



SCMO: Potential Money-Maker for FM

SCMO, or Subsidiary Communications Multiplex Operation, which has been a potential source of additional revenue for FM broadcasters, but constrained from full-scale development in Canada, is finally in the spotlight.

The CRTC, in Public Notice 1983-77, initiated an inquiry into its use and into the use of the television vertical blanking interval on April 19th. Response deadline was June 30, 1983.

Several years ago, the CRTC had limited the use of SCMO to quasi-broadcasting services, hoping that sound services might develop to serve minority audiences such as ethnic groups, the blind, etc. However they did permit continuance of existing uses such as Musak and transmitter plant telemetry in the interim.

In the U.S.A., where the term Subsidiary Communications Authorization (SCA) is used, the FCC has recently de-regulated SCA to the extent that it can be used for virtually any business purpose. At the same time, the FCC permitted an increase in base-band frequency to 99 from the former 75 kHz which would permit two rather than one SCA subcarriers, with modulation either by AM or FM. The FCC did not, however, agree with broadcasters' requests to raise the main carrier deviation (loudness) by ten percent over the existing 100 percent of 75 kHz. As a consequence of the FCC action,

there is tremendous interest in the U.S.A. in exploiting the SCA potential for generating additional revenues. Canadian broadcasters, sniffing these opportunities, are after similar concessions.

The Rules

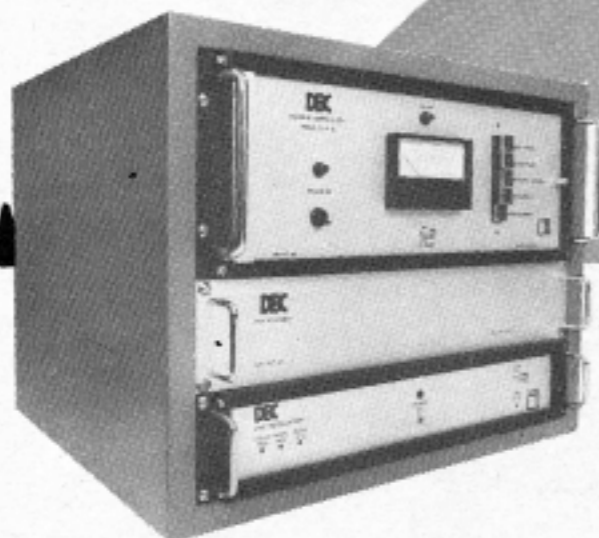
The Canadian rules are contained in Broadcast Procedure 7, Issue 2 which points out that SCMO is considered a form of broadcasting and that therefore receivers need not be licensed. SCMO-equipped receivers can be sold legally in Canada, but in the U.S.A. cannot, for there, the SCA is considered a point-to-multipoint carrier-type service, and receivers can be obtained only with an appropriate license. Manufacturers have not supplied such receivers in Canada, though SCMO could be added for a retail cost supplement of only \$15 to \$20.

DOC's rules call for SCMO to be FM iwth virtually all its energy to be contained between 53 and 75 kHz, using ten percent of the overall modulation, and providing 60 dB isolation from the main and stereo channel maximum modulation level. Under these constraints, only about 4.5 kHz bandwidth can be obtained.

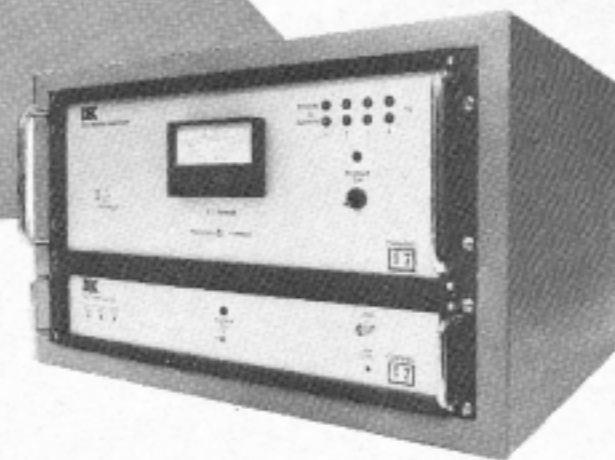
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quality receivers and directional receiving antennas, extending its predictable range to or beyond the station's usual service area. However, if SCMO begins to serve a mass audience, the broadcaster would no longer have control over the receiving installations, and problems at many receiving locations should be anticipated.

SCMO service should not be unduly affected by co- or first-adjacent channel interference, but second- and third-adjacent channel signals can and do present some difficulties. Such stations can overlap the service area of a desired station with a substantial undesired signal. The "capture effect" and AFC on FM normally locks the receiver to the desired station, but when the receiver is in a weaker signal area or affected by multipath fading, it may jump to the undesired second- or third-adjacent station causing the SCMO of that station to be substituted for the desired signal. For this reason, the SCMO services aimed at wide-ranging mobile receivers could be unreliable, but where aimed at fixed locations (where receiving antennas and receivers can be customized for the service), can provide extremely reliable results.

The Uses of SCMO

Neil M. Smith, of Smith and Powstenko, in his report for NAB states: "... some predict that SCA operations may eventually represent the major portion of FM station income". Indeed, the number of new and innovative services now suggested for SCMO could provide substantial sources of revenue. Several satellite-delivered nationwide services are emerging, and these will require terrestrial rebroadcasting over a large part of the continent. And numerous local services can be incorporated as well. Following are some already recognized and some suggest new services.

1. Broadcast Auxiliary Services

Broadcast transmitter plants are most frequently operated by remote control. The SCMO is often used for relay of telemetry of station operating parameters back to the point of control. Telemetry may be for several stations, FM and possibly AM or TV if at a common site.

The SCMO can provide a back-up to the studio-transmitter link of an associated AM station. In the event of STL mal-performance, the SCMO can be substituted. However, the audio frequency bandwidth attainable under existing DOC rules would be limited to under 5 kHz. Under the new FCC rules, reasonable fidelity should be attainable, and indeed, the SCMO could become the preferred path for the STL.

2. Narrowcasting

The most popular use today is for background music services such as Musak. There are other possibilities in this area, one being a music service provided to funeral homes or even churches, with musical selections being chosen appropriately.

Reading to the sight-impaired, the "Talking Book" service is not uncommon today.

Instructional materials for selective audiences such as doctors, other professionals, or schools can be provided. It is possible to arrange for selective automatic recording on cassettes so as to reach such audiences at any time, including overnight. An SCMO service could serve a number of such groups, with group selection preceding the program material.

Ethnic or minority programming services could provide a broadcasting facility for such groups without appreciable impact on the broadcast spectrum.

A minority language sound track of a main program, either on the FM station or possibly on an associated TV station, could be provided over the SCMO.

3. Paging

Because the reliability of reception would be perhaps as low as 90 percent, depending on multipath, shielding within buildings, etc. paging services demanding extreme reliability (e.g. police, medical emergency, fire) would not likely be suitable candidates for SCMO, unless the paging were addressed to fixed locations where good reception could be assured. An example could be within a chain or retail stores, with the SCMO fed to internal P.A. systems.

Paging, in its modern sense, does not necessarily require an intelligent voice message, that is, an analog signal. Using digital signals, far greater reliability can be achieved. Consider an appliance repair service vehicle, as an example, having a microprocessor controlled electronic or paper printer. On completion of a call, the serviceman would find upon return to his vehicle SCMO-relayed printed instructions concerning his next call, or modification of previous instructions. With the error-correction techniques available in modern computer software, such uses could be made extremely reliable. This form of paging could be employed by courier services, among others.

SCMO could of course be used for general business paging, provided the less-than-ideal reliability is recognized and is acceptable to the participants.

4. Selective News Services

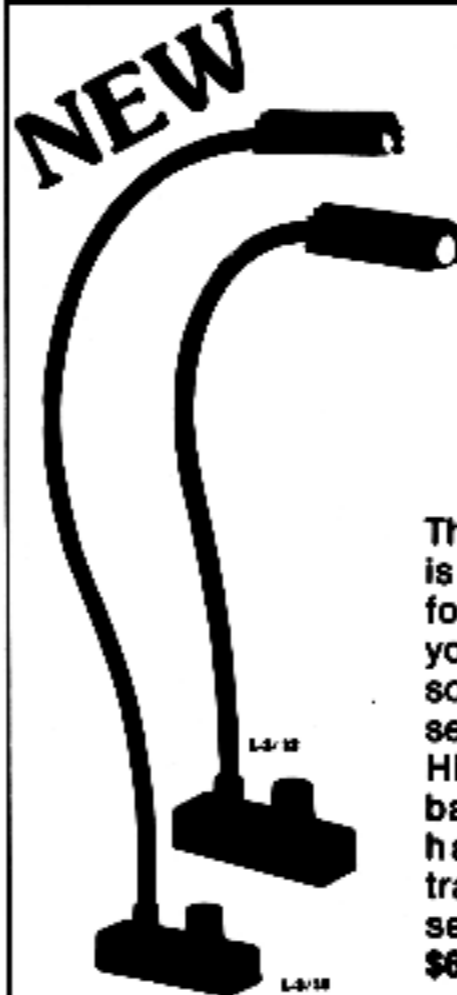
Dow Jones Radio 2 provides, from studios in Princeton, NJ, voice news bulletins encoded with selective category tones so that, at the receiver, the sound is muted unless the subscriber calls up such a category on a local keypad. Important general news bulletins come through in any event. The receivers are also equipped with audio cassettes which will record the items pre-selected. The service, called Dow Alert, is relayed over Westar III to local earth stations which in turn, feed local FM

The 60 dB of isolation provides a significant constraint. Only when the main and stereo channel signals are com-

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EXAMPLES OF SCMO SERVICES LICENSED BY CRTC

CKFM Toronto: Station plans to discontinue its use of SCMO to provide background music service. Approved May 30, 1983: Alphanumeric information for a variety of users, such as school boards, banks. Time Division Multiplexing will ensure that subscribers receive only the services to which they are entitled. No advertising to be carried. A subsidiary of CKFM will lease receiving systems to subscribers (SCMO receiver, message decoder, printer or character generator, and display screen).

CHAY-FM Barrie, Ontario: Has approval to distribute a variety of programming for narrowly-defined audiences (e.g., sports/leisure/hobby interests, educational, instructional and ethnic programs, reports to farmers and other business groups). Vin Dittmer, general manager of CHAY, believes the CRTC should leave SCMO "wide open" to provide access for any uses and users; contracts between stations and outside suppliers of services, specifying the responsibilities of each, would be part of applications. SCMO, he suggests, could open up new possibilities for the transmission of information by organizations who have the resources to provide receiving systems; for example, real estate boards in large markets, who must transmit data as quickly as possible to a large number of member firms.

Services currently approved are generally on an experimental basis for a period of one year only, and licensees remain responsible for all material broadcast on their SCMO channel.

TECHNITOPICS

pressed into a dynamic range of 30 dB or less can the SCMO be used without causing noticeable interference during quiet passages of the program. For this reason, CBC and the BBC have rejected SCMO use, for their modulation practices permit little or no compression of the stereo programs.

Other Constraints

Intermodulation between SCMO and program signals will occur if the broadcast system is not of high quality and in excellent alignment. The FM station employing SCMO must be carefully maintained.

The ten percent loudness loss inherent in using SCMO also decreases the program signal-to-noise ratio, so that when signal strength is marginal, reception is affected. There is a noticeable loss in coverage because of this.

SCMO service is a relatively fragile part of the FM transmission, and is more prone to interference from noise or other station signals. However, since it is typically a point-to-point, or a point-to-multipoint transmission, it can employ better stations by landline. The service is transmitted to subscribers over SCMO. The future for this type of service is said to be unlimited.

Other forms of specialized news services can and will occur, but the most promising developments will not be in analog (voice) services, but in digital data transfers.

5. Data Services

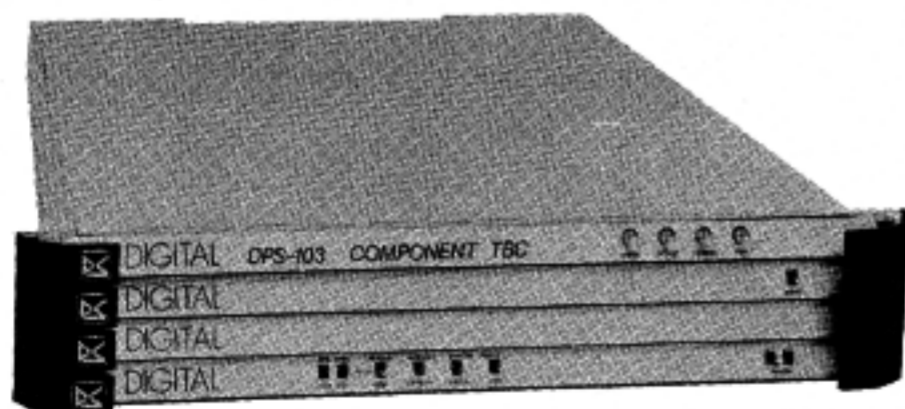
There are many services today which require one-way point-to-multipoint delivery, including stock market transactions, bank data transfers, inventory and price list changes, listing of fraudulent credit card transactions, and "downloading" of data, programs or games from central computers to individual or home computers. Most of these require dedicated common-carrier lines, at least locally, to reach subscribers. The local lines are frequently the major cost element in such delivery systems. SCMO is in an ideal position to compete with the common-carrier for such local distribution. Cable TV systems provide another alternative, but cannot offer as yet, full-penetration of market areas. Generally, such data is sent at about 300 baud on local telephone loops. SCMO can provide up to 2400 baud and current developments lead to projections that 9600 baud can be relayed over SCMO. Not only can the FM broadcaster provide the local connections at substantially less cost than can the telco, but he can provide these data services at a far superior data rate, possibly better than 30 times the capacity of the minimum telco facility.

A subsidiary of National Public Radio called National Information Utilities reported to the NAB 1983 Convention information on their INC satellite-fed network which will utilize the SCMO of NPR stations in over 240 markets, plus commercial stations in others. Eighteen regional uplinks are available for data input, and the service operates out of Washington, DC. The encoded segments can be fed to groups or even to individual receiving locations. It can intermix slow-speed (300 baud) newsfeeds with higher data rates, 1200 baud for administrative, financial, security and emergency feeds, and 4800 baud for bulk-transfer point-to-multipoint deliveries. Inputs to the service can be at any speed, processed by local computers to the proper rate for transmission. Their tests indicate that 4800 baud can be transferred with no increase in bit-error-rates over those achievable over "conditioned" telephone lines. Affiliates can superimpose local services into the normal data stream. The receivers provided are arranged to interface with any printer, video display, or computer terminal.

Mr. Jack Taub of NIU suggests that, while any customer may use the network for the purposes described, and at considerable savings, "the greatest value of the network may lie in brand new applications made feasible by the unique capabilities of the INC network".

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Questioned on the privacy aspects of such a network, he indicated that feeds were packet-switched with as many as 24 different messages intermixed, and that security of individual messages was therefore assured. The address codes are complex enough to prevent normal decryption of any message except by the addressee.

A Worthington, MN, broadcaster reported to the NAB convention how his station made \$35,000 last year by renting its SCMO to Market Quoters, Inc. at a fee based on 8% of their sales in the area. Market Quoters provide a 15-page teletext service of commodity market transactions, mostly satellite-fed from the Chicago markets. It was reported that this service is currently provided over eleven Class C FM stations.

6. Utility Load Management

One of the lucrative possibilities for the broadcasters is utility load management. Local utilities have to install facilities which can handle peak loads, and in turn, pay rates to the electricity supplier based on such peaks. When these peaks are at their worst, "brownouts" or even blackouts can occur. Utilities can save substantial amounts if, under their control, non-essential electricity consumption can be deleted during peak periods. Appliances such as water heaters or air conditioners, turned off automatically for possibly five minutes, can reduce the peaks. Using broadcast transmissions to activate different segments of its subscriber base over such periods can bring a major cost saving to utility and subscriber alike. One U.S. broadcaster reports he receives from his local utility 25c per customer per month for the service.

The signals for load management can be sent, depending on the technique employed, over AM, FM or TV stations. The SCMO on FM is one of the alternative methods, and this service would still have capacity for other revenue-producing uses.

7. Traffic Signal Patterns

Where cities employ varying patterns to the traffic light sequences depending upon the time of day, broadcast signals (again SCMO is a contender) can replace the extensive local telco loops normally required, providing a saving to the city and income to a broadcaster. This service can provide for fire emergency routes as well, at the same time adjusting traffic patterns in the general area so as to minimize any congestion due to the pre-emptive fire route clearance.

8. Emergency Vehicle Destination Data

Recently, it has been suggested that a central computer be programmed with data on occupants, descriptions and even floor plans of buildings, information for fire or emergency crews responding to an alarm. When the alarm was given, the destination data would be transmitted to the vehicle responding so that the crew would have some prior knowledge of the situation they might face, access points, possible occupants, etc. This data could be in teletext format, including diagrams, and be stored on a video monitor or printed in the emergency vehicle. The SCMO of a local FM station could provide the transmission facility for such a service.

9. Automatic Weather or Traffic Warnings

Experiments have been conducted using automobile receivers having a normally-muted SCMO which can be activated from the broadcast station by a sub-audible tone in the main FM program channel. Designed for weather or traffic alert announcements, the system permits the listener to enjoy normal FM programming, safe in the knowledge that is an emergency, the SCMO will take over and advise on the situation.

Sandy Day is Vice President of Engineering Services for the Canadian Association of Broadcasters. Readers' Comments or questions may be addressed c/o CAB, Box 627, Station B, Ottawa K1P 5S2.

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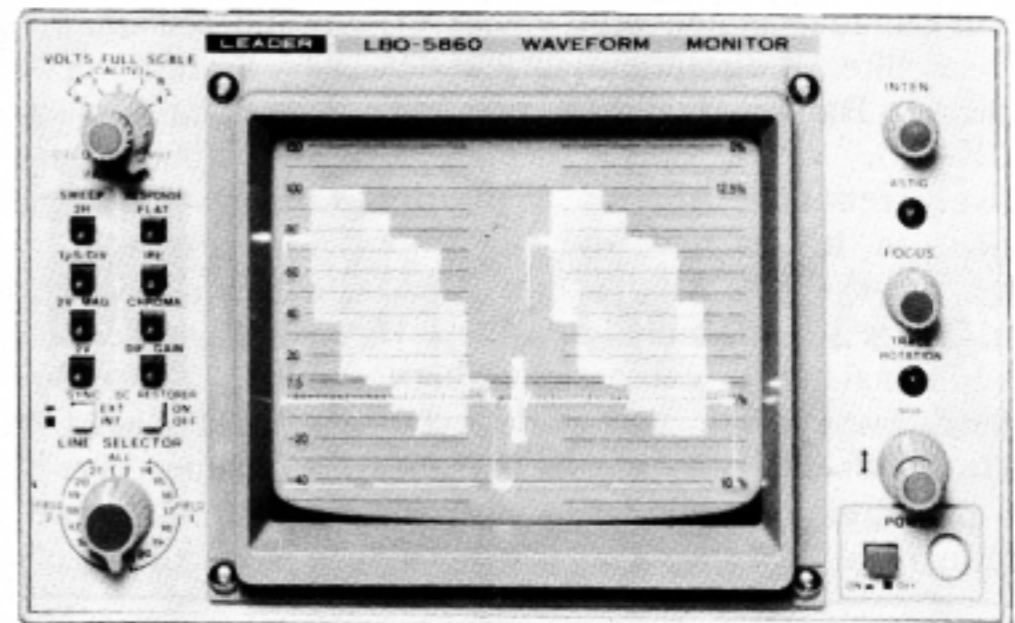
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ATV SATELLITE SERVICE

The Atlantic Television System (ATV) launched its Atlantic Satellite Network (ASN) on May 29—the culmination of four years of planning and pre-launch costs estimated at between \$4-5 million.

The service is delivered to cable TV systems throughout the Atlantic region via the Eastern spot beam of Anik C-3. Direct-to-home reception is also intended, although signal strength with the Eastern beam initially appears somewhat below requirements for small TVROs.

ATV president Fred Sherratt describes ASN as a "conventional, independent TV station" that—for the first time in Canada—is delivered exclusively by satellite. Programming originates from the Halifax facilities of ATV (CJCH-TV), which have been extensively rebuilt. ASN is a priority service, to be carried by all cable systems in the four Atlantic provinces; the signal is not scrambled and there is no additional fee to cable subscribers. Advertiser-supported, it is sold in conjunction with ATV's terrestrial network. The program schedule is a mix of Canadian and U.S. shows not previously

available in the region, plus movies, with news at alternative times (7 and 11 pm). An educational TV authority has been established by the four provincial Departments of Education, with input from the region's universities, provide some 20 hours a week of ASN programming.

CITY-TV MOVES TO CH. 57

A victim of the North American conversion of UHF channels 70 to 83 to mobile radio uses, CITY-TV Toronto is in the process of switching channels from 79 to 57. For most of July it is transmitting on both; however, about 90% of CITY's viewers are on cable TV and are unaffected by the change.

Station president Moses Znaimer estimates technical costs alone at \$600,000. In addition, there are the costs of changing CITY's "identity"—for example, the corporate name of Channel Seventy Nine Ltd. As of July 15, the telephone number changed from 867-7979 to 367-5757.

CITY was licensed in 1972, and Znaimer says that although lower UHF channels were available, the federal Department of Communications urged

CITY to apply for 79, specifically to protect channels 70-83 from a land mobile takeover which was already taking shape in the United States. The prevailing wisdom in Canada, where there was less demand for land mobile frequencies, was that all of the UHF channels should be preserved for future television needs. The Canadian stand was welcomed by pro-broadcast interests in the U.S.

However, at the 1978 World Administrative Radio Conference (WARC) in Geneva, the U.S. position favoring land mobile prevailed. Channel 57 was designated for CITY, and Znaimer still sees the change as a serious setback. "There's no benefit to CITY-TV," he points out, noting that Bell Telephone and other large organizations who want to get into cellular radio will be the likely beneficiaries. The station has made an "appeal for fairness" to DOC, suggesting that the Department and/or future users of channel 79 share the expenses of CITY's move to channel 57.

VANCOUVER AM BIDS

The CRTC has heard two applications for new AM stations in Vancouver,

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along with a bid by CISL Richmond to move from 940 to 650 kHz. Competing for the 650 frequency is a firm headed by two Saskatoon men, Robert Cugnet and Reginal Parke, who propose a good music station with all-night classical music. Ocean Pacific Broadcasting proposes a talk station on 540 kHz; it's president is Don Hamilton, well-known broadcaster and former CAB president. The applications for new stations were opposed by CFUN, CHQM, CJOR and CKNW.

CKOM TOWER DOWNED

Vandalism is believed to be the cause of the collapse of a 354-foot tower at CKOM Saskatoon (10 kw, 1250 kHz) during the night of May 17. It was the principal radiator in the station's 3-tower array. A 250-watt standby at the studios kept CKOM on-air while adjustments were quickly made to enable operation at half-power. Engineering director Ken Fisher was assisted by Neil East of Sound Broadcasting and consultant Ed Prefontaine of D.E.M. Allen & Associates, both of Winnipeg, in resolving the difficulties, and CKOM returned to full power a week later, using a 2-tower array operating within required protection levels.

CFCW STUDIO PROJECT

CFCW Camrose, Alberta, is planning a major building project to provide new studio facilities. Costs are expected to be in the area of \$1 million. A country music station covering the Edmonton market, CFCW is owned by Hal Yerxa, and Lyndon Olson is chief engineer.

CHEZ BIDS FOR CJET/CKUE

Subject to CRTC approval, CHEZ-FM Inc. will purchase CJET and CKUE-FM Smiths Falls, ON (Rideau Broadcasting). Chuck Azzarello, general manager of CHEZ, says the new owners would seek a power increase for CKUE, and would retain the present formats—country for CJET and 'mellow rock' for CKUE. An independent FM operation, CHEZ has attained considerable success in the Ottawa market since it went on the air in 1977. Smiths Falls is 35 miles south of Ottawa.

RADFORDS TO BUY CHUC/CFMX

Cobourg, ON, radio stations CHUC and CFMX-FM, in receivership since March 15, 1983, are to be purchased by the Radford family of Brockville, ON,

subject to CRTC approval. John A. Radford is general manager and engineering director of CFJR Brockville; his wife, Betty, is financial director, and son, Doug, is assistant manager of CFJR. Commenting that the Cobourg-Port Hope market is very similar to Brockville, John Radford told BT that he has no immediate plans to alter the formats of the stations, noting that the CRTC has stipulated a classical music format for CFMX.

The FM station has had a short but stormy history: first licensed in 1976, it

operated only intermittently in 1980-81, and the CRTC in 1981 denied renewal to the owner, consulting engineer Don Williamson. However, the licence was returned to Williamson in 1982, over two other applicants who proposed contry music formats. CFMX returned to the air as a classical music station, but in recent months was operating at half power and had virtually no commercial revenue. It is licensed for 117 kw ERP on 103.1 MHz.

Established in 1957, AM station CHUC operates with 1 kw power on



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1450 kHz. A power increase to 10 kw was authorized in 1981, but not implemented.

CKMW SALE FINALIZED

Mutual Broadcasting, a subsidiary of Civitas Corp. of Montreal, has agreed to sell CKMW Brampton, ON, to Pat Hurley, subject to CRTC approval. A similar agreement had been reached earlier for the sale of CFNY-FM to Selkirk Communications. Hurley, who has managed both stations for the past three years, began his career at CKMW's predecessor, DFJB, in 1957. His partner in the purchase is Bill Evanov, manager of CING-FM Burlington, ON, and previously of CHIN Toronto. The new owners propose 67 hours weekly of multilingual programming.

NEW CAPITAL FOR CKIK

CKIK-FM Limited, which went on the air in Calgary last year, has applied for approval to issue additional shares. There would be two new shareholders, Steve Kaganov (21.5%) and W.B. Yarrow (8.5%). The resulting holdings by existing shareholders would be: CKIK founder Robert Whyte 36.4%, CHEZ owner Harvey Glatt 14.6%, Alan Singer 9.7%, Yves Mayrand 5.4% and Chuck Azzarello 3.9%.

STANDARD OPPOSES CKEY MOVE

Plans by CKEY Toronto to move its transmitter from Toronto Islands to a 9-tower site at Grimsby are being opposed by Standard Broadcasting, owners of CFRB Toronto and CKTB St. Catharines, ON. CKTB spokesman Patrick Kiely says CKEY's move and power increase from 10 to 50 kw on 590 would interfere with CKTB, which is on 610 kHz. CKEY has countered by promising to correct any problems created for CKTB.

TWO MORE TXs FOR TVO

The CRTC has approved two new transmitters for TVOntario, the province's educational network. They will be located at Huntsville (24.9 kw, ch. 13) and Penetanguishene (60 kw, ch. 51), and will cover about 100,000 permanent and seasonal residents in the resort areas of Muskoka and Georgian Bay.

CBC, CTV, TO COVER OLYMPICS

The CBC has paid \$3 million (US) for the rights to the 1984 Summer

Olympics. The games are to be held in Los Angeles, July 28 to August 12, 1984, and the CBC, as primary carrier for Canada, plans over eight hours coverage daily on both English and French TV networks, plus extensive radio coverage. The CTV network will produce a daily one-hour package. In addition to using the international feeds from the host broadcaster, ABC Sports Inc., the CBC will produce material of particular interest to the Canadian audience.

CBC and CTV will reverse their roles for the 1984 Winter Olympics from Sarajevo, Yugoslavia, with CTV the primary carrier and CBC producing a daily one-hour summary.

Meanwhile, coverage of another sports gathering—the World University Games, or Universiade '83, held in Edmonton July 1-11—was a major project for the CBC, the host broadcast organization. Some 185 CBC personnel were assigned, including 25 for each of four mobile units located at four origination points. Universiade expected to receive \$500,000 in fees for world broadcast rights.

CJRT ASTRONOMY SERIES

CJRT-FM Toronto and the McLaughlin Planetarium are collaborating in the production of 11 programs on Astronomy. Part of the series "Science Journal", the programs produced by Keith Potts and John Kenny; CJRT news director Bud Riley is executive producer.

OPERA ON CBC STEREO

Texaco, whose Metropolitan Opera series is the oldest sponsored program in broadcasting, has donated \$75,000 towards the broadcast of six Canadian Opera Company performances on CBC Radio. They will be heard this fall on both the English and French stereo networks.

KID VID AWARDS

CFCN-TV Calgary has won in the station category of the biennial "awards of excellence" presented by the Children's Broadcast Institute. Other winners included CBC and Access Alberta (network category), and Northern Television Systems (cable category). Special mentions included CFTK-TV Terrace, BC, CKY-TV Winnipeg, and Saskatoon Telecable; also

CanWest Broadcasting, Carleton Productions and Rogers Cable TV.

DM AWARD FOR TVO

TVOntario's membership campaign has won an award from the Canadian Direct Marketing Association. Last November TVO more than doubled its objective in a campaign to sign up 3500 members at about \$25 each, to support its non-commercial programming.

BEST OF THE WEST

The Western Educational Society for Telecommunications has awarded its 'Best of WEST' title to Access Alberta for the CKUA Radio program "Roaring Twenties, Dirty Thirties". Four other WEST awards went to Access for its television productions.

RYERSON HONOURS O'REILLY

CJRT-FM's Ted O'Reilly was among those honoured by Ryerson Polytechnical Institute during its annual convocation ceremonies. O'Reilly, who received a Ryerson Fellowship, graduated from Radio-TV Arts in 1963 and worked at CKKW Kitchener and CHIC Brampton before joining CJRT, where he is recognized as an authority on jazz music. Speaker for the same convocation ceremony (June 10) was Moses Znaimer of CITY-TV Toronto.

WINDSOR FORMAT SWITCH

CKLW Radio in Windsor, ON, has applied to the CRTC to exchange the formats now heard on CKLW and CKJY-FM. CKLW-AM proposes to adopt a 'Big Band' sound, while CKJY-FM would change to contemporary rock aimed at "the younger audience listening to the FM radio band". Established in 1932, CKLW operates with 50 kw on 800 kHz; over the years it has enjoyed large audiences in the U.S. and has been considered one of North America's most influential stations in popular music.

CBC WINS SCIENCE AWARDS

Creative teams from the CBC have won the 1982 Bell-Northern Research Communications awards for outstanding science reporting in Canada. The TV award went to "The Superachievers"—a report on Japan, part of "The Nature of Things" series. The Radio award was for the program "The Ocean Ranger Disaster"—part of the "Quirks and Quarks" series.



AN INTERVIEW WITH CKO'S HOWARD ENGLISH

At the age of 34, he's executive editor of the country's major news broadcasting operation—CKO-FM All-News Radio Network. He is a talented and highly respected newsman in his own right. He's a most able administrator. A budding author. And, in a literal sense, a chef.

A chef, because he believes in the "gravy theory". That is, when you program for the audience, you are, if you'll stay literal with me, serving them (or ought to be) the food of entertainment and information. What makes your programming stand out, he contends, is that ladle of gravy that you add to the menu—the extra touch, the extra depth, the extra plateful of communication with the listener's needs and interests.

He is Howard English, a Torontonion who entered radio when he was a student at the University of Toronto and began to become involved with the news side of Radio Varsity. At the time he was studying for his B.A. (History), there was a great deal of unrest among the university students and Howard began to phone in reports to the CKEY newsroom. This resulted in his becoming what he believes to be the first full-time stringer for a radio station at a Canadian university. Soon he had a summer job with CKEY news, and when he graduated from U. of T. was hired full-time under then news director Jim Hunt.

Howard was to begin an association with Tayler (Hap) Parnaby that continues to this day. (Hap is another story: I remember him telling me, when he was with CHUM in his early days, that he started in radio at the age of eleven in Orillia and had to be hidden when the labor inspector came around). Parnaby was the head man in CKEY news and in its news service, Newsradio. Over the years, he and Howard built up a nationally recognized newsroom with Howard eventually serving in a managerial capacity.

One thing they both wanted for CKEY was an FM license so they could open an all-news station. But the CRTC voted, instead to give that format to a national service, CKO Incorporated.

That was in 1977, and for about five years the operation with its seven stations suffered severe financial setbacks. Then Hap moved to CKO as president, and shortly thereafter Howard joined him as second-in-command. "Not just because Hap was there," said Howard, "but also because I believe very much in the concept." That faith has been well substantiated as the station has grown in BBM circulation and commercial content. Staffing, which is Howard's responsibility, has been a major contributor to the network's success. In Toronto, the flagship station, one finds such staffers and free-lance contributors as Lynne Gordon, John Gilbert, Elwood Glover, Walter Kanitz, Ian Brownlee, Bob McMillan, Dennis Woolings, Stephen Lewis, and, when it's a major news story such as an election, sometimes Howard English.

There are also several young people on staff at CKO across the country. Howard, who has taught radio journalism part-time at Humber College told us, "I enjoy working with young people, developing them, polishing them—and then the always ultimate thrill of finding a gem."

He is currently working on a book about radio journalism which he expects Humber College will publish this fall. He has done extensive research on it for the past two years, going back to the very beginnings of radio news, back to when you heard it when you traveled on a CNR train and that would be whether you were the Prince of Wales or former British Prime Minister Lloyd George visiting Canada, or perhaps a traveling salesman hoping to get an order in Red Deer. "What is so wonderful about those days," said Howard, "is that the people who were writing and broadcasting the news had no schools to attend where they could learn the business, no books to research. They had to have a dedicated, innate sense of what was news and how it should be presented. Bert Canning, for example, doesn't go back to the train days, but he was around when the situation was the same, when you flew by the seat of your pants, and look at what a complet

newsman he is."

When Howard's book is published, the hope is that broadcasting and journalism courses will accept it as a textbook. It could also be something that each radio and television station would want in its newsroom, and a book that organizations such as CAB, RTNDA, the reps and research groups could also promote and utilize.

It's an exciting time for Howard English: CKO is moving up, his book and a new baby are both expected in the fall. He is presently the father of three children—Nisa, 9, Shira, 6, and Aaron, 4—and his wife, Roz, is expecting a fourth child in October.

I believe in the tenet that if you are not sure about something, you ought to only ask someone who's 'been there'—not a theoretician, but a hands-on, has-done-it person. The staff at CKO can do that with Howard English. At CKEY he was first on air, then assignment editor, then managing editor (Hap was editor-in-chief). When Parnaby left for CKO, Howard for a brief period was CKEY's news director. So he has been, as they say, all around the horn. And here you can see that Hap went to a man who'd 'been there' when he brought Howard to CKO.

Howard is a man who likes "the idea of putting my stamp on something... of taking something which really was not only starting from the ground up, but was starting from several feet under (CKO was not in very good shape) and making it into something, developing good programming, and making people in our industry sit up and say, 'Hey, look what they've done—look what a valuable service this station provides' "

Howard, who says he loves "the unpredictability of current events," admits "Going from CKEY to CKO was probably the greatest risk I've taken and I think I even surprised myself when I did it. However, I don't regret it for a moment. It's been the most satisfying thing professionally that I've ever done."

Ask Howard what he means by the term "good programming" and he replies, "Good programming is basically good communication. And I mean

Satellites "essential" for distribution of news

that in the news vein as much as in any other vein. All-news is merely a well-programmed station in another format, and the principles remain the same. The communication has to be one-on-one, friendly, and pleasant enough for people to listen to for a long period of time; the communication has to impart meaning, has to tell people that what you have to say is relevant to their daily life. It has to be information that they can take home with them and remember because CKO told them. An all-news station provides the same level or even more of utility information, service information, that any other station provides. So, I say the principles of all-news radio are very much the same as the principles of other formats. Certainly our format is different, but what I tell our staff here is, quite simply, you are the music, the way you project, the way you program yourselves is very similar to what people are listening to on other stations."

What Howard emphasizes to his people is that what they air has to be just as appealing, has to be just as palatable, as friendly and as relevant and has to be capable, he restates, of being listenable for long periods of time, as in the case of any other format. "I think," he said, "that this procedure has made us the success that we have become in the past couple of years."

One development for which Howard can take credit is the featuring of magazine material on CKO's weekends. We wondered if he had initiated this type of programming because people had more leisure time on Saturdays and Sundays to listen to background features. "That was part of it," he said, "but also our listeners, we have learned, tend to be a little more articulate and more intense about current events. There's a great deal of interest in more in-depth programming. If there's one thread through the comments and requests I get on the telephone and in the mail, it is this: 'What you do is fine, it's the bread and butter, but give us a little gravy. Give us a little topping. Adorn the programming, give us interviews, give us some meaning, give us some explanation.'

BROADCAST TECHNOLOGY

And that's critically important. We live in an age of information overload, of information saturation, and, in fact, there's so much information thrown at people that they can't make head or tail of it sometimes. And it's very important to develop what I call 'explanatory journalism'—what I tell a lot of people here without meaning to insult our audience is that if you were to go out on the street and talk to 20 people about how a bill is passed in parliament, you'd be shocked about how little people know. And I think that radio has assumed much of its knowledge and has jumped off into very exotic directions, like the so-called investigative journalism, without going the first step—the stage of explanation. Telling them how things are done and why they're doing them and trying to give people some meaning to the events that shape their lives, and that's what the week-end programming tries to do." Rising BBM cumes have shown that Howard knew whereof he programmed.

CKO CUME RISES

Once again, as has been true since Tayler (Hap) Parnaby and Howard English took over the operation of CKO-FM Network, the cume has risen according to BBM. The Spring book showed an increase of approximately 11,000 to 269,700.

We mentioned earlier that the CKO network had seven stations—Montreal, Toronto, Ottawa, London, Calgary, Edmonton and Vancouver. Howard said the plans remain to add more stations in the future. The designated cities are St. John's, Halifax, Saint John, Winnipeg and Regina. The openings would, of course, be consistent with CKO's ability to finance them.

"Also in our plans, perhaps more immediate," Howard told us, "is a satellite. For networks like ours, in the very near future, we're just going to have to have satellite. Satellite programming is essential to the distribution of our own material to our stations as it is essential for the



distribution of our material to other stations that may want to buy some of the services that we can offer. Too, satellite communication is less expensive in the long run, it is clean and it is exceedingly flexible. We can do some marvellous things with it—perhaps we can do them now, but it is with much more technological difficulty."

There was a time, Howard said, when everyone with an opinion on broadcasting felt that if you were going to go into all-news you had to do it on AM, not on FM as CKO had done on six of its seven stations. "That's no longer true, if it ever was," Howard said. "The upsurge in FM certainly has proven that all-news is a popular, needed format in that milieu. As young people today grow up with FM—as the figures indicate—then the natural evolution to information radio assures us of an increasing audience. It is inconceivable to me that when they want news that they would turn to stations on the AM dial. FM is really the only band they know and that's where we, with the exception of our Montreal station, are located. As a matter of fact, if you look around, you see that most FM stations are ever so gradually increasing their quotient of news. They have an entire generation that is listening to nothing but FM programming."

Evident, isn't it, that Howard English has 'been there', is there and will be there in the days to come, spooning out the gravy and putting his stamp on something in which he has total, dedicated, unlimited belief.

Phil Stone is a well-known writer, broadcaster and educator, whose Phil Stone Report and Broadcast Beat are regular features of Broadcast Technology. Phil may be reached at 2350 Bridletowne Circle, #1601, Scarborough, Ontario M1W 3E6, telephone (416) 492-8115.

• **Trevor Joice** of CHIN has just finished installing a new remote control and infacing system at his CN Tower FM transmitter. He is also busy putting together a new UHF remote package for his 28 ft. mobile unit. The unit consists of a Moseley transmitter and a Hilomast 40 ft. telescopic mast with a 10 dB gain Yagi on top. Trevor says they did 425 remotes last year and were looking for a more cost effective system for getting the audio back to the studio. (Another station finally gives up on Mother Bell and her forever escalating rates.)

• **Warren Parker** of CKTB in St. Catharines had an interesting trip over the Easter week-end. Seems a station in Ireland, who have the same type of RCA AM transmitter as Warren has, blew a modulation transformer. Through RCA they discovered Warren had a spare one. As the story goes, they called Warren and asked if he would part with his transformer. He said he would, and they also asked if he would come over and install it. He did. So Warren spent the holiday week-end, all expenses paid, in Ireland. For all I know, he may be still there, since I haven't been able to contact him to find out how the trip went.

• We, here at CHML, have put together a mobile studio and sound system for doing our Fifties & Sixties music show at nine street dances. Our set-up consists of our large Ford Econo-Van, set up as a control room, with a Sony NX20 console, three ITC playback machines, a thousand watts of PA amps, 500 cartridges, wireless microphone, portable stage and 3500 watts of light display. We also have two small Chev pick up trucks that house our four Altec base bins, four Altec mid ranges, and four JBL tweeters. We also have a 100-watt fold-back system for our announcer.

• Again, I would like to remind you of the **CCBE Engineering Award** nomination form that appeared in the May issue. If there is anyone you would like to see recognized for making a significant contribution to broadcast engineering, fill out the form and get it in to Paul Firminger at CHYM/CKGL as soon as possible.

Well, until next time, may all the thunderstorms by-pass your transmitters.

Bob Burger is publicity chairman for the CCBE and may be contacted c/o CHML, 848 Main St. East, Hamilton, Ont. L8M 1M1, [416] 549-2411.

Open letter from CCBE president:

The annual Broadcast Equipment Show and Convention sponsored by the Central Canada Broadcast Engineers (CCBE), will be held October 2-4, 1983 at the International Trade Centre, near the Toronto International Airport.

Unresolvable delays, differences, and demands placed upon the CCBE by the Canadian Association of Broadcasters (CAB) made it necessary for the CCBE to proceed independently to ensure successful continuance of Canada's largest broadcasting exposition.

This move to an independent trade show and convention will allow all sectors of broadcasting, regardless of affiliation, to attend and will reduce registration costs substantially.

Your executive are excited about the 1983 Trade Show and Convention and suggest you mark your calendar and budget now so you won't miss this expanded show.

The Constellation Hotel has been designated as the official hotel for the 1983 CCBE Convention. Free shuttle buses will provide transportation for all delegates between the trade show and airport strip hotels. For those delegates who will be driving to Toronto, there is free parking at the hotel and International Centre.

A special one day spousal program is being prepared by your past president, Jeff Guy, and his committee. It's one day your wife won't want to miss.

As the convention date approaches, we will be sending out further information and registration forms. Remember, this is your convention and needs your support for success. See you all October 2, 1983.

Paul Firminger

Preliminary Agenda

CCBE Convention — October 2-4, 1983

SUNDAY, OCTOBER 2

- 10 am - 1 pm: Registration at Constellation Hotel
- 12 noon - 6 pm: Exhibits open—International Centre
- 1 pm: Registration moves to International Centre
- 1 pm - 4:30: Engineering management seminar by Richard Cupka; Constellation Hotel
- 4:30 - 5:30 pm: Annual Business Meeting
- 7:00 - 9:00 pm: Attitude adjustment get-together at Constellation Hotel; light food and refreshments will be served

MONDAY, OCTOBER 3

- 7:30 - 8:30 am: Sponsored Breakfast at Constellation Hotel
- 9:00 am - noon: Papers program, Constellation Hotel
- 12 noon - 8 pm: Exhibits open at International Centre; shuttle bus service provided

TUESDAY, OCTOBER 4

- 7:30 - 8:30 am: Breakfast at Constellation Hotel
- 9:00 am - noon: Papers program, Constellation Hotel
- 12 noon - 6 pm: Exhibits open at International Centre; shuttle bus service provided
- 7:00 - 8:00 pm: Reception at Constellation Hotel
- 8:00 pm: Engineering Awards Banquet

Ladies Day program—Monday, October 3:

- 7:30 - 8:30 am: Breakfast
- 8:30 - 2:00 pm: Visit to downtown Toronto, including walking tour of Spadina Avenue
- 2:00 - 5:00 pm: Seminar by Richard Cupka at Constellation Hotel

Registration Fees

- Complete 3-day package: \$75. Includes two breakfasts, banquet, papers program, attitude adjustment get-together, seminar, exhibits and shuttle bus transportation.
- Single day registration: \$20. Includes papers, breakfast, exhibits, shuttle bus.
- Guest Registration: \$5. Exhibits

appointments

• Ampex Corp.—**Roy H. Ekrom** named president and chief executive officer, had been vp/gm of The Garret Corp.'s Pneumatic Systems Division.

• Bermuda Broadcasting Co.—**Michael Tindall** to serve three-year term as manager, was exec vp, Skeena Broadcasters of Terrace, BC.

• CBC—As part of a reorganization to separate the operation of CBC's radio networks from their TV counterparts, **Peter Herrndorf** and **Pierre DesRoches** have been named vice-presidents for the English and French networks respectively. They also assume responsibility for production plant operations at Toronto and Montreal. Increased emphasis on regional services is reflected by the appointment of a vice-president for regional broadcasting; he is **Douglas Ward**, formerly director of Northern Service. CBC Enterprises, with a new mandate to sell programming, will report to executive vp **William T. Armstrong**, who is also responsible for all network and regional operations, overseas offices, RCI, human resources, administration and engineering. The planning, finance, audience relations, legal and corporate affairs departments report to senior vp **Franklin Delaney**. Internal audit reports directly to president **Pierre Juneau**. Appointed as vps are managing directors of radio, **Margaret Lyons** (English) and **Jean Blais** (French). Also, **Norn Garriock**, managing director of CBC-TV, moves to assistant gm, English Services Division, succeeding **Clive Mason**, on leave of absence.

• CHUM Ltd.—**Dennis Watson** appointed to head marketing division, CHUM Group Television; succeeding him as general sales manager of CITY-TV is **Greg Mudry**, formerly of All-Canada TV.

• Conrac Corp.—**Robert J. Erzen**, becomes director of industrial relations, formerly with GTE.

• For-A Corp. of America—recent appointments include **Risshi Moriaka** as gm, home office; **Tedd Jacoby**, as national sales manager.

• General Instrument of Canada Ltd.—**Edgar D. Ebenbach** named vp/asst. gm, Jerrold division; **Tony Sandaluk**, appointed director of customer services.

• National Association of Broadcasters—**Ralph H. Justus**, from FCC, joins the

Science and Technology department as staff engineer; **Dr. John D. Abel**, chairman, Department of Telecommunication, Michigan State University, named senior vp, research and planning.

• Newsradio, Toronto—**Eric Rothschild**, formerly of CFCF Montreal, appointed gm.

• NAVA/ICIA—**Mary Ernst** becomes director of marketing information; **Ms. Bobbie F. Hunt** to manager, membership.

• Scientific-Atlanta, Inc.—**Patricia A. Rooney** named Communications Products Group marketing manager.

• Shure Brothers Inc.—**John F. Phelan**, formerly with the professional audio division of Sony America, appointed professional products marketing manager.

• Superchannel, Alberta—**Malcolm Knox** becomes project manager, creative development; was previously in TV production management in Edmonton.

CHANGES AT CBC-EHQ

• **David L. Garforth** has been appointed director of engineering, Transmission Systems department. With CBC since 1964, he succeeds **Kenneth J. MacDonald**, who retired May 31 after 31 years of service.

• **Larry Dobby** has been named to head the Transmission Engineering group for the Prairie section, English Services Division. He succeeds **Ron Hambleton**, now retired.

Other recent retirements from CBC Engineering include: **Al D'Ambrogio** of Transmission Systems; **Peter Burgess** and **Roy Hylkema** of Operations Development; **Leo Albert** and **Charles D'Amboise** of Architectural; **John Shoemaker** and **March Wordie** of Studio Systems.

ABC's RULE TO RETIRE

Elton H. Rule, president of the American Broadcasting Corporation since 1972, has announced he will retire at the end of the year, to be succeeded by **Frederick S. Pierce**, now executive vp. Rule joined KABC-TV Los Angeles as sales manager in 1956; as president of ABC, he brought the network from a distant third to be an equal competitor with CBS-TV and NBC-TV.

Users of Ross Switches

BRITISH COLUMBIA:	Intertel Images (2)
BCIT	ORTO
Cable West (2)	Scantex
Cantel	Video Systems Int'l.
CHAN-TV (2)	NEW BRUNSWICK:
CHBC-TV	CBC (3)
CKVU-TV (2)	CHSJ-TV
Ministry of Health	CKCW-TV
Northwest Comm'ns.	NOVA SCOTIA:
Western Video	CBHT (2)
ALBERTA:	Halifax Cablevision
Access (3)	P.E.I.:
Banff Fine Arts	CBCT
CBRT	NEWFOUNDLAND:
CBXT	CBNT (2)
CFAC-TV (2)	CBYT
CFRN-TV	CJON-TV
CITY-TV (2)	Memorial University
SASKATCHEWAN:	
CBKT (2)	U.S.A.:
CBKST	ARCO
CJFB-TV	Bahakell Broadcasting
CKBI-TV	Beth Israel Hospital
CKOS-TV	Boeing Aircraft
RCMP	AI Bowen Productions
Saskmedia	Central Wyoming Coll.
MANITOBA:	Columbia College
CBWT (2)	Daily Planet Post Prod.
CKND-TV	Global Television (2)
CKY-TV (3)	Group W Satellite
Greater Winnipeg	International Facilities
Red River College	Jackson County, Ore.
Spectra Video	KBAK-TV
ONTARIO:	KERO-TV
Advertel	KEYT-TV
Alndon Productions	KOLO-TV (2)
Carleton University	KSCI-TV
Cathedral Productions	KTVL-TV
CBET (2)	Kearns High School
CBLT (3)	Kluge Post Prod'n.
CBOT (2)	Loop Video
CFCL-TV	Multivision
CFPL-TV	Nexus Productions
CFTO-TV (5)	Off Broadway Prod.
CJOH-TV (2)	Ohio State Univ.
CKPR-TV	Optimus Productions
CKVR-TV	Pacific Video (2)
CKWS-TV	Square D Company
CTV	Telemation (2)
Crossroads	Theta Cable
Federal Govt. (3)	Trans American (2)
Global TV (2)	Trinity B'cstg. (5)
House of Commons	Versatile Video (2)
Humber College	Western Video
Loblaws	WGBY-TV
Loyalist College	WNET-TV
Mactronix	WOLO-TV
Mararishi Academy	WTVS-TV
Mobile Image	
MTV	AUSTRALIA:
Ottawa Cablevision	ABC (1)
Peoples Church	Adv. Automation (2)
RCMP	ATV-10
Richmond Cable TV	CGU (2)
St. Clair College	Christian Outreach
(Seventh Day)	Commercial Outreach
Adventists	Commercial TV
Skyline Cablevision	Image East
TVOntario	Info-Tel
University of Ottawa	Queensland Institute
University of Waterloo	of Technology
Wackid Radio	SAS-10
World Plan Council	TVQ-O
QUEBEC:	Videotape Corp. (2)
Attica Productions	
Bell Canada	UNITED KINGDOM:
CBC-EHQ	Seltech (5)
CBVT	Thorne/EMI
CFCF-TV (2)	TVS (2)
CFER-TV	Tyne Tees TV
CFTM-TV	Yorkshire TV
CHOT-TV	
CJPM-TV	MEXICO:
CKSH-TV	Channel 11 (3)
CN	Televisa (3)
Champlain Productions	
Concordia University	DOMINICAN REP.:
Federal Dev. Bank	HISD-TV (2)

UHF Transmitting Facilities Design, Part II

by David L. George and John F. Hlatt

In Part I (*Broadcast Technology*, March/April, 1983, page 40), the authors, who are with Imagineering Limited of Don Mills, Ontario, began their review of factors to be considered in the design of a UHF-TV plant. Siting and antenna selection were seen to be particularly critical, and aspects of tower structures—usually guyed, rather than self-supporting—were also discussed.

Part II concludes the article, with a review of:

- Transmission Lines
- Transmitter Considerations
- Building Design
- Input and Monitoring Systems
- Remote Control

V. TRANSMISSION LINES

The choice of transmission line used to connect the transmitter to the antenna can have a significant effect upon the reliability of the station. The designer has the choice of either rigid coaxial line, semiflexible coaxial line, or waveguide. The rigid line is constructed of tubular metal sections in which the outer conductors are bolted together or secured by circular clamps to make up a continuous line. Here care must be taken to ensure that the relationship between line length and operating frequency does not cause a detrimental additive effect from regularly spaced line couplings. Manufacturers produce two lengths of transmission line so that this effect may be avoided.

Interconnection between the inner conductors is made using splined spring contacts which slide into each inner conductor. The rigid line is reliable when operated within its specified parameters, but when operated at maximum parameters, the line reliability can drop dramatically. The reasons for the drop in reliability are complex, but a large proportion of the failures relate to the center conductor interconnecting system. The stressing at these points is caused by the resistance in the interface between the spring bullets and the center conductor. This resistance gives rise to greater heating at these points, compared to the heating that occurs in other portions of the center conductor. Further, these spring bullets act as expansion joints to allow the center conductor to compensate for the expansion and contraction that occurs in the line due to external environmental conditions and the heating caused by the application of high levels of RF power. The mechanical working of

these joints, together with the concentrated heating, causes further degradation in the contacts which gives rise to further heating and yet further degradation and possible eventual failure of the interconnecting contacts. Since the center conductor is surrounded by still air, effective cooling of the conductor is difficult to achieve. Dry air or nitrogen is used to pressurize the line to prevent the ingress of moisture. Nitrogen may be preferred, as it helps inhibit oxidation that occurs in the heated conductors. Increasing gas pressure within a line can be used to increase the effective power rating of the line. However, with the practical pressures that can be achieved the rating of the line can only be increased in the order of 20 percent.

Particularly when dealing with the high end of the UHF band, or when dealing with the higher power levels, it is wise to optimize the RF-line hardware as part of the checkout and alignment procedure. Often, in the higher UHF channels, the design engineer will be faced with having to use some of the smaller sized lines, and these lines may have to be pushed very close to their maximum operating ratings, thus making line optimization essential for stable operation and long line life.

The use of semiflexible coaxial cables as principal antenna feeders at UHF stations is becoming more popular. These cables are available in several sizes and can be supplied in a single length and, as such, are a more homogeneous transmission medium. The cable outer conductor is a corrugated copper jacket which has been continuously seam-welded to produce an airtight assembly. The center conductor of the cable is a soft copper tubing which is supported by a helical polyethylene insulator. Because of the use of polyethylene, the ratings of such cables are lower than the equivalent Teflon-insulated rigid lines. However, the helical insulation is less prone to contamination than the plane Teflon insulators, as dirt particles will be widely distributed, and this effect, coupled with the elimination of the interconnecting bullets, results in these cables' providing reliable service even when operated near their maximum parameters.

Where coaxial lines cannot provide adequate ratings because of a combination of power level and frequency, aluminum waveguide is finding more and more use. The waveguide has no inner conductor or insulators, and the power rating of EIA-sized guides exceeds, by a considerable margin, the power rating of any single or combina-

tion of UHF amplifiers now in use or currently contemplated. Rectangular waveguide is comparable in cost to the larger rigid copper lines, but the stresses imposed upon the supporting tower are greater because the waveguide's physical dimensions are larger and the faces are flat. Progress is being made in circular waveguides, but the applications, at present, are very limited. Waveguide does have the added advantage of being relatively immune, compared to coaxial lines, to water leaks, gun shots, and most other forms of vandalism, although waveguide should also be pressurized and regularly inspected for damage.



Section of waveguide feed to antenna, showing size in relation to 5-ft tower face.

Waveguide, or transmission line, runs from the transmitter building to the tower base and must be carefully designed, so as to offer sufficient stress isolation between the tower vertical column and the fixed flange within the transmitter building. Where appropriate, protection should be provided from ice developed on the tower or antenna system. Horizontal members of the waveguide bridge must be capable of providing attachment points for the necessary waveguide, or line, hangers and be capable of supporting the weight of the line as well as electrical, lighting, and communications conduits, cables, and the like, on their way from the building to the tower. Careful design should ensure that no interferences will exist bet-

ween the rigid line hardware and the bridge components, and there will be no danger of component chaffing, even in high winds.

VI. TRANSMITTER CONSIDERATIONS

The selection of a particular power level of transmitter is obviously keyed to the gain of the antenna selected, line losses, and the licenced ERP. Transmitters are commercially available in power levels of 1-, 2-, 5-, 10-, 20-, 30-, 40-, 55-, 60-, and 110-kW peak visual power, with the aural amplifier being sized to provide 10 to 20 percent of the synchronizing-pulse peak power. The higher power units achieve the rated power levels by paralleling two or more power amplifiers, as is typical in the 60- and 110-kW transmitters. There have been instances where four 55-kW amplifiers have been paralleled to provide a visual output power of 220 kW.

In addition to the provision of more power, another advantage of paralleling amplifiers is improved station reliability. In a parallel amplifier combination, if one amplifier fails, the output power drops to 25 percent because of the paralleling methods, but the station remains on the air. Further, if the RF system is equipped with the required switching, the combiner can be bypassed, which allows the station to operate at half-power. Parallel amplifier transmitters are usually equipped with the same amplifier tube in aural service, and, with the required RF switching, it is possible to operate one of the visual amplifiers in aural service to permit continued operation of the station even in the event of the failure of the aural amplifier. Lower power transmitters do not necessarily enjoy this redundancy with only two tubes being used, although it is possible, and common in Europe, to run both aural and visual signals through one amplifier in a multiplexed mode under emergency conditions, at reduced power levels.

Klystron amplifier tubes are used almost universally for visual service in transmitters having outputs of 10 kW or more. High-gain tetrodes may be used for lower powers and are found in aural amplifier service in lower power transmitters. The klystrons used may have integral cavities or may be of the type which have external cavities which are attached to the vacuum envelope of the basic tube. The integral-cavity types are easier to change in the event of tube failure, while the external-cavity types

enjoy an advantage in regard to replacement cost and, generally, overall efficiency. However, due to the fact that the cavities must be removed from the tube body, the time to change out an external-cavity klystron is considerably longer than that required for an integral-cavity type. Advances in tube technology have resulted in modern tubes of either type providing long and reliable service, with tube life between 30,000 and 50,000 h not being uncommon.

The design engineer must ensure that the transmitter plant layout will allow adequate room around the transmitter for the transport and change of the klystrons using a carriage system in the case of integral-cavity tubes, or a specially strengthened roof area with hoist arrangements in the case of an external-cavity klystron. Tube changing and storage activities can consume a good deal of space, and this space should not be underestimated in the layout.

Liquid cooling is used exclusively in klystron amplifiers, with forced air being used in lower power tube-type transmitters. The liquid cooling can either be

direct or by vapor phase. Direct liquid cooling requires considerably more liquid to be circulated but has the advantage that the system can be protected, to some extent, against the effects of freezing temperatures by the addition of a percentage of ethylene glycol to the cooling liquid. The vapor-phase system actually produces low-pressure steam at the collectors of the klystrons, and this steam is condensed back into water in a secondary heat exchanger. Taking advantage of the vapor-phase cooling requires the circulation of about one-fifth of the cooling liquid. However, due to the distillation process that takes place in the system, only pure water can be used, and methods other than using water additives (antifreeze) must be employed to prevent system damage due to low temperatures.

The heat from either cooling system is eventually exchanged to the outside air. In these days of high energy costs, this loss of heat represents a large expense. Future designs of stations may embody methods to employ this waste heat.

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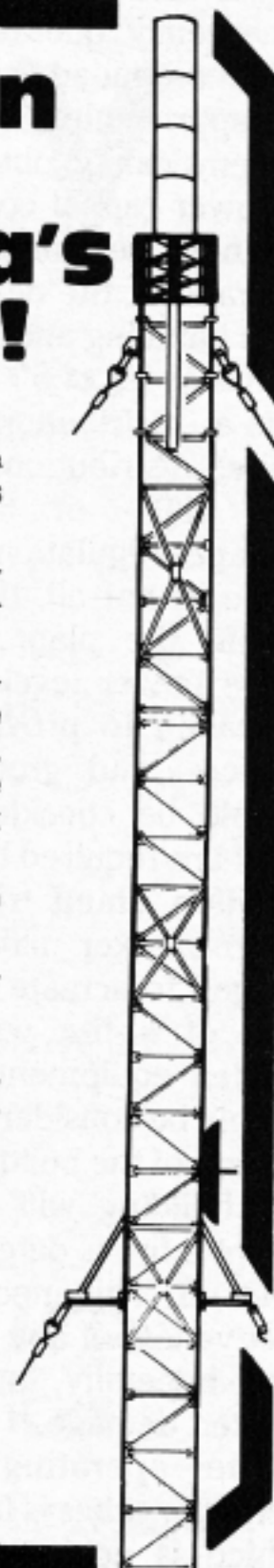
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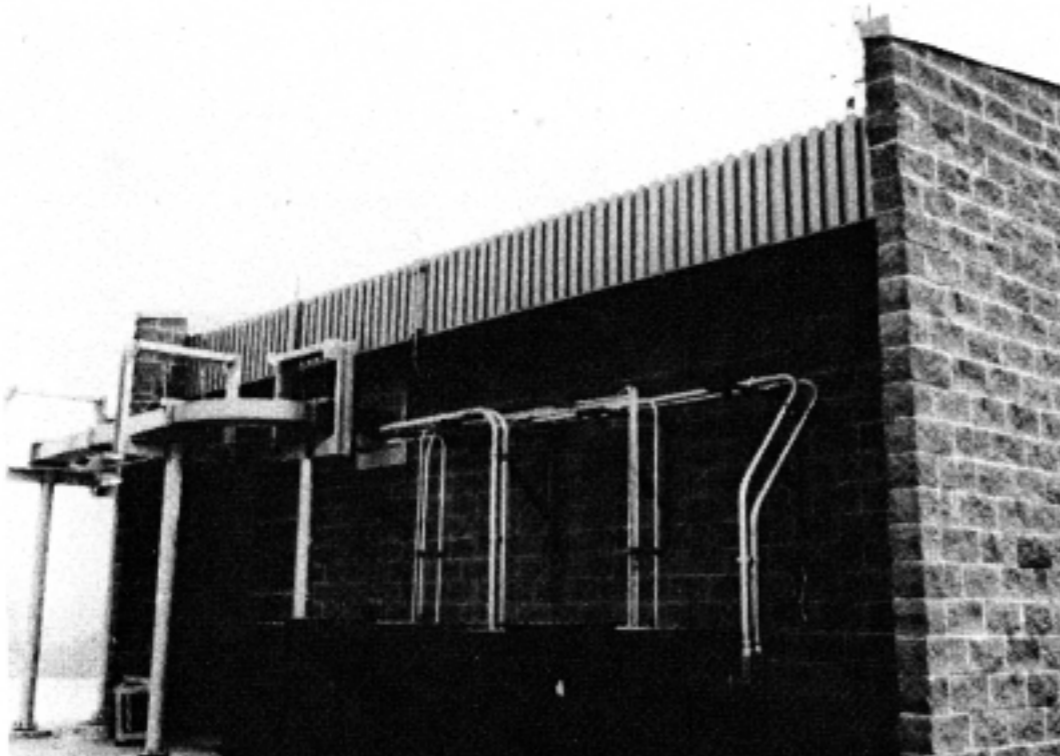
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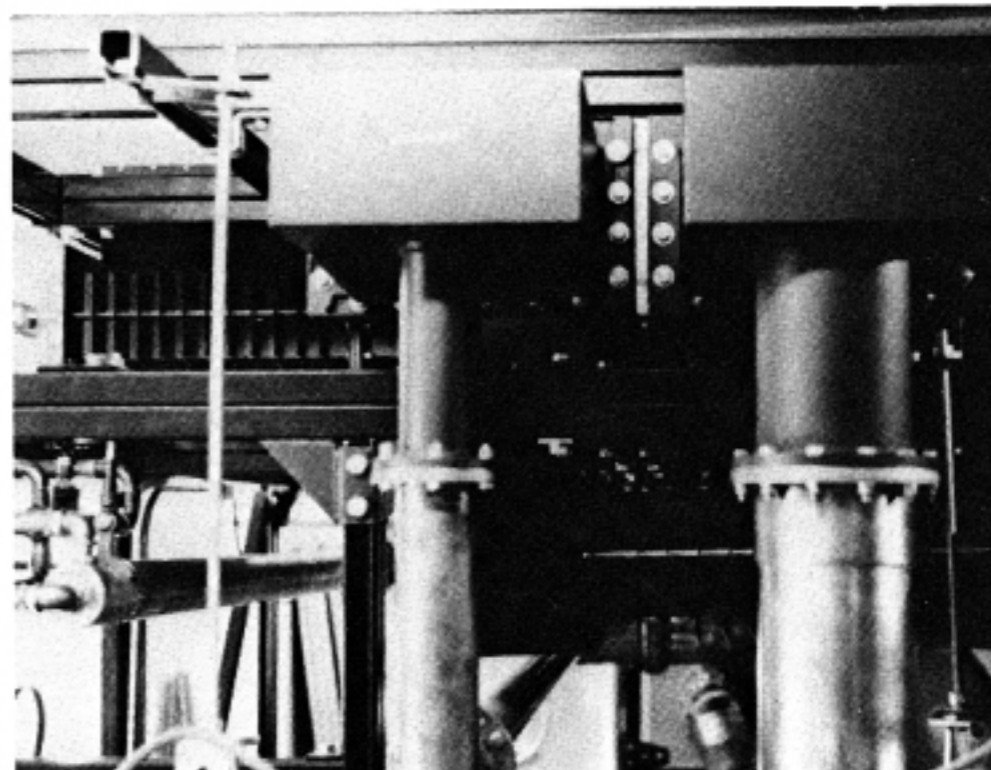
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UHF Transmitting Facilities



Beam transformer pad mounted outside transmitter building; note also waveguide exit.



Waveguide-type diplexer and floorstand, compact 60-kW UHF installation.

To take full advantage of the reliability offered by a multiple-tube system, the design engineer may consider the use of two heat exchangers, each with sufficient capacity to handle one visual and one aural amplifier. Additionally, he can ensure that both beam power supplies are capable, individually, of carrying one visual and one aural amplifier during emergency operations. With this additional redundancy, an operating reliability approaching that of two parallel systems can be obtained with significantly lower capital costs.

When designing for higher power operations, the design engineer is faced with handling and distributing something in the order of 500 kW of prime power. The ac distribution scheme probably requires distribution in the 110-, 220-, and 400- or 600-V ranges, with voltage regulation being required for some, if not all, of these voltage levels within the plant. When dealing with these power levels, extreme care must be taken to provide proper protective devices, and ground-fault trip circuits should be considered, whether or not they are required by local regulations. In addition, shunt trip connections to the main breaker may be provided and arranged to actuate in the event of detection of a fire within the building or related equipment. Emergency lighting should be considered, and the ventilation system of the building arranged such that the building will close up tight in the event a fire is detected and prime power shut off. This mechanism assists the effectiveness of any fire protection system and, hopefully, limits the extent of fire-related damage.

The operating potential for the amplifier tubes is between 10 and 25 kV, which is achieved using conventional

step-up transformers and solid-state rectifiers. In the case of the higher power transmitters, the transformers are usually contained in tanks which are oil-filled to provide both insulation and cooling. When the transmitter is installed in areas where the power transformers cannot be installed outside, then dry-type transformers may be used, or, alternatively, wet types conforming to local safety codes.

VII. BUILDING DESIGN

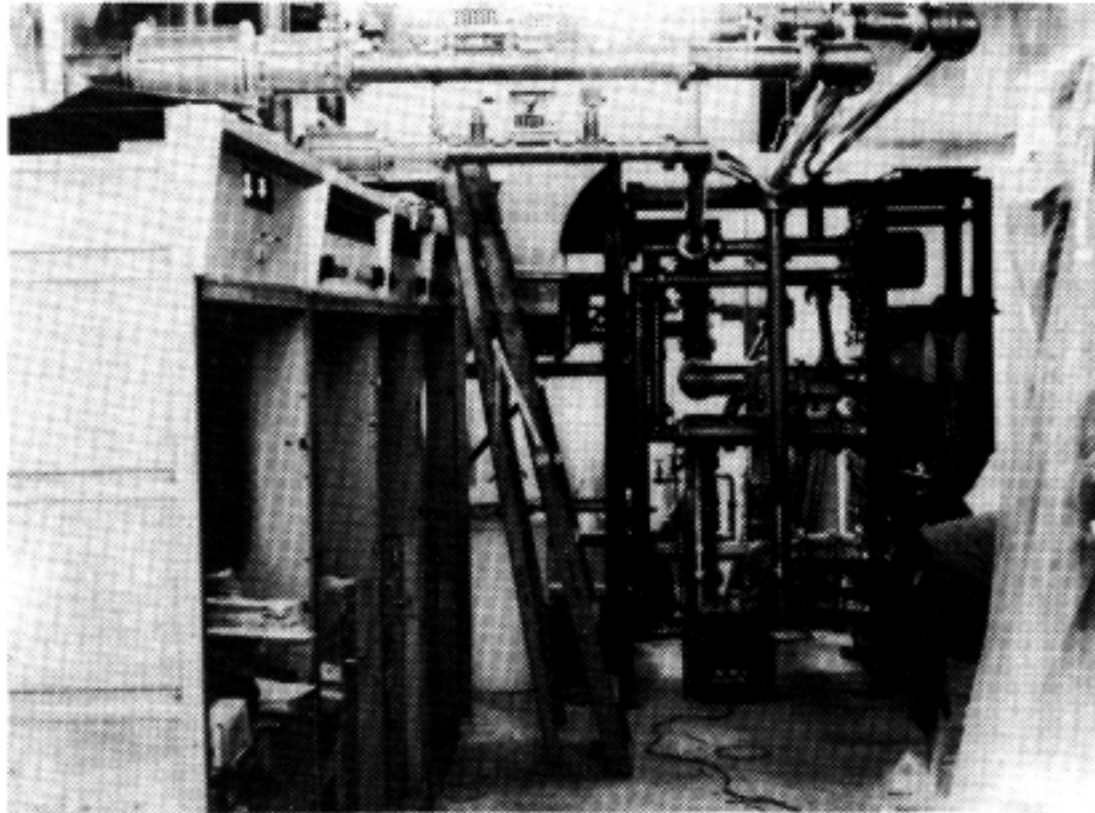
In addition to providing space for the transmitter and supporting systems, the building should provide adequate room to install the RF system components above the transmitter and allow for the large-diameter elbows and short sections used to couple the transmitter output power to the appropriate filter, diplexing or sideband shaping device. A good deal of care is required in the detailed design of support services in this area to avoid conflicts between RF line components, heating and ventilating ducts, power wiring, inter-cabinet wiring, steam lines, and control and monitoring cable trays, conduits, and the like. There is little room for error in the layout of this area, and a limited number of options are available, on site, to correct interface problems, given the constraints of the large and rigid RF line, waveguide devices, and steam lines that share this area with mechanical and electrical services.

When high-power transmitters are employed, the layout of the building trenches and drains is critical. These must be arranged to allow appropriate entry and exit of high-pressure water lines to and from the transmitter proper, as well as provide adequate drainage in case of a water-system leak, or the inten-

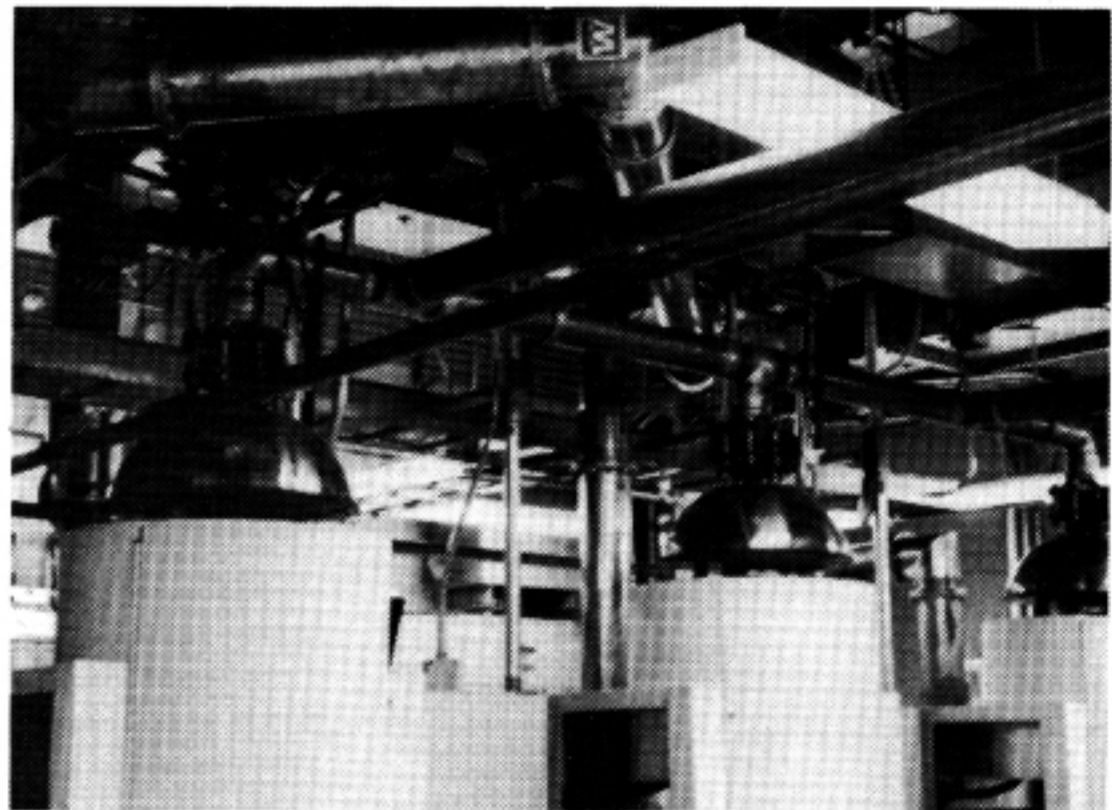
tional draining of a particular component or section. These drains would be contained in a reinforced concrete floor and coordinated with other service conduits and grounding circuits embedded within the floor. These services, in turn, determine the location of the transmitter RF and steam outlets, which have relatively inflexible couplings to the high-power devices with which they connect. All these factors limit the tolerance for design error in the building layout.

The roof-support assembly can be designed to support RF and cooling components within the building. Because of the floor space needed for klystrons and other heavy-component access, it is generally more space-efficient to hang these devices overhead than to wall-mount or floor-support them. The space underneath these items can then be put to other uses. A high ceiling in these areas also permits efficient ventilating, which contributes to the stability of the RF filtering components maintained at this level.

Sufficient ventilation must be provided to control the temperature rise within the transmitter building; in the warmer parts of the country this requirement usually dictates chilling equipment to supplement the capability of the ventilating fans. Collector cooling, of course, is by way of heat-exchanger systems physically isolated from the transmitter area proper and insulated so that heat radiated from these devices does not add to the already significant heat loads imposed by the transmitter and associated apparatus. The design of the heating and ventilating system should take into account the potential damage from freezing of the heat exchanger or water distribution system. The heat exchanger should be arranged so that it drains by



Installation of bypass RF motorized switching and transmitter of compact 60-kW UHF installation.



Steam, water, and RF lines in area above 110-kW transmitter at time of installation.

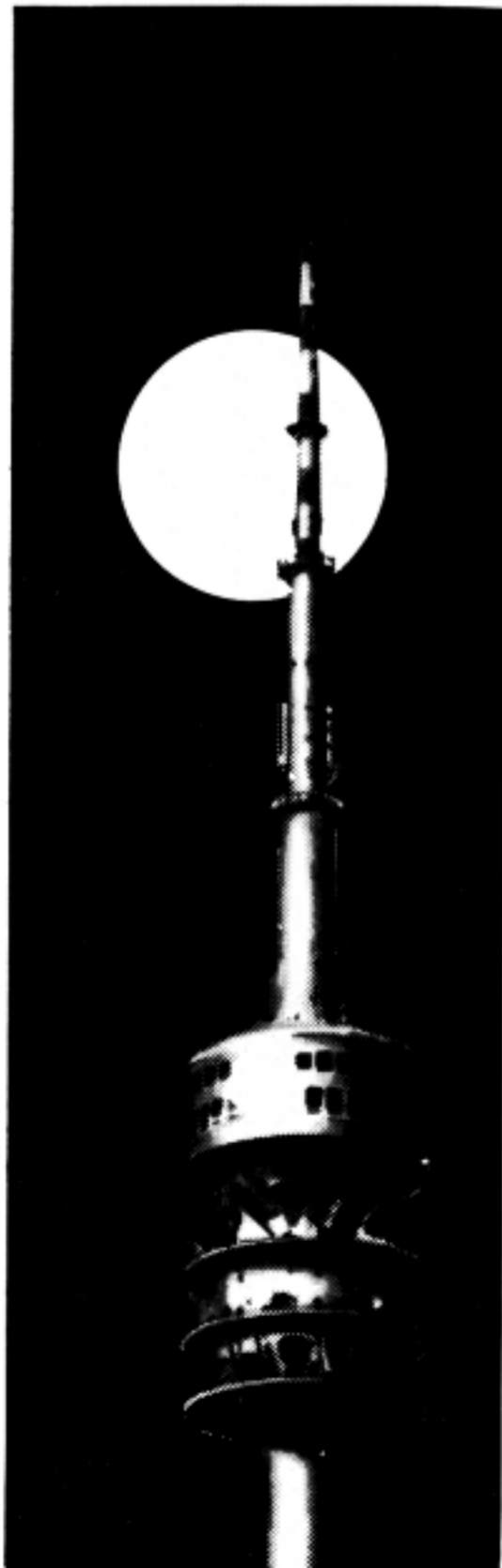
gravity when shut down or in the event of power failure. Where standby electrical power is not developed, consideration should be given to providing a gas-fired heater system in the water path, which would automatically come on to maintain the water temperature above freezing should primary power fail in

conditions in which the potential for freezing exists.

VIII. INPUT AND MONITORING SYSTEMS

Input and monitoring systems provided for the lineup and evaluation of

transmitting-plant performance should be reasonably complete. In many cases, due to the large physical size of the transmitter plant, much of the test equipment will have to be available in a dolly or portable-rack arrangement, so that it may be used to indicate the effect of adjustments in the area where these ad-



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UHF Transmitting Facilities

adjustments are made. Some transmitter designs require that operating adjustments be made from both the front and the rear of the transmitter proper.

Input and monitoring systems can include a vectorscope for measurement of differential gain and phase performance, a good-quality waveform monitor for linearity and modulation measurements, a processing amplifier with a Vertical Interval Test (VIT) system to allow measurements during program periods, a high-quality demodulator, and a good-quality color picture monitor. In addition, sufficient switching and patching should be available to allow signal-quality evaluation at various points through the program and RF system paths. Station monitors will give frequency and modulation information on the transmitted signals, and aural limiting, measuring, and monitoring facilities might round out the permanent input and monitoring package. It has been our experience that a combination spectrum analyzer and video-sweep system has proven more useful, overall, than a sideband-response analyzer for system

alignment, and this hardware may be shared between several stations or used for other frequency-domain analyses.

We have also found that the most acceptable way of distributing audio, video, and control wiring within the transmitter plant is by way of elevated cable trays. Conduit is used to connect the tray to the equipment rack or transmitter component cabinet in which the various circuits terminate. In water-cooled transmitter plants, there is too much opportunity for sizeable amounts of water to find its way into floor trenches, making their use unattractive. Overhead trays also provide a relatively easy method of adding additional control or signal wiring as required by plant or system growth.

IX. REMOTE CONTROL

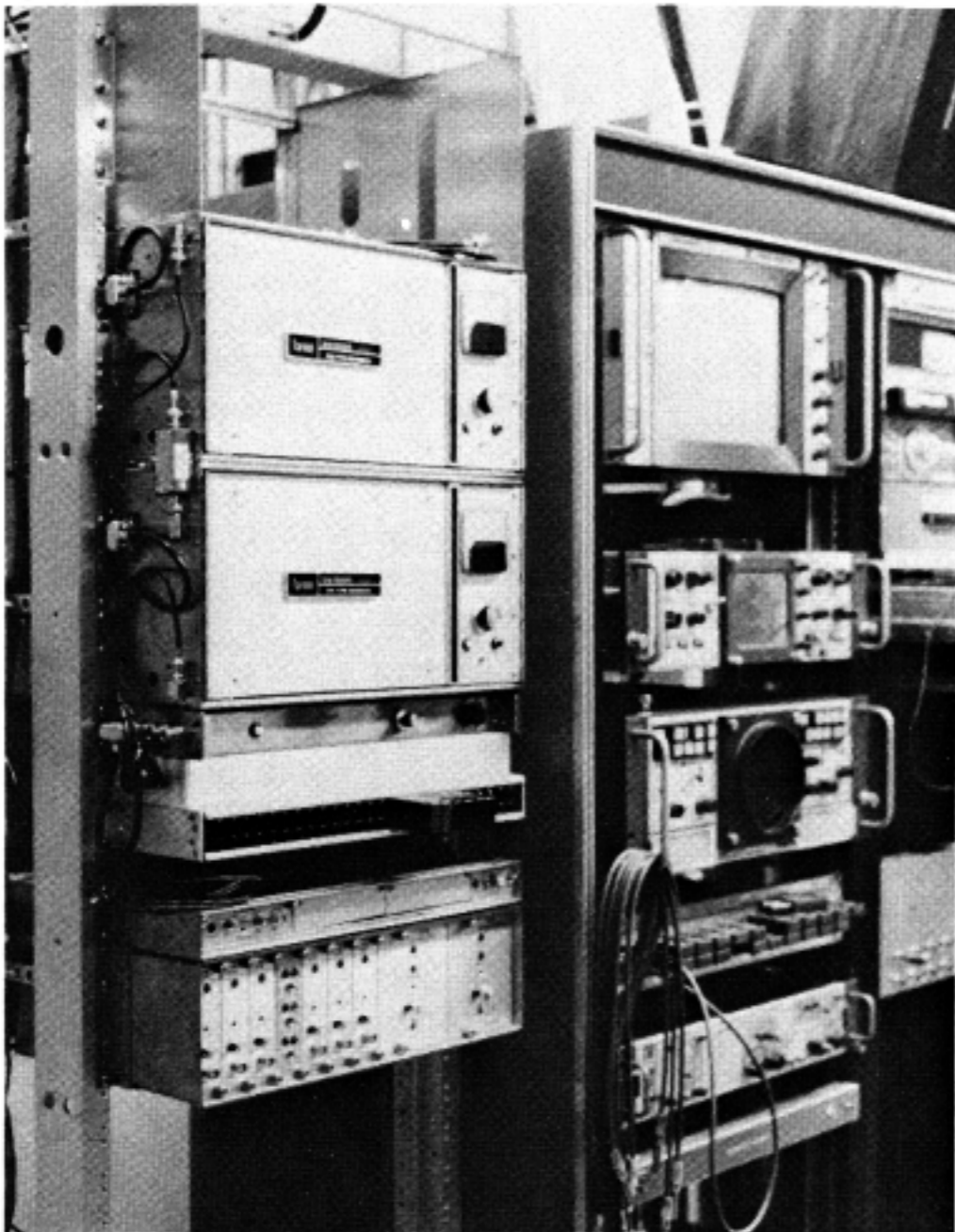
In many applications, the transmitter station is remote from the operating studios, and the transmitter is operated by remote control. Modern remote-control systems permit unattended operation of the transmitter station and provide both metering and status read-

back. Notwithstanding the commercial availability of standard remote-control packages, each station usually requires a custom-made interface unit to couple the remote-control inputs and outputs to the transmitter control and status systems.

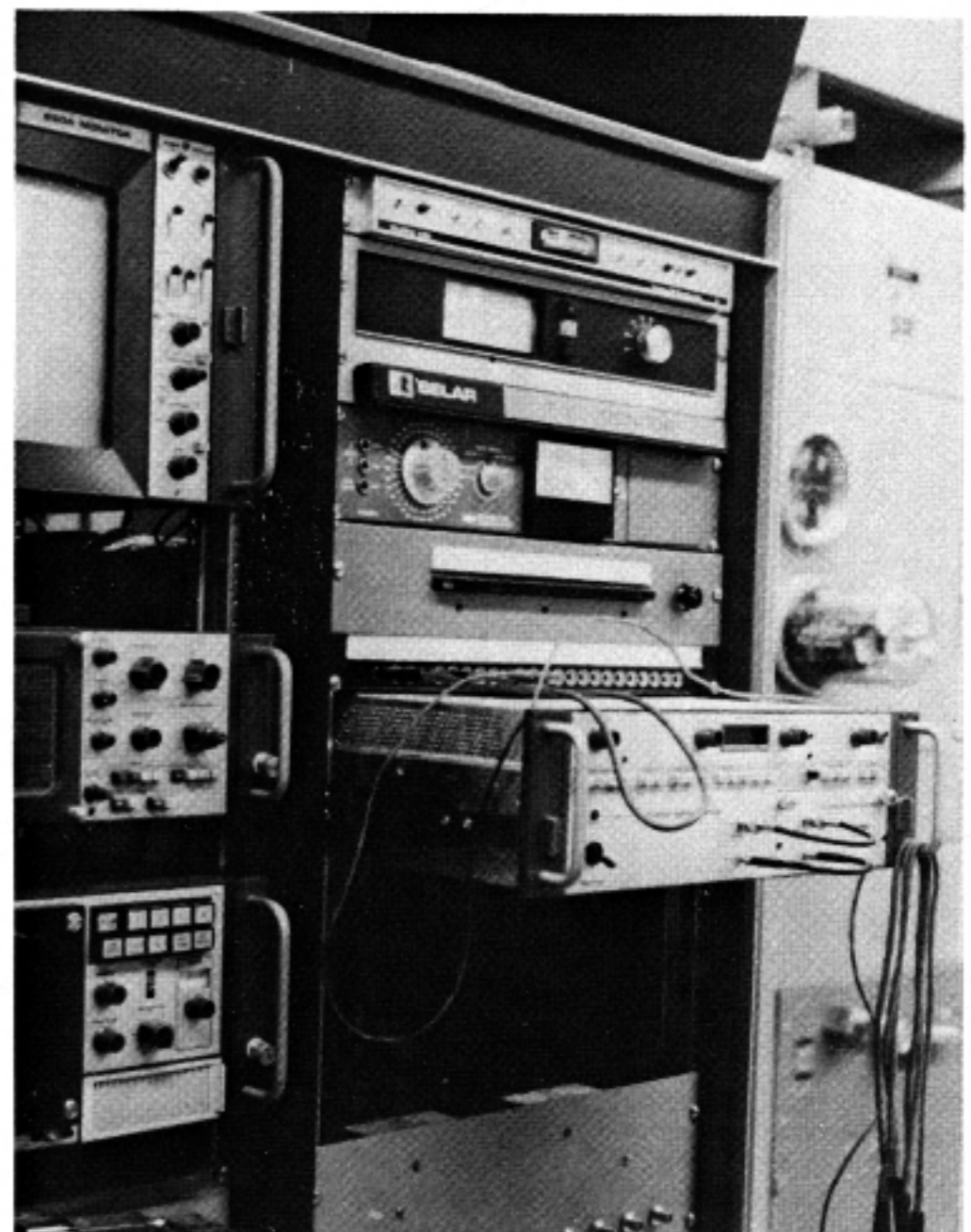
X. CONCLUSIONS

The foregoing paragraphs have touched on some of the factors which must be considered in designing a UHF transmitting plant. Each plant, of course, will be unique, and the high capital costs usually associated with the establishment of a UHF transmitting plant dictate that the design be as efficient and effective as possible.

Acknowledgement: The above article originally appeared as an invited paper in the Proceedings of IEEE, Vol. 70, No. 11, November, 1982.



Section of input and monitoring assembly showing duplicated STL system and portion of test equipment during installation.



Rack 2 of input and monitoring system at time of installation.

NEW CALGARY FACILITY FOR ACCESS ALBERTA

The Calgary operations of Access, the Alberta Educational Communications Corporation, have moved to 295 Midpark Way SE, Calgary, AB T2X 2A8. The new building provides 32,000 square feet, an increase of 12,000 over the previous locations, and has been specially designed to meet television and radio broadcast requirements. Some 80 full-time and freelance personnel are employed by Access Calgary; operations include programming/production/post production, Media Resource Centre and multi-media unit, video and audio dubbing facilities, CKUA news bureau, administration and field services. Facilities for duplication of microcomputer software on diskettes are to be added in the fall.

— broadcast education —

CANADORE COLLEGE RADIO & TELEVISION AWARDS



Canadore College of North Bay, Ontario, held its 11th annual Student Broadcasting Awards on April 28. Some 200 invited studio guests watched 18 students of the Radio Television Program receive the honors, while a 90-minute live production enabled local cable viewers to also be part of the audience. CTV's Bruce Phillips and Global's Doug Small addressed the students by videotape, and a Canadore graduate, Tom Michalak of Ottawa's budget leak fame, was among the presenters.

Seen in photo, from left are: Neil Anderson and Geoff Axford, who tied for 2nd year Radio Commercial Production—Axford also took the On-Air Personality award; Bob McCafferty, 2nd year TV Production award; Keith James, ENG/EFP award; and Neil McCourt, 2nd year TV Contribution award.

Other winners are:

First year: Andre LaPalme, Copywriting; Kevin Frankish, Radio Contribution; Gord Bennie, TV Contribution; Blair Laframboise, TV Production; Terry Brideau, Radio Feature Production.

Second year: Roger Corriveau, Radio Contribution; Lloyd Evans, TV Commercial Production.

Also: Steve Fava, Congeniality award; Terry Jelly, NewsProduction; Michael Robert, Russ Ramsay award; Don Godin and Brenda Zemoroz, Noel Tremblay award; and the INCO Achievement Awards went to Martha Cunningham (Radio) and Lloyd Evans (TV).

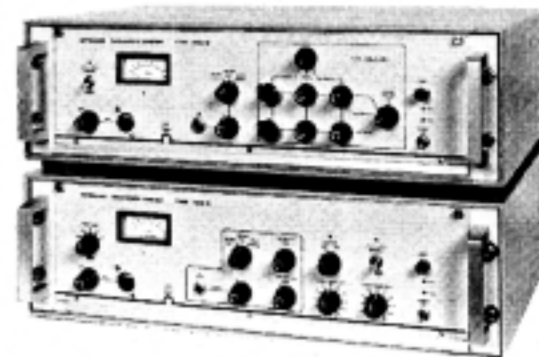
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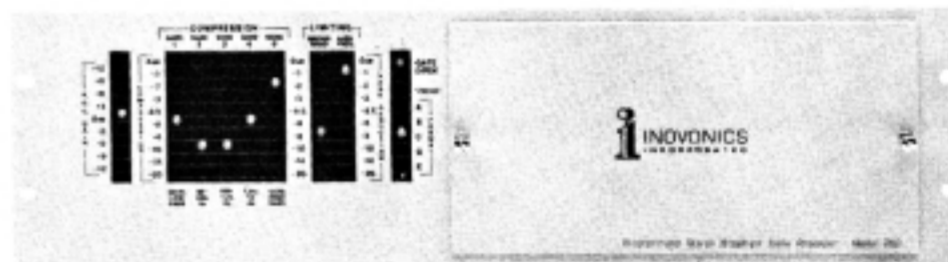
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by **Phil Stone**

To bring you up-to-date: Sports commentators are often hired by the team whose games they announce and are seldom ever critical of the team's performance; this gives them the stigma of "homer" or "houseman". The controversial **Jimmy Pearsall** was fired by Sportsvision, the pay-TV channel, for running down the Chicago White Sox. Turns out the team is owned by the same man who is president of the TV channel... **CHFI-FM** Toronto got permission from the CRTC to change format from easy listening to MOR, but was denied a request to decrease spoken word content... Alberta applicants are seeking a new AM in Wainright, FM in Fort McMurray... **Jim Brady**, whom I ran into at CKO where he was visiting **Al Kingdon**, was all set to finally go to Honolulu and open a new rock station there... At least 17 ad agencies in Canada don't buy their own media: thus we have the phenomenon of independent space and time buyers, who didn't exist ten or so years ago... **John Sargent** was promoted to radio supervisor at Tele-Capital Unicom in Montreal, and **Doug Henderson** succeeded him in radio sales in Toronto... It's never too late to pay a compliment, so a cheer for **Morgan Earl**, whose company was a winner at this year's International Broadcast Awards of the Hollywood Radio & TV Society... Canada might one day get a Health Network, an idea that has

been very successful in the U.S. and has been proposed to the CRTC. The U.S. net runs information for medicos from midnight to noon to update them on new procedures and drugs; the rest of the day, it features shows of general interest on such things as diet, fitness and the like... **Greg Slight**, vp/gm of CFGM Toronto, is also handling marketing, with the departure of **Bob Johnson** to CJCL as sales manager... CKO's Calgary operations are now managed by **Norm Haines**, former president/gm of CFCN...

Ed Prevost, former Civitas president, became president/ceo at O'Keefe Breweries, Montreal, and senior vp, Carling O'Keefe Canada. In addition, Ed is also serving as chairman of the Canadian Film Development Corporation... **Baton Broadcasting** appointed **Sylvia Franklin** as legal counsel... After three years as president of the Canadian TV Program Distributors Association, **Ralph Ellis** has been succeeded by **Isme Bennie** of CKND-TV Winnipeg... When renewed by the CRTC, Toronto's **CHFI**, **CHUM-FM** and **Q-107** were praised for their contributions to the Canadian music scene... **Jackie Rae** of Canadian Talent Library thinks the label has found a star in **Larry Jensen** of Owen Sound; CTL has his album... Despite problems, Cancom now expects to reach the break-even mark by early 1985... Thanks to **Dan Schow** for interesting info about C-FAX Victoria, and its imaginative promotion and programming—particularly a campaign to teach metric to the blind... **Tito Santos** of Kingston, producer and host of Portuguese radio and cable TV programs, was appointed to the Ontario Advisory Council on Multiculturalism and Citizenship... **Graham Emslie**, the city of Toronto's property commissioner, is the same fellow whose dulcet tones used to be heard on radio stations in Hamilton, Sarnia, Brantford and Bermuda... It's reported that of 11 pay-TV movie channels in the U.S., only two, Home Box Office and Cinemax, are making money; of 32 satellite-to-cable channels financed by commercials, all are said to be in the red... **Doug Thompson** has completed his music series "The Producers" for TeleMedia, and his 25-hour feature on the Beatles, for which he spent some 27 days in England with **Ringo Starr**. Doug continues to commute between Los Angeles and Toronto, and is gaining even more ground as one of North America's renowned producers and writers...

Dick Beale, the voice of Speedy Alka-Seltzer on those TV spots, also does cartoon voices, succeeds as a lecturer, and is president of his own agency; all that's a tall order for Beale, who only stands four feet, six inches... Heard about sound wear? The Japanese invention takes the form of a custom vest with a radio receiver in one pocket and an amplifier in another: the wearer hears the sound from speakers built into the shoulders... A recent Moffat Communications report reveals that fewer than 3,000 of its 136,000 Winnipeg cable subscribers had signed up for pay-TV... That was CITY Edmonton that joined the Telecaster committee (not CITY-TV)... "Project Iris", scheduled to be tested in 500 Toronto homes, is a national teletext service designed to provide 250 pages of news, weather, sports, and consumer/financial information. Decoders cost \$1,600, but by 1985 might drop to as low as \$250... England's TV-AM, which has been having rough sledding, has a Canadian overtone: the Aitken (Lord

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Beaverbrook) family of New Brunswick is reported to have invested some \$3 million (just under 17%). . . **Ken Barnes**, producer of Global's "Everybody's Business", which he created, gave up his presidency of the Advertising Advisory Board to operate a video store in Mississauga. . . This comes verbatim from CCTA's Cable Communique: "At 4:00 am, a car driven by an intoxicated woman jumped a curb, ran over a small tree, over another curb and through a chain link fence, destroying the 4.5 meter dish used by Fundy Cablevision, Saint John, to receive pay-TV signals. Manager **Fred Manzer** reports the driver got out of her car and finished the bottle of beer she had been drinking. Police were on the scene immediately and the lady is being charged with driving while intoxicated" . . . **Gloria Lewis** is back selling air time at CKO . . . Maclean-Hunter has moved from 481 University Avenue to 777 Bay Street in Toronto. Meanwhile, M-H revenues for the first three months of '83 were \$135 million, up from \$108 million in '82. . . I finally found a restaurant where they wait on you hand and foot. However they charge you an arm and a leg. . .

Lorne Green's TV documentary program "New Wilderness" won him the Outstanding Service Award for 1983 from the International Fund for Animal Welfare. . . **Fil Fraser**, who'd been morning man at CKXM-FM Edmonton, joined Access Radio CKUA as programming consultant. Fraser has had a long career in radio, educational TV, theatre and film. His replacement is **Bob McLean**, who had been teaching radio/TV at Confederation College, Thunder Bay, after a 7-year stint as CBC talk-show host. Bob will also appear weekly on CKXM's sister station, CFRN-TV. . . A book dealing with the early days of CBC news in Ottawa has been authored by veteran (now retired) newsman **Larry MacDonald**. . . Rogers Cable picked up another U.S. franchise, an 80,000-home suburb of Portland, Oregon. . . **Thérèse Seigny** became CBC vp, audience relations. . . **David Hubbard**, formerly in sales with CHQM and CKNW, has founded UNI, a new consumer magazine for the Vancouver area. . . CKND-TV named **Bob Milton** retail sales supervisor. . . CCTA now issues a monthly Marketing Communique to aid cable systems in marketing of pay-TV. . . If **Pierre Juneau** has his way, by 1988 the CBC will reduce to half the number of U.S. series carried in prime time TV. . . **Jeff Silverman**, who created the once-popular "Chuck the Security Guard" all-night show on MTV Toronto, now produces "Killer Fillers"—short items to be used as fillers on pay-TV. . .

Obituaries: Sad losses among media people include **Bernie Piltch**, who died of a heart attack at 55 while in a CBC recording session; a respected and versatile saxophonist and clarinetist, he had been part of orchestras that were at the forefront of Canadian entertainment. . . Cancer took CKEY news director **Ric Miller**, only 34 years old. . . **Eric Knowles**, a newsman's newsman who was once editor of the Star-Phoenix, then news director of CKOM Saskatoon, passed away earlier this year. . . **Gil Christy**, 55, a CBC-TV wunderkind in the '50s and one of the stars of "Tabloid", died of cancer. Most recently he had been doing some work for FM-108, Burlington. . . **Donald Evraire**, 47, was an outstanding film editor (CBC's "Fifth Estate", CTV's

"W5"), who had won Emmy and ACTRA awards. . . And the death at 70 of **Frank Tunney**, the renowned wrestling promoter, reminded me that he was part of my very first radio interview. The program was "Toronto Today" on CBC Radio, and the year was 1948: I was asked to interview a prominent U.S. fighter whom Frank and his sidekick, **Jack [Deacon] Allen** had brought to Toronto to box at Maple Leaf Gardens. . . And congratulations to the Canadian Association of Broadcast Reps for creating an award in memory of the late **Andy McDermott**. It will go annually to the top student in the new marketing/sales course which starts this September as part of Ryerson's Radio & Television Arts course.

Don Harron (a.k.a. Charlie Farquharson) takes over from **Alan Thicke** as host of CTV's daytime talk show in September; his successful broadcasting appearances have included hosting CBC's "Morningside". . . **Jim St. Marie**, who teaches TV production at Conestoga College, originally wanted to become an ordained minister and religious broadcaster; instead he went into radio with CKNX Wingham, then worked for CBC 11 years before joining Conestoga in 1969. . . **Frank Allison** has taken over as acting news director at CKEY Toronto. . . **Gary Greenway** joined

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CBC-TV national selective sales. . . . He was succeeded by **Frank Gardiner** as CKO national sales manager. . . A new form of rating that measures the quality, rather than quantity, of TV audiences is making yards in the U.S. . . . New CRTC commissioners include **Monique Coupal**, once its secretary-general and more recently with Health & Welfare, and Professor **Philip Warren** (part-time) of St. John's, NF. . . CITY-TV's competition for script-writers was highly successful. . . entries ran well over 1200, about triple the amount received by a Boston station that ran a similar contest. . . **Mike Inglis** is the voice of both the Oshawa Generals (hockey) and Toronto Blizzard (soccer) teams. . . New members of the Variety Club include CJCL's **John Donabie**, **Robert J. Elrick** of Panasonic sales and **Ronald F. Trotter** of TVOntario. . . . **Peggy Stevenson** is now executive director of Children's Broadcast Institute—she was with Rogers Cable TV. . . Nova Scotia imposed a 10% amusement tax on cable as of June 1st. . . **Johnny Carson** has suggested for his epitaph: "I'll be right back". . . Creative directors appointed by Maisonneuve Broadcasting, Montreal, are **Keith Grisby**, with **Mary Lynn Shaw** (CHOM) and **Ruth Ilyse** (CKGM); **Ian MacLean** is promotion director. . . At CKTB/CJQR-FM St. Catharines, **Pat Kiely** is vp/manager and **Mike Page** is

promotion director, succeeding **Corky Rawson** who moved to Regina. . . The joint CAB-CCBA Management conference is Oct. 23-25 at Toronto's Sheraton Centre. As always, it's preceded by the annual get-together of the Broadcast Education Association of Canada. . . Nice gesture by **Fraser Dougall** and his stations (CKPR group), who donated some \$150,000 to the Thunder Bay community auditorium. . . **Don Chevrier** signed a new 3-year contract with ABC Sports. . . Ironic note: **Anne Murray's** manager, **Len Rambeau**, is tone-deaf. . .

Canadian Marconi revenues for latest fiscal year were up from \$155 to \$198 million. . . A Canadian chapter of the International Advertising Association is being formed in Montreal. . . **Don Pagnutti** became vp/administration at Telemedia. . . Ottawa gave TVOntario \$1.2 million for its important role in "the interests of the francophone minority". . . **Gary Dornhoefer**, the former NHLer and a TV hockey analyst, is shoring up his future by entering the insurance business in the Kitchener area. . . Global TV sports director **Bob McCown** heads up a group applying for an all-sports pay-TV channel. Competition will likely come from Special Event TV, whose owners include **Gordie Howe**. . . **Andy Barrie**, who left CKFM to go to CJCL Toronto, has now parted company with 'CL. **Scott Walker** took over. . . **Heather Williams** went from CKOY Ottawa to CKO Toronto. . . **Glenn Crouter** doing some fill-in sports at CFRB. . . Standard brought **Peter Sturman** to Toronto to be involved in CTL, news and production divisions—he continues as vp/gm of CJAD Inc. . . Meanwhile, **Ralph Lucas** was named vp/manager of CJAD. . . At CHQR Calgary, **Dennis Corrie** is now gsm, **Ray Collins** pd. . . **Hana Gartner** is on "Morningside" while **Peter Gzowski**, writing another book, is on holiday. . . CHUM-TV group added **Verta McCausland** and **Don Hamilton**, while **Fred Woods** moved from CITY-TV to Glen Warren as sales rep. . . **Joan Rivers** became the first woman to win the **Jack Benny** comedy award. . . **Brian Wayne**, son of comedian **Johnny Wayne**, won accolades for the Kentucky Derby documentary he produced, aired by CBC-TV. . . There's now a **Kyle Allan Waters**, son of Ron & Leslie; Allan & Marj are the happy grandparents. . .

Long-time CHSC St. Catharines news director **Joe Marino** has left to go into another business. . . **Kirk Dickson** succeeds CHYM Kitchener news director **Barry Pauley**, who remains to do features. . . If CRTC approves, Rogers Cablesystems will start an all-news channel by January 1st. . . Spurred by MTV arrangements, 20 Canadian stations picked up the recent international soccer cup telecast. . . Promo director **Suzanne Legault** tells us more than 750,000 are now "CHUM Card" holders. . . **Raymond Baril** became gsm at CITE-FM Montreal. . . Pd **Dave Marsden** denies rumors that CFNY-FM Brampton aims to go country. . . **Cam Fellman**, ex-vp/information at M-H, became president of TV Bureau, succeeding **Len Moore**. We hope to profile Cam in a future "Phil Stone Report". . .


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HEARINGS

The following hearings have been scheduled for the fall of 1983. Those planning to attend should verify details as it is sometimes necessary for the Commission to re-schedule hearings.

- Sept. 20: **Victoria B.C.**
Westwater Red Lion Inn
- Oct. 18: **Atlantic region (TBA)**
- Oct. 18: **Hull, P.Q.**
Conference Centre
- Nov. 14: **Montreal, P.Q.**
Parc La Regente
- Nov. 14: **Winnipeg, MB**
North Star Inn
- Nov. 17: **Sherbrooke, P.Q.**
Auberge des Gouverneurs
- Nov. 17: **Regina, SK**
Seven Oaks Inn
- Dec. 13: **London, ON**
Best Western Lamplight Inn
- Dec. 13: **Vancouver, B.C.**
Hyatt Regency

DECISIONS

AM Radio

- Low power (30w) travellers' information stations licensed to CBC for National Parks in Alberta, using frequencies of 1230, 1260, 1490 and 1540 kHz.
- Power increases from 5 to 10 kw approved for CHEC Lethbridge, CKTA Taber, AB.
- CFBC/CJYC-FM Saint John, NB, transfer approved from Fundy Broadcasting to CFBC Holdings, controlled 76.9% by C.W. Stanley.
- CHLO St. Thomas, ON, transfer approved to B.B. Torchinsky and W.V. Furber (each 50%).
- CJLB Thunder Bay, ON, renewed; owner Leader Broadcasting commended for improvements since purchase of station from Ralph H. Parker Ltd.
- With renewal of CKTB St. Catharines, ON, CRTC notes that \$22,000 will be spent within the next year to renovate newsroom, in addition to technical improvements already completed.
- CKKC Nelson, BC, disaffiliation approved from CBC, now available through CBYN-FM Nelson.

FM Radio

NEW STATION FOR KAMLOOPS

CFCW Ltd. has received a licence to operate an FM station at Kamloops, BC,

4.3 kw on 97.5 MHz. The station will offer a "progressive" format. CFCW operates CFCW in Camrose and CKRA-FM in Edmonton. Applications by NL Broadcasting and CKBK Radio Ltd. were denied. The licensee will establish a 22-member local community relations and business advisory committee to represent local interests, and will spend 10% of its net income for the production and promotion of live musical shows.

Other FM approvals:

- CFCQ-FM Trois-Rivières (educational) for restricted advertising (simple statements identifying sponsor).
- Twin Cities Radio Ltd. for rebroadcasters at Merritt (35w on 99.5 MHz, ex-CFJC Kamloops) and Barriere, BC (160w on 105.9 MHz, ex-CFFM Kamloops).
- Copper Island Broadcasting Ltd., acquisition of CKIR-FM Sorrento from Hall-Gray Broadcasting.
- CBC, to change CBF-FM-1 antenna site from Drummondville to Trois-Rivieres and decrease power from 50 to 47 kw, on condition CBC selects available frequency according to the DOC FM allotment plan.
- University of Alberta Radio Assoc., for student FM station, 44 w on 88.5 MHz.
- CBC Northern Radio Network Service rebroadcasters at Lake Harbour, Sachs Harbour, Repulse Bay and Lac La Martre, NWT, all 18.2w on 107.1 MHz.
- Change of site approved for two CBC FM rebroadcasters at Timmins, ON, with power reduction from 46.6 to 44.8 kw.

Television

- CFJC-TV Kamloops and 11 rebroadcasters renewed for one-year term; CRTC not satisfied with station's response to local production requirements set in prior renewal decision.
- CHAU-TV-9 l'Anse-a-Valleau, PQ, channel change from 7 to 5; and CHAU-TV-12 Murdochville, PQ, from 5 to 7 approved.
- CKX-TV-3 McCreary, NB, power increase from 31.8 to 38.6 kw approved.
- CBMT Montreal rebroadcaster approved for Ayer's Cliff 830w on ch. 42.
- CBC Northern Service rebroadcasters approved at Salgouc (10w, ch.12, via satellite) and Inukjvak, PQ (10w, ch.9). Also at Lake Harbour, Sachs Harbour, Repulse Bay, Lac La Martre, Broughton Island, NWT, all 5w on ch. 9 and 12.
- CBXT-9 Viking and CBXT-10 Two Hills, AB, power increase approved from 10 to 100w.
- CITY-TV channel change approved from 79 to 57 as result of request from DOC to clear ch. 79 for land mobile communications services.

For Cable TV decisions see page 29.

LARCAN

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Circle #165 on Reader Service Card

E&O TO MARKET PYE/PHILIPS IN CANADA

As announced in the May/June issue of Broadcast Technology, Electro & Optical Systems are now responsible for the marketing of all Pye TVT and Philips broadcast products in Canada. E&O, formed in 1972, also represents several other major European manufacturers. Seen in photo, from left, are David Abbott and Maurice Evans of E&O, Tom McGann, general sales manager of Pye TVT Ltd., E&O president Michael Paull, and David Burnett.

CANADA

- **Comad**—new address for Canadian head office is 1535 Meyerside Drive, Unit 1, Mississauga, ON, L5T 1M9, (416) 676-9171.
- **First Choice Pay-TV**—has commissioned 65 episodes of half-hour animation series to be produced at Nelvana Ltd., Toronto.
- **Magnetic North**—has added a Grass Valley 1600 switcher from Adcom Electronics, completely controlled by ISC computer editor to 3/4-inch Sony 820s. Recent shows in post-production include "Dolly in London" (Dolly Parton) for HBO and First Choice, and a series for Concert Productions International.
- **J.V. Electronics**—correct address is 17 Logstone Cres., West Hill, ON, M1E 4M2.
- **Masscom Research Ltd.**—new address is 36 St. Paul East, Montreal, PQ, H2Y 1G2.
- **Maclean Hunter**—sale of former head office building on University Avenue in Toronto will enable firm to repay almost all of its Canadian debt. Cable TV

division reports U.S. subscribers now top 200,000 mark.

- **Nautel**—CBC has purchased 10 kw AM transmitters for CFPR Prince Rupert, CBU Vancouver and CBR Calgary (latter two as standbys); CBQ Thunder Bay will install a 10 kw and 1 kw standby in August. Other sales include a 10 kw to CKNX Wingham; three 1 kws to CFAC Calgary for Banff, Canmore and a standby at Calgary; a 1 kw under test at CKEN Kentville is to be installed at CFAB Windsor, NS; while two New Jersey stations WWDJ and WPAT, have installed 5 kw units, WPAT with stereo interface.
- **CD Nova**—Vancouver firm has formed Communications Division to cater to broadcast, CATV and fibre optic industries.
- **Osram Canada Ltd.**—new address is 1180 Courtney Park Drive, Mississauga, ON, L5T 1P2, (416) 673-1996, Telex 06-968841.
- **Pye TVT Limited**—has a new distribution agreement for all Canadian operations with Electro and Optical Systems Ltd. of Scarborough.
- **Rogers Cablesystems**—says it will not turn a profit until the summer of

1984, with results for the current fiscal year not much better than last year's loss of \$13.3 million. Meanwhile, public offering by U.S. subsidiary Rogers Cablesystems Inc. will raise \$180 million.

- **Strand-Century**—new location is 6490 Viscount Rd., Toronto. Telephone remains (416) 677-7130.

- **Weston Instruments**—plans to sell Mississauga service centre, subject to Canadian government approval, to EIL Instruments, a U.S. firm.

UNITED STATES

- **Bird Electronic Corp.**—22-page High Power RF Instruments catalog available from 30303 Aurora Road, Cleveland, OH, 44139.
- **Cinema Products Corp.**—Ed Di-Giulio, President, says reorganization will result in development of innovative products for interface between film and video technologies, under direction of Robert Auguste, vp, engineering.
- **Harris Corp.**—Broadcast Division elevated to group status, having Broadcast Transmission and Studio divisions. Also, new Communications Group now comprises three divisions: RF Systems, Long Range Radio, and Short Range Radio.
- **Matsushita Electric Industrial**—has granted 3M licence to use Matsushita patents and technology to produce new generation of thin-film, high-density video recording tapes.
- **Modulation Associates**—will supply Minnesota Public Radio with new satellite uplink/downlink equipment.
- **RCA**—second solid-state Satcom communications satellite, launched in April, Satcom IR replaces Satcom I, in service since December 1975.
- **Scientific-Atlanta**—9th annual Satellite Communications Symposium to be held Nov. 7-9, 1983, at Hyatt Regency in Atlanta, GA. Also, S-A reports \$12 million order received from Falcon Communications Inc. for Series 8500 addressable set-top terminals.
- **Thomson-CSF Communications Inc.**—new Thomson-LGT division in Stam-