* basis, with a single incident, and not with the "overall performance" of the Times. I do not think that a standard for the award of monetary damages for injury to an individual, and which is limited to public figures, should be used as a measure of a broadcast licensee's fiduciary obligation to the general public.

The Committee claims (p. 27) its recommendation for abandoning the case-by-case approach to fairness is mandated by its legal analysis and that "the *policy* reasons advanced in opposition to the renewal approach are thus entitled to no weight"—specifically including those given by the Commission in *Fairness Doctrine and Public Interest Standards*, 39 F.R. 26372, at 26378-79 (1974). My friend Henry Geller, who is the principal author of the Committee's paper, tried to persuade the Commission to adopt his renewal approach in that proceeding, but failed. He is now using a friendlier "forum" in a further effort to sell his ideas—though their acceptance of his new concept (which is diametrically opposed to the policies he advocated for years as the Commission's General Counsel) is, fortunately for the public, less determinative than the ruling of the FCC. I gather that this document will constitute a sort of informal petition for reconsideration of the Commission's decision, though it is clearly out of time. The Committee says (p. 27) that the First Amendment and the Communications Act rule out a policy of having the public be "informed promptly as to each issue as to which there is a substantial fairness dispute," but that is

sides of controversial issues than did the Commission's day-by-day enforcement of the Fairness Doctrine. If the Commission denies license renewal to two out of the nearly 9,000 radio and television stations that came up in a three year period, and does nothing else about fairness, the Fairness Doctrine will be a dead letter. Indeed, it seems clear to me, from the Committee's discussions, that it really expects that result.

3. The Committee next recommends that the FCC replace its personal attack rules with a simple policy that where a licensee has presented a personal attack in the context of a controversial issue and has not otherwise achieved fairness, he should notify the person or group attacked and offer the opportunity for response. As discussed at pp. 30-33, this seems really to involve concern because somewhat different standards are applied to news programs than are used for all other programs. I find this whole discussion all very confusing and think it makes much ado about something that, has presented no problems. The proposal would abandon the two objectives of putting the personal attack principle in rule form: (1) to recognize that

completely at odds with its earlier view (p. 9) that the Commission may constitutionally impose an obligation to "be fair in the coverage of issues" by affording "a reasonable opportunity for the discussion of contrasting viewpoints." It seems now to be saying, at p. 27-28, that although the public should have the opportunity to hear contrasting viewpoints, there will be some issues on some stations as to which this legal obligation will be disregarded without the public's having any recourse to remedy the situation. I think that is an intolerable result for which no need can be shown. The Commission really has *not* encouraged fairness complaints "by promising to intervene into the day-to-day operation of broadcast journalism." It has, instead, carefully ruled on all substantial complaints of violation of the Fairness Doctrine—sometimes too slowly, but very rarely in ways which come even close to amounting to intervention in the practice of broadcast journalism. And in the great majority of cases the courts have found its rulings—on an *ad hoc* basis—to be lawful and proper.

the person or group attacked can provide the public with the best reply, and (2) to permit the imposition of forfeitures for willful or repeated violation of the rule. I still think those are sound goals and see no need to give them up simply because it is claimed that a lesser standard is applied to news programs.

4. The Committee also recommends that the Commission revise its political editorial rules (which are a part of the personal attack rules) in much the same way. Again, they seem unduly concerned about a difference in treatment between editorials as to issues and editorials supporting or opposing candidates. But the former normally involve no element of personal attack or criticism, and certainly do not threaten anyone's chance of election, while the latter are very personal and come well within the basic purpose of the rules. Presenting the candidate(s) disadvantages by a licensee's political editorial is clearly the easiest way of achieving fairness, and the one most likely to inform the public to its best advantage. I therefore see no reason for tinkering with the rules.

5. In the area of alleged news distortion the Committee recognizes that the Commission has declined to investigate unless it receives extrinsic evidence of deliberate slanting or staging of events. It proposes that this policy be tightened further by investigating matters only where the extrinsic evidence involves the owner or top management of the station—with all other complaints to “be referred to the licensee, with no FCC follow-up.” I believe the present policy adequately protects news operations from undue intrusion and am afraid the Committee's proposal would permit licensees to have well-phrased policies against news distortion but not bother to enforce them. The Commission requires evidence that licensees supervise and enforce other policies that are a lot less important to the public than insuring that care is being taken to see that news staffers do not violate station

policy against slanting or staging the news. Again, the evils of the abuse are downplayed and the dangers of the Commission's present policies are exaggerated.

6. The Committee proposes that no fairness or Section 315 responsibilities be imposed upon cable television systems where access channel capacity exists. As indicated above, I do not think that the availability of access time is a substitute for fairness in the programming presented by a cablecaster, who is essentially functioning as a broadcaster in presenting programming to the public. Should a cable operator be allowed to give a favored candidate time adjacent to a popular program on his origination channel, and then tell the opposing candidate to use time on a little watched access channel? Should the cable owner be allowed to attack political leaders with whom he disagrees on a controversial issue of public importance and relegate their response to access time? I think cablecasting is going to become a more and more important source of information for the public and that the multiplicity of its channels provides no substitute for the Fairness Doctrine and Section 315 as a means for protecting the public's interest in having its business dealt with fairly.

7. Finally, the Committee expresses the opinion that Section 399(a) of the Communications Act, which bars noncommercial educational stations from editorializing or taking a position on candidates for office, is unconstitutional. I am glad to say that this is one point on which I am in full agreement. The Committee also expresses concern about Section 396(g)(1)(A) of the Act which imposes a standard of "objectivity and balance" on programming supported by the Corporation for Public Broadcasting. I agree with much of what is said here, but believe that Congress should remove this language from the Act and substitute reliance on the Fairness Doctrine—as presently administered by the Commission.

Just one final word. It is no secret that all the media, including broadcasting, have problems of credibility in these complex times. I think that the Fairness Doctrine has helped preserve the standing of broadcasters because the public can see that their practices can be questioned and a ruling obtained from an impartial arbiter. I do not think that weakening the Fairness Doctrine, because of what I regard as mostly imaginary concerns that it has cowed broadcast newsmen, will advance the long run interests of broadcasting. If the public finds that they no longer have any recourse in the face of what they regard—generally mistakenly—as abuse, I think that broadcasters will suffer a diminution in their credibility, and may eventually face more stringent controls on their freedom. The Doctrine is working reasonably well. Its administration can no doubt be strengthened, but I think most of the Committee's proposals weaken it unnecessarily, and perhaps fatally.

APPENDIX A

*A Case Study: Analysis of the FCC'S KREM-TV
Fairness Ruling (Complaint of Sherwyn H. Heckt,
40 F.C.C.2d 1150 (1973))*

Station KREM-TV, Spokane, Washington, one of whose top officials was associated with an Expo 74 proposed for Spokane, editorialized strongly in favor of the project and its supporting bond issue. There was considerable disparity in the amount of time actually afforded the anti-bond viewpoints, and the station rejected one of the spokesmen for that viewpoint. The station had a reasonable explanation for its rejection (*i.e.*, the spokesman did not appear to represent groups for which he claimed to speak), and showed that it solicited opposing viewpoints.¹ The station also actively sought to obtain the views of leading spokesmen for the opposition and did present them. On the basis of these facts, the FCC staff found that the licensee had afforded reasonable opportunity.

However, the FCC process for resolution of the significant issues was a long, arduous one—the complaint was filed with the FCC on September 8, 1971; licensee responded to the complaint on October 12, 1971; the complainant filed a reply on October 31, 1971; the FCC conducted a field investigation on June 5 through 9, 1972; the FCC sent a letter of inquiry to the licensee on October 6, 1972; the licensee's response was filed on February 6, 1973; and finally, the FCC staff's decision on May 17, 1973, 21 months after the August 28 and 29, 1971 broadcasts (40 F.C.C.2d at 1150-1151). The licensee's letter of February 6, 1973 concludes:

¹The station contacted 22 area organizations, and mailed the station's editorial, with an offer of time to respond, to 194 community leaders and 400 members of the public. 40 F.C.C.2d at 1152.

Finally, apart from the merits of the controversy engendered by the Heckt complaint, we desire to comment briefly upon the procedures followed here. With due respect for the Commission's important responsibility in administering the fairness doctrine, we think there is a grave question whether it serves the public interest to require a station to account in such minute detail for everything it has said and done on a particular issue. We cannot believe that such a requirement contributes to an atmosphere of licensee independence or robust presentation of issues; we know that it is tremendously burdensome. We hope the Commission can find a way to give reasonable consideration to individual fairness complaints without the kind of exhaustive investigation that has apparently been thought necessary here.²

In order to quantify the extent of burden, a Rand Study inquired of the licensee as to the amounts of time and money expended in the handling of this fairness complaint. The licensee reported legal expenses of about \$20,000, with other expenses (*e.g.*, travel) adding considerably to the total. This is not an insubstantial amount, in light of the fact that the total profits reported by all three TV stations in Spokane for 1972 was about \$494,000.³ However, from this licensee's standpoint, the important factors were the inordinate amount of time spent by top-level station personnel and the emotional

² KREM-TV letter of February 6, 1973, at 31-32 (FCC files).

³ See H. Geller, *The Fairness Doctrine in Broadcasting: Problems and Suggested Courses of Action*, Rand, R-1412-FF, December 1973, at 41; TV broadcast Financial Data, 1972, FCC 05693, Table 17.

strain on them.

Thus, during the period from September 14, 1971 to May 18, 1973, the president and vice-president of the station devoted a total of about 80 hours; the station manager, 207 hours; and six members of his staff, an additional 194 hours. The station pointed out:

In round numbers, then, 480 man hours of executive and supervisory time was spent on this matter. This, of course, does not include supporting secretarial or clerical time attendant to the work carried out. This represents a very serious dislocation of regular operational functions and is far more important in that sense than in the simple salary dollar value.⁴

Finally, there is the factor of deferral of license renewal. The KREM-TV renewal would normally have been granted on February 1, 1972; because of the fairness complaint, however, its application for renewal (and that of its companion AM station) was placed on deferred status until May 21, 1973. The FCC has recognized that placing the renewal in jeopardy because of licensee activity in the news field can have a serious inhibiting effect and should be done only when a most substantial and fundamental issue is presented.⁵

Consider here the possible impact of such deferral upon

⁴ Letter to J. Roger Wollenberg from Jay Wright, Office of the Vice President Engineering, King Broadcasting Company, reprinted in *Id.*, Appendix E at 134.

⁵ See CBS ("Hunger in America"), 20 F.C.C.2d 143, 150 (1969).

a station manager or news director. Because of editorials such as that on "Expo 74", the renewal of the station's licenses can be put in question and for a substantial period. What effect—perhaps even unconscious—does this have on the manager or news director the next time he is considering an editorial campaign on some contested local issue? What effect does it have on other stations? These questions raise a most important consideration—namely, that what may be crucially significant here is not the *number* of fairness rulings adverse to the broadcaster,⁶ but the *effect* of such rulings as *KREM-TV*, whatever their number.

All the above considerations raise a basic issue: Is the goal of promoting robust, wide-open debate better served by focusing on whether the licensee has been fair in handling a particular issue or on whether he has generally remained faithful to the concept of a public trustee over his license period?

⁶ Thus, the Commission misses the mark when it states that "only 94" fairness complaints were forwarded to licensees in the fiscal year 1973. Fairness Report, *supra*, 39 Fed. Reg. at 26,375 (par. 19).

THE ITALIAN BROADCAST-CABLE CONTROVERSY
AND THE EUROPEAN COURTS:
AN OPENING FOR FREE SPEECH AND
FREE TRADE

DON R. LE DUC*

During the past half century West European broadcast organizations have been closely related to the governments of the nations they serve, linked through exclusive long term license concessions, civil service supervision and management, and direct or indirect legislative funding.¹ As a result of these close connections the adversary relationship existing between broadcasters and government in the United States has been virtually absent from the European telecommunications environment.

Under these circumstances when the Italian Constitutional Court suddenly strikes down all legal barriers sheltering its national broadcast system, RAI (Radiotelevisione Italiana) from private cable competition, and then strips the system of its monopoly over broadcast service, the impact upon the previously protected service, and the questions raised by this massive judicial assault appear far more

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¹The most common modes of government-broadcast relationships in Western Europe are "public corporation" (France, United Kingdom, Federal Republic of Germany, Austria) and "governmental concession" (Italy, Sweden, Switzerland). For further details on each specific European national relationship, see Albert Namurois, *Structures and Organization of Broadcasting in the Framework of Radio-communications* (1972).

profound than those which would arise from similar judicial actions in the United States courts.²

Could such judicial action foreshadow a new era of legally compelled private mass media competition in Western Europe? Might it also promise broader opportunities for the sale of U.S. produced mass entertainment, or more substantial prospects for European telecommunications investment by American mass media industries?

Although it would be foolhardy to rely too heavily upon the case law of a single West European nation as yet, there are reasons to suspect that this may not be simply an isolated jural tendency, but rather the reflection of a new judicial trend beginning to apply basic competitive principles of the European Economic Community (Common Market) to the field of mass communications, and to make national mass media monopolies more responsive to public access demands.

TWIN CHALLENGES TO MEDIA MONOPOLY: FREE TRADE AND FREE SPEECH

The Treaty of Rome in 1957, which established the European Economic Community, set out among its primary objectives,

... the elimination in Member States, of customs duties and of quantitative restrictions on the import and export of goods... the abolition, as between Member States, of obstacles to freedom of movement for persons, services and capital...³

²For a brief description of these two Italian Constitutional Court decisions, see "Italian Court Kayos Govt.'s Ban on Cable-TV; Also Scores RAI," *Variety*, July 17, 1974, p. 39; and "Italian High Court Frees Local Radio-TV From Inroads by RAI," *Variety*, July 7, 1976, p. 46.

³*Treaty Establishing The European Economic Community*, Rome, March 25, 1957, Article 3.

and the establishment of common policy spheres such as agriculture and transportation to be implemented through an administrative agency, the EEC Commission, subject to review by the European Court of Justice.⁴

What distinguishes the EEC from most other international or multinational treaty agreements of this magnitude has been the phenomenal success it has achieved. The 12 year transitional period set by Article 8 of the treaty for the gradual abolishment of tariff, customs, capital, labor movement and other restraints between or among member nations, has actually been met ahead of schedule so that the Common Market had by 1969 become a truly unified economic entity.⁵

The Commission, empowered to draft proposals to implement treaty provisions and to initiate action against parties believed to be in violation of the provisions, has been

⁴Two other EEC bodies, the Assembly and the Council of Ministers, were also created by the Treaty of Rome but are not relevant to this study. The Court of Justice was already in existence at the time the Treaty was signed, serving as the court for the *European Coal and Steel Community*. This court later assumed jurisdiction over the *European Atomic Energy Commission* as well. For an excellent overview of the functioning of these bodies, see Dennis Swann, *The Economics of the Common Market* (1970).

⁵This is not to say that every vestige of economic nationalism imposed among the original signatory nations, France, West Germany, Italy, the Netherlands, Belgium and Luxembourg, or among nations such as the United Kingdom, Ireland, Denmark and Norway, joining the Common Market in the 1970s, was eliminated by the Treaty. Agricultural and transport policy, professional standards, and other political problems relating to national taxation techniques, for example, continue to plague the EEC today. However, every effort to limit free trade by any of these techniques must now be accomplished indirectly, and is subject to legal challenge. Cf. Swann, *supra* note 4, especially chapter 4.

extremely active in breaking up what it considers to be anti-competitive practices within Member States.⁶ Among the practices which have been attacked most widely by the Commission in recent years are many essential for the existence of traditional European broadcast systems; discriminatory state monopolies prohibited by Article 37 of the treaty, a "dominant" or monopolistic position of any entity in a field which adversely affects the free flow of goods as defined by Articles 86-90, and anticompetitive state aids or subsidies in violation of Treaty Article 92.⁷

These rulings or actions initiated by the EEC Commission are, of course, subject to review by the European Court of Justice, but the court has shown itself extremely sympathetic to the anti-monopolistic stance of the Commission.⁸ In addition, the court has an unusually powerful technique to insure conformity with treaty free trade provisions, having the authority under Article 177 of the Treaty, to issue a Preliminary Ruling to any national court asking for interpretation of the effect of any treaty

⁶Article 155, Treaty of Rome. See EEC Commission, *First Report on Competition Policy* (1972).

⁷As early as 1964, Italy was forced to disband a state monopoly formed after the Treaty of Rome and found to be in violation of treaty provisions, *Costa v. ENEL*, CCH Common Market Reports, 7390 (1964); a German composer's and author's copyright licensing GEMA, precisely similar to those of France, Holland, Belgium and Italy, was held to have a "dominant position" within a Member State restricting trade in violation of Article 86, *Re Gema*, CCH Common Market Law Reports (R.P. Supplement, 1971), Issue No. 3, D35; see also *Belgische Radio en Televisie v. Sabam*, CCH Common Market Reports, 8268 (1974).

⁸See, for example, the Court's expansion of the "dominant position" restriction in the *Continental Can* case, CCH Common Market Reports, 8171 (1973).

provision upon that nation's law.⁹

In view of these attitudes of the EEC Commission and Court, the traditional organization and structure of broadcasting in Western Europe certainly appeared vulnerable to challenge in the early 1970s. Broadcast concessions granted, extended or nullified after the treaty became effective, or public corporations invested with exclusive broadcast rights after that date, seemed to constitute a state monopoly which might be deemed discriminatory under Article 37 of the Treaty. In addition, such broadcast monopolies held a "dominant position" over the domestic dissemination of advertising as commerce in its own right, and as a marketing technique for increasing the flow of other commerce between and among Member States. Most broadcast systems also had certain agreements with their own national film industries which might be deemed to be preferential and thus a species of prohibited state aid under Article 92 of the treaty, since such agreements customarily contain terms more favorable to or protective of the national industry than those terms granted to other Member State film companies. Under the circumstances, it seemed only a matter of time until the legal status of these broadcast organizations would be tested in terms of their impact on "free trade in communication" within the European Economic Community.

Absolute control over access to national broadcast facilities also made the traditional European communications organization vulnerable to challenge under domestic law because of the "dominant position" each organization held in

⁹Article 177 has become the most common procedural device for reaching the Court of Justice. A survey of cases before the Court at the end of 1971 revealed that 141 of the 259 cases before it were referrals under Article 177. This same survey revealed that issues involving "anti-competitive practices" were the most common after those involving agricultural policy in that year. L.J. Brinkhorst and H.G. Schermers, *Supplement to Judicial Remedies in the European Communities* 163 (1972).

determining what messages reached national broadcast audiences. While "free speech" is not accorded quite the same privileged position among rights recognized in Civil Law tradition as in Anglo Saxon law, most Western European nations have acknowledged the existence of a point at which suppression of expression by the state is not justifiable even in terms of interests of the public.¹⁰

For example, Article 21 of the Italian Constitution declares,

Everyone shall have the right freely to express his own thoughts, orally or in writing or by any other means of dissemination. No previous authorization shall be required of the press, and it shall not be subject to censorship.

The constitution of the Federal Republic of Germany is even more specific, declaring at Article 5,

Everyone has the right freely to express and to disseminate his opinion by speech, writing and pictures, and freely to inform himself from generally accessible sources. Freedom of the press and freedom of reporting by radio and motion pictures are guaranteed. There shall be no censorship.

The doctrine of "legislative supremacy" traditional in Civil Law nations has been modified during this past quarter century by an emerging trend towards "judicial review" not only in "rigid" constitutional nations such as West Germany, Italy, and Austria, but in those with "flexible" constitutions, such as France and the Netherlands. This growing interest in "constitutionalism" has raised the constitutional court in most

¹⁰On the differing emphasis various Civil and Common Law traditions accord "free speech" rights, see M. Moskowitz, *Human Rights and World Order* (1963).

nations of Western Europe to the highest level of judicial prestige.¹¹ Because of this growing prestige, a pronouncement by any European Constitutional Court that a particular activity is unconstitutional in its jurisdiction would be likely to exert a profound influence upon the reasoning of other European national courts considering a similar act governed by parallel constitutional provisions. Thus, although the Civil Law does not generally accept the doctrine of *stare decisis* even within each individual jurisdiction, widely shared common Civil Law precepts allow the reasoning of a respected scholar or jurist of one Civil Law nation to exercise a great influence upon the subsequent deliberations of other Civil Law courts.¹²

Thus, if a single European Constitutional Court were to find that a national broadcast organization had used its absolute control over access to broadcast audiences to restrict freedom of expression in an unconstitutional manner, the implication for European broadcast organizations in a similar position might be serious. By the very nature of their operation, these organizations not only control such access, but also have the authority to limit the expansion of cable TV access channel alternatives and to restrict the flow of diverse foreign programming into their nation. Yet without

¹¹For a description of the growth of "constitutionalism" in Western Europe, see J.H. Merryman, *The Civil Law Tradition* (1969), chapter 18.

¹²*Id.* It could be argued that an even greater influence upon jural thought in Civil Law nations is exercised by the legal scholars, who in adopting a new legal concept, publish the treatises that eventually form the foundation for evolution on Civil Law nations.

this monopolistic protection, most systems already operating at a deficit because of limitations placed upon their advertising revenues and license fees, might be unable to continue to provide broadcast service.¹³

Thus, as the 1970s began it seemed apparent that the dual dominance of the traditional Western European broadcast organizations over certain aspects of free trade and free speech would soon be challenged in courts. The only questions uncertain were in which nation the test would arise, and on what issue or issues it would turn.

THE RAI AS A TYPICAL EUROPEAN BROADCAST SYSTEM

After asserting its exclusive jurisdiction over domestic broadcast and wire communications services in 1924, the Italian government granted a concession to a private company *Unione Radiofonica Italiana* to operate the national broadcast service under governmental supervision. RAI, a successor in interest to this company, obtained a deed of concession in 1952 vesting it with authority to manage the public services of radio and television broadcasting and of wire distribution within Italy. This concession was later extended and then modified in 1975 as the concession was extended until 1981. Although a private company, RAI common stock was gradually acquired by a governmental office, IRI, the State finance agency, so that by 1964 this state agency held a 75% ownership interest. Today IRI holds a commanding 99.5% of all outstanding stock in the broadcast organization, with another 0.4% being held by a performing artists guild (SIAE), and the remaining 0.1% being held by various interests.

¹³For a description of the artificial restraints placed upon European broadcast system advertising and the resultant financial difficulties being experienced by each, see the author's, "West European Newspapers and the Cable Revolution," *Journalism Quarterly*, Summer 1974, pp. 258-265.

In addition to this heavy concentration of state ownership control, RAI is also subjected to constant supervision by a Board of Managers, including a number appointed directly by various ministries of the government. Its budget is reviewed by a government Board of Auditors. Its news programming is monitored by an Interparliamentary Committee reflecting the relative sizes of the various political party representations in Parliament, and the organization's programming budget is held within its advanced projections by strict Parliamentary limitations upon funding.

With this degree of government presence at every level of RAI activity, it is not perhaps surprising that the Italian broadcast service has been criticized as being as drab and uncontroversial as the various tenuous coalitions of Christian Democrats and allied parties it has reflected. The television service is literally "colorless," for while every other West European broadcast service has now introduced some degree of color programming, Italy has been postponing the introduction of color programming since 1970.¹⁴

Regional programming has also been stalled in Italy, although it has become extremely important in other West European nations in expanding the degree of public participation in broadcast programming. The RAI has contended in the past that lack of funds has made it impossible to construct facilities to support extensive regional programming on either of its two television channels or three radio channels.

News programming has been a prime target of RAI critics. According to one former RAI official, the tendency has been to "think of news as propaganda rather than as

¹⁴RAI finally announced the launching of its color television programming to coincide with coverage of the Summer Olympics of 1976.

information," avoiding touchy subjects such as divorce, abortion and political corruption. A popular comment reflecting the primary emphasis of RAI upon political balance rather than comprehensive coverage is that to staff each news department, RAI will hire "two Christian Democrats, one Socialist, and someone who is professionally qualified."¹⁵

In most ways, RAI seems representative of the typical West European broadcast organization. An extensive governmental participatory as well as supervisory role is in no sense unique to Italy, but common in varying degrees to almost every EEC Member State broadcast system. The emphasis upon and thus uninspired uncontroversial news coverage is typical of systems where governmental policy demands that the broad spectrum of political philosophies represented in the national Parliament be reflected in all information programming. In addition, strict limitations upon advertising revenues which a national broadcast system may earn discourages producing or purchasing polished and expensive programming with broad popular appeal.

In comparison to other European broadcast systems, then, RAI appears unique in only two respects. The first is its failure to provide color television programming, and the second is its sluggish response to demands for regional programming facilities. Yet each of these failures can be explained to some extent by the fact that Italy has one of the lowest per capita incomes of all European Economic Community member states. Soon, however, RAI would be unique in a third respect, for unlike any other EEC broadcast organization, it would be compelled to operate stripped of basic protection against cable TV and pirate broadcasting competition.

¹⁵Sari Gilbert, "Pirate Radios Mushroom in Italy," *Washington Post*, July 25, 1976, p. A13.

THE CABLE TV CATALYST

In 1972 the Telephonic Office of the Italian Ministry of Posts and Tele-Communications (SIP), responsible for RAI broadcast facilities and wired communication services in Italy, was directed by Parliament to set up the infrastructure for the establishment of cable TV service throughout Italy. Understandably, this office did not move rapidly to extend cable service which might be compelled to add foreign color programming to compete with the limited black and white programming offerings of the two channeled RAI broadcast service. This hesitation, however, did not extend to private entrepreneurs who found northern Italy ideally situated for cable TV service.

Northwest Italy was especially attractive for the private cable TV firms. While mountain chains limit direct reception of foreign signals in the richest part of Italy, relay stations situated in the mountains can deliver color programming in the Italian language to Northwest Italian cable subscribers from three separate sources, the Swiss-Italian station at Lugarno, the Yugoslav border outlet at Capodistria, and commercial television service from Monte Carlo. These cable relay firms which began to emerge in Northwest Italy in 1972, were estimated by early 1973 to have constructed nearly 200 relay stations which were then serving more than 100,000 Italian cable subscribers.

Lacking the political support necessary to enact a direct legislative ban upon such private cable operations, the government struck back in a rather surreptitious fashion. In March 1973 it inserted a ban against private cable relay stations in an obscure 39 page post office decree, concealing it within a section described as "Radio Electronic Plants." After this legal ruse became public in April 1973, the Republican Party, a small political faction which favored cable television, withdrew its support from the Christian Democrat Premier Giulio Andreotti, leaving him without a

Parliamentary majority. When the government refused to back down in its demand that this private cable TV competition be suppressed, Andreotti's coalition collapsed, thus marking the first time in history that a dispute over cable television brought down a government.¹⁶

One of the government's criminal actions for refusal to comply with its orders was brought against Giuseppe Sacchi, owner of Telebiella, a firm founded in September 1972 to relay programs of its own production and advertisements by cable television. The Sacchi case did not directly involve the cable TV edict of the Ministry of Posts and Telecommunication, because Sacchi was actually charged with failure to pay a license fee for his "pay-TV" service operated through a number of television receivers in public bars linked to his closed circuit programming. Yet, whatever the legal distinction initially, it soon became clear this case would test the entire basis of Italian private cable-TV restraints.

Sacchi maintained that this license fee was only due from owners of receivers who benefitted from RAI transmission, and since his receivers were not benefitting in this fashion, they should be exempted from the fee. In the alternative, Sacchi contended before the Criminal Tribunal at Biella that if the RAI maintained it had a right to exact a tax from all television receivers located in Italy whatever their function, this position would be an anti-competitive restraint upon commerce in violation of numerous articles of the Treaty of Rome binding upon Italian courts.

¹⁶The following articles provide an excellent background for understanding the issues of the Italian cable-TV controversy; "Fate of Italian Government Seen Hanging on Ban of Private Cable," *Variety*, May 30, 1973, p. 30; "How TV Brought Down a Premier," *Intermedia*, No. 7, 1973, p. 16; "Italian Court Kayos Gov't. Ban on Cable-TV, Also Scores RAI," *Variety*, July 17, 1974, p. 39; "RAI Strongly Opposed to Court TV Relay Ruling as Cue to Chaos," *Variety*, August 21, 1974, p. 42.

The court, acknowledging that Sacchi had raised a valid question which required determination by the European Court of Justice, certified this case to the court under the provisions of Article 177 of the Treaty of Rome.¹⁷ Thus in June 1974, any consideration of "national free speech rights" was stayed pending a determination of whether or not the attempted restraints by the Italian government of private cable TV signal importation and delivery by the Italian government of private cable TV signal importation and delivery in Italy constituted an improper abridgment of "free trade" rights within the European Economic Community.

THE EUROPEAN COURT OF JUSTICE AND THE STATUS OF RAI

The Italian Criminal Court certified some 11 questions to the European Court of Justice for a preliminary ruling under Article 177, but the primary issue on which the decision rested was the *nature* of the commerce in broadcasting within the meaning of the Treaty of Rome. This issue was crucial because the prohibitions against post-1957 commercial monopolies adversely affecting free trade among Member States as described in Article 37 of the Treaty, and those prohibitions against anti-competitive exercise of a dominant or monopoly position prescribed by Articles 85 through 90 of the Treaty, pertained only to the movement of *goods*, not the flow of *services* among Member States.¹⁸

¹⁷The Italian decision recognizing the supremacy of EEC law in cases of controvention with Italian law was No. 1773, June 8, 1972, I.For. It.

¹⁸The European Court of Justice considered but did not need to decide whether RAI's grant was indeed a post-1957 monopoly, because of its modification and extension in 1975, or whether it was a valid pre-1957 (date of Treaty of Rome) monopoly because it was originally granted in 1952 and simply extended by its terms thereafter. The Treaty articles put in issue by *Sacchi* were 2, 3(f), 5, 37, 86 and 90.

Services are defined by Article 60 of the Treaty as including,

- A. Activities of an industrial character;
- B. Activities of a commercial character;
- C. Activities of craftsmen;
- D. Activities of the professions,

and have been accorded far less comprehensive or explicit protection from monopolisation than movement of capital or goods.

After carefully considering the defendant's argument that if television transmissions were not in themselves "goods," restriction upon advertising messages in such television transmissions could directly and adversely affect the marketing of goods among Member States, the court declared,

In the absence of express provisions to the contrary in the treaty, television signals must, by reason of their nature, be regarded as a service. While it is not impossible that services normally provided for consideration could come within the provisions relating to the free movement of goods, this is the case only, as it appears from Article 60, insofar as they are governed by such provisions.¹⁹

The court, however, did not exempt European broadcast monopolies from all free trade responsibilities under the Treaty of Rome simply on the basis of their dealing in "service" rather than "goods." The opinion clearly distinguished between a permissible monopoly over national broadcast transmissions and,

¹⁹Ex Parte Giuseppe Sacchi, Case No. 155/73 (April 30, 1973).

... trade exchanges involving all materials, sound tapes, films and other products used for the broadcasting of television programs²⁰

which the court held would be subject to rules relating to free movement of goods. In consequence, according to the court,

Even though the existence of an undertaking having a monopoly of commercial television broadcasts is not in itself contrary to the principle of the free movement of goods, such an undertaking would contravene this principle by discriminating in favor of national materials and products.²¹

To illustrate this distinction, the court explained,

... measures governing the marketing of products, the restrictive effects of which would go beyond the proper effects of a simple commercial system, are capable of amounting to measures similar in effect to quantitative restrictions (prohibited by chapter 2 of the Treaty of Rome). This would in particular be the case where these restrictive effects are out of proportion to the aim pursued ... in the present case, the organization according to the law of a Member State, of television serving the public interest.²²

The German and Italian governments, intervening in the proceeding, had argued that broadcast monopolies were

²⁰*Id.*

²¹*Id.*

²²Sacchi, p. 9185-3.

exempted from the effects of the Treaty of Rome simply because they were "public undertakings" charged with a public interest supervening commercial considerations. The court rejected this argument declaring there was nothing in the treaty to prevent Member States

... for considerations of public interest, of a non-economic nature, from withdrawing a radio and television broadcast, including broadcasts by cable, from the field of competition, by conferring on one or more institutions the exclusive right to operate in this field. But with regard to the carrying out of their task, these institutions remain subject to the prohibitions and discrimination and, insofar as carrying out their task covers activities of an economic nature, fall within the provisions envisioned in Article 90, which relate to public undertakings and undertakings to which the States grant special exclusive rights.²³

In summary, the European Court of Justice declared in its opinion that while granting an exclusive broadcasting right for entire nations did not constitute a violation of any applicable Treaty of Rome position, "discriminatory practices on the part of the undertakers enjoying such exclusivity against citizens of the Member States by reason of their nationality would be incompatible with [the Treaty]."²⁴

Thus, while the European Court of Justice sustained the authority of the Italian government to grant monopoly rights in the field of telecommunications to a broadcast corporation without violating its obligations as a Member State of the

²³*Id.*

²⁴Sacchi, p. 9185-4.

European Economic Community, the court's approval of this practice was based upon rather narrow legal distinctions between "services" and "goods," and was subject to rather broad limitations.

The EEC's Commission had declared in observations which under Article 20 of the Treaty, it could file in any proceeding before the EEC Court, that,

... behavior by the holder of a monopoly that is capable of preventing the appearance of new forms of competition or involving the fixing of prices at too high a level or the refusal to try and submit or a preference given to certain advertisements, be it for the purpose of safeguarding the commercial interests of the monopoly or for political reasons, or finally discrimination in televising items such as films or documentaries is capable of constituting an abuse which is prohibited expressly by Article 86.²⁵

The Commission also declared that,

... the actual possibilities of competition should be considered taking into account the new prospects offered as regards television by the availability of coaxial cable. Both the technical reasons which justify a monopoly for radio transmission (the limited number of available frequencies) and the obstacles to the transmissions of televised programs beyond frontiers are practically eliminated by the technique of cable television.²⁶

²⁵Sacchi, p. 9177.

²⁶Sacchi, p. 9178.

Although the court did not incorporate any portion of this Commission argument in its final opinion, it did not challenge these assertions as it did those of the German and Italian governments regarding the exempt status of national broadcast monopolies.²⁷ These position statements of the Commission, as the executive and administrative arm of the EEC, would also suggest that this body might press for more comprehensive regulations in the future governing the imposing of national telecommunication service restraints which have a tendency to adversely affect the flow of commerce among Member States.

In summary, then, the Court held that the defendant, *Sacchi*, could be prosecuted under Italian law for failure to pay a license fee imposed by the government broadcast service monopoly because it was not in conflict with existing Treaty of Rome provisions regarding restraints upon "services," but the Court at the same time clearly delineated a broad range of discriminatory tactics by any national broadcast monopoly which might in the future be held in violation of EEC law. The *Sacchi* case was, thus, in a sense a vindication of existing broadcast monopolies as exclusive providers of broadcast service, but this vindication was at the cost of accepting specific legal restraints upon the programming and advertising practices of such monopolies.

THE ITALIAN CABLE TV AND LICENSING DECISIONS

The Italian criminal tribunal at Biella which had originally agreed to request a Preliminary Ruling from the European Court of Justice, now made a "Preliminary Finding" under Italian law that this action also raised

²⁷*Cf.*, *Sacchi*, p. 9179 for German government observation; p. 9180 for Italian government statements re: "natural monopoly" position of a governmental broadcasting undertaking.

domestic constitutional issues which could only be resolved by the Italian Constitutional Court.²⁸ This court had considered the constitutionality of RAI in 1960, declaring that the monopoly was not inconsistent with the Italian constitution, but urging Parliament to provide regulations which would permit broader public use of the broadcast media in accordance with the freedom of opinion guaranteed by Article 21 of the Italian constitution. Legislation to conform with the court's directives had been considered on numerous occasions during the intervening 15 years, but no new legislation to comply with this mandate had been enacted.²⁹

In July of 1974 the 15 member Constitutional Court not only struck down the governmental decree which had barred private cable TV systems and relay stations from bringing foreign broadcasting to the country, but in a companion statement declared that Italy's radio and TV monopoly did not meet the constitutional requirements that it be "objective, completely open to all cultural currents, and . . . impartially represent the ideas expressed on society."³⁰

The Constitutional Court recognized that some control of a monopolistic nature over national broadcasting was unavoidable, given the limited number of wavelengths allocated to each nation. However, the court observed that

²⁸The Italian Constitutional Court was created in 1948 but did not actually begin operation until 1956. For a description of the considerable influence of this court upon the evolution of Italian public law during the past two decades, see Mauro Cappelletti, John Henry Merryman, Joseph M. Perillo, *The Italian Legal System* (1967).

²⁹Emanuele Santoro, "Italy: After 15 Years, A New Law," *Intermedia*, No. 4, 1975, p. 25.

³⁰*La Stampa*, July 11, 1974.

the banning of cable programming imported from other countries could not be justified on this ground because such closed circuit relays imposed no burden upon the spectrum broadcast resource being allocated by the Italian government. The opinion went further to declare that cable not only should not be hindered, but should be encouraged, because unlimited access to cable channels would "lead to a wider application of the freedom of expression of thought, sanctioned by our constitution."³¹

The constitutional court was even more explicit in declaring the conditions necessary before RAI's monopoly could be made to be consistent with the Italian Constitution. The elements declared by the court to be essential to the constitutionality of RAI were that:

1. The broadcast service must not be under the exclusive or predominant influence of the executive power.
2. Broadcasting should be under the direct control of Parliament acting as a representative of all the Italian people.
3. The right to have direct access to broadcasting media should be exercisable by as broad a segment of the population as possible.
4. The broadcast media should be used as a major channel of expression and information, to the maximum extent possible, consistent with its technical and financial resources.
5. News material should be impartial and objective, and cultural programming should respect the nation's diverse philosophies and cultures.

³¹*Id.*

6. The professionalism of broadcast journalists should be respected.
7. There should be limitations on broadcast advertising in order not to injure the economic support for the press.
8. Anyone who is unfairly injured by a broadcast program should have a "right of correction."
9. Cable systems local in coverage and relay stations for the reception of foreign programs should not come within the control or be subject to restructure by the State telecommunications monopoly.³²

RAI's top management reacted angrily to the Court's opinion, declaring that unless foreign program importation was limited, the domestic broadcast system could not survive. The RAI executives contended that the State Advertising Agency at that time was already losing approximately \$6.5 million a year in advertising placed with foreign border stations for retransmission through cable stations back into Italy, and that the unrestricted expansion of private relays would soon reach 70-85% of Italy's TV population. Based upon this growth, these executives predicted that the loss of revenue might soon reach \$500 million a year, eroding the economic base for Italian television, newspaper, radio and film services. RAI asked for Parliament to move immediately to adopt reform legislation which might comply with the court's mandates without endangering these domestic mass media.³³

³²Santoro, *supra* note 29.

³³"RAI Strongly Opposed To Court's TV Relay Ruling As Cue To Chaos," *Variety*, August 21, 1974, p. 42.

After several months of bitter debate, the Italian Parliament, in April of 1975, adopted reform legislation to comply with the Court's directives and protect RAI from further constitutional attack. In order to dilute the executive influence upon the broadcast services, the RAI's Parliamentary Committee was expanded to 40 members allowing nearly every political party in Parliament representation on the Board. Public access rights were guaranteed specifically for the first time, and a pledge made to move towards regional broadcast operations as rapidly as possible. Advertising revenues were to be set by Parliamentary Committee on a year by year basis, with advertising time not to exceed 5% of total broadcast transmission time.³⁴

The Parliament did not attempt to challenge the Constitutional Court's position on either cable broadcasting or relay stations, specifically exempting installations for receiving foreign broadcasts and local cable systems from state broadcast monopoly control. Reflecting the opinion of the European Court of Justice as well as the Constitutional Court, Parliament authorized the issuance of licenses for relay or cable systems not only to Italian citizens but also to citizens of any other EEC Member State offering Italian citizens similar reciprocal rights. However, the legislation did require that all programming relayed from outside Italy be stripped of all advertising content in order to prevent the erosion of domestic television revenues.

However, as the government attempted to comply with Constitutional requirements while staving off foreign television competition from its two-channeled television service, a far greater competitive pressure began to be exerted against its

³⁴*Nuove Norme in Materia de Diffusioni Radiofoniche e Televisive*, effective April 14, 1975, popularly known as the Italian Broadcasting Act of 1975.

three channels of radio service. The inability or unwillingness of RAI to provide regional radio stations which would occupy all of the domestic channels allocated to Italy left vacant domestic channels to be filled by a number of unlicensed "free" or "pirate" radio and FM stations. By the beginning of 1976, it was estimated that there were already at least 500-600 unlicensed radio stations operating in Italy, with at least 20 stations transmitting in major metropolitan areas such as Rome, Turin and Milan.³⁵ While the earlier stations were primarily political in orientation, a number of stations became commercial in time, specializing in rock, country music, and jazz, to challenge the "middle of the road" format typical of RAI. It is estimated that these stations, operating with as much as 1000 watts and often extended through relay networks to cover an entire region, already reach a potential audience of some 40 million listeners.³⁶

The suppression of these pirate stations seemed to pose no legal problem for the Italian government, for these stations were illegal from the outset, devoid of the slightest color of individual title or right. However, a number of pirate station operators challenged the padlocking of their stations by the Ministry of Post and Telecommunications, contending that their operations provided the public with benefits from the broadcast spectrum resource lying fallow under RAI administration. Several lower courts requested a Constitutional Court ruling on this issue, and the court obliged with an 11 to 2 decision rendered in July 1976.

The opinion declared that Article 21 of the Italian Constitution demanded greater rights of access than those furnished by the RAI Reform Bill of 1975. The Court also

³⁵Robert Grandi, "Italy: The New Broadcasting Situation," 4 *Journal of the Center for Advanced Television Studies* 11 (1976).

³⁶Francesco Cavalli-Sforza, "Italy: Decentralisation Invades The Airwaves," 4 *Journal of the Center for Advanced Television Studies* 15 (1976).

castigated the RAI for not providing more local and regional services and declared that until these services were provided the government could not constitutionally suppress all available means for satisfying this need. The court again acknowledged the right of the government to prevent interference on those broadcast channels assigned for domestic use in Italy, but it contended that while many of those channels remain devoid of regular government transmissions, the government could not prevent others from using them to offer broadcast services to the public.³⁷

Two weeks after the Constitutional Court decision, the RAI Board of Directors announced a master plan for autonomous broadcasting activities to be carried out in almost all of Italy's regions. Milan, Turin, Naples, Bologna, Florence and Venice were granted authority to produce television programming and exchange both radio and television shows among themselves.³⁸ Thus, conforming to the Court's decision by providing extensive required services may in time deprive "pirate" stations of both the constitutional justification and the spectrum space necessary for their operation. At present, however, the difficult competitive situation of RAI seems to justify the declaration of its President Beniaminino Finocchiaro that "ours is the first country in Europe where chaos in the home media has now been legalized."³⁹

³⁷"Italian High Court Frees Local Radio-TV From Inroads by RAI," *Variety*, July 7, 1976, p. 46.

³⁸"RAI Board Okays Plan On Autonomy For Key Regions," *Variety*, July 14, 1976, p. 43.

³⁹*Id.*

THE ITALIAN COMMUNICATIONS CONTROVERSIES, THEIR BROADER LEGAL IMPLICATIONS

The laws under which RAI has operated during the past few years seem neither uniquely protectionist nor restrictive in comparison to other West European broadcast systems. Why then has Italy been the site of each of these major challenges of traditional West European broadcast practices?

Politics and poverty each seem to have played a part in intensifying the antagonism towards Italian broadcasting. RAI, compelled by law to be a faithful reflection of the Christian Democratic coalition which has dominated its activities during the past quarter century has undoubtedly suffered a loss of popularity no less severe than that of its government. Yet other West European governments as deeply involved in the management of their broadcast systems have suffered declines of popularity in the past without subjecting their broadcast systems to such rigorous legal challenge. The distinction may be that in the past emerging technology had not yet provided opponents of the government broadcast system with a means of challenging the government's dominance over broadcast channels. If this should be the case, then the Italian controversy might be only the first in an extended series of challenges emerging from various West European nations during the years ahead.

Although "freedom of expression" or media access challenges may be harder to sustain in nations lacking specific constitutionally defined free speech guarantees, an ever expanding demand for mass media services in Western Europe, coupled with the probable reduction in European spectrum space available after the World Administrative Radio Conference of 1979 will make the position of those governments opposing cable or other non-spectrum communication delivery techniques more and more difficult

to justify politically, if not legally, from 1980 onward.⁴⁰ Restrictions on access or program diversity which have been justifiable during an era of communication channel scarcity would seem far less persuasive when the scarcity no longer exists naturally, but is created by government in order to maintain its communication monopoly.

These pressures to break national media broadcast monopolies through legal action may be even greater at the European Economic Community level. A truly unified Economic Community requires an effective multi-national marketing channel and no medium is more effective for such large scale operations than television, or cable television. With the Court of Justice and the Commission already beginning to erode the subsidies given national film, and discriminatory advantages given national artists, its challenge of television advertising allocation policies which do not accord all nations ample opportunity to reach each Member State with advertising messages may occur in the not too distant future.⁴¹

SUMMARY

Any study of this length attempting to explain particular EEC policies, national constitutional law, and the future implications of Civil Law proceedings must be strewn with enough caveats to exceed the length of the study itself. There are obviously peculiarities of Italian law which would prevent its direct application in other West European nations, even if some species of *stare decisis* did exist at Civil Law. At the European Economic Community level, the European Court of Justice has endured because it is sensitive to the politics as

⁴⁰For an excellent survey of this West European spectrum congestion, see "The Crowded Spectrum," *Intermedia*, No. 4, 1974, p. 1 and articles following.

⁴¹For a more complete discussion of this problem, see Le Duc, *supra* note 13.

well as to the law of Western Europe. A frontal assault upon such a cherished institution as the traditional broadcast system, even if buttressed by unassailable law, could only be enforced against Member States through the highly political Council of Ministers, the EEC body most sensitive to national concerns. In all international law deliberations, even at the level of the EEC, diplomacy is still far more crucial than legal philosophy.

This awesome economic empire emerging in Western Europe will function far more effectively if broader channels of broadcast and cable advertising are available to manufacturers and distributors in each Member State to reach potential customers in all other states. Therefore, it seems reasonable to assume that it will soon appear to be in the self-interest of most European nations to expand these channels either through reciprocal agreements merging certain Member State markets for such advertising campaigns, or through EEC-wide negotiations to end the distinction between "services" and "goods" which now shelters broadcast monopolies from many Common Market free trade requirements.

Each of these emerging forces for change in traditional West European telecommunication service deserves careful analysis by communications attorneys in the United States. Although the intricacies of EEC negotiation or practice are beyond the needs or interests of the average lawyer, it is not necessary to be able to draft a co-production agreement qualifying for EEC treatment in order to have a general awareness of national or Common Market communications law trends of potential interest to American mass media organizations.

The Member States of the Common Market now constitute a larger potential broadcast market with a larger

total economic demand than the broadcast market of the United States. Thus even a moderate expansion in existing West European broadcast schedules, or the addition of only one television channel per nation through a non-spectrum delivery system, would result in a far higher demand for existing film and television programming, a resource in great abundance in the United States.

There appears to be good reason to believe that this type of expansion in West European telecommunication service will soon occur, not because of any desire of broadcast administrators to increase programming options, but because of their inability to withstand those pressures which emerged for the first time in the Italian telecommunication controversies of the past two years. Whatever else might be said about the Italian "cable-TV" and "broadcast license" decisions, it is indisputable that the two major forces which eroded the monopolistic position of RAI are in no sense unique to Italy. In fact, it would seem equally reasonable to conclude that as West European television audiences experience growing dissatisfaction with program limitations imposed for political rather than technological reasons, the EEC industries begin challenging broadcast advertising restraints imposed for national rather than Common Market objectives, the strengths of each of these forces is likely to increase with each passing year.

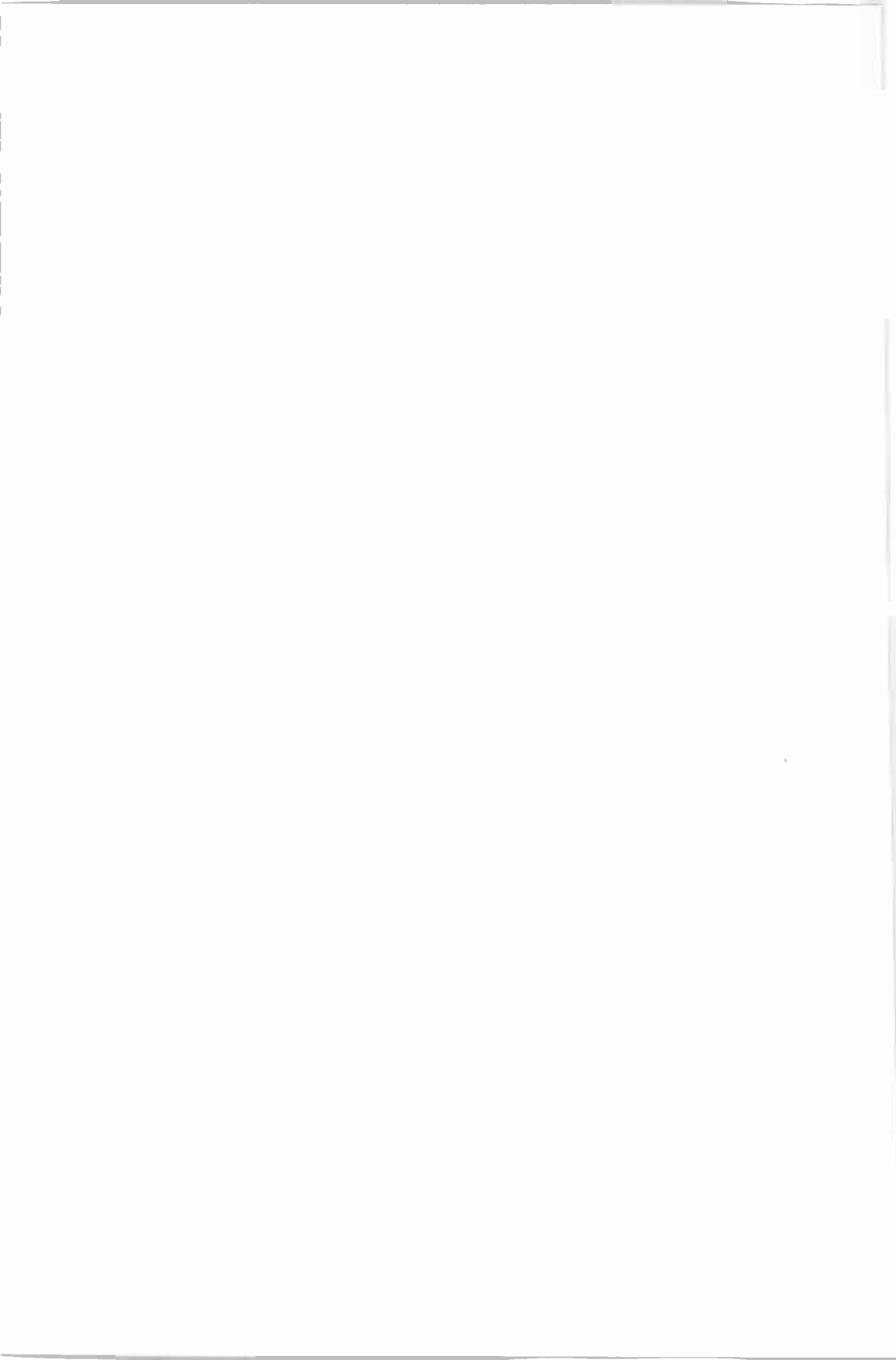
Thus this gradual but almost certain expansion in West European telecommunications facilities and services seems very likely to offer a growing range of new economic opportunities for American mass media industries, as suppliers of equipment and programming, and perhaps through investment as well in the evolving patterns of multi-national communications competition first dimly reflected in the Italian Constitutional Court cases.

A FAIR AND EQUITABLE SERVICE OR,
A MODEST PROPOSAL
TO RESTRUCTURE AMERICAN TELEVISION
TO HAVE ALL THE ADVANTAGES CLAIMED
FOR CABLE AND UHF WITHOUT USING EITHER

John M. Kittross

Over the years, I've been shocked by the occasional person from government, business, or academe who mentioned that he or she had acquired "Television Frequency Allocation Policy in the United States" from interlibrary loan, actually read it, and found it useful. Although graduate student folklore maintains that only typists and relatives read dissertations, the spoor of this one may be tracked through a number of theses, dissertations, articles, and books. Although I hadn't myself prepared any articles drawn from it, I retained my interest in the subject and managed to incorporate it in several classes. While leading a seminar in London in 1972, I was reminded of the Copenhagen and other efficient multi-national television frequency allocation plans -- and was introduced to the consequences of the separation of transmitting stations from programmers inherent in the British commercial system (see: John M. Kittross, "Some Lessons from British Broadcasting," Educational Broadcasting Review, 7:1:19-20, February, 1973). Suddenly, everything clicked, and I saw my way around most conceptual objections to the "grid" system for television station assignment, as well as a way of achieving greater diversity of programming. (One major remaining objection can be expressed by the question "How will national and international news be obtained and provided?"). Accordingly, through a number of papers presented in Philadelphia, Baton Rouge, and Ottawa, the following article -- with the longest title ever published in the Federal Communications Bar Journal -- evolved. More than 50 individuals have responded to it in some detail during its various incarnations, although all blame for its shortcomings are mine. Some of those who deserve the most credit for its development are listed at the bottom of page 116.

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**A FAIR AND EQUITABLE SERVICE OR,
A MODEST PROPOSAL
TO RESTRUCTURE AMERICAN TELEVISION
TO HAVE ALL THE ADVANTAGES CLAIMED
FOR CABLE AND UHF WITHOUT USING EITHER**

JOHN M. KITTROSS*

INTRODUCTION

For more than 30 years, with respect to the “most pressing”¹ problem of television frequency allocation and assignment, the Federal Communications Commission has been embroiled in a morass of political, technological, and economic overtones and pressures. There is a lengthy

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¹Frederick W. Ford, “The VHF-UHF Television Problems—Some Possible Solutions,” address before the Radio and Television Executives Association of Houston, Houston, Texas, December 5, 1958, at 1. Then-FCC Commissioner Ford served as Chairman of the Commission during 1960-1961.

literature on this situation.² In all these years—at least since 1944³—there has been no “perfect” or even generally

²See, in particular, William W. Golub, Commission on Organization of the Executive Branch of the Government (1949 Hoover Commission), Committee on Independent Regulatory Commissions, staff report on the Federal Communications Commission, unpublished, September 15, 1948; Sydney W. Head, *Broadcasting in America* (2nd ed. 1972); Joint Technical Advisory Committee (IRE-RTMA), *Radio Spectrum Conservation* (1952); Joint Technical Advisory Committee (IEEE-EIA), *Radio Spectrum Utilization* (1965); John M. Kittross, “Television Frequency Allocation Policy in the United States,” unpublished doctoral dissertation, University of Illinois, 1960; Erwin G. Krasnow and Lawrence D. Longley, *The Politics of Broadcast Regulation* (1973); David M. Leive, *International Telecommunications and International Law: The Regulation of the Radio Spectrum* (1970); Harvey J. Levin, *The Invisible Resource: Use and Regulation of the Radio Spectrum* (1971); Kenneth A. Norton, “The Five-Dimensional Electromagnetic Spectrum Resource: The Silent Crisis Screams,” unpublished, 1967; President’s Communications Policy Board, *Telecommunications: A Program for Progress* (1951); Robert H. Stern, “The Federal Communications Commission and Television: The Regulatory Process in an Environment of Rapid Technical Innovation,” unpublished doctoral dissertation, Harvard University, 1950; Telecommunication Science Panel, Commerce Technical Advisory Board, *Electromagnetic Spectrum Utilization: The Silent Crisis* (1966). This bibliography is by no means complete, although it does touch most important points.

³Although the first allocation of frequencies for television in the United States was made in 1928 (see Federal Radio Commission, General Order No. 55, December 22, 1928), the decisions that actually shaped the television service we know today were the result of the FCC hearings in Docket 6651, which considered the allocation of frequencies to the various classes of non-government services in the radio spectrum from 10 khz to 30,000,000 khz known as the “General Allocation Hearings of 1944.” These results as to television were formalized in reports dated January 15, May 25 and June 27, 1945. See 39 F.C.C. 33; 39 F.C.C. 68; 39 F.C.C. 222.

accepted solution to the question of how one provides a "fair, efficient, and equitable distribution" of television broadcasting service to "the several States and communities."⁴

In the 1952 *Sixth Report and Order*,⁵ the Commission noted that it had earlier

"... endeavored to meet the two fold objective set forth in Sections 1 and 307(b) of the Communications Act of 1934, to provide television service, as far as possible to all people of the United States and to provide a fair, efficient and equitable distribution of television broadcast stations to the several states and communities."

In attempting to carry out these objectives, the Commission set forth certain principles, in terms of priorities, underlying the Table of Assignments. These principles were:

"Priority No. 1: To provide at least one television service to all parts of the Unites States."

There is no objection to this first priority. But the other priorities listed in this *Report and Order* (to provide each community with at least one station, and then to provide for competition within the framework of the two priorities: two services, two stations, etc.),⁶ and the

⁴47 U.S.C. §307(b).

⁵*Sixth Report and Order*, Docket Nos. 8736 et al., 41 F.C.C. 148, 167 (1952).

⁶*Id.*

methods chosen to implement them, have led to the present situation—which is neither equitable nor efficient:

- 1) although 8% of Americans have access to a dozen or more television stations, 18% have access only to four or fewer stations (1972 Nielsen data);
- 2) there are only four networks (including PBS), thus restricting program diversity, reducing opportunities for new talent, and so on;
- 3) the unequal distribution of channels has created conditions of monopoly or near monopoly in a number of communities;
- 4) only a small proportion of UHF channels has been activated, and—despite the more-than-a-decade-old requirement that all receivers be capable of tuning all channels⁷—stations on these channels are generally at a competitive disadvantage when compared to VHF stations in the same markets, although 1974 data place the median UHF station in the black⁸;
- 5) time charges in many markets are so high that advertisers (including political campaigners) often cannot afford to use television as a selling medium;

⁷Public Law 87-529, signed by President Kennedy on July 10, 1962. It is known as the All-Channel Receiver Bill of 1962. See 47 C.F.R. §15.65.

⁸National Association of Broadcasters, news release 74.75, "Typical UHF TV Station in Black in 1974," (mimeo, June 1975).

- 6) there is a critical shortage of space in the electromagnetic spectrum for other services, including those involved in public safety activities;
- 7) there is little financial incentive to provide television service to rural and other sparsely populated areas;
- 8) there is a lack of local input into licensee selection and retention; and
- 9) the high capital cost for entry into television station ownership makes it very difficult for less well financed groups or companies successfully to apply for a license. This same high capital investment apparently has contributed to a reluctance on the part of the FCC to "punish" errant licensees with the ultimate penalty: loss of license.⁹ This "stability", once a license has been granted, seems almost directly related to the amount of investment that would be disrupted or lost, even though in some instances the public interest, convenience and necessity¹⁰ might better be served by change.

To modify this system naturally requires careful

⁹John D. Abel, Charles Clift III and Fredric A. Weiss, *Station License Revocations and Denials of Renewal, 1934-1969*, 14 *Journal of Broadcasting* 411-421 (1970).

¹⁰The touchstone criterion for licensing of stations under the Communications Act of 1934. *See also*, Frederick Ford, *The Meaning of the "Public Interest, Convenience or Necessity"*, 5 *Journal of Broadcasting* 205-218 (1961).

planning, and consideration of a variety of political, economic and technological factors. For example, the enormous political inertia caused by the more than \$20 billion worth of television sets in millions of American homes has frustrated nearly every consideration of change in the allocation system since the late 1940s; inequitable distribution of channels has given rise to many attempts to solve technological problems by political fiat, most recently in New Jersey¹¹; the concentrated political strength in large centers of population makes any reduction of service to them inadvisable, and so on.¹²

Any suggestion for major change in the television broadcasting system must take into account the emphasis on the listener or viewer articulated in the Communications Act

¹¹In March 1974, the New Jersey Coalition for Fair Broadcasting, comprised of New Jersey elected officials, leaders and organizations, petitioned the Commission to inquire into the adequacy of television service in the state, and proposed to reallocate existing VHF channels to New Jersey communities. The Commission initiated a proceeding in February 1975. Notice of Inquiry and Notice of Proposed Rulemaking, Docket No. 20350, 40 Fed. Reg. 6513 (1975). It also conditioned the license renewals of the New York City and Philadelphia VHF stations upon whatever action was ultimately determined to be taken in the inquiry. CBS, Inc., 53 F.C.C. 2d 1112 (1975), Westinghouse Broadcasting Co., Inc. 55 F.C.C. 2d 685 (1975). In March 1976, the Commission concluded that channel reallocation was unwarranted and infeasible, but continued the proceeding to determine nontechnological alternatives to improve service. First Report and Order and Further Notice of Proposed Rulemaking, Docket No. 20350, 58 F.C.C.2d 790 (1976). The proceeding was terminated in November 1976, Third Report and Order, FCC 76-1024 (released December 3, 1976).

¹²The FCC always has been very sensitive to the concentration of political strength in Congress. Because of the rural/small town orientation of Congress, service to such areas always has been a major priority of the Commission. As the composition of the Congress changed in response to *Baker v. Carr* and other "one man-one vote" decisions of the Supreme Court, the FCC also assumed a more urban bias. Since population density is now reflected more strongly in representation, the FCC's reluctance to upset Congress serves to protect the service enjoyed by larger markets.

and in *Red Lion*¹³, and must overcome the inertia that no doubt will lead to a chorus of “the mistakes were made in 1944 and 1952 and can’t be changed”. In addition, any new proposal must consider such varied legitimate needs, interests and concerns as those of set owners, present station operators, those who didn’t or couldn’t apply for a television channel when they were plentiful or those who don’t get the programming they desire, program producers and the craft unions with which they exist in interdependence, advertisers, and citizens (as individuals or in groups) who should have an additional voice in programming and licensing, and who should have access to the maximum amount of information which they need in order to make rational decisions in a democracy.¹⁴

¹³Section 307(b), prior to amendment in 1936, provided “that the people of all the zones established by this title are entitled to equality of radio broadcasting service, both of transmission and of reception” The Supreme Court, in *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367 (1969), held that, “It is the right of the viewers and listeners, not the right of the broadcasters, which is paramount.”

¹⁴John Taylor, former RCA broadcast equipment marketing official “postulated that any new kind of TV system—to have chance of success—would have to (1) retain advertiser support or bring money, (2) continue the networks or substitute some other national programming & selling entity, (3) conform to the NTSC standards for transmission, (4) be amenable to FCC procedures & policies, and (5) be compatible with today’s home TV receivers. And, of course, it would have to be a lot better than today’s system—or no use.” 14 *Television Digest*, September 9, 1974, at 5, quoting an article in *Television/Radio Age*, August 19, 1974.

PREVIOUS PROPOSALS

During the 1944 General Allocation Hearings and the hearings that led to the *Sixth Report and Order*, several suggestions were made with respect to rationalizing television frequency allocations.¹⁵ In essence, there were those who wished to maintain the *status quo* with respect to the number and location of channels for television, and those who wished (usually for business reasons of their own) to move television to a new location in the spectrum. After 1954, when it became obvious to all that UHF stations were not able to compete with VHF stations licensed to the same market, there were three major propositions presented to the Commission: an all-VHF system using some additional channels secured from the military; an all-UHF system; and a policy of deintermixture, which would make a given market either all-VHF or all-UHF. The military wouldn't provide additional channels, the weight of investment by the public was an immovable barrier to the second (all-UHF) solution, and local objections and FCC timidity prevented full implementation of the third.¹⁶

Still later, the unsolved problem of providing sufficient choice and diversity of television programming to the American public was approached by new and adapted technology. The choices in the late 1960s and early 1970s were the existing television allocation system (modified by deletion of some under-used channels at the top of the UHF band), an all-UHF system (not seriously considered), an all-VHF system (the military and other users still

¹⁵See, in particular, the dissenting opinion of Commissioner Robert F. Jones to the FCC's Sixth Report and Order, 41 F.C.C. at 605, and quoted in footnote 22, *infra*.

¹⁶Kittross, "Television Frequency Allocation Policy in the United States," *supra* note 2.

prevented serious consideration of this, and the fact that all existing receivers would be obsolete would have turned Congress (and hence, the FCC) against it), and, the one new idea, what is now called "the wired nation". This last proposal, an extension of community antenna or cable television (CATV), was expected to be a broadband wired telecommunications network that would provide multiple channels of television and many ancillary services to the home for a fee.¹⁷ There were many who thought that CATV would be the greatest invention since the zipper, but the recession and numerous other factors have restricted cable's penetration after more than a quarter century to but 11% of U. S. television households.¹⁸ The ancillary services (except for pay-TV over cable) have failed to materialize on a non-experimental basis.

The FCC always has been a reluctant regulator. Having neither clear prerogative jurisdiction, sufficient information on which to base decisions, nor the power to enforce them, it is no wonder that this politically sensitive body traditionally has ignored problems in the hope that they will go away.¹⁹ The Commission rarely has asked for and the

¹⁷See Ralph Lee Smith, *The Wired Nation* (1972). Also see Don R. Le Duc, *Cable Television and the FCC: A Crisis in Media Control* (1973).

¹⁸A.C. Nielsen Company, *Nielsen Newscast*, No. 1, 1975, p. 3.

¹⁹"One of the hallmarks of this and I suspect most regulatory agencies is a preference for known evils over unknown evils. I am not sure that preference leads to the best public policy result." (Commissioner Nicholas Johnson, letter to the author, June 7, 1972). See, John M. Kittross, "The Federal Communications Commission: Neither Fish Nor Fowl," in David G. Clark and Earl R. Hutchinson (eds.), *Mass Media and the Law: Freedom and Restraint* (1970) at 360-362. See also Krasnow and Longley, *supra* note 2, and Ross D. Eckert, "Spectrum Allocation and Regulatory Incentives," *Papers and Proceedings of the Conference on Communication Policy Research*, November 17-18, 1972, Office of Telecommunications Policy (1972).

Congress rarely has provided means for the FCC to evaluate independently new technologies or alternative proposals. As a result, the Commission has tended to rely upon the adversary process—an effective and traditional approach for deciding a law suit between two parties, but less efficacious in determining where the public interest lies in a quasi-legislative rule making proceeding.

A FRESH LOOK

It is for the reasons touched on above that this speculative proposal for the allocation and assignment²⁰ of television channels is presented. The proposal borrows from a number of solutions to similar problems elsewhere in the world, and from suggestions made in prior allocation and other proceedings in the United States. The proposal is deliberately brief, intended only to provide logical underpinning for the basic scheme rather than expand this article to include the myriad of specific details.²¹

First, establish a system of channel assignments based upon an arbitrary (technologically determined) rectilinear grid pattern rather than the past system of assigning

²⁰ Allocation is the apportioning of a given part or parts of the electromagnetic spectrum to a particular service, such as television broadcasting. Assignment is parcelling out of channels within that allocated part of the spectrum to particular communities (or, in other services, classes of users). A given user will then be licensed to use a particular channel or channels in a particular location.

²¹ Clearly, to provide valid and reliable details of Cluster siting, detailed financial data and the like for this proposal would require a great deal of computer-assisted research. Since the basic tenets of a preliminary proposal such as this do not require such details, and since funding was neither sought nor received for this article, they will not be presented here.

television channels to "markets" more or less according to their size.

This system would be similar to the highly workable system adopted under International Telecommunications Union auspices in Europe (Stockholm, 1961) and Africa (Geneva, 1963), and proposed in the United States in the 1948-1952 period.²² In Europe and Africa, problems of potential interference are greater than in the United States due to language differences, and problems of adequate diversity and coverage are greater due to the smaller geographical limits of nations—and radio waves do not respect national boundaries.

In essence, a rectilinear grid would be established for the United States analogous to arbitrary imposition of the system of latitude and longitude. The sides of each cell could be approximately 175 miles long. This would result in approximately 95-100 intersections of the "north-south" and

²²International Telecommunications Union, *African VHF/UHF Broadcasting Conference*, Regional agreement for the African broadcasting area. Final protocol, resolutions, and recommendations. Geneva: ITU, 1963. Also see "The African VHF/UHF Broadcasting Conference," *EBU Review*, 80A (August 1963), at 154-161. Drawing upon testimony from a number of sources during the FCC's 1948-52 hearings, Commissioner Robert F. Jones, in his dissenting opinion to the FCC's Sixth Report and Order, 41 F.C.C. at 610, proposed a "triangular lattice" assignment system essentially isomorphic with the "rectilinear grid" suggested in this paper. He stated that to "visualize the problem of achieving maximum use of a given channel so we can calculate its maximum use, it is necessary to think of a series of dots spaced an equal distance from each other on a map of the United States. If we draw lines between the dots we will have a series of equilateral triangles overlaying the entire United States. The dots will represent assignments of a single channel. The length of the sides of each equilateral triangle will be the mileage separation between stations. Such a scheme of assigning channels will be referred to hereinafter as a 'full triangular lattice'."

“east-west” lines. As each intersection is approximately the current co-channel separation distance for Zone 1²³ from every other intersection, it would be possible to place transmitters for VHF channels 2, 4, 5, 7, 9, 11, and 13 at *each* of the 95-100 intersections without co-channel or adjacent-channel interference. (We will save discussion of the use of UHF channels until later.) Each intersection point will be called a “Cluster” hereafter.

However, it probably isn't necessary to use a 175 mile separation. Since all transmissions in a Cluster would be from the same tower, use of such spectrum-saving techniques as precision offset and vertical vs. horizontal polarization on an alternate-Cluster basis (which will not substantially affect receiver performance) should permit the Commission to order a reduction in co-channel (two stations on the same channel) distance separation standards to approximately 150 miles.²⁴ The essence of this proposal, however, doesn't depend on this reduction in spacing. Slight adjustments to the pattern due to terrain may be necessary, and “prime meridians” may be run through such cities as New York, Los Angeles, New Orleans—Chicago and Los Angeles—St. Louis—Philadelphia (or New York) to insure continuation of “full” service to these large centers of population.

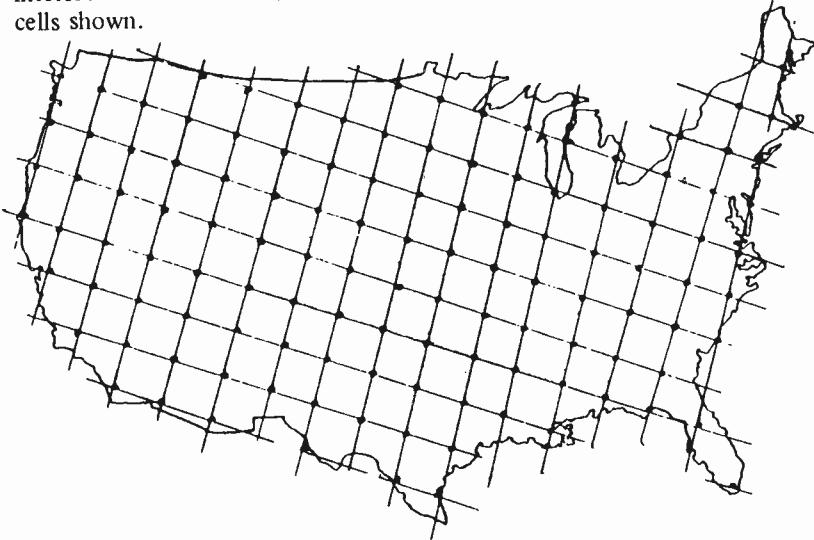
With the exception of a relatively small area in the center of each cell of the grid, which will be discussed in the following paragraph, almost every part of the United States could thus have at least seven VHF channels available. The “area in the middle” would be an exception. It would constitute nearly one-third of the area within a

²³47 C.F.R. §73.610.

²⁴Jones, *supra* note 22, makes a strong case for reducing co-channel spacing well *below* 150 miles (see his appendix tables).

Figure 1

Arbitrary rectilinear grid, approximately 150 miles to a side, approximately 120 Clusters or intersections within the 48 contiguous states. The second, interlaced, grid also would have approximately 130 intersections or Clusters; each intersection would be in the middle of the cells shown.



rectilinear cell under the 175 mile separation plan. But this unserved area of locations more than 80 miles from the transmitters of a given Cluster would be reduced to less than one-sixth the area within the cell if co-channel separation were reduced to 150 miles.

However, there still would be *some* area in the middle to serve. That area, and the desire for even more potential choice for the viewer would require a second grid, to the same standards as the first, but interlaced with it so that the intersections would fall in the center of the cells or rectangles formed by the first grid. At the intersections of this grid there would be placed transmitters for channels 3,

location would have fewer than five VHF channels available. Those limited locations would constitute roughly one-sixth the area of a cell; a similar proportion would have only seven channels—but the other two-thirds of the nation would have at least 12 VHF channels within reach. (Note: in the foregoing, all estimates of coverage assume that the reception of VHF stations up to 80 miles away is not unreasonable, and that the 150-mile grid pattern is being employed.)

Although the plan outlined above makes use of VHF channels only, this is partly to simplify the presentation. UHF channels also might be used, although the decades-old problem of inequality of reception range would remain. Current FCC rules requiring equality of VHF and UHF tuners in new receivers²⁵ will help, but to date the performance of the electronic engineering profession (and those television set manufacturers who hire them) has not been inspiring. Furthermore, the variety of restrictive assignment factors found in § 73.698, Table IV, makes it unlikely that more than nine (out of 56) UHF channels could be used at a single location, as contrasted to the more efficient use of the VHF which, for various reasons, permits seven out of 12 channels to be used at the same location. An FCC inquiry to re-evaluate the various UHF channel assignment “taboos” was initiated in the spring of 1975.²⁶

Naturally, if two groups of nine UHF channels are employed (for example, 16, 22, 28, 34, 40, 50, 56, 62, and 68), the remaining 38 channels can be released for other

²⁵47 C.F.R. §§15.67 and 15.68.

²⁶Notice of Inquiry, Docket No. 20485, 53 F.C.C. 2d 411 (1975).

purposes. These uses might include very low power television repeater stations (to overcome terrain problems, much as is the practice in the United Kingdom and the Continent) or other telecommunications services. In addition, the Commission inquiry into improvement of the quality of UHF tuners and other circuitry in order to eliminate the §73.698 restrictions, could eventually lead to use of every-other-channel UHF assignments at the two types of Cluster location. If this were the case, the first type of Cluster might contain transmitters for channels 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, and 69. The second type of Cluster might contain transmitters for channels 3, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, and 68. Such an arrangement would allow the first type Cluster to supply 34 channels, and the second type 33.

Thus, if all channels (2-69) currently allocated to television were used as proposed above, with transmitter Clusters of the same type located 150 miles apart, approximately one-sixth of the nation would be within range (nominally, 80 miles) of only 33 channels, another one-sixth within range of only 34 channels—and two-thirds of the nation within reception range of at least 67 television broadcast signals!

Even if the current restrictions imposed by §73.698 remained in force, the first type Cluster would have some 16 channels and the second type some 14 channels. This diversity, which would reach every citizen at no additional regularly levied cost (at most, a new antenna system would be required), approaches that of the more advanced operating cable systems and substantially improves the existing on-air system—with but a fraction of the capital investment per channel.

Second, the transmitter operation function should be separated from the programming function.

A separate, possibly public or at least cooperative, corporation should be established to build and operate the physical facilities of the Clusters. Each transmitter in a Cluster would be programmed by one or more different "Programmers". The transmitter operating organization would have no programming responsibilities or powers. It would secure initial financing from any one of a variety of sources (risk capital, the Treasury) and would pay back these sums and operating expenses from income paid by the Programmers.

Whether the transmitter operating organization should be a cooperative (as the News Election Service) or a public corporation (as COMSAT) is properly a matter for the legislative branch to decide. However, it should be completely unconnected with the programming function and should operate on a non-profit basis with the task of providing the maximum number of signals to the public. (This entire system is not unlike some aspects of the Independent Broadcasting Authority in the United Kingdom, which operates the transmitters and franchises "programme contractors" to use them in exchange for a proportion of advertising revenues.²⁷)

The savings in both capital investment and operating costs would be tremendous. There need be only one transmitter building, one access road, one antenna tower per Cluster. Because all transmitters would be operated by the same corporate entity, in the same transmitter hall, there

²⁷ Among a number of recent books on British broadcasting are Anthony Smith, *British Broadcasting* (1974), and Peter Black, *The Mirror in the Corner* (1972). (Both these volumes deal at length with the IBA.)

should be substantial savings in personnel costs. A preliminary estimate indicates that, using a VHF system only, the number of TV stations presently on the air could be increased by 50% but that transmitter personnel savings per year could approximate \$15 million—with the saving in professional personnel rising as the number of transmitters in a given location rises. Because of the use of a single building, Cluster land acquisition, building construction, utilities, and similar costs would be below the total cost of the present system of each station building its own. To illustrate, if a single transmitter and antenna costs \$200,000 (purchased in quantity), the building \$300,000, the tower \$100,000, and other on-site costs for the Cluster \$100,000, the cost of a Cluster of seven transmitters would be some \$1.9 million, for a Cluster of five transmitters some \$1.5 million, for an average of \$1.7 million per Cluster—but at a cost of less than \$300,000 per channel! This is far below the average cost of “going it alone”, with further savings to be realized from operating procedures. If 240 Clusters were needed to cover the nation using 150-mile separations, the total cost would be in the neighborhood of \$400 million—a substantial sum, but far less than alternative proposals (such as CATV or Multipoint Distribution Service via microwave) for the same number of programming services to *all* homes.

For the purposes of this article, it shouldn't be necessary to go into detail about the specific location of Clusters and similar matters. Many details must be left for additional research and discussion in various forums. Some preliminary thinking has been done about staffing (although fewer transmitter engineers per transmitter will be needed, most present transmitter engineers should be absorbed within the new corporation, or return to a Programmer as a member of the studio or maintenance engineering staff), unions (unless truly a governmental organization, the corporation probably will be unionized), the existing 950+ transmitters (most are

depreciated over a fairly short period of time; unamortized transmitters might be sold to the corporation and either used or scrapped), AT&T network lines (it is probable that domestic space communications satellites will prove far more economical for interconnection of Clusters than land line connections, since there will be the need for some 240 wideband receiving stations only—one at each Cluster—rather than the present system of serving nearly a thousand separate non-cooperative locations with network service by wire or microwave). There are many other potential problems and implications that await later consideration.

CHOICE OF PROGRAMMERS

The most delicate problem remaining is the question: who is to program all these transmitters? Although this is fit material for another inquiry, it also is part of the entire "package" proposed here.

Adequate and proper mechanisms can be established, it is believed, that would permit the Commission to license one or more Programmers to program a given transmitter in the public interest, convenience and necessity for a fixed length of time.

Some form of local input into the Programmer selection process, after the prospective licensee has met minimal statutory provisions, would be desirable. Much opposition to longer (say, five year) license terms would evaporate if there were more local voices in determining whether a given applicant were to be licensed or not. The technique for insuring such local input would have to be chosen by Congress. One possible, although extremely complicated, technique is that used by The Netherlands. Essentially, various groups (social, religious, and some organized for the purpose)

share the limited amount of air time on the basis of the number of paid-up members (who thus receive program guides) they have.²⁸ A modification of this principle, combined with the great number of channels available for distribution, would enable minority groups to have a fair share of air time under the present proposal. Then again, a different method might be employed, although no technique for choosing a Programmer should act so as to prevent any change at the end of the license term. The writer, who has been associated with broadcasting most of his life, hopes that some priority would be given to those many existing broadcasters who, by inclination and training, consider broadcasting to be a profession more than they consider it to be a business.

The terms of the lease with the transmitter operation corporation would be a difficult problem for those charged with determining public policy. On the one hand, there are those with the belief that the spectrum (and by extension, programming rights such as are being talked about here), should be auctioned to the highest bidder.²⁹ On the other hand, we have the obvious public benefits of supplying broadcast facilities to non-commercial educational

²⁸Walter B. Emery, "The Netherlands: Pluralism with Freedom," in Walter B. Emery (ed.), *National and International Systems of Broadcasting* 140-157 (1969).

²⁹Perhaps the most complete early discussion of this principle is to be found in R.H. Coase, *The Federal Communications Commission*, 2 *J. Law and Economics* 1 (1959). Levin, *supra* note 2, and others in and out of government (particularly at OTP) also have considered this approach to spectrum allocation and assignment. See, in particular, Roger G. Noll, Merton J. Peck, and John J. McGowan, *Economic Aspects of Television Regulation* (1973)

programming organizations. We also need to set out some incentives for Programmers to be willing to take on channels covering rural areas. Incentive pricing (a token fee of \$100 for a transmitter covering a very small number of people, perhaps, as contrasted to many thousands of dollars for a transmitter with a greater profit potential), subventions to subscriber-supported or educational programming organizations, or a form of "tie-in sale" that would require a Programmer who has been successful in bidding for the right to program a transmitter in a Cluster serving one of the largest cities also to program a certain number of transmitters covering the less populated countryside, all might be tried. Because there is no capital cost for transmission equipment, entrepreneurs may find less-populated areas more attractive.

Since this plan, if successful, might further stunt the growth of cable television, the "public access" function required by the 1972 cable television rules would have to be fulfilled in other ways. Although the presence of television production equipment in most school districts has never been exploited fully for providing the general public access to an audience on cable or on the air, theoretical considerations and experiences elsewhere (northern Canada, for instance³⁰) lead one to suggest that radio would be far more effective than television for most kinds of public access. In addition, the increased number of television channels on the air should permit some time on them to be made available for public access use. Finally, and very important to the entire concept, the lower capital investment required of a Programmer should

³⁰See, for example, reports appearing frequently in the Canadian communications quarterly, *In Search*. An extremely interesting report by Douglas Ward of the CBC was interspersed with commentary by editor Lorenzo Milam and published in *The Radio Times* #115, December 1972, pp. 2-4.

permit easier full-time access to the market place of ideas by minorities, the poor, schools, associations, and others who might be able to acquire studio facilities but not the money with which to purchase a transmitter, building, and antenna tower.

If some form of open bidding is used to initially select the Programmer of a given channel, means must be found to weight the bids of non-profit and other groups whose only disadvantage is a lean purse. Arbitrary pricing, a multiplier for funds received from individuals in small amounts (subscribers), and a host of other techniques may be used. Recognizing that the commercial Programmer's perceptions of the attractiveness to advertisers of that channel in that Cluster (and his opinion of his competition's plans) generally will determine his bid, it may be necessary to establish a floor for commercial bids depending upon the population to be served.³¹

Some current FCC regulations would need modification under this plan. Presumably non-commercial channel reservations would continue on a rough "one channel in four" basis (two in a Cluster of seven, one in a Cluster of five); again, reduced need for capital should lead to greater utilization of these channels. The duopoly rule³² should be amended to permit a Programmer to apply for leases in all Clusters serving a given metropolitan area. The multiple ownership rule should be on the basis of a limit on the proportion (perhaps 25%) of the total U. S. population that can be served by a given Programmer, rather than on the number of transmitters programmed.

³¹The author tends to hold that the selection of Programmers and decisions about their retention best can be done by viewers in some form of plebiscite after initial screening by the Commission for meeting minimal legal and financial criteria—but that is a subject for another paper.

³²47 C.F.R. §§73.35, 73.240, 73.636.

DISCUSSION

It is beyond the scope of these comments to speculate at length on the effect such a radical—compared to a few drop-ins³³—change might have on the different components of the American broadcasting structure. Networks, with their control over programming sources and experience, probably would survive as syndicators and news sources. It is even probable that at least seven national networks appealing to a general audience would be viable—with others filling specialized niches. Because of the increased competition expected from this plan, the proposed restrictions on proportion of the population that may be reached directly by a given Programmer, and some shifts in transmitter location, it is probable that the present network owned-and-operated stations no longer will dominate their own markets or supply the lion's share of broadcasting's profit to the network corporations.

Another possibility is an increase in the amount of exchange between stations of locally-produced programs. It is hoped that there would be more voices capable of disseminating national and international news, and that there would be greater diversity in programming (a probable necessary condition for the favor of voters in a plebiscite), but such prognostication is very uncertain. The odds seem to be that many might gain and few would be harmed.

A schema such as presented above would permit *all* members of the public to receive many more channels than the average citizen now enjoys. It should cost most citizens nothing, except possibly an antenna rotor—thus protecting the multi-billion dollar investment in receivers. It would use the radio spectrum more efficiently. Broadcasters would have a reduced investment, which makes entry into the market place of ideas far less expensive for less-affluent groups. This reduction in investment may make the concept of revoking the license of a broadcaster who hasn't been operating in the public interest less traumatic to the Commission—and the

³³See, Notice of Inquiry and Memorandum Opinion and Order, Docket No. 20418, P&F Radio Reg. Current Service 53:213 (released April 15, 1975).

"bad apple" broadcaster himself. There would be opportunity for a minimum of seven networks, and concomitant competition and diversity. All stations would be on the same footing with respect to transmission facilities. With this competition and availability of time on many stations serving the market, local advertisers would find time they could afford. Certainly, more programs would be needed—together with the talent to produce them.

Although some (particularly Commissioner Robert E. Lee) have enthusiastically promoted the UHF channels as the future home and hope for an expansion of competitive television broadcasting, the FCC action to delete the uppermost 14 channels from the UHF television band (70-83) and reallocate these frequencies to land mobile services clearly indicates that a majority of the FCC has lost faith in an all-UHF system.

The proponents of CATV are still active, although cable television itself, due to its financial structure and FCC action (and inaction), has severely felt the impact of the recession of the early 1970s. Because of this loss of momentum, many questions about cable hitherto overlooked are being asked. Although cable entrepreneurs have maintained that the industry really would take off once the larger cities were penetrated with 20- or 30-channel cable systems, the experience in New York has soured many cable operators and their sources of financing on the idea that cable will take over program distribution from over-the-air television. Whatever CATV's effect on entertainment programming, the author confesses a bias against any news and public affairs distribution system that is unavailable (because of the limits

of wired technology and CATV financial arrangements) to *everyone*.³⁴

Accordingly, this is a good time to consider the proposal presented on the preceding pages. Although these ideas may provide vast public benefits in program diversity, citizen control, different kinds of access, competition, television service to rural areas, and conservation of a scarce natural resource (the electromagnetic spectrum), it may be that they only will serve as a stimulus to think more radically about basic assumptions and axioms about television frequency

³⁴ As stated earlier, the author believes that all members of the public should have access to the maximum amount of the information they need in order to make rational decisions in a democracy. Cable, by fragmenting the audience, may reduce the income and hence the incentive for the three present networks (together with AP and UPI, the only truly national sources of national and international news for most Americans) to support news gathering, which is perhaps the most expensive kind of programming—no matter what its prestige value. On the other hand, the assignment plan presented in this paper will lead to even greater fragmentation. After weighing possible outcomes and factors (including the chances for additional national news gathering agencies and the savings that may result from the development of electronic news gathering (ENG) techniques presently being innovated), the author has decided that the odds are on the side of the advantages of this plan outweighing the disadvantages. Certainly, it might be worth a try. Although the history of television to date is replete with standards, allocations and assignments being frozen into the mold in which they were initially pressed, we might take heart from the recent comments by Public Service Satellite Consortium Engineering Director James Potter: “. . . the radio-frequency spectrum, unlike petroleum, is a re-usable natural resource. and. . . regulatory policy should be guided by demand projections over shorter time frames.” 14 *Television Digest*, November 25, 1975. at 3.

allocation and assignment than has been acceptable in the past. Even if they do only this, they will have been worthwhile.³⁵

³⁵The response to earlier drafts of this article already has been worthwhile and stimulating. Although in no way are they to blame for the views expressed here, the author would like to thank the following (among others) for their (often pungent) comments, criticisms, and suggestions: (alphabetically) Michael H. Bader, Lois Brown, Robert B. Cooper, Jr., Sidney W. Dean, Jr., James A. Fellows, Frederick W. Ford, George Gerbner, Kenneth Harwood, Sydney Head, Nicholas Johnson, Frank Kahn, Erwin G. Krasnow, Don Le Duc, William H. Melody, Lorenzo Milam, Edward W. Ploman, Bruce Robertson, Elliot N. Sivowitch, Dallas W. Smythe, Christopher H. Sterling, Albert Warren.

DISSERTATIONS IN BROADCASTING

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