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Circulating throughout Australia and New Zealand.

Australian RADIO AND TELEVISION NEWS

NEW YEAR ISSUE

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MINIATURE TELEPHONY TRANSMITTER.

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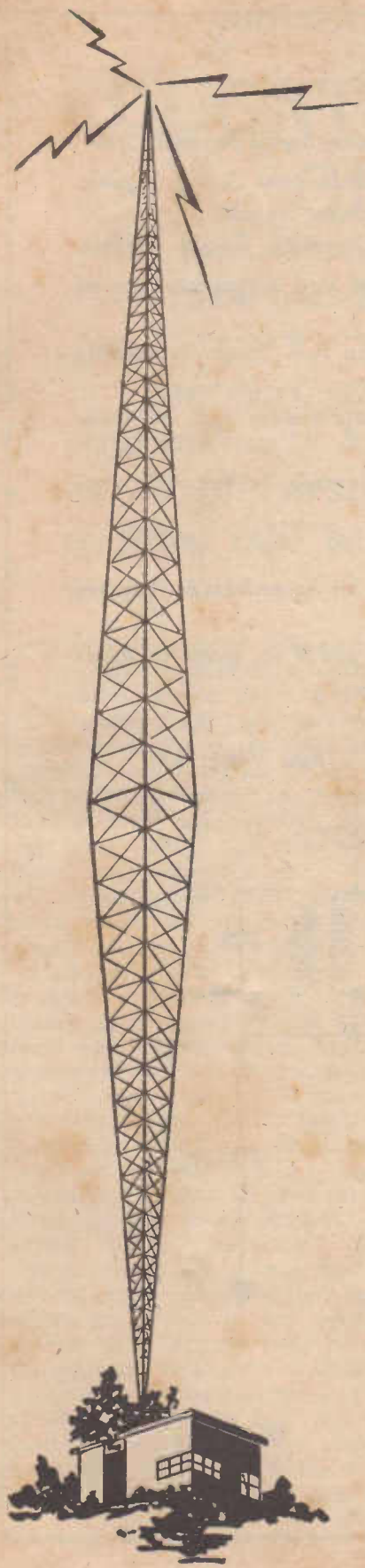

AUSTRALIAN RADIO AND TELEVISION NEWS

THE PROGRESSIVE NATIONAL JOURNAL FOR EVERYBODY

EDITED BY DON B. KNOCK

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LOOK FOR THIS MONTH'S FEATURES ON **Page**

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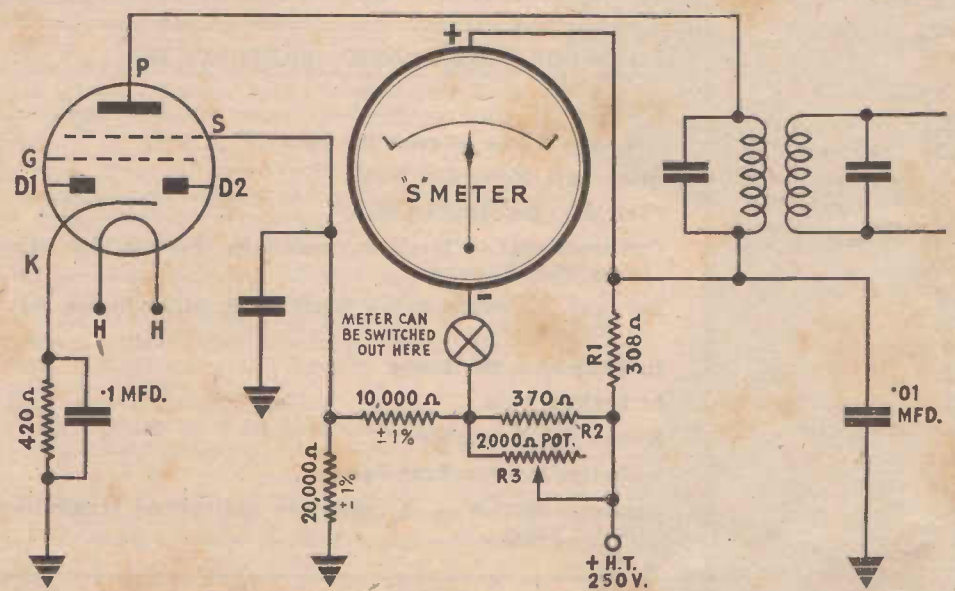


MASTER "S" METER

Editorial

EDUCATIONAL IMPORTANCE OF TELEVISION.

The world of to-morrow belongs to youth.

The next, and succeeding generations will benefit tremendously by access to scientific realisations now at the embryo stage. The advantages of television mind training will be at the disposal of both teachers and students.

CONVERSATION with Americans or English people accustomed to daily and nightly television fare in those countries leaves us with no doubt whatever that there is an interesting and important future in the video art of this electronic world. Despite claims by ostrich-like individuals that television will kill the movie theatre, make film stars of politicians, revolutionise domestic interiors and family habits, and make school teachers superfluous, television will make steady progress. It will do that no less here in Australia before we are much older, and can be expected to fit into our Australian way of life as to become, very quickly, an important part of our normal existence. At first, it can be supposed, it will be in the category of a luxury in metropolitan and suburban homes, like early radio broadcasting, but with more impact because of the two-sense appeal. From the initial introductory stage it will pass to the status of a necessity. Television is really about the biggest thing happening in to-day's world, atomic power problems notwithstanding. Its influence on the younger generation to come, in the vital matter of education will be tremendous. Never so true the saying "seeing is believing". The general application of television in helping to make lasting impression on young minds will have the effect of bringing school life closer to the outside world. Visual contact with actuality may be expected to reduce the artificial separation of school and community. Youth will see, on television screens, actual scenes of life and work in field and factory. Visits to industrial centres, mines, hospitals and medical institutions will give living portrayal—not mere shadow recording—of the jobs done by engineers, coalminers, nurses and surgeons. With television cameras looking over Government offices, children will see what it is like to be an accountant, filing clerk, or even a Prime Minister. In a distant time, but one well in the mind of science, the educational horizon will be vastly widened with international television link-up. That will mean close familiarity with foreign scenes and, above all, the important point that foreigners will no longer be strangers. Schoolroom travel films are now particularly successful in revealing life abroad to the young mind; television will handle similar subject matter, but with much more forceful techniques. The difference between television and film techniques in putting real-life scenes before the viewer is that television heightens the interest of real life. Film technique is likely to have the opposite effect. The psychological effect of television is the enhancement of reality; ordinary events become specially significant. Drama, in the form of plays, will always be an important ingredient of television and a growing appreciation by adolescents may well awake a new awareness of the significance of human life.

TEMPORARY RESTRICTION

Since the gloomy coal strike period of July-August last year, the publishers of this magazine have, similarly to others, encountered an aftermath of difficulties. One of these is a current problem with paper . . . immediately but not indefinitely insurmountable. The result is, for the time being, a reduction in the number of pages; regrettable but unavoidable. We shall restore the equilibrium at the earliest opportunity.

—EDITOR.

PHILIPS INTRODUCE REVOLUTIONARY VALVE TYPES

On the evening of November 29 last, Philips Electrical Industries of Australia held a Convention of radio industry executives. The occasion marked the release of technical information on the remarkable new series of miniature valves to be known as "Innoval". Mr. Frank Leddy, Governing Director, opened the proceedings, which were attended by more than 200 guests. The locale was the ballroom of Sydney's Wentworth Hotel. An interesting film was projected, showing the stages of development in valve manufacture leading to the new "Innoval" series. These new miniatures, which are wholly produced in the Hendon (S.A.) factories of the Philips organisation, are designed around the new 9-pin standard International base. The outstanding features were detailed very ably and completely by Mr. Tremlett, and a few questions were asked subsequently by technical members of the audience. The range at present includes the 6AN7 triode-hexode converter, 6M5 high-gain output pentode, 6BD7 double diode high Mu triode, and 6N8 double diode pentode. Within a short space of time the series will include a miniature full-wave rectifier, and this will be followed by many other types, including special valves for television. Philips "Innoval" valves embody many features quite new to Australian valve technique.

"Kiwi": There was a time when a trans-Tasman station announced a competition for women, each to give reasons why a crocodile-skin bag, presented by a certain firm, should be given to her. The prize-winning entries were read over the air, but the most original entry was not. This was very brief, and may even have been true: "I should be given the crocodile handbag because since I have started wearing scanties I have nowhere to put my money."

* * *

N.B.W. B.B.C. television cameraman Charles de Jaeger, who hit Sydney in October last with Wynford Vaughan Thomas on a globe girdling air dash, says it is no hardship for him to be on the move. Reasons he gives are: no next of kin in the world and no entanglements whatever.

Returning from Berlin previously, de Jaeger had seven proposals of marriage from German and Polish girls. The idea, he says, was merely a quest for British nationality.

NEW BRITISH DEAF-AID ALSO GIVES RADIO PROGRAMME

● This picture shows the "Belclere" Radio Monopack deaf-aid, demonstrated at the British National Radio Exhibition at Olympia, London. The set is a high-fidelity single-unit hearing aid suitable for use in either slight or severe cases of deafness; it is easy to wear and is also extraordinarily economical in battery-replacement. Provision is also made for receiving one radio programme without any extra control than a change-over switch. A volume control and switch are provided in addition to an infinitely variable tone control. No external aerial is necessary. Miniature crystal or magnetic earpieces can be supplied.

SO—YOU'D LIKE TO READ THE NEWS ?

asks MICHAEL STARR

THE evening when we do not hear one or more news commentators does not pass in our radio-conscious lives. The voice, probably smooth in its dramatisation of the day's events, falls on your ears with the germination of the idea that it's "Easy—I could handle that job myself." Merely a simple problem you opine—"just reading the gen.; from the papers to listeners."

No, dear reader, it really isn't quite so simple—at least in order to qualify for comparison with top-line commentators; but I admit there are lesser lights in the business, and these you surely don't desire to emulate. Or, do you?

ESSENTIALS

Get this firmly in your mind—news commentating is not the same as reading out a newspaper over the air! The trade is really fraught with difficulties.

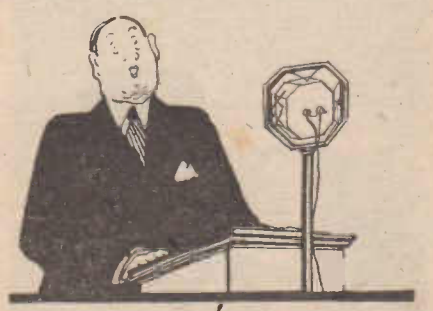
Naturally, one must have garnered a qualification or so before contemplating the idea, and favourable goals should be Leaving Honours in the spoken word, some travel experience, and maybe reporter background on a newspaper. What then?

No doubt I could meet up with a thousand and one men in this country who could out-perform the A.B.C.'s elite when it comes to winning friends and influencing prospective clients. The only catch is that they are never likely to be "discovered." Doing just that is the first step in the campaign for microphone recognition. It means at the outset that there will be hurdles to jump, with the cool shoulder from talent-harassed but well-meaning secretaries. You may never gets as far as an audition, but you can at least try. Suppose you achieve that primary goal — who listens to you? I'll tell you—merely super-office boys who sit in place of the talent scouts you like to think are always listening.

But it may be worth a try—some Broadcasting Big Shot might hear your try-out, and might even like it. That could eliminate weary months of plodding up the ladder.

SMALL STATION EXPERIENCE

The second best idea, after having suffered the deflation of realisation that the world doesn't yet hang on your super-modulated tones—is to tacklet a job on one of the smaller stations. Yes—I mean the little remote country blokes—far away from city life, but busy as bees in broadcasting. If a job offers as announcer-manager; a one-man-band affair, and you are adept on the uptake as a possible Master of Air-emonies, don't



"Don't let colloquialisms get the best of you either."

pass it by, for along that road lies a wealth of experience. You'd be surprised how many big-timers got their start on the smaller stations, and the process of changing pick-up needles is the same anywhere!

Let's assume that you've landed a job thus on the 50-watter out at Woop Woop, as the voice in between recordings. Remember one thing; stations big and small are all the same on a vital factor. They insist on accurate, clean comment from their mikesters, and beyond that one is mostly one's own boss. One is also one's own censor! A "straight" commentator — one who reads the news as such without any frills, has nothing to fear because good taste never yet offended news listeners.

SIX THINGS TO AVOID

What is good taste? Simple in the extreme. For example, he who facetiously dubs the local Reverend as a "sky-pilot" is in for a flood of complaining letters in quick time. All a matter of commonsense. Keep controversial matters right out of your commentaries and leave them to Bob or Ben; they can be counted upon to take care of strike issues or Dollar deficits.

Sex? It is just as well left alone —the A.B.C. ignores it completely in news commentaries, and I don't suppose the Commission get complaints on that score.

During the time you are working up experience on the small station, there is no harm in sending out "feelers" to the city studios—don't overdo it, but request merely that you are kept in mind when they next need an announcer.

You might get the break, even though chances are that an office boy or a director's wife's uncle will scoop the pool. If you progress so far that some day you find the microphone hooked to ten kilowatts or so, you are getting to the serious stage. You may have a voice that oozes "what it takes" in other directions, and if the Life-Olive people say they'd like you to compere their "Come Up and See Me" show—at a good picking—take my advice; hop into it—and forget commentator aspirations pro tem. Remember the difference between radio broadcasting and the newspaper. The latter can be read personally and casually at convenient times. With radio—a burble about an unsavoury subject will be heard alike in pubs, drawing-rooms and by the Elderly Ladies' Association gathered together to practice next Sunday's hymns.

The latter won't enjoy it, and you can bet they'll write in to the station management about it. Keep off racial slurs—and remember that even a tendency toward them will go against a commentator. Don't let colloquialisms get the best of you, either.

(Turn to next page)

READ THE NEWS—Continued

One dosn't make for international friendship by reference to Huns, Nips, Bolshies, etc.—harmless though the intention may be. Americans, for example, really don't all like to be called "YANKS," and to refer to an Englishman as a "LIMEY," not to mention "POMMY"—isn't the wisest of utterances. You don't mean anything by it—but the targets for the verbal shots don't know that. Avoid, too, any reference to people with darker skins than yours as "NIGS"—for that way lies certain trouble.

Don't worry overmuch about a few complaints—they are part and parcel of the business, and the 40-hour week means more leisure time for people to learn more, check up things in dictionaries and libraries—and then to write critical letters.

Yet, it's a fascinating game, especially when the news commentator knows he is a power at forming public opinion. Men like William Winter (U.S.A.) and Howard Marshall (Britain) have been such examples, and to a lesser extent we have had parallels in Australia.

You may be the commentator par excellence—maybe.

* * *

BROADCASTING

Pat Hodgins, well-known from Adelaide through to Brisbane for his compering of audience shows, has joined the staff of 2UW Sydney. His appointment took effect from December 12, and will be heard regularly from the station in the various shows broadcast from the 2UW Theatre. Mr. and Mrs. Hodgins and two young daughters recently returned from a long-awaited and well-earned holiday at the seaside.

* * *

RADIO COMMENT

"D.B.K.": Every broadcasting station has its record of comments—usually caustic—which have been inadvertently broadcast, but a police car used to direct traffic by means of a loud-speaker was the other day responsible for what must be a classic example. A lady driver whose car was idling in front of a long line was requested to "please move along more quickly—you are obstructing the flow of traffic." The request going unheeded, it was repeated with more volume to the amplifier. This time she heard it, stepped on the accelerator—and collided with another car coming from a side street. Clear and loud came the remark of the broadcaster to his companion: "Now look what the silly ——'s gone an' done!"

The serial, "All Visitors Ashore," broadcast from 2UW at 6.15 p.m. each Tuesday, Wednesday and Thursday, is the story of a luxury liner cruising around the various ports of the Pacific Ocean. Apparently radio listeners in Fiji believe in patronising the local tourist trade, for, most appropriately, the serial has been bought by Station ZJV Suva, and is being broadcast regularly three nights a week, to the delight of the local population.

* * *

Edgar Hawthorne, who conducts 2UW's Midnight to Dawn programmes every night, has a weird collection of telephone calls regularly from all over the Commonwealth during the small hours. From Hobart recently came a call from a local identity known as Hamburger Joe, who apparently heard Edgar broadcasting and had to ring up from Hobart to find out if he were actually there at the microphone! Trunk line calls come in frequently from as far away as North Queensland and South Australia, just to express appreciation of 2UW's all-night broadcasting service.

KITTY BLUETT AND TED RAY

● Kitty Bluett and Ted Roy in the new British Broadcasting Corporation variety show "Ray's a Laugh." London born Kitty, who went back to Australia with her family when she was ten weeks old, is one of the third generation of Bluetts to make good in show business. She arrived in Britain on New Year's Day, 1949, appeared in o programme on Australia Day and on the strength of her work in it was booked to appear in the new series with Ted Ray. Kitty is but one of the Australians doing well in Britain.

SUPER-MICROSCOPE

The electron microscope has now advanced in magnifying power to 300,000 diameters, and like telescopes of new power, is revealing hitherto unknown worlds. The latest adventure was reported at Philadelphia by Dr. James Hillier, in an address before the Electron Microscope Society of America.

Microscope pictures taken at the R.C.A. Princeton Laboratories show viruses attacking bacteria and destroying them. Both virus and bacteria were killed by the passage of the electron beam in the microscope, but they preserved relative positions at the instant of exposure and so showed, in successive pictures, the advance of the attack. This direct insight is of the greatest importance in studying the nature of virus diseases. A new double electron lens did the trick, revealing bodies only one four hundred-millionth of an inch in diameter.

* * *

TALKERS AND TALK

Broadcasting talkers as a class are as capable as an unemployed crooner doing relief work. It is said in their defence that they are experts on their subjects; the trouble is that they often *are*, and nothnig besides. The radio is not the place for great originality of thought. It is not necessary that a speaker have some important contribution to science to make known to the world. Expert *talkers* are what is required.

Provided a person is an accomplished speaker, provided his voice is good and suited to broadcasting and he knows how to interest his audience in what he has to say, it matters nothing that listeners can find all he tells them in an encyclopaedia. There are speakers who, preparing their talk from a book—choosing only that which appeals to themselves—can be more interesting than the expert who wrote it. It's the same with travel-talkers. The A.B.C. appears to consider that anybody who has come here by the regular routes from Britain or America must have something to say which everybody wants to hear. Many of them could travel to Mars and back and still be duller than a geography textbook. A good speaker could tell listeners of more interesting things in Venice from a study of *The Encyclopaedia Britannica* than could the average broadcast talker who has sweated a gondolier in search of local colour. In short, except in rare instances, radio talking would be better without "experts."

—"J.S."

FUNNY OCCUPATIONS

ONE of the most famous comedians is Jack Warner, who gained much of his hold over listeners by his songs about people with funny occupations. The first one was the "bunger-up of rat holes," then came the "shaver-off of hairs from gooseberries," the "cutter-up of codheads" and the "chopper-up of chilis for the chutney." There were dozens of them and to date Mr. Warner—now more of a film than radio star, although he still likes to broadcast when he can—has recounted the histories of well over a hundred of these people with funny occupations.

Most of Warner's funny occupations are mythical but Peggy Robertshaw, who broadcast in the BBC's Radio Newsreel recently is real enough and she has a very funny occupation — she is a shoe tester. Every day she presents herself at the office of a well known firm in the North of England which specialises in rubber footwear. There she puts on a pair of their shoes and sets off to walk twelve miles. If it is a wet day she can tramp round art galleries or museums, if it is fine and lovely weather she probably takes a train out into the country and does her twelve miles there. She knows when she has done her daily dozen by the pedometer on her leg, which is checked when she goes back to the office.

Peggy wears the same pair of shoes every day until a fault develops. Then she reports this to the technical manager and is given a new pair. Times vary but the average pair of shoes goes about three hundred miles before it becomes faulty. Peggy finds shoe testing much more to her liking than office work, and healthier, too. She loves walking and has done 42,000 miles in her arduous job. In all those miles her feet have never ached and she has never had a corn, which is a pretty high compliment to the shoes she has worn.

"Bingo." Notes on a trend in the education of youth by radio . . . this kind of bedtime story material is likely to be heard between 5 and 8 p.m. Thugs, racketeers, smugglers, punks, thieves, tommy guns, gangsters, escaped convicts, bombs, murder, aviation crooks, gamblers, and a horde of other people whose main attributes appear to be general unpleasantness and a flair for maltreating the English language as taught in school a couple of hours previously. These things come to you with the compliments of somebody or other. Can we blame ourselves if 'teen-agers of to-day develop into grown-ups with a rather hectic outlook on life in general?

SHORTS FROM THE TALKS

HIGH PRESSURE SALESMAN

"Talking of buying bigger reminds me of the man in the commercial hotel once. There were about a dozen of us writing up our orders and one very unpleasant type was trying to impress us with the enormous amount of business he was doing. Suddenly a little girl came in the room, went up to this man and said: 'Mummy says will you please change the dozen penny monkeys up a stick for ducks wiv whistles in 'em.' I was glad to see him deflated—I don't like high pressure salesmen. I believe that if you've got confidence in what you're selling, all that gift of the gab stuff is unnecessary."

Mrs. Vera Sharp, commercial traveller and inventor, in the BBC programme, "In Town Tonight."

MAN'S PLACE IN NATURE

"Man draws much inspiration and happiness, as well as common sense and straight thinking, from contact with the soil. Man is part of it, like the animals, the plants and the trees, and he cannot cut himself entirely off from it and keep his human nature intact."

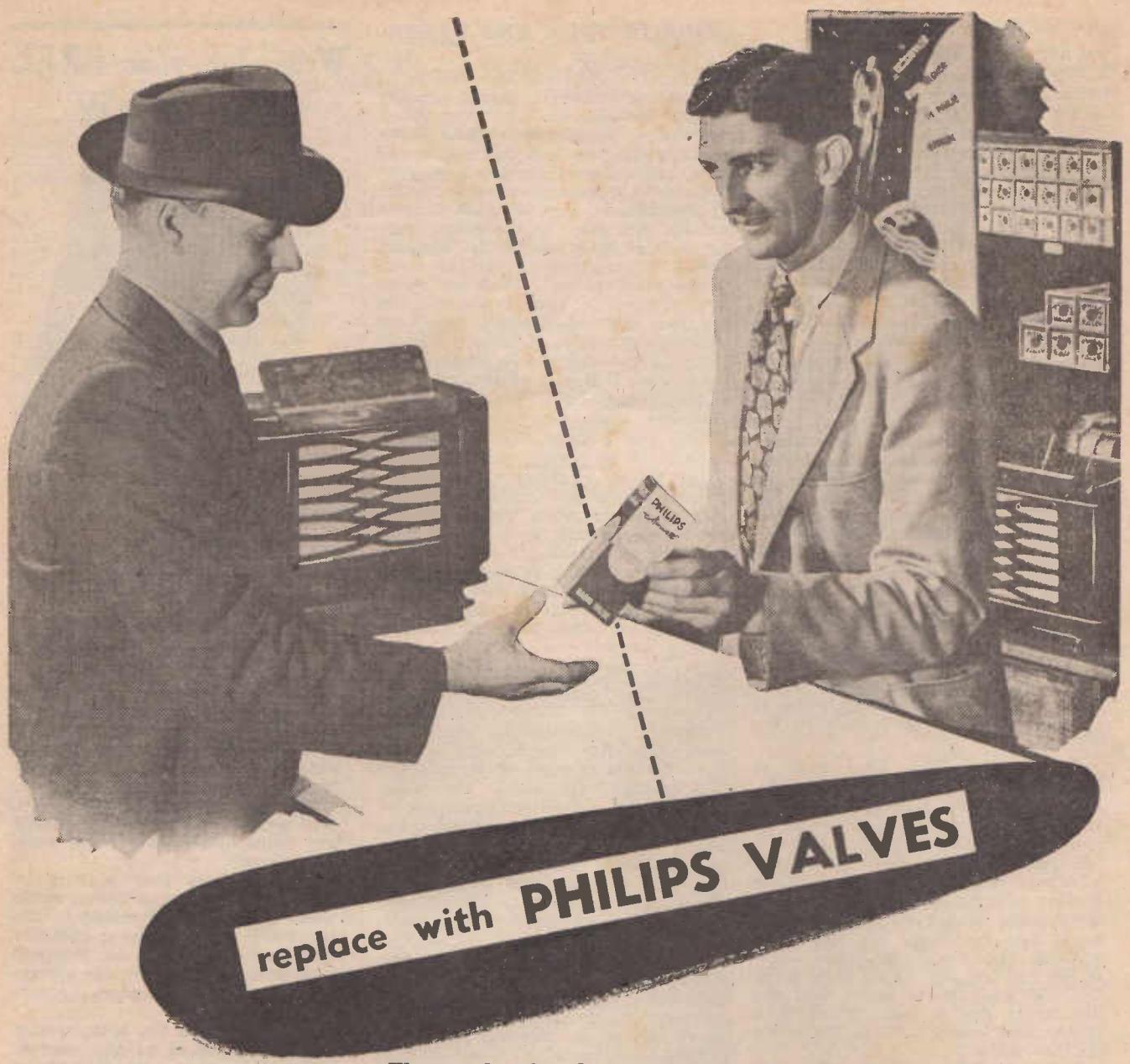
L. F. Easterbrook, speaking on "Farm and Factory" in BBC's Overseas Service.

"Trix": Remarkable ingenuity goes into the producing of the sound effects in radio plays, sketches and skits. To cause the noise of a train a roller skate on a tank, a whistle and sandpaper are used. The effect of being on a ship is made by a paddle-wheel in a tub of water. Lead shot being rolled about in a drum gives the illusion of a rough sea. An aeroplane passing overhead is simulated by holding a drum in front of a revolving disc. Rice falling on paper suggests rain, the effect of a falling building is produced by bricks sliding down a board and on to a drum. In cricket broadcasts tapping a pencil on the desk is good enough for the impact of willow on leather. To produce the sound of a person speaking from another room a felt-covered board is held in front of the actor.

SO TIRED

"It's a fact that however physically tired one becomes in any kind of rural occupation that tiredness is a perfectly normal thing and it doesn't create any tension, because in what you've been doing you've been in harmony with nature around you. The difficulty comes when you live in the artificial conditions of urban life; the difficulty is to carry any sort of inner harmony through into those conditions."

—Georgie Henschel talking in a B.B.C. programme, "Mainly for Women"



Thousands of radio servicemen throughout Australia use and replace with Philips valves. Their reasons for specifying Philips are simple; they've tested them—used them—and found them to be the *best* for all types of radio circuits. Best as initial equipment and best for service work too! Their choice is Philips—so follow their lead, stock and use the world's finest valves—they are steady, year-round profit makers that continue to grow in importance.

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Television To-Day!

★ *U.S. Television.—How television is advancing in the U.S. at the expense of ordinary radio is indicated by figures published in "U.S. News and World Report": The output of sound radios has dropped from 17,250,000 units in 1947 to a present annual rate of 6,800,000. Output of television sets, by contrast, rose from 866,000 in 1948 to an annual rate of 2,000,000 last June. The publication quotes the prediction that 17,000,000 television home-receivers will be in use by 1956.*

Freedom of Television

While the Australian commercial stations are advancing very sound arguments why television in this country should not remain a Federal monopoly, it is interesting to note a recent article in the British "Economist," which makes a strong case for the release of British television from B.B.C. monopoly control.

Technically, the "Economist" points out, the provision of a TV service for the whole of Great Britain, or even for any substantial part of it, would be a very costly process. Furthermore, the additional cost of colour television is hovering in the background.

"How can television be made to pay? It costs much more than radio to provide, and yet it is difficult to believe that the demand for it—in terms of viewer-hours—will ever be as large. The whole population cannot be reached; there is difficulty—not, indeed, in providing interesting programmes but in providing enough interesting programmes; and television, unlike radio, requires the whole attention of the viewer. With demand in all probability smaller and with the costs of supply certainly much higher, an economic problem is created, whether the finance of broadcasting comes from licence fees or from advertisers. This, incidentally, is a point that is usually overlooked by those who bemoan the slow progress of television in Britain. There must be a limit somewhere to the funds that can be diverted out of the money that sound listeners have paid for the purpose of providing sound broadcasting."

Voices are not lacking to urge, adds the "Economist," that television should be released from its "dependance" on the B.B.C. on the ground that TV is technically an entirely separate service, using separate channels, and artistically that it is only likely to suffer from the dominance of Broadcasting House.

"COLOUR television for entertainment was still many years off," says Mr. A. G. Warner, Chairman of Directors of Electronic Industries. Electronic Industries is closely associated with Pye, England, which gave Europe's first demonstration of colour television at London's annual Radiolympia.

He said that the application of this new development, however, would be essential for many scientific and industrial projects.

The equipment used operated on 405 lines per colour frame. This was the same definition as used by the B.B.C. for its existing black and white services.

The introduction of colour to television was a tremendous technical achievement, a step forward that would prove to be much more important than the comparable move to Technicolor in the cinematic art. The realism of the pictures available on the television screen would be vastly increased.

The use of colour television as a method of instruction for medical students and for doctors generally would enable them to study close up in full colour details of the most intricate surgical operations as they progressed. Every student and doctor would be able to follow the operation as clearly as the surgeon performing it, as the camera would be placed only a few feet above the operating table. These details at present could only be followed by a very limited number gathered around the operating table.

In the same way scientific investigation and teaching in such varied fields as botany, chemistry, physics and zoology would be enormously improved by the use of colour television.

There were also many industrial processes that had to be carried out at a distance because of the lethal nature of the constituents. In certain processes the watching of the colour changes at different periods of the reaction was of primary importance. Colour television might well play a decisive part in such matters, for instance, as the application of atomic power to idustry.

MR. WARNER said that full colour television had already been used to observe closely the combustion processes in a jet engine where the intense heat and danger made close approach by human observers impossible.

Large organisations such as banks, which required constant reference to filed documents could use inter-departmental television for quick and accurate reference. Documents held at a central filing point could be shown to any department requiring reference. Details such as signatures could be quickly checked, saving time and money.

Other organisations requiring rapid reference to documents, drawings, photographs, plans or designs could use the visual communications system of colour television.

Stores could also usefully exploit colour television as a sales aid, demonstrating to the customer articles on sale in other departments.

The transmission of vital information by colour television in wartime was a certainty, he said, but security reasons precluded detailed discussion of its many war-like applications.

The Pye Company claimed that the present British black and white system (405 lines) was the most economic for satisfactory entertainment value.

Although it would be many years before colour television became a public service, Pye believed that as television research continued progress would not be towards high definition in black and white but towards colour.

* * *

"Querex": Soviet Russia is making practical use of television. Locks on a canal between Moscow and the Volga are controlled from a central point, and the official on duty is able to observe the entry of ships into the lock by looking at a television screen.

* * *

According to an Astronomer — if Adam had sent out a radio SOS, it still would not have reached the nearest star!

The Fluorescent Screen

THE atmospheric pressure on the flat end of a 7-in. cathode-ray tube is over a quarter of a ton! The inner surface of the tube is coated with a material that glows or "fluoresces" when electrons impinge upon it, thereby producing a bright spot of light. The material is usually bound on with pure waterglass. Several different materials, and combinations of them, are in current use for different colours of fluorescence. The most active material for producing visual light is zinc silicate (in the form of the powdered mineral *willemite*). This glows a bright yellow-green, to which the human eye is most responsive.

For oscillograph use, where the trace of the cathode-ray beam is to be photographed, calcium tungstate, which glows a bright blue colour, is better, since its light is about thirty times as active on a photographic plate as is that from zinc silicate. Cadmium tungstate may also be employed and mixtures of these substances are often used to produce a fluorescence fairly well suited for joint visual and photographic requirements.

The impact energy of the electrons varies as the square of their speed, or, in other words, with the square of the voltage on the anode, so the fluorescent-spot brilliancy increases rapidly as this voltage is increased.

A spot that is too *intense* will cause deterioration of the active material with which the screen is coated, due to intense bombardment resulting at the point of impact of the electron stream on the coating of the screen. The electron stream bombards the screen much as rapidly-fired machine-gun bullets would bombard a target, excepting that the machine-gun bullets would have a muzzle velocity of only about 2,000 miles per hour, whereas the electrons in an ordinary cathode-ray tube operated with 1,000 volts on the plate have a velocity of approximately 42 million miles per hour!

Because of this intense bombardment of the screen, the beam should never be allowed to remain motionless, for if this occurs, the full impact energy of the electrons will be concentrated at the focused spot on the screen, causing the fluorescent material to disintegrate. A black spot will be observed in the screen after this occurs.

● Will the victory of the Liberal Party result in a changed Government policy toward Television and FM? If so, we can expect services other than a restricted National Service. Television would become an immediate priority for radio manufacturers. No "SOFT PEDAL?"

TELEVISION

Expanding Service Keeps Britons at Home

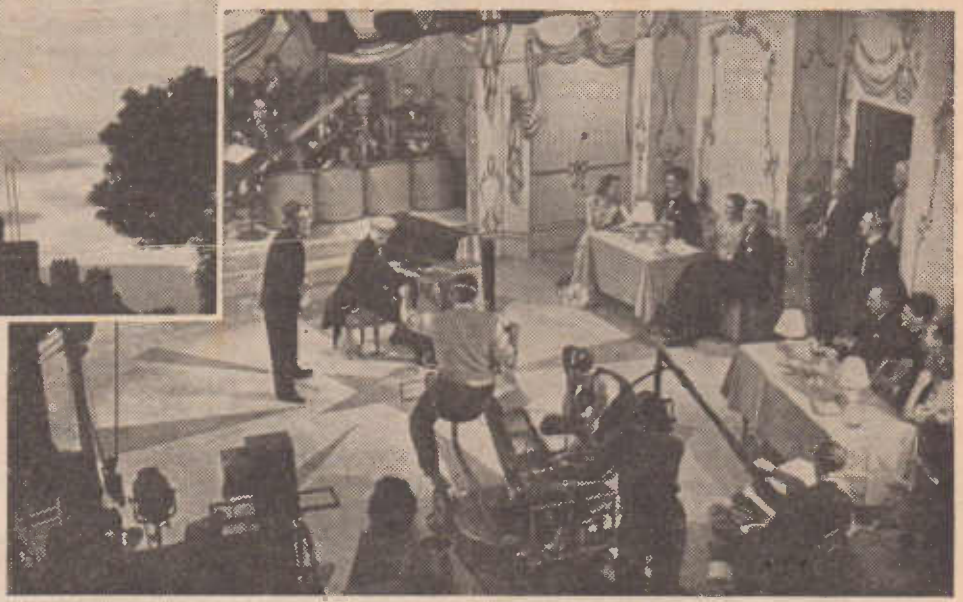
H-type television masts are becoming a feature of London suburban houses.

A NEW £250,000 robot radio link consisting of six automatically operated repeater stations takes television from London to Birmingham. Soon, when the Birmingham station opens, television programmes will be available to the whole of the Midland area. Step by step, the service is being extended to the whole of the United Kingdom.

In the London area, television is rapidly becoming a necessity rather than a luxury. Rows and rows of suburban houses are sprouting the H-shaped mast, and viewers are staying at home evenings and Saturday afternoons to view some of the finest programmes in the world, including plays, films and big outdoor sporting events.

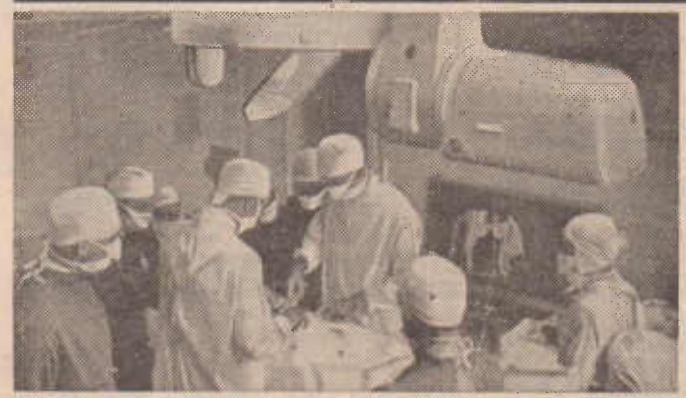
Cheapest television sets on the home market sell at about £36. British 450-line system will not be altered for 10 years.

The quality of British television apparatus, cameras, telecasting instruments and sets has inspired the world. At Radiolympia, recently, a British firm demonstrated an experimental colour receiver. Now, following devaluation, radio engineers are making a drive to sell cameras and television equipment to the dollar areas. Already, Pye Ltd., of Cambridge, have set up a factory in Canada.



(above)

Tommy Trinder, popular British comedian, in typical big studio telecast.

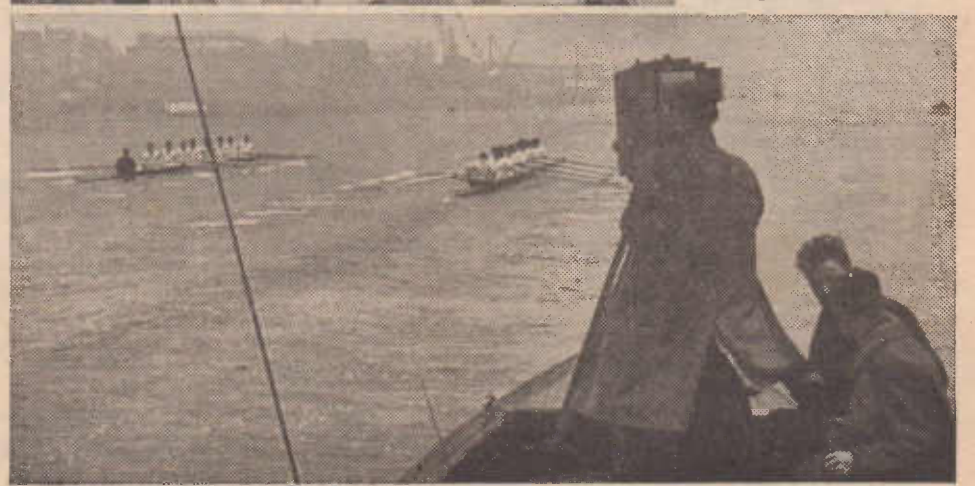


(left)

In hospitals, medical students can watch operations with aid of television.

(below)

Oxford and Cambridge boat race, televised from a launch, was a big technical triumph.



TELL ME
Mr. Answer Man

A year or so ago there was much publicity in daily newspapers about F.M. broadcasting; so much so that an erroneous impression was given to the public, to the effect that vast changes were imminent, and that broadcasting receivers and the present kind of service were obsolescent. Lots of people refrained from buying new broadcast receivers, quite unnecessarily. In the meantime the press spotlight turned to television, until the bewildered layman wonders just what may or may not be in the offing. "Australian RADIO and TELEVISION News" has a duty to perform in telling the public the facts about F.M. and T.V. and will do so in a fully informed and unsensational manner. Here are published a series of vital questions and answers on the at present dormant subject of F.M. They were prepared by a prominent engineer of Philips Electrical Industries of Australia Pty. Ltd., and are of direct interest to the user of radio entertainment, which of course, implies almost everybody.

1. Q. What is the new type of broadcasting recently publicised in the daily press, and what is the type of broadcasting at present in use?

   A. The new system is known as "Frequency Modulation" or, for brevity's sake, "F.M." The present system is known as "Amplitude Modulation" or briefly, "A.M."

2. Q. Will F.M. be introduced?

   A. Experimental stations commenced transmissions in Melbourne and Sydney as a consequence of recommendations made by the Parliamentary Committee that tests should be carried out in each capital city with an F.M. station as proposed by the Post Office. The purpose of these F.M. stations is to acquire experience and to provide information as to whether it will be advisable to introduce broadcasting by F.M. in Australia.

3. Q. What is the object of F.M.?

   A. The number of broadcasting stations which can transmit on the medium frequency band at present allocated to broadcasting in Australia without interfering with each other is approximately only one hundred.

   In order to provide more broadcasting stations than those operating at present, it is necessary to allocate a new band of frequencies. The only frequencies available for allocation are very high frequencies which are suitable for local reception and do not suffer from long range interference. Hence, new broadcasting stations must transmit on very high frequencies.

   If new stations commence transmission, they will use very high frequencies and F.M. is a good system for these frequencies.

4. Q. What is the difference between F.M. and the present method of broadcasting?

   A. The main difference is that, as explained previously, F.M. transmissions are at very high frequencies beyond the tuning range of normal broadcast receivers, and a special way of modulating the carrier wave is used. The special type of receiver suitable for F.M. is not suitable for A.M., but this is of little importance as the frequency adopted for transmission cannot be received on present receivers in any case.

5. Q. Will the introduction of F.M. make present broadcast receivers obsolete?

   A. *Definitely no.*

6. Q. Will the present type of broadcast receivers pick up F.M. transmission?

   A. No.

7. Q. Is it possible to convert the existing receivers to F.M.?

   A. It is possible by means of converters resembling the well-known short wave converters.

8. Q. Is it necessary to have an elaborate aerial system to receive F.M.?

   A. In most localities this will involve erecting the aerial at some height above surrounding buildings. It will not be possible to receive signals using any piece of wire attached to the receiver, and reception by means of an aerial inside a room will be unsatisfactory.

9. Q. Will F.M. eliminate outside interference noises?

   A. F.M. has some marked advantages over A.M. as far as noise is concerned. Noise such as that caused by machinery, switches, thermostats and some forms of static are much reduced and limited in volume. On the other hand, unless the signal has adequate strength it can be completely blotted by hiss or random noise. This emphasises the need for efficient aerials. Noise level is reduced by F.M. only if the signal is very strong as compared with the noise.

10. Q. Would interference at present experienced due to old wiring in a building be eliminated by an F.M. receiver?

    A. Noise from such sources will be much reduced.

11. Q. Is it possible to move an F.M. receiver from room to room?

    A. It will be difficult to move an F.M. receiver from room to room because of the special aerial system used. Of course, an extension speaker can be used and moved about.

12. Q. Will F.M. run from the mains in the same way as an ordinary receiver?

    A. Yes.

13. Q. Will the tonal quality of an F.M. receiver be better than that of an ordinary receiver?

    A. Only in special cases.

14. Q. How far away from the station is reception possible with F.M.?

    A. This depends on the height of the transmitting and receiving aerials. The maximum range will probably be between 30 and 60 miles in open country. In cities and hilly country many dead spots are likely.

15. Q. Will F.M. reception be affected by the fact that I may live in a built up area or a deep valley?

A. If out of optical range of the transmitting aerial, reception may be poor.

16. Q. Can I listen to all stations, both A.M. and F.M., with an F.M. set?

A. No, an F.M. set can receive F.M. stations only and will not receive the existing programmes. Combination F.M. and A.M. sets are possible, but are likely to be expensive and not worthwhile unless a number of F.M. stations are operating.

17. Q. If I buy a new receiver to-day for use on the present broadcasting system what disadvantages would I suffer if F.M. is introduced?

A. You would still be able to receive the present programmes, as the existing stations will continue for many years, but not be able to hear F.M. without an attachment. No suggestion has been made to discontinue A.M. stations.

18. Q. Would F.M. supersede or run together with present A.M. broadcasting?

A. F.M. would run together with A.M. as A.M. has the advantage of greater range and coverage.

19. Q. Is an F.M. receiver convertible to Television when it is introduced?

A. No.

20. Q. Is an F.M. receiver subject to fading?

A. Not in a fixed location.

21. Q. What frequencies are used for F.M.?

A. Around 92 megacycles—or 3 metres wavelength.

22. Q. Can I believe everything I see in print about F.M.?

A. The answer to this question is definitely "No." The pros and cons of F.M. and manner in which it differs from A.M. are beyond the scope of treatment by a journalist. Newspapers naturally have a great interest in spectacular statements and probably regard news about F.M. from this viewpoint.

EDITOR'S NOTE: The answer to it all is of course—Buy your new broadcast receiver NOW, and forget your unwarranted uncertainties. Neither F.M. nor T.V. will affect your present A.M. broadcast fare in any way. A.M. broadcasting will be enjoyed by your children's children and perhaps their's again!

Television equipment was used for the first time in testing high-thrust rocket motors on the Pacific Coast of U.S.A.

A television camera watched the rocket motor tests and sent its "eye-witness" report to observers comfortably seated in a conference room where they saw the operations on a viewing screen far removed from the test pits.

The television method has many advantages. Safety is assured by the remoteness of the viewing operation, picture light intensity and definition are far superior to direct viewing through glass, and shock-proof cameras can be mounted adjacent to the rocket unit for viewing intimate details. Other advantages of the television method are important to the test engineers. The close-up view provided by the television camera allows the engineers to detect in time to stop the test firing any evidence of fuel leaks or malfunctioning of the system which could result in an explosion and major damage to the rocket motor and its entire test set-up. Continual observation of the rocket and exhaust flames during the firing period also enables the test engineers to note any irregularities in mixture ratio.

BRITISH TELEVISION-PROJECTION DEMONSTRATED IN LONDON

● This picture shows a new-type television - projection machine manufactured by Philips Electrical, Ltd., and demonstrated in London recently. Projection is on to a screen three feet by four feet giving a bright, clear picture which can be viewed by about 70 people up to a distance of 20 feet. In the arrangement shown, the television set is at the left of the viewers and the projector unit at the right.

COMMERCIAL BROADCASTING ITEMS

The following extracts from the official Bulletin of the Australian Federation of Commercial Broadcasting Stations are made available by the courtesy of the President, Mr. J. E. Ridley.

From an editorial:—

A tribute to Australian broadcasting was made by an overseas visitor, the Director of Variety in Scotland for the B.B.C., Howard M. Lockhart. He said:—

"Australian radio is much more stimulating than that in Britain. This is because there is no commercial broadcasting in the British Isles. The competition between the A.B.C. and the commercial stations is keen, and Australians have a choice of at least eight programmes all the time."

The "dual system" of broadcasting in Australia enables listeners to enjoy a commercial service, operated by private enterprise and supported by advertising, and a National service, operated by a Commission set up by the Government, and supported by listeners' licence fees.

With all the advantages to the listener which accrue from the "dual system" overseas radio observers will undoubtedly continue to leave our shores with an envious backward glance.

* * *

COMMUNITY SERVICE

Kempsey Flood Relief: The letters of praise which the commercial stations received from officials and public alike for their help during the recent Maitland flood had not been in the files very long when another disaster—the flooding of Kempsey and the Macleay district—gave commercial stations another chance to demonstrate their community service.

In a five-day appeal, Station 2GB arranged for just on 60 tons of clothing to be forwarded to the flood areas. Radio listeners offered not only clothes, but volunteered labour, transportation, and the use of their homes as depots.

In addition to individual contributions, Lane and Co. donated 100 Thermol Stoves; the Tasman Dry Cleaning Co., many cases of tinned foodstuffs; Bowral Apex Club, a cheque for £120 and ¾-ton of clothing and food; and the Methodist Order of Knights, Rose Bay, 300 tins of food.

Approximately 200,000 garments were sent to Kempsey, which, at the modest estimate of 5/- per garment, makes a grand total of £50,000.

In a letter to the Manager of Station 2GB, the Mayor of Kempsey (Ald. J. A. Murray) writes: "I can assure you and your listeners that the magnificent assistance in the Macleay's hour of need will never be forgotten."

When it became apparent that the people of Kempsey would suffer enormous flood damage and great personal loss, Station 2GF Grafton immediately opened a relief fund in conjunction with Grafton Rotary Club. The four-day broadcast appeal brought in £1000 in cash, and 300 cases of clothing, groceries and fruit valued at a further £1000.

No time was lost in despatching food and clothing to Kempsey. Station 2GF obtained a 14-ton van from the Railway Dept., loaded it to capacity, and consigned it to Kempsey. 2GF also organised a staff of 70 helpers in this work, having the full co-operation of the Rotary, Apex and Quota Clubs, and the Grafton Boy Scouts and Girl Guides.

2GF is justly proud of the magnificent response of the Grafton and district people to this appeal, which has once again demonstrated the power and usefulness of the commercial broadcasting stations in the public interest.

"Safety Week" Supported: When Geraldton (W.A.) conducted a "Safety Week" recently, Station 6GE gave practical support by broadcasting 29 one-minute announcements, 62 minutes of recorded material, a 10-minute "live" interview and numerous "Safety Week time-signals" to keep the Geraldton listening public aware of Safety Week's importance. When Perth police traffic education officer (Sgt. George Flanders) conducted a street demonstration before about 1600 school children, John Ross covered the event using 6GE's wire recorder, enabling delayed broadcasts to be made during a Saturday night "Music Magazine" programme, and also, some days later, in the children's session for those country children unable to attend the actual demonstration.

* * *

4SB Helps Diggers: In a report by the Secretary-Treasurer of Brisbane R.S.L. (Mr. H. G. Wells), Station 4SB South Burnett is highly praised for making available free-of-charge 15 minutes every Sunday afternoon for a "Diggers' Corner" broadcast.

"I say without hesitation," writes Mr. Wells, "that the Diggers' Corner has been one of the most helpful factors in rehabilitation ever undertaken by a local R.S.L. committee. There have been scores of letters and a constant stream of inquiries from listeners. They range from all over the Burnett: Monto, Bundaberg, Murgon district, Cloyna, Mt. Perry, Rockhampton, Yarraman, etc. These broadcasts (over the last 18 months) have helped members to arrange loans, obtain sustenance payments, war gratuities, obtain tools, etc. Members who had not the faintest idea of owning a farm, now have farms of their own, while sustenance payments have brightened the prospects of other ex-servicemen."

* * *

U.S. PUBLIC FAVOURS COMMERCIALS

The findings of a research made by the National Opinion Research Centre at the University of Chicago (U.S.A.), recently published under the title of **Radio Listening in America**, reveal that 80 p.c. of those questioned thought radio should be run by private business.

The programmes with an equal following in all social groups were found to be comedy sessions, news and sports broadcasts and popular music. Classical and semi-classical music, however, revealed some divergencies. They are not high in popularity anywhere, but have much more support in the cities than on the farms.

PHIL EDWARDS, A.M.I.R.E. (VK2GS)

DESCRIBES A USEFUL INTERCOMMUNICATION SYSTEM

The many readers who expressed appreciation of the article about VOLTAGE AMPLIFIERS in our issue for November last year, will be pleased to see that our facile contributor is with us again. Phil Edwards is preparing a series of articles covering all phases of constructional activity in radio and general electronics. Look for them in forthcoming issues.

HERE is a truly simple little outfit to provide good quality audio with low hum-level over distances up to 100 yards or so. Its features are as follows:—

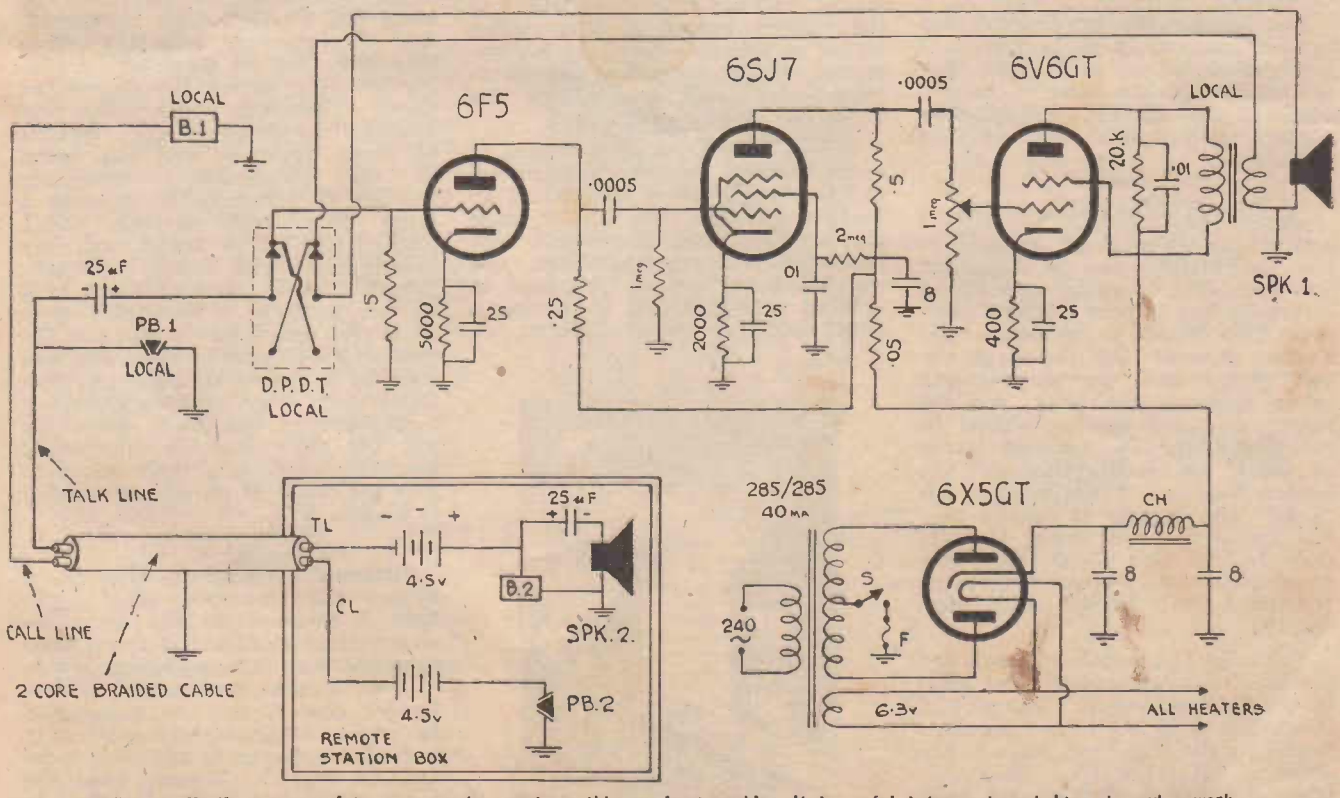
(1) Uses one speaker-transformer.
(2) Has an independent calling circle.
(3) Uses 2-core shielded cable, any grade suitable.
(4) Employs standard midget speakers and tubes.
(5) Is probably the simplest of all intercomms. to build, and is small, light and reliable.

FUNCTIONAL DETAILS

To analyse the circuit, starting from the D.P.D.T. switch, which should be of the P.M.G. type, adjusted to spring up when released. The switch is shown in the normal position, i.e., up. This makes the remote speaker the "microphone", and the local speaker becomes "speaker." When the D.P.D.T. switch is pressed down, the remote speaker is connected to the amplifier output, and thus becomes "speaker", whilst the local speaker is connected to the amplifier input grid and serves as "microphone". There is no input transformer, as the gain of the amplifier is calculated to boost the voice-coil voltage to a relatively high level. This side-steps the problem of hum induction which is so prevalent if an unput transformer is used.

The amplifier itself is typical, being a high-gain, band-pass system with a very sharp bass cut-off and limited high-frequency response. The 20,000 ohm resistor from plate to screen of the 6V6GT was found necessary to stop a tendency for a wafer-type octal socket to arc-over when the talk-listen switch was thrown. The presence of the .01 mfd. across the 6V6GT output is, of course, to "lop" the highs and balance up the general tone of the unit.

A gain control is used, in the writer's case a midget pot., screwdriver adjusted at the rear of the amplifier chassis. The fuse F is a torch-bulb, in series with the stand-by switch "S", in the C.T. of the power transformer.



● The applications for an intercomm. system such as this are innumerable. It is useful between household and garden workshop. Similarly, the radio amateur with his station in a garden "shack," will, as the originator does, find appropriate use for it.

(*Turn to next page*)

(*Continued from page 17*)

TALK-BACK OPERATION

The local buzzer "B.1" is in the master station box, and is energised when the operator at the remote station presses his call-button. Tracing the circuit, the closing of the button gives us a line from ground to the battery, through the call-line (one wire of the two-core cable), through the master-station buzzer to ground. The master-station operator merely throws the small S.P.T.S. toggle "S" to listen. To talk, the master-station operator depresses the D.P.D.T. key-type switch. If the master-station operator wishes to call the remote station, he presses his own call-button. This gives a D.C. circuit from ground, through the local press-button, along the talk-line, through the second remote battery, through the remote buzzer, to ground. The calling D.C. voltage is isolated from the talk-line by a properly-polarised 25 mfd. electrolytic at each end of the talk-line. The impedance of the 4.5 volt cell associated with the remote buzzer does not have any apparent effect on the audio line, even at this low-impedance (3.7 ohms in the case of type 3-C speakers). The shunt impedance of the remote buzzer is negligible in its effect across the voice coil of the remote speaker.

The buzzers are by Federal, and operate consistently on 1½ volts, and loudly at 3 volts. At 4½ volts they are clamorous, but over 50 or 100 yards of line the D.C. voltage drop renders the use of the full 4½ volts advisable.

CONSTRUCTIONAL POINTS

Great attention must be paid to the EARTHING in the amplifier. Any instability encountered is almost invariably due to poor earthing practice. This trouble is aggressive with a steel chassis. All the input circuit should have its earth-return group made to one point, and the output voice-coil winding should be "wandered" for the optimum earth, as should the earth return for the heater winding. This is the sole "snag", and frankly it can be serious unless the constructor is quite clear in his mind about the effects of eddy-currents and earth-potential variations in a typical small steel chassis.

Naturally, the amplifier chassis and the braid of the two-core cable must be properly grounded. The 6V6GT is overbiased, as the midget speakers cannot handle high-level audio in the order of several watts. They will, however, stand a quarter or a half-watt in a restricted frequency-range, such as this amplifier delivers. The coupling condensers of .005 mfd. may seem startling, but in practice they lend this system a clean, penetrating quality which is seldom if ever found in typical inter-comm. units. All voices are clearly recognisable, and the intelligibility is complete. The acoustics do, of course, play their part, either for better or worse.

The remote station is a small metal box, with a midget speaker, a press-button, two 4½ volt batteries, a 25 mfd. electro., a buzzer and three terminals, two of which are "hot" from ground. The press-button should be of the type which has a "wedging" action, as these never miss-fire, and have an attractive appearance. A toggle-type D.P.D.T. switch can be used for the main "talk-listen" control, but the P.M.G. "key" type is better, and lasts indefinitely. Any hum-level can be due to several things, according to the degree of care in construction, and the state of the tubes and cable. In general, high-pitched hum means induction, and might be appreciable if the shielded cable runs (as in the writer's case) within a few feet of 240-volt open lines. This places some emphasis on the closeness of the "weave" in the shielding-braid. Some stuff of this type is rather rough these days.

Low-pitched hum means inadequate filtering, or heater leakage. It also means INCORRECT EARTHING of the various groups of leads which return to chassis. Keep the master-station speaker away from the power-transformer, and orientate it for minimum hum-induction.

This whole system is a delight to operate when properly constructed, and the cost is about £8 total, if all items are bought new, and at trade prices. From used components, with ingenuity and resourcefulness, one can make the system for next to nothing, and finish up by having a most useful domestic appliance.

"DISTORTED OUTPUT."

ANCIENT AND MODERN

WHEN the B.B.C. engages programme engineers they are asked many questions about their capabilities. One of the questions is not "Can you imitate a megalosaurus?", yet this is what a team of programme engineers undertook to do recently. The reason for this was the radio production of "The Lost World," Sir Arthur Conan Doyle's romance dealing with the discovery of prehistoric creatures that were supposed to exist on a remote South American plateau. Producer Ayton Whitaker had to decide how best he could portray the noises made by pterodactyls, megalosauri, iguanadons, dinosaurs and other long extinct creatures. As no one had ever heard these noises and no data on the subject existed, his task was a difficult one. When a silent film of "The Lost World" was made moving models of these fearsome creatures were seen on the screen, dwarfing the human characters, but Whitaker had to give listeners the impression of something enormous, menacing and unutterably fierce by means of sound alone. He conferred with the programme engineers and, after copious experiment and rehearsal, the noises were recorded and later used in the production with conspicuous success.

The main thing that contributed to their effectiveness was a megaphone. Slight whispers were amplified and roars and howls became blood-curdling in intensity, especially when they were further distorted by adding an echo before listeners heard them. Crackling undergrowth was produced by rubbing large bundles of sticks together, and the sound of the megalosaurus trampling through it was made by draping a large drum with sacking, which muffled any hollow sound, and then covering it with blocks of salt. Cocoanut shells clamped down hard on this produced a wonderful effect of heavy, crunching footsteps. The creature's bellows-like breathing was done by a couple of engineers, who faced each other, and each held a megaphone. One blew down his and the other drew in his breath, gradually quickening their tempo to give the effect of an animal running to attack.

* * *

"Brassex": Glancing through a Sydney radio magazine dated April, 1923, I came across the announcement: "Garden Island is doing some experimenting in transmitting music, etc., on Sunday mornings. An enjoyable concert may be anticipated by radio experimenters who stay home from church to put their radio gear in order." Wonder what the Navy would say to-day if asked to give radio concerts to amateurs on 1550 metres?

CARE AND MAINTENANCE OF STORAGE BATTERIES

A SECONDARY cell or accumulator is known as a voltaic cell which after discharge may be again charged by passing a current through it in the reverse direction to that of discharge.

This type of cell exists to convert chemical energy into electrical energy or vice versa. An accumulator serves as a storage tank of electrical energy and acts in the same capactiy in an electric lighting installation as a gas holder in a gas supply undertaking. Each secondary cell consists of a container, electrolyte plates and separators.

There are two main types of storage batteries—the lead acid and the alkaline battery. These again are divided into various types. Lead acid accumulators are built either on the Plante system or the Faure system (named after the inventors).

In Plante type accumulators the positive plates are slabs of pure lead whose surface is worked up in a manner to increase the area. A thin skin of so called active material is produced on the surface by subjecting the lead to some electro chemical process. This skin is composed of lead peroxide.

In the Faure type positive, interstices in a lead frame are filled with red lead or a compound of lead, which during process of manufacture is converted into lead peroxide.

Alkaline accumulators are divided into two types—the nickel iron and the nickel cadmium battery.

The fundamental principle of these types is the oxidation and reduction of metals in an electrolyte which neither combines with nor dissolves either the active materials or their oxides. Also, an electrolyte (potassium hydrate) which notwithstanding its decomposition by the action of electric current is immediately reformed in equal quantity. Is is therefore an almost constant element without appreciable density or conductivity changes over long periods.

When current passes on charge the positive is oxidised and the negative reduced and on discharge the reverse occurs.

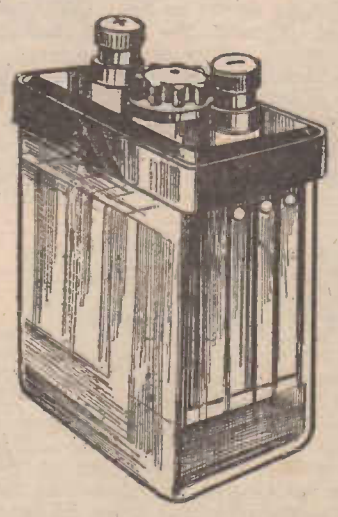
The range in voltage of a lead acid battery is on discharge 2 to 1.85, on charge 2.1 to 2.75; a nickel iron cell on discharge 1.3 to 1, on charge 1.2 to 1.6. A nickel cadmium cell has rather higher values than nickel iron on charge and discharge. These discharge voltage characteristics determine the number of cells of the respective types employed for a given voltage supply.

Most batteries require an initial charge before they are ready for use. The time required for this charge varies from 12 to 48 hours with different types. Before filling in acid preparatory to the initial charging, it should be ascertained

READERS WHO MUST RELY ON ACCUMULATOR-DERIVED POWER FOR RADIO AND OTHER ELECTRICAL NEEDS SHOULD READ THIS IMPORTANT ARTICLE.

that the charging polarity is correct, i.e. — of charger to — of battery.

During the charge the specific gravity of the electrolyte falls owing to the sulphuric acid combining with the lead components, forming lead sulphate. As the charge proceeds the action of the current causes desulphation of the plates, indicated



by gradual rise in specific gravity. An initial charge is not finished until the acid has risen to a maximum sustained specific gravity over a period of a few hours. Longest life is given to a battery if extremes of too much or too little charging are avoided.

The signs of too much charging are an over-rich colour of the plates and a heavy accumulation of spongy lead or lead moss on the top edges of the negative plates.

Too little charging causes an excessive sulphation which in turn causes the positive plates to buckle and the shedding of negative active material. It is possible that the material will lose its porosity, and therefore its capacity.

Internal short circuits will ruin an accumulator and must be immediatetly detected. The usual causes are a buckled positive coming into contact with an adjacent negative, or the bridging of the plates by spongy lead produced by too much charging or else the bottom edges of the plates dipping into an accumulation of deposit.

Failure to maintain the electrolyte level may cause the plates to be partially exposed and capacity will consequently be reduced. Plates must ALWAYS be kept fully submerged. Note that the electrolyte level will fall due to evaporation and electrolysis of water. Prolonged charging will aggravate this loss and will also cause acid to be driven off with gas bubbles.

Generally speaking, acid should not be added, but if gravity becomes too low, completely fresh electrolyte of correct density should replace the old after a complete charge.

A healthy positive plate has a rich chocolate colour, whilst a healthy negative plate has a light grey colour and if its surface were scratched would show a bright metallic sheen.

An unhealthy positive plate is either pale brown or yellow, whilst a similar negative plate may be white or dark, varying with its age. Constant attention must be paid to terminals or cell connectors. Good clean contacts are necessary, as are tight connections.

(*Continued on next page*)

(*Continued from page 19*)

Bad contact causes voltage losses. A covering of petroleum jelly is advisable as a protector of bolt connectors from the acid.

TRICKLE CHARGING

It used to be considered necessary that a battery should be used regularly to maintain it in a healthy condition because a battery when standing idle gradually loses its charge, and in time reaches the stage where the sulphation of the plates becomes chronic. Nowadays, however, by means of trickle charging the need for constant use of a battery is averted.

A small continuous charge is passed through the battery, just sufficient to counteract the open circuit losses. The trickle charge current is determined from the formula: ½ per cent. x 10 hour capacity of battery in ampere hours, divided by 24 = continuous amps.

NORMAL CHARGING

A satisfactory charging rate for any battery can usually be worked out as follows:—

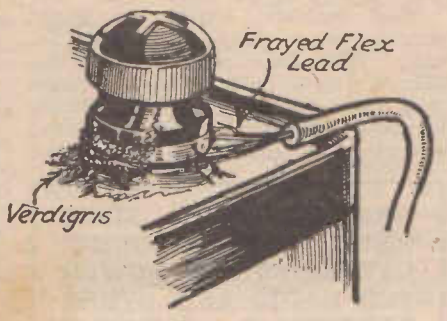
If the capacity at the 10 hour rate is known, divide this by 6 for the charging rate. If the 20 hour capacity is known, divide by 12.

Should the capacity be given and the rate not specified, divide by 12 to be on the safe side.

When nothing whatever is known about the battery, the approximate capacity can be found from the number and area of the plates. Take the area of the positive plate (in sq. inches) and obtain total positive plate area by multiplying by 2 and by number of positive plates. Divide by 3 for the capacity, and divide again by 12 for the charging rate. Where the cells are in series the area of the plates of ONE cell gives the capacity. If cells are in parallel, plate areas are added.

A battery is fully charged when its voltage and electrolyte gravity rise no further and have been constant for an hour. Normal figure for specific gravity is between 1.24—3.0 for car batteries and 1.24—1.25 for radio batteries. A practical method of noting state of charge is by watching the gassing. When the plates are fully charged the electrical energy put into the battery is absorbed in the production of oxygen and hydrogen. When bubbles of these gases are rising freely it is a good indication that charging is completed.

To ensure every part of the plates is charged continue charging at half rate for an hour or so. A rise in temperature is caused by the chemical changes occasioned by the passing of electric current and so a cell should not be allowed to get more than slightly warm (100-degs. F.). If necessary, the charging current should be reduced. Particular care must be observed on this point as charging nears completion. Sulphated cells, having less active plates, gas all the sooner, and so need slower charging.



"Bad contact causes voltage losses."

CHARGING EQUIPMENT

Accumulators can be charged direct from D.C. mains if suitable resistances are included in series to limit the current to the required charging rate. Lamps may be used as resistances.

Unless a number of cells can be charged in series so that their total voltage is near the mains voltage, the amount of energy dissipated in the series resistance is very wasteful. A rotary generator driven by the mains and giving suitable lower voltage outputs is more economical.

Most charging is effected from rectified A.C. mains, by use of valve or metal rectifiers.

MODERN FAIRY STORY

"There was always a touch of wistful improbability about 'Itma.' Great and exciting things—profitable ventures—were always just about to happen to Tommy in some of his more exotic roles—the sort of nice things we always wish for—but they never came off. But they do sometimes in real life in London. It happened to nine people in Croydon. They were all tenants of an old lady aged ninety-one. One of them was a railroad man, another a builder's labourer, a third a painter, a fourth a grocer, and so on. They'd been tenants of the old lady for many years. One night she died. When the lawyers read her will, they found she'd left the houses to her nine tenants. I think Tommy would have liked the ending to that story."

—Robert Reid, speaking in a B.B.C. programme "London To-day."

AMERICAN TV NEWS

Scientific Photography: A new method is being used by scientists in the United States to photograph bits of matter inside the atoms in magnetic materials, the U.S. National Bureau of Standards reports.

Bureau scientists, who developed the technique, claim it may offer "a powerful means for broadening present knowledge" in virtually all fields of electronics. Called the "electronic-optical show method," the new development may lead to improvements in ultra-high frequency equipment used in radio, radar and television, and in atomic research, the Bureau says.

Using the electron as a probe to explore magnetic fields of extremely small dimensions, scientists are able to obtain photographs that show the direction and strength of magnetic forces around any small magnetised object.

"The new method makes use of an electron lens system to produce a shadow image of a fine wire mesh placed in the path of an electron beam," explains the Bureau. "From the distortion in the shadow network caused by deflection of the electrons as they pass the field under study, accurate values of field strength are computed."

With this technique, physicists can photograph and study the minute "atomic magnets" within magnetic materials—"magnets so small that the use of a probe any larger than an electron would obscure the effects they produce," says the Bureau. Photographic patterns obtained may be measured and used in computing, to a high degree of accuracy, the absolute value of the magnetic field strength in the region of magnetic force.

The electronic field of force about an electrified object may also be investigated in this manner, the Bureau noted.

The shadow method is well adapted to investigation of the fundamental nature of ferromagnetism. The Bureau is also adapting it to the study of space-charge fields in several types of electron-beam apparatus used in atomic physics.

"Ixion": A radio may now be regarded as standard equipment in most homes, and it is time builders made some provision for their connection. It might cover most of these points: Location of power-point against exterior wall to facilitate a short earth connection; built-in special radio earths; some provision for connecting an aerial; attention to the acoustics of the radio room; two-way switches to kitchen and bedroom for remote control of current to sets; sound-proof baffling between flats, and built-in recesses for standard cabinets.

RADIO IN THE SHIRES

NEW SOUTH WALES experienced one of the wettest years on record and found the value of radio telephones fitted in vehicles and used by officers of Shire utilities. Floods have tested them under severest conditions and emergencies. Already there is the feeling among users that the mobile radio telephone is as much a necessity as the office telephone is to the bank manager.

Referring to the emergency communication service improvised from radio cars of Maitland City Council during floods, a senior official of the Electricity Supply Department, said: "Saturday was a critical day, as the rising waters began to inundate many areas considered to be safe. One of the heavy vehicles sent out into the Oakhampton area to attend troubles experienced breaking of the levee bank at Jenkins. A radio call for help was sent from this vehicle. We are satisfied that the radio communication system provided a most valuable aid. Had it not been for the fact that we had this system working our position would have been much more difficult, for it would have been impossible to have carried out with speed and accuracy the many operations we were called to perform during the floods. The number of messages handled in the week was 327. It speaks well of the equipment that it was able to function so well under the severe operating conditions throughout the whole period."

Amalgamated Wireless engineers who made and installed the majority of the F.M. Mobile Telephones fitted for the public utilities of Australia describe the rapid spread of the radio telephone in rural areas as due to post-war developments in Frequency Modulation, which eliminates man-made interference and produces speech quality the equal of a wired circuit. Production has commenced at A.W.A. on wireless telephone links to supplement the existing trunk line services, a fair indication of the speech quality of the radio telephone to-day.

A district ambulance attendant can describe to the hospital a patient's condition so that treatment requirements are prepared and ready immediately upon arrival. Lives have already been saved in this manner.

A minor electrical breakdown may have once necessitated the blacking out of a town's supply while linesmen were out and until they reported in, sometimes a matter of hours, but now the repair crew advise by radio telephone their arrival on the job. Power is cut only for the time it takes to carry out repairs, and the circuit is reopened, often in only a matter of minutes.

The value of mobile communications in fighting bushfires is at once apparent.

Systems operating over 10,000 square miles to 40 and 50 vehicles have been surveyed and engineered by A.W.A. for large scale electrical undertakings in Queensland and Victoria, while 14 Shires have installed systems, some as small as 3 units. Electrical undertakings already fitted private F.M. radio networks are: Moss Vale, Gosford, Blacktown, Liverpool, Holroyd, Newcastle, Maitland, S.E.C. of Victoria, Brisbane City Council, City Electric Light Brisbane and Southern Riverina.

The radio telephone is also serving newspapers, tug companies and business houses. It has come to stay in Australia's rural areas, while in the cities the P.M.G. are already installing exchanges that will plug telephone calls to and from cars via the normal line telephone exchange. It will be possible for the travelling motorist in Australia to engage in a telephone conversation with any telephone subscriber in the world, even if the person he is calling is on a motor tour of the United States.

In Tune with the Trade

TOWNSVILLE REGIONAL ELECTRICITY BOARD

The tender to establish two way Radio-Telephone Service between Townsville and Home Hill for the Townsville Regional Electricity Board, has been granted to Amalgamated Wireless.

The System will provide for two 20 watt F.M. terminals, bell calling, spanning 50 miles and serving five of the Board's cars operating in the area.

A.W.A. advise that work is under way on the vast network ordered by the Brisbane City Electric Light Coy. comprising 14 central stations throughout its 10,000 square mile zone, and operating to 54 vehicles throughout that area.

Work has been completed on the 50 car Central System of the State Electricity Commission of Victoria and it is now being extended to link rural centrals operating some 15 vehicles.

It is to be expected that equipment demands in Electronic Fields by electrical undertakings are more exacting than those of organisations outside the industry, and it is a high tribute to A.W.A's radio engineering skill that so many of the Electricity Supply Organisations of Australia are utilising their equipment.

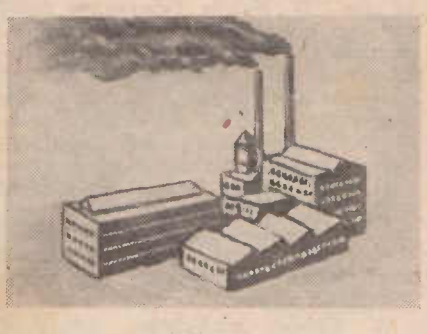
The Electricity undertakings fitted with radio Mobile and Terminal links by A.W.A. include Wingecambie (Moss Vale), Brisbane Waters County Council (Gosford), Blacktown, Liverpool, Holroyd, Newcastle, Maitland, S.E.C. Victoria, Metropolitan and Provincial Brisbane City Council, City Electric Light Coy., Brisbane and Southern Riverina.

* * *

● Below

Philips Electrical Industries of Australia Pty. Ltd.

NEW CONSOLE MODEL 119



Here are the main features of the latest Model 119 as illustrated:—This is a 5-valve A.C. D/W console; Philips "orchestral tone" feed-back circuit with physiological low-level compensation; has totally new audio frequency response characteristic which gives perfect overall (tonal) balance; adjustable, unconditionally guaranteed Inclinator Dial, hinged to move through an angle of 90 degrees; full delayed automatic volume control; pick-up terminals which automatically disconnect radio when pick-up plug is inserted; 12 inch Permagnetic speaker; modern style wooden cabinet of selected matched veneers, with solid maple top. dimensions: 32¾ in. wide, 28¾ in. high, 12¼ in. deep. Supplies are limited and the retail price is £50/8/- (slightly higher in North Queensland).

From the publishers of "Wireless World," London, England, we have received a handy booklet. This is a useful reference for the short-wave listener in particular. Headed "GUIDE TO BROADCASTING STATIONS," there are 88 pages packed with appropriate information.

Almost without exception Europe's four hundred long and medium wave broadcasting stations will be changing their wavelengths when the Copenhagen Frequency Allocation Plan comes into operation. In order that this new edition of "Guide to Broadcasting Stations" should not become out of date within a few months, it has been enlarged and includes, in addition to the present operating details of Europe's stations, those which will come into force on March 15, 1950.

Operating details of nearly 1,300 short-wave stations of the world, which have been checked against the frequency measurements made at the B.B.C. receiving station at Tatsfield, are also given in tabular form both geographically and in order of frequency.

In addition to the above information on broadcasting stations, this booklet includes details of Europe's television and E.H.F. broadcasting stations, and special service stations —such as meteorological and standard frequency transmitters; world time constants; revised list of international call-signs; and wavelength-frequency conversion table.

Contents include:—

Long- and Medium-wave European Stations, with present Frequencies, Wavelengths and Powers, and those to be used from March, 1950. Geographical List of Long- and Medium-wave European Stations, with Frequencies. Short-wave Stations of the World, with Frequencies, Wavelengths. Powers and Call Signs. Geographical list of Short-wave Stations, with Frequencies. European Television and E.H.F. Broadcasting Stations. British Amateur Transmitting Frequencies. International Allocation of Call Signs. Standard Time. Special Service Stations. Wavelength and Frequency Conversion, Formulae and Tables.

The price is 1/6 (postage 1d.) from the publishers—

ILIFFE & SONS, LTD.
Books Department,
Dorset House, Stamford Street,
London, S.E.1.

TRADE ITEMS

MANAGING Director Ron Bell of R.C.S. Radio, Canterbury, N.S.W., has an intriguing glass container of polystyrene moulding powder handy on his desk. It intrigues because it isn't just ordinary powder, but strongly luminous. A little exposure to light and the stuff glows enough to be seen in subdued light with a white-bluish aura. Uses for such powder for moulding all kinds of knobs, bell-pushes, handles, ash-trays, etc., are immediately evident.

* * *

Unique in Australia is the business of Radio Exchange, William Street, Sydney, where emphasis is laid on Communications receivers of all shapes and sizes. Although there are plenty of high-grade ex-war service receivers to be had there, business is being done now in the famous Eddystone line, with the Model 640 well in the picture. Readers interested in this superb British receiver should drop in or write to Mr. Baker, Manager, who will be pleased to discuss requirements.

* * *

Advice received in Melbourne by Electronic Industries Limited stated that television equipment built to American specifications by Pye Limited of Cambridge, England and delivered in the United States had been demonstrated successfully to the Federal Communications Commission. American Press comment had been most favourable.

* * *

One of the keenest recording men we have encountered is Graham Conolly of Moore Street, Roseville, N.S.W. From an initial hobby status, Graham has evolved a competent commercial recording business, catering particularly for social events, weddings, christenings, etc. In his work a PYROX wire outfit is the all-hearing recording medium, with subsequent disc transcription to meet individual needs. He is also an enthusiastic transmitting amateur, VK2ARR, and a member of the announcing staff of a Sydney commercial station.

* * *

PERSONAL PARAGRAPHS

Spending part of his honeymoon in Sydney was Keith McGilvery of Eidsvold, Queensland. While in town he went out to "H.M.V." at Homebush for a "look-see" behind the scenes, and, of course, to receive congratulations on his marriage.

Among recent visitors to the "H.M.V." Works have been: Alan Bruce of Lindsay & Bruce, Wollongong; Don Hopper (Byron Bay); A. G. Wells, Snr. (Gunning); Arthur Boot (Lithgow); Ken Pace (Junee); Doug Thompson (Scone).

* * *

HALF-A-CENTURY CELEBRATION

In anticipation of its Golden Jubilee next year, the Gramophone Company Limited is inviting correspondence from Retailers in the Commonwealth who have been associated with "H.M.V." products since the early days of the Company in Australia.

One veteran Retailer, who recently visited the Homebush Works, is Mr. Bob Procter of Grenfell (N.S.W.). He remembers playing a "H.M.V." gramophone in his father's shop at Camden just on fifty years ago, and his early training no doubt accounts for his success too as an Accredited "H.M.V." Retailer.

The Company, both here and in all parts of the world, is planning a big commemorative year to celebrate this historic occasion in the realm of home entertainment.

SAYS TELEVISION WILL NOT AFFECT RADIO

MR. L. M. STUART, a Director of Electronic Industries Limited, returning to Australia, said he was more convinced than ever that television would not sound the death knell of radio. His investigations both in England and on the Continent had been confined mostly to the merchandising aspects of radio and television.

It costs the B.B.C. £100 a minute to put television on the air from one station alone, and programmes were limited to three and a half hours a day. This increased the difficulties of installation and servicing of receivers, and a lot of night work was involved. Salesmen and servicemen would have to make a close study of the techniques of television before it arrived in Australia. Experience in England was that it was readily mastered by anyone with experience in radio.

In spite of the general enthusiasm for television and the certainty that it would occupy an essential place in every home of the future, it could not be taken in prolonged "doses." It became tiring. It was a concentrated form of entertainment whereas radio was a background entertainment.

"In the comparatively short period that we were in England," said Mr. Stuart, "we got to the stage of criticising some of the programmes and of having our own 'favourites.' After seeing the tremendous difficulties under which the programmes are produced at Alexandra Palace, I marvelled that they were as good as they were."

● One of the RCA-MARCONI Television cameras as used by Amalgamated Wireless (Australasia) Ltd. in the interests of modern Surgery. The tests in conjunction with hospitals in Melbourne and Sydney have proved clearly that television installations for such vital work are nothing short of imperative. The hospital of the future without the benefit of television for student training is unthinkable.

IN *LIGHTER* VEIN

NOISEMAKERS INC.

Ingenuity Of An Effects Man

"HOW to make a noise?" says you, "that's easy, anyhow!"

But I mean the right kind of noise.

On the stage the property man (who is the drama's "effects" man, *ex officio*), stands by with a hinged implement of wood, exactly like a huge nutcracker, and when the villain gets a sock from the hero's dirty left on the symphysis of the mandible (otherwise the jaw), the "props" gives a sharp "clap" with his wooden nutcracker—in this instance a real "nut" cracker—to stimulate the cushioned thud which is *really* the correct sound. But that wooden smack on the jaw *sounds* painful, and therefore gives pleasure to the judicious playgoer.

Similarly when the herowhine is tied to the rails and the Midnight Express is thundering towards her, props has two flat bits of board covered with glasspaper, and he shuffles them together rhythmically till you'll swear it was the steam of the locomotive. Meanwhile his offsider is juggling other apparatuses to give the effect of the approaching train's roar.

When the movies first came, the producers were under the insane impression that the audience wouldn't understand that it was the picture of horse trotting over a bridge they were looking at unless the effects man behind the screen made a noise resembling that of a horse trotting over a bridge.

Now, of course, the radio must have its effects man. I wanted to know how *he* works it, so I went and cross-questioned the effects bloke of a local station.

"Ah!" he sighed, "noise-making isn't what it was. We used to open a real bottle of beer to make a noise like a cork popping, but these capsules they use now have robbed the profession of noise-making of its charm. We don't use bottled beer any more!"

Then he held forth most learnedly:

"I find," he said, "that the radio thrillers, chock full of battle, murder and sudden death, require the most effects. Pistol shots, rifle shots, thuds and so on.

"In radio presentations, the effects are conveyed by sound only. The noise of the frequently-heard gun or pistol shot is generally worked by slapping a cushion or padded chair seat with a cane. Other frequently-heard sounds — train noises — are easily simulated by running an old roller-skate over a corrugated surface, preferably on a gramophone turntable. The whistle is the simplest effect to produce—near or distant it is all the same—just wind, and the clickety-clack of the wheels over the rail joints is effected by a slowly-revolving ratchet.

"As listeners got more air-minded it was necessary to give the real aeroplane engine-hum, and this is now almost universally done from recordings.

"Most stations have recordings which were made specially for adding crowd noises (several degrees), bands arriving and departing (with and without cheers), screams, from a high falsetto to a hoarse yell, and groans in several degrees of agony. There are also many effects of a nautical nature—winds and storms in all fittings, from zephyrs to cyclones, the boom of the distant foghorn, the crescendo of the siren—the rattle of winches and anchor-chains, splashes of oars and chanties in several languages.

"All these are used in recorded form when there is ample time and "lead-up," but for sharp isolated effects other devices are resorted to. For instance, peas rolled round in a box convey the impression of a sudden roll of a ship at sea. In jungle effects the most shattering imitation of a lion's roar is made by pulling a resined string, which is attached to a drum or tambourine.

"Included among a host of those dramatic effects which are easily produced, are the clank of chains, the jingling of stirrups and equestrian equipment, footsteps approaching or retreating, the closing and opening of doors and accompanying noises, such as knocks and bells, most of which, by the way, the real dinkum noise itself modified or muffled for the mike.

"Ever since drama was drama the sound of horses galloping has invariably been made by half-cocoanut shells 'loose-coupled," to use a radio term, and tapped on a sounding base of varying density as required. Crashes of various kinds which indicate anything from a railway smash to falling downstairs with the wife's breakfast tray, are effected by various combinations of broken china and glass in different containers, though it is customary to break strips of three-ply or light wood to follow a railway collision, thus indicating the rending of the carriages and trucks.

"So that effects in their volume may be carefully checked, they, too, are rehearsed, or tried over, in conjunction with the scene to be broadcast and, if not satisfactory, others are substituted. The supplementary sounds are not produced in the same studio as that in which the play is being enacted — they come from a separate, or effects studio, and have a mike, or 'pick-up," all to themselves. Their volume is controlled at the 'mixing panel' through which, together with the voices of those taking part in the scene, they go to the 'amplifying panel' and then to the transmitters and out into the ether."

—"N.C."

ROUND THE TURNTABLE

NEW RECORDINGS . . .

Two evergreens under the "special treatment" of Spike Jones and his City Slickers on "H.M.V." EA3853. They are "MacNamara's Band" and "Knock Knock."

Australian compositions released by Columbia demand our attention this month. The noted Australian tenor, Anthony Strange, makes a welcome reappearance on DO3310 as he sings "In Moonlight," by Hal Evans and "For Every Leaf" by Bailey-Lavater. Then there's some distinctive piano work by leading Sydney pianist, Dot Mendoza. She has chosen an attractive composition by Archie Rosenthal called "Girl Portraits." These four "Miniatures" occupy both sides of DO3311. And finally the big demand for samba music will make DO3312 a much sought after record. This is "Kookaburra Samba," by Hal Evans again, and "No, No," by George Trevaire, whose orchestra plays both numbers. Johnny Wade does the vocals in his typical smooth style.

The romantically inclined will enjoy the set of Brahm's "Liebeslieder Waltzes" on Columbia LX8623/31. These love songs captivated the music-loving public of Vienna when first presented there by Clara Schumann in 1869/70. The artists in this work of rare distinction are Irmgard Seefried (soprano), Elisabeth Hoengen (contralto), Hugo Meyer-Welfing (tenor), and Hans Hotter (baritone). This is the art of Brahms in its gayest and most romantic mood.

On AK2060/5, Decca offers a long-awaited new recording of Schubert's "Octet in F Major," Op. 166, one of the composer's finest works. The eight instrumentalists from the Vienna Philharmonic Orchestra, play not only with incomparable skill, but with an obvious love of the music that makes this set a priceless possession for lovers of chamber music.

A pair of sparkling works are grouped on "H.M.V." DB6786. These are both by the German-Italian composer, Wolf-Ferrari — the intermezzo from "I Quattro Rusteghi" and the overture to "The Secret of Susannah."

Victor de Sabata conducts the Symphony Orchestra of the Augusteo, Rome, and the recording is delightful in the extreme, a worthy follow-up to Wolf-Ferrari's "The Jewels of the Madonna" which is heard frequently in A.B.C. recorded music sessions.

Vienna, synonym for happiness and laughter, is prominent among December's labels. First there is Andre Kostelanetz and his Orchestra playing "Vienna, City of My Dreams" for Columbia on DX1571. It is backed with the lilting and ever-popular, "Two Hearts in Three-Quarter Time." The second is a really thrilling performance of the Johann Strauss waltz, "Vienna Blood," by soprano Erna Sack. The coupling, sung by the same artiste, is "Carnival of Venice" and it is available on Decca K2230. And finally there is the Philharmonia Orchestra playing the ever delightful "Tales From the Vienna Woods," a double-sided record for Columbia on DX1503.

Those who regret the passing of Tommy Handley from the entertainment world will find a fitting homage to him on "H.M.V." C3844. This is a memorial choir of thirteen male voices singing "The Long Day Closes" by Sullivan and two Walford Davies' melodies. The choristers performed this music at the St. Paul's Cathedral Memorial Service in honour of this beloved artist.

On "H.M.V." C3891, the Melanchrino Orchestra, regarded as one of the best light orchestras on record, present enchanting performances of an old and a new melody. "La Paloma" is familiar to us all, but "Festival" is a newcomer. It was written by Richard Addinsell (of "Warsaw Concerto" fame) for the Emlyn Williams stage play "Trespass." The music was used as the theme of the play, and its intriguing melody is sure to delight lovers of the unusual.

A recording "first" which will capture the attention of ballet fans is Prokofieff's "Cinderella" which had its premiere at Covent Garden this year. To quote overseas critics, it has "wit, grace, nobility" . . . and "is in the tradition of the best Russian music for the ballet." It is available on three Columbia discs, DX3828/30, and is played by the Royal Opera House Orchestra, Covent Garden, conducted by Warwick Braithwaite.

CORRESPONDENCE

LETTERS to the Editor on any aspect of radio or television, are always welcome. Where space permits, selections will be published. A pen name may be used but it is essential that the writer's correct name and address be supplied. The Editor holds the right to abbreviate letters where necessary. The publishers do not necessarily agree with the opinions expressed in letters.

* * *

Mr. J. A. Hampel of Station 5RM, Berri, South Australia, says, of "Australian Radio and Television News," among other things . . . "please accept my congratulations on what must be Australia's first 'all-round' radio publication, and for so openly debunking the hoaxes about FM broadcasting which have been virtually strangling the radio industry's sales."

* * *

10 Pearl Avenue,
Epping,
N.S.W.
27/11/'49.

"Australian Radio and Television News,"
Box 5177, G.P.O.,
Sydney.

Dear Sir,

Just a few lines in appreciation of your fine magazine and a request for an article covering high quality mixing systems and general disc recording considerations. I read with interest the article about low level voltage amplifiers and thought maybe the other articles could be handled along the same lines.

My own gear consists of a TRF tuner (6GK7, 6SK7, 6F8-G) followed by the Williamson feeding into a Rola 12-0. I am using P.P. 45's instead of 807's by the way.

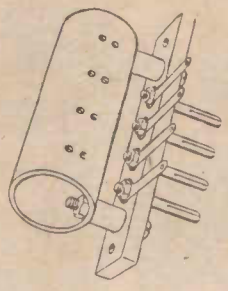
I hope that you manage to publish the article because I think many readers would find it interesting. I know quite a few chaps who would.

Yours sincerely,
John H. Wark.

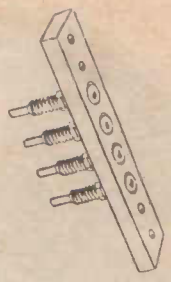
(This letter is typical of many received. You may rest assured that as time progresses you will find many articles of the kind you referred to —in this magazine.—Editor).

RECEIVER BY NUMBERS

Many letters have been received from young would-be constructors of the single valve arrangement given in our Vol. 1, No. 3, page 24. They soy that the orticle is incomplete—that it leaves the story unfinished. Thot is correct; the article was meont to serve merely as an introduction to identification of parts, and was not intended as a fully constructionol description. For the benefit of these young readers, we ore preparing a fully descriptive article on a receiver using one valve only, and this will be something you can put together with confidence. Look for it in the near future.



RADIOTIPS
For
PRACTICAL PEOPLE

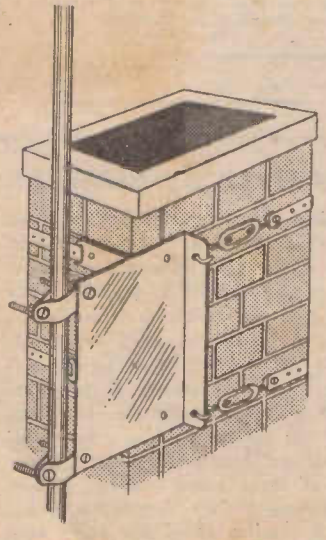


POINTED FACTS ABOUT TESTING CONDENSERS

Unknown condensers first should be checked to determine if they are shorted or open, to protect the meter in any capacity measuring device you use. The preliminary comes under the head of "leakage resistance" test of a condenser and is made for electrolytic or electrostatic condensers the same way, and the same rule applies: the higher the leakage. D.c. is used in this test.

Electrolytic condensers pass more current one way than the other. No such difference shows up on other condensers.

Alternating current applied to a circuit in which meter and unknown capacity are in series enables measurement of the capacity of electrostatis condensers but seldom the electrolytic condensers. If the voltage and frequency are fixed, capacities from .05 mfd. to 10 mfd. may be measured by the high capacity meters, while below .05 mfd. capacities are better measured by a bridge, or for small capacities, by the substitution method, using radio frequencies.

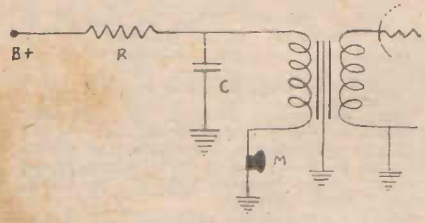


● Want to fix an aerial pole to a brick chimney? This drawing is self-explanatory. Materials needed are a steel plate with suitable fittings, two wire strainers, and strip steel to clamp round the chimney.

Microphone Current Without Batteries

If you have a carbon button microphone which operates satisfactorily on a low current and your H.T. supply is not already overloaded it is possible to dispense with batteries.

The arrangement should particularly suit Reisz and other rather high resistance type carbon granule microphones provided the voltage required across the primary of the transformer and microphone in series does not exceed the rating of the condenser C.



This condenser is a 25 mfd. electrolytic as used to by-pass cathode resistances. The resistance R must be capable of carrying the total current taken by the microphone and should be of a sufficiently high value to limit the current to the minimum on which the microphone will operate satisfactorily. The resistance and condenser also provide good filtering so that no hum will result.

* * *

"Airmin": Those T type sockets, for EF 50's and similar 9-pin valves, can be troublesome where acquired from ex-service gear. Many of the wafer variety have been assiduously sprayed or brushed by misguided people with a mania for "tropicalising" with the result that the "goo" is all over the contact springs as well as the body. Poor contact and "seized" springs are the result of such treatment. Soak such sockets awhile in lacquer thinner or acetone, then dry out for a day or so, and all will be well.

* * *

"B.E.": When testing accumulators with a hydrometer, it is important to remember to return the acid to the cell from which is was taken immediately after the specific gravity has been ascertained.

RESISTANCE WIRE

It might be useful to know that No. 28 Eureka wire will comfortably carry 0.5 ampere. For heavier current than this, two or more strands twisted together can be used, the required number being current in amperes divided by 0.5. No. 28 SWG Eureka has a resistance of 3.914 ohms per yard, but for all practical purposes this may be taken as 4 ohms. Where one volt has to be dropped and the current is one ampere, the resistance should have two strands of wire, and, dividing it into two parts of 0.5 ohms each, simple calculation shows that each strand should be one ohm. This is obtained with 9 inches of 28 SWG Eureka.

★ ★ ★

WOY WOY 1949

Successful N.S.W. Field Day

ON Sunday, November 27, N.S.W. Division of W.I.A. held the second annual Field Day and miniature Convention at the waterside location of Woy Woy, 50 miles or so North of Sydney. The day was an occasion for a foregathering of VK2's and friends from far and near, and everybody enjoyed the fun. Organisation of the social side was ably arranged by Cecil Hardman, VK2KR, assisted by Jack Francis, VK2OF. The official programme was in the capable hands of Bill Moore, VK2HZ and Bill McGowan, VK2MQ..

The 144 Mc/s hidden transmitter prize was carried off by Morrie Findlay, VK2PW, and party and honours (and prize) for the amateur travelling greatest distance to attend went to Harry Hine, VK2ARY of Bellingen. Trevor Evans, VK2NS was twice a prize winner, first in the crystal frequency guessing contest and the lucky ticket numbers secondly. Eatables in plenty were provided and liquids inevitably went the way one would expect in hot weather. Luckily the day's proceedings wound up before a terrific electrical and windstorm swept the N.S.W. coastal region in the later afternoon, but VK2KR's station was a bit the worse for wear after the 72 m.p.h. gale passed. His combined 2 and 6 metre beam crashed, taking his 40 metre Foldipole with it.

Noticed among the old hands during the day—Lionel Swain, VK2CS; Gordon Kempton, VK2CI; Bill Potter, VK2WP; and Charles Luckman, VK2JT. Among the YL's and XYL's we saw Monty Nell's lass Betty, of VK2JQ. Hugh Stitt of VK2WH, Forbes, was prominent in helping out the thirsty ones with a supply of an ever-acceptable commodity; and Graham Conolly, VK2ARR, did a fine job in recording voices and singing with his Pyrox wire outfit. Even the blokes selling Hawkesbury oysters at 3 bob the bottle at the Bridge, went on the wire.

Hidden vocalist talent was revealed when John, VK2GA, was induced to get before the microphone, so much so that Sinatra had better look to his laurels. An effort by Hugo and one or two others to get Trev. VK2NS and Don, VK2NO, to chant a duet didn't come off. Trev flinched perceptibly and Don claimed immunity because of "What, me with *my* asthma?" Even so . . . the result of such a duet might be entertaining and somewhat shattering. We'll think it over boys for next time. It was really good to see the gang in the flesh, and we feel that there cannot be too many of these Conventionettes.

● This is the receiving set-up for 144 Mc/s at the station of Major Collett, VK2RU, Gosford, N.S.W. This station is one of the foremost in VHF activity.

This publication extends the deepest sympathy to old timer Del, (Rev. Dellbridge) VK4RJ of Stanthorpe, Queensland, on the loss in the latter end of last year of his wife. Now, more than ever, amateur radio is a welcome mental relaxation for VK4RJ. You will find him at the HF and of 20 mostly boys.

NO SAVVY!

We correct an erroneous impression on the part of one or two amateurs that the Editor of this publication is the anonymous "Old Man" featured in the W.I.A's "Amateur Radio." We are as much in the dark about his identity as anybody. Your guess is as good as ours.

* * *

300 OHM FEEDLINES

A VK3 writes: ". . . the 300 ohm ribbon now so popular is convenient stuff to use but full of traps for young players. Not only weather can cause headaches, but more often breakage of the wire is a reason for conjecture as to what has happened to final stage loading. After normal function, lack of loading or too much is a pointer to breakage in one side of the line somewhere. This of course, can be checked by rigid staying of the line and avoidance of undue movement in windy weather. The wet weather nuisance however, is another matter. Punching holes along the polyethelene material does help to a considerable extent, but is still not a complete cure. I changed my ribbon feedlines to a Triplex beam for spaced lines using those handy little oval shaped Sweetman spacers and 18 gauge copper wire strained fairly tightly. Now it can rain until the cows come home . . . everything stays normal."

(For the benefit of those who may not know, the oval spacers mentioned are obtainable in Adelaide, South Australia, from C. S. C. Sweetman, 1st Floor, 31 Chesser Street. This company is now producing also an excellent kind of poly stand-off insulator in many sizes . . . invaluable for VHF and UHF equipment.—Ed.)

Picture of a plodder . . . through the decades . . . a CW signal with a familiar style . . . there on 20, most early mornings . . . busy calling and working the choice ones. VK2PX is the call, and Harold Ackling, the man behind it, has been punching the key ever sinc there has BEEN a 20 metre band. In between time he was punching military keys in Greece and Crete . . . remember?

STATION OF THE MONTH

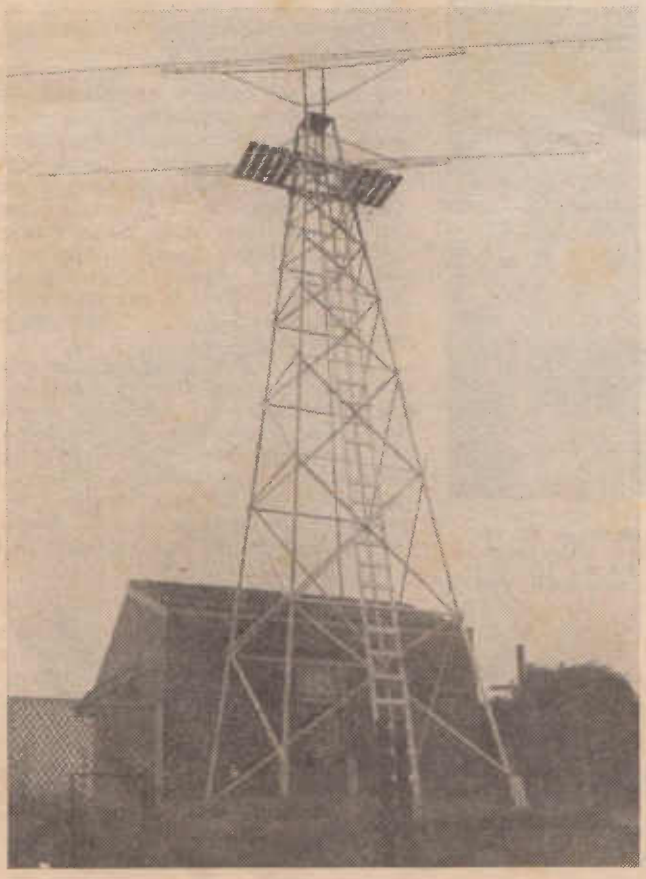
VK2TI, KINGSFORD, NEW SOUTH WALES

THIS month we are pleased to present a station description of an Australian amateur with an outstanding record in the history of amateur radio progress in the State of New South Wales; that of W. (Wally) G. Ryan. Both prior to, during and immediately after the late non-lamented war, it was Wal Ryan of VK2TI who worked hardest and did most in keeping together the N.S.W. Division of the Wireless Institute of Australia. It was in 1935 that Wal Ryan first came into prominence in Institute affairs with his appointment as N.S.W. Secretary the year after he was licensed. From 1936 to 1943 he occupied the particularly strenuous secretarial chair, and in the latter year became Chairman, a position held until 1946. In that period came the war, with all that it meant in the disruption of amateur radio domestic affairs; but in Sydney it was VK2TI who kept the flag at the mast by gathering together the small handful of VK2's available to make monthly meetings something more than a mere travesty. Additionally to his keen enthusiasm for W.I.A. affairs, Wal Ryan laboured under an additional burden with appointment as Deputy Controller of Wireless in the National Emergency Communication Network. That in itself was a full-time arduous job closely wrapped up in A.R.P. and general readiness for what might have come but fortunately did not. With control station established at a prominent city location; Railway Headquarters, constant traffic exercises fully on the lines of military communication were held and maintained. All stations were manned by Sydney amateurs who were, because not able to serve in fighting forces, obliged to serve on the Home Front. They did a very good job, and we know that a principal reason for efficient and smooth functioning was the organising ability of VZ2TI.

A few instances where Wal Ryan served with distinction in W.I.A. affairs, as we recall them, are: Con-

(*Next page please*)

● Wally Ryan, VK2TI, is the man who worked like a Trojan for many years in the interests of N.S.W. Division of the Wireless Institute.



Left:—

● An obvious reason why VK2TI "gets out" whenever he appears on 14 or 28 Mc/s is this effective rotary beam combination atop the sturdy tower. This array is a landmark in the Kingsford, N.S.W. area. A ladder and "catwalk" provide easy access to the arrays for adjustment.

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VK2TI—Continued

test Manager 1938 VK/ZL DX Contest . . . Sesqui-Centenary Year, Federal Secretary 1942-1945, Federal Councillor in 1936, Bushfires Communication Network 1945, Exhibition Manager 1936 and 1937. In 1946 Wal was elected a Life Member of the Institute in recognition of his sterling services, and he is also a Life Member of the Waverley Radio Club . . . the oldest in Australia. The ARRL magazine "QST" featured him as being a prominent representative of Australian amateur radio . . . a "write-up" source to bring a glow of justifiable pride to any true-blue follower of the hobby.

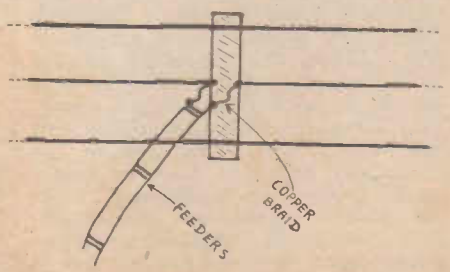
In 1946 Wal Ryan found it necessary to retire from active participation in amateur radio affairs; some of which he had oft-times found strenuous enough to call for the courage and wisdom of a Caesar, but naturally did not "leave in the air." At times we hear his familiar voice at his mike or fist at the key, in a quiet look-in on the 14 mc/s DX situation. His location, at 21 Tunstall Avenue, Kingsford, is graced by a rotary beam atop a neat tower, as illustrated, and with the house at a good elevation overlooking the surrounding terrain, it may be considered that VK2TI both "hears 'em and works 'em." The beam is a rotary 8JK type for "twenty" and "ten," and there is also a 66 foot Zepp antenna. Wal says that he only uses the rotary these days, but we know that the old faithful Zepp worked wonders for years. He retains it no doubt, "just in case". Equipment comprises a 4-stage transmitter to operate from either VFO or crystal with remote control throughout. Modulator for speech applies push-pull 807's. and the receiver, a real veteran, is a 12 valve super made in 1935. During the war, it was this gear which acted as Control station for the Emergency Communication Network. It was located first in the basement of Teachers' College and later in the sub-basement of Wynyard station, York Street. That necessitated a feeder more than 300 feet in length, running up to the 10 metre dipole aloft. Communication was maintained with other Nets, such as Sydney Harbour Patrol and the Police system. During the Amateur Radio Exhibitions staged in pre-war years at the Assembly Hall, Margaret Street, and Sydney Town Hall, this equipment was operated with success. In the DX field, Wal Ryan has made the DXCC and BERTA. Together with Ray Priddle, VK2RA, he was responsible for inauguration of the Australian DXCC. Also, in 1937, he won the 1947 ARRL DX Contest. All in all, a VK2 with a very excellent record; a genial personality, and one to whom the younger generation of W.I.A. members can look for an historic example of unselfish devotion to a worthwhile hobby.

● The neat rack and panel transmitter assembly at VK2TI.

* * *

ANTENNA FEEDER CONNECTIONS

In the case of spreader-slung beam arrays, much trouble is encountered with feedlines breaking at the point of junction between feeder and radiator, where the lines swing free. Even if flex wire is used in the feeders, trouble is that the so-calld "flex" is often made up of stranded brittle wire. Continuous movement of such wire caused by antenna sway in wind



is sure to lead to eventual breakage. If a strong multi-strand flex is not available, a sure cure is to make the flexible joint between feeders and antenna by including about two inches of small size capper braiding. This stuff can take a lot of movement without any fear of breakage. The sketch shows a folded dipole with the feature indicated.

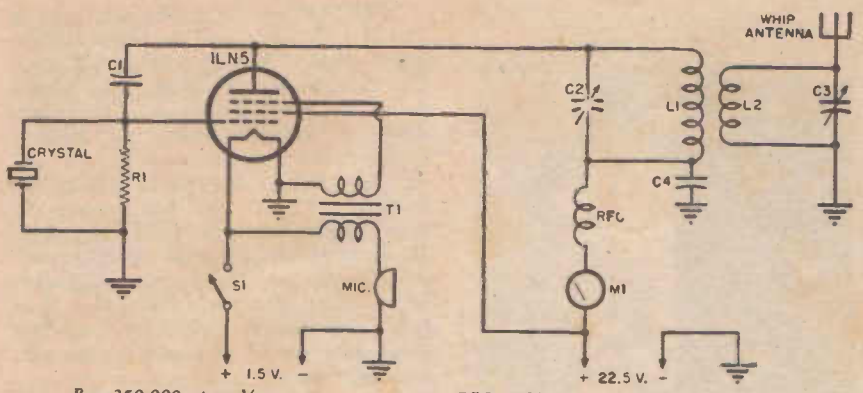
"PIP" Many VK's who soldiered in 2nd A.I.F. Sigs. will be interested to know that VK3GE, otherwise Lt./Col. George Every, M.M. has retired from the Army and is now a civilian. After a lifetime's soldiering, such a move doesn't come easy to an old warrior, but as George is one of the keenest "hams," he has plenty to keep intrest in life from flagging. He is with the "Austin of England" distributors in Melbourne. Old cobbers will be pleased to know that they made VK3GE a full-Colonel on his army retirement. See you on the air, George!

* * *

We note that in a report of commercial VHF activity overseas that the well known Pye Company of England have turned out a receiver for police communication using 14 valves and a super-regenerative second detector. This practice goes back to the Super-Infragenerator receiver described by "QST" about 12 years ago, and of which there have been modified versions described in the last four years for 2 metre work. There is no doubt that the super-regenerative second detector in a VHF superhet receiver has a big advantage of good AVC action, combined with the front end selectivity of the superhet. Discrimination against ignition interference is not the least of the squegger detector's virtues also.

* * *

VHF Listening is taken very seriously by some enthusiasts. About the most comprehensive VHF SWL station we have seen reference to must be that of L. R. Ross, Almondsbury, Gloster, England, vide "Short Wave News," published by G2UK. He has the following equipment in constant use. 50 Mc/s, R208 Receiver (6AK5 preselector) ½ wave dipole N-S. 60 Mc/s, R208 with RF26 unit ½ wave dipole N-S. 70 Mc/s RF27 unit and ½ wave dipole E-W. 144 Mc/s, RF27 unit 6AK5, 6J6, 6J6, 6C4 (osc) converter; 954, 954, 955 (osc) converter; 1147A (modified) ½ wave dipole N-S; SCR522 (modified) with 4 element rotary beam. For 420 Mc/s he has another 1147A and a converter using a 2C40, 955, 955 (osc) and a 7 element rotary beam. And to complete the VHF part of his station there is a TU270A, a klystron oscillator and a parabolic aerial for 2300 Mc/s. HF's? Yes, he listens there also, although we wonder how he finds time. He has a Marconi H2813 covering 150 Kc/s to 23 Mc/s, also an R208 to cover 10 Mc/s to 60 Mc/s. All of which adds up to a great amount of listener enthusiasm!



R_1—250,000 ohm, ½ w. res.
C_1—See text
C_2, C_3—50 µµfd. midget var. cond.
C_4—.002 µfd., 200 v. cond.
S_1—S.p.s.t. sw.
M_1—0-1 ma. d.c. meter

RFC—2½ mh. r.f. choke
T_1—200 ohm to grid microphone trans.
L_1, L_2—See text
Crystal—
Tube—1LN5

A MINIATURE 'PHONE TRANSMITTER

Here is something different, to provide the basic idea for a compact short range telephony transmitter using only one valve. It is crystal controlled and uses suppressor modulation.

SOME weeks ago, we were fortunate to run across some 1-4 volt dry cell valves of a kind not widely familiar. They were in the window of a Sydney Disposals dealer —type 1LN5's, loktal valves, and with sockets available.

This type, on reference to the valve data in A.R.R.L. handbook, is shown to be an R.F. pentode, with free suppressor grid; a point which to those older hands who have used suppressor modulation—immediately promotes ideas.

Would it be feasible to build a battery powered crystal oscillator calling only for dry cell power—and modulate it without complexity? The answer is shown in the circuit details and description, but of course, everything depends upon availability of a valve such as the 1LN5. Americans are fortunate in having these and miniature equivalents easily to hand, but if you, and VK/ZL happen to have acquired a 1LN5 and have a leaning toward gnat-power portable gear—then this brief article should interest you. The prime objective of the design is extreme portability, small size, and a minimum power requirement. You can apply many 6.3 volt free suppressor R.F. pentodes similarly, but a 6 volt accumulator takes things out of the "handy" category.

GENERAL POINTS

This little transmitter can be applied for such purposes as "walkie-talkie", amateur or light commercial work.

For portable use it is preferable to use a valve requiring either 1½ or 2 volts d.c. for the filament source and not over 67½ volts for the plate supply. Modulation requirements indicate a system of modulation necessitating very little power from the modulation source. For these reasons, suppressor grid modulation and the 1LN5 is the one meeting these requirements.

A high level modulation source is the output obtainable from a carbon microphone and its associated transformer. This output is sufficient to either grid bias or suppressor grid modulate an r.f. stage. Where modulation is produced in the oscillator or only r.f. stage, crystal control must be employed to prevent excessive carrier shift. Even with crystal control there is some carrier shift and it is inadvisable to operate a high power stage similarly.

The modulation of a suppressor grid valve usually calls for the suppressor grid to be biased negatively until the plate efficiency falls somewhat less than 35 p.c. As only reasonable voice quality is required, symmetrical modulation is not necessary. Thus the secondary of the modulation transformer has no bias supply placed between it and earth. This saves the use of an extra dry cell battery. With no bias on the suppressor grid, the negative modulation peaks are undistorted while the positive peaks are clipped off. This corresponds practically to single-ended class "B" modulation, and in actual practice produces acceptable quality for voice modulation.

The direct current for the carbon microphone is secured from the filament supply. There appears to be no interaction or feedback from the use of this common supply. The use of this low voltage source for exciting the microphone circuits limits

(Continued on next page)

● The complete radiophone transmitter is housed in a metal case only 6 x 2¾ x 2¼ inches.

★

the current and available voltage from the secondary of the microphone transformer. This, in turn, limits the input power to the r.f. stage if a reasonable percentage of modulation is to be obtained. Increasing the plate supply without increasing the modulation produces a stronger carrier, but at the receiving end all that is noticeable is that the noise-to-signal ratio has increased sharply. It is possible to secure the direct current for the microphone from the plate supply, through a dropping resistor. In this case higher button current may be used, with a similar increase in the r.f. input power.

A 200 ohm to grid transformer was used for the modulation transformer (T^1). The better the turns ratio, the more voltage available for modulation. Although the high impedance secondary is not normally correct for this service, it is necessary to secure a higher level of modulation. Any carbon microphone may be used.

EXTRA FEEDBACK

The crystal oscillator itself posed some interesting problems. Why such a high value of grid leak resistance, and what about that condenser connected from plate to control grid? When the oscillator was first constructed it did not oscillate. After determining that the tank constants were proper for the crystal frequency, that the valve and crystal were in good condition, and the wiring correct it was decided to analyse the circuit. It was determined that the interelectrode capacities were so low that insufficient energy was being fed from the plate circuit back into the control grid to maintain oscillation. By trial and error 2 to 5 mmfd was selected as being the proper r.f. bypass between the control grid and plate (C^1). Exceeding this allowable range caused either insufficient feedback or excessive detuning of the tank circuit, resulting in failure of the circuit to oscillate.

As the grid current flow, due to r.f. excitation, was very low it was found necessary to go to a high value of grid leak resistance in order to develop the proper class "C" bias.

Tuning the transmitter requires the use of a 1 milliampere meter. A 5 ma. meter should be used where 45 to 90 volt operation is used. This meter is placed in the plate return so as to indicate plate current only, not screen and plate current. The tank circuit is tuned for the minimum plate current dip and then the antenna loading is adjusted for maximum plate current. A whip antenna 60 to 99 inches will be found suitable as the radiation element for this transmitter. The antenna coil and condenser should resonate at the crystal frequency in order to voltage feed the antenna system. These constants for operation at 3500 kc. are 50 mmfd for condensors C^2 and C^3. The tank and antenna coil are wound on the same 5/8-inch form 3/16 of an inch apart, with No. 32 enamel coverage wire. The tank coil is wound approximately one inch long, while the antenna coil is wound only half an inch long. The antenna coil should be wound at the "hot" or plate end of the tank coil.

With the use of a single torch cell for filament power, and a miniature 22½-volt hearing aid battery for the plate supply the over-all weight and bulk of the transmitter is extremely small. The batteries in this small a case are secured externally to the back of the case, one inch greater depth allowing the batteries to be carried internally. This case is 2¾ by 6 by 2¼ inches deep.

"Rettysnitch." That was quite a story on Amateur Radio in general featured recently in a Sydney Saturday morning paper. It told John Q Public a few things he doesn't normally know, but at the same time it left a great deal unsaid. The opening paras weren't quite on the beam regarding a Sydney radioman who sought overseas medical aid for a sick daughter—it was done with the knowledge of authority.

AIR BORNE IGNITION QRM

Some day, in the not so distant future, there will be a modicum of trouble in the way of TVI (Television Interference) from a weekend source. Those little aircraft that buzz around over City and suburbs from the various Aero Clubs—their motors, being quite unsuppressed for ignition, raises a sizeable din in short-wave receivers, especially from 14 Mc/s to the VHF's—50 Mc/s and higher. No ignition interference at all arises from the big passenger aircraft, which, of course, carrying radio covering all frequencies to UHF's, are very carefully and completely "suppressed." It doesn't call for much imagination to visualise the effect on a TV receiver screen with signal circuits around 200 Mc/s when a "Moth" or some other little airflivver tootles around over the antennas.

* * *

"EX-G." Those solidly made 10 and 5 pin plug and socket connectors; like overgrown octals that one finds in ex-R.A.F. equipment. Not seen in Australia before all the ex-war gear found its way to Disposals dealers—they have been standard fittings in the U.K. for years. Belling-Lee advertisements for these products can be seen in the pages of English radio magazines since 1936.

AMATEUR Chatter

"FULLOBLAH." One gets a bit browned off with the cove who busts in on a man who is quietly enjoying a spot of choice phone DX—and asks for a comparison report on signal strength. It's OK once in a while but when it becomes a habit the impression is conveyed, and probably correctly, that the motive is merely the green eyed monster. Some fellows just can't bear to hear their mates get a better report from the DX than themselves, especially when G8PO and Triplex variations run at least a photo finish with arrays of the 4 or even 5 element variety.

* * *

"SPARE OP." The Sunday morning broadcast by the Queensland W.I.A. station VK4WI is particularly effective in that several bands are used simultaneously, including 50 Mc/s. A much better scheme than reliance on 7 Mc/s reception at a distant point and subsequnt re-broadcast on VHF's.

* * *

We notice Tom Brownlee, VK2XB, back in the running with a good phone on 20, after an absence since pre-war days. Can't keep a good man out of the picture whilst the virus is still in the blood.

* * *

An old hand we know of who still retains an interest in amateur radio is VK2AW, but who hasn't been heard on the air for years. What about it OM; we know you *are* still interested, as evidenced by the fact that you are an "R & TV" subscriber.

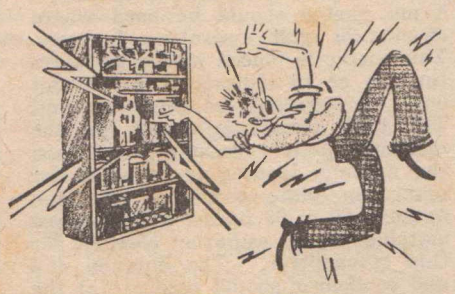
* * *

"Lilliput": Now I am convinced. I always did think that radio amateurs across the Tasman get a better spin on prices of gear than their Australian confreres. Current advertisement in NZART's "Break-In" shows the well-known company of Fear's, Wellington, advertising 6U7G and 6X5G valves at one shilling. Yes, no mistake . . . a bob! There are 955 "acorns" proffered at 2/6. Remember . . . . they were 35/- each here in Australia before and during the war? In VK-land some Disposals wallahs of the grq kind, in the generosity(?) of their hearts, keep their average ex-service value figures at 7/6 and ten bob.

* * *

The well-known South Welsh station GW3ZV may have considerable difficulty in computing the distance to a given place when he wants to find how many miles away a certain DX station is from him. You see, he has to take the direction of his transmitting antenna into consideration when figuring the actual distance—the overall length of the wire being 2000 feet in a straight line!

Welcome to amateur radio for John Duncan, VK2AAD, of Coogee, N.S.W. John acquired the FS6 that VK2CM used so successfully on the Barrier Reef in 1947 and has been heard at intervals on 7 Mc phone. Now he has ideas of something bigger and better in the way of gear so we expect to hear a louder voice from VK2AAD sooner or later.



SHOCK EXCITATION?

We notice Ted, VK4EJ, busy working DX in the early morns with that economical NBFM system of his on 20. It is about the simplest hook-up imaginable and it really does work.

* * *

VK2AKV, heard actively in the Sydney area on 20 phone is Laurie Kelsall. He was G3PO a year ago and flew with his family to settle in Australia.

* * *

Maybe we have things wrong, or our receiver is playing tricks, but we heard a ZL on 7000 Kc/s dead using A2 . . . otherwise ICW. It was a wallop of a signal . . . sounded quite "commercial," but we wonder . . . if A2 is according to regs in ZL-land for the 7 Mc/s band?

* * *

Dave Evans, who compiles Eastern Zone VK2 Notes for "Amateur Radio" doesn't miss much . . . something like Ernest Ashley. In the early morn he is up listening to the 20 metre DX. Before long, Dave can be expected with a VK2 call, and Ern is trying hard to bust that CW hoodoo too. Only wants Pop Stroud to complete the picture.

* * *

A *demivolt* is not half a volt, nor is an *electress* a YL electrician.

"Molnya": That commercial 'phone on 14250 kc/s whereat two persons appear to shout "Wah Wah" at each other and then make sounds like a Chinese laundry gone crazy . . . anybody got any clues? Methinks it lies in an Asiatic direction, maybe North of Tibet, but I could be wrong. This, and other stations making inroads on our previously exclusive 20 metre band are no doubt there in full legitimacy. Don't forget that at Atlantic City two years ago U.S.S.R. got away with shared use of 14250-14350 kc/s "for domestic use only". Added to that blow . . . we lose 50 kc/s off the 14,400 kc/s end any tick of the clock. There isn't much justice in the (amateur) world!!

* * *

Don't get the idea that the "old-fashioned zepp" won't raise the DX, even when conditions are tough and the beam boys are in keen competition. If you are a zepp-user and need heartening, listen to George Patterson, VK2AHJ bowling them over—and on 20 metre phone—not merely CW.

* * *

"SCRAM." When is a YL not a YL?

Like many amateur abbreviations the meaning has been changed with usage. Back in the old days when the fist was stronger than the mouth, the female of the species was known as the OW—"old woman" begin the feminine gender of "old man." The advent of phone made a sissy of the amateur OP and under pressure he coined YL and then XYL. Obviously the ladies don't kick about being called *young* ladies—but women, and OLD ones at that—no Sir!

* * *

The wavelength of the shortest known cosmic ray is 600 trillion times shorter than the longest assigned wavelength.

* * *

A dashing young dotter at VIM
Has a psychoneurotical whim;
He speeds up the ditter
Of VIM's morse transmitter
To work off a bit of his vim.

WHICH FIRE?

It is unfortunate that when John Kraus, W8JK, introduced his very popular close spaced two element beam array in its various versions around 1935, he referred to it in the pages of the now defunct "Radio" as "an END-FIRE" system. As the horizontal directivity is at right angles to the plane of horizontally arranged radiators, it is exactly the same as in any other horizontal array, excepting that the Kraus set-up is bi-directional. What he meant to imply no doubt was that the system fired thus and not as with vertically polarised broadside radiating systems. Perhaps it would have been better to have called the system an EDGE-FIRE array, simply to avoid confusion. The inference is obvious when one considers radiation from the *ends* of wires or elements in any array; a different matter altogether.

* * *

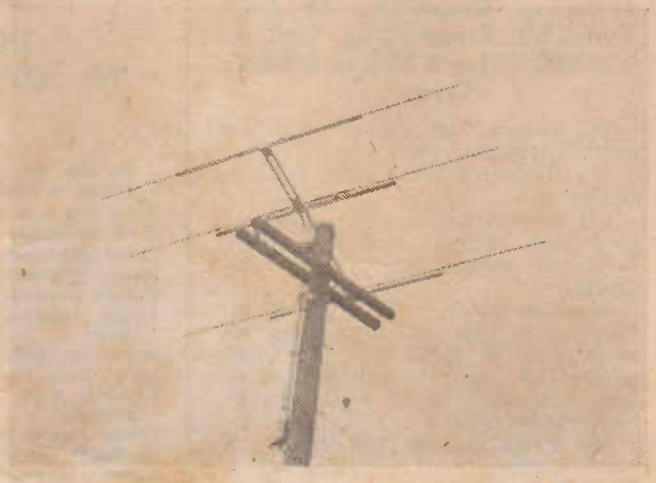
"GOBO." Why is it that so many VK's have acquired a habit of saying that this is "so and so *returning* to so and so"? Returning where from —a visit to Mars? What on earth is wrong with telling the other bloke that you are *replying* to him? Not that I really care, but something doesn't sound quite right about that *returning* business. Or is it that one gets hypercritical of little things as years slip by? Doesn't make any difference, the lads will still return instead of reply if they want to.

* * *

"AMGEN": Overseas journals please note:—VL calls used by some Australian States are not amateur, but commercial. Between 2 and 15 mc/s there are numbers of services with VL calls, such as public utilities, inland services, and small water craft. There are also VH prefixes, but mostly in the 70 mc/s (VHF) region—for "business radio" networks such as newspaper and similar organisations.

* * *

"Spare Op": Why don't the gang make more use of the 80 metre band for ordinary daylight working as well as winter night activity? Coverage on a par with 40 metre working is easily obtainable, provided that the antenna is not just an afterthought. Those who served as Signals personnel in the 1939-'45 war know that there was little or no trouble in working Interstate day and night between 3 and 6 mc/s. If you want to keep a CW sked with a country or Interstate man in daytime, I suggest that you give 80 a fly instead of 40. You might be agreeably surprised.



● JACK BRAND, VK2ADX, of Maitland, N. S. W., makes the 10 metre band lively when he goes after the DX. As Shire Engineer, Jack played a prominent part in flood relief during the rains last year. His beam is constructed on a telephone pole.

"Upterput": A 20 metre 'phone man was telling another that "a 25 watt lamp across the top of his two-half waves in phase antenna . . . . lights up rather brightly and then burns out when modulation is applied." He went on "that's a new one on me; I wonder if anyone ever tried that before?" Yes, OM, in the dim dark ages of amateur radio we had a penchant for a shunted lamp fair in the centre of the flat top of our SWF system, and it lit up . . . so much so that the BCL's descended en masse on the station. BCI is bad enough normally . . . but rather worse when one deliberately advertises it.

* * *

FINAL DISCOUNT

By purchasing over some counters, the transmitting radio amateur may get the components for a death-dealing power supply at a fair discount. It seems logical to suggest that he should ask an undertaker for the same discount, if he is inclined to disregard safety measures around his station.

* * *

"The Mayor." It should be called the "twenty metre foam band" because so many phone men get all worked up into a lather over the terrific QRM.

* * *

One large electrical laboratory enforces a rule of keeping one hand in the pocket whilst working with high voltages. It is an effective yet simple safeguard against a circuit through the body, and should be done automatically in the amateur radio station.

* * *

Except for one of those strokes of the hand of Fate, your quartz crystal might have been a spoonful of sand.

"Frisbee": A G station yarning with me per 20 'phone t'other morn complained of unusual trouble at his end. Due to high wind and temperature changes, his telescopic mast was slipping gradually and reducing antenna height by 20 feet or more.

* * *

"La Disperata": In the almost plaintive appeal for a QSL card from a DX station, a VK2, struggling through tough QRM conditions, had a hard time of it copying the distant one. Matters got to a stage where he asked the DX to "put your carrier on once so that I will know you have received me." Now, I know that the VK2 is a first-rate morse code man, but what I would like to have known at the time was . . . . what happened to the morse key at his station? Rusty . . . seized up . . . or thrown away? Surely the better way would have been to ask the distant station to "stand by for CW"?

* * *

No doubt about the way Tasmanian VK7DH cuts through the QRM with his SSSSC signals. Heard him working KH6PP thus the other evening and Gene was in raptures about the signal at the Hawaiian end.

* * *

Who has the highest grade overseas communications receiver in Australia? VK2HS, Eric Fanker (Tasma Radio's Technical Director) claims the honour, with a new REDIFON R50 just landed from the Old Country for use by his Company. He says that it is the kind of receiver one dreams about but seldom has access to — something right out of this world.

* * *

A small sheet of cellophane folded several times makes a shock-proof envelope for carrying loose quartz crystals.

Notes on Conversion of A.M. Type 50 Transmitting Unit to 144 MC. Using 8 MC. to 8.2 MC. Crystal.

(1) Remove 12 turns from the crystal oscillator plate coil.

(2) Remove 4 turns from the first tripler coil.

(3) Second tripler coil. Remove 1 turn and spread remaining three turns to restore coil to previous length.

(4) Remove 100 P.F. condenser coupling to the next stage and replace with 20 P.F. Half the turns on the R.F. choke should be removed and a portion of the wire wound back—space wound.

(5) From 6 turn coil remove 2 turns, change 20 P.F. condensers to 5—10 P.F. condensers tapping ¾ of a turn down on each.

(6) Final tank can be removed from chassis by unscrewing 4 screws securing the condenser to the back of the compartment, by careful juggling the tank can then be lifted out after freeing the neutralising condensers from the stand off insulators. Cut off the coils leaving 5/16 inch with which to fasten the new coils.

New coils have the same number of turns as the original coils, are wound with 10 gauge copper wire on a 5/8 inch piece of pipe, then slotted and shaped to fit on the lugs left when removing the old coils. Solder carefully and replace the tank. The transmitter is then ready for operation on 12V filament.

(7) For 6 V filament operation, connect first four valve filaments in parallel. Wind a filament choke of about 25 turns of 20 gauge enamel wire onto a resistor. It will be seen that a filament choke is in the hot side of the final filament circuit, earth the other filament pin. Insert the filament choke just wound in the hot lead to the other final valve.

* * *

That grizzled old amateur radio warrior, Bill Cottrell, for so many decades known as A2ZN, OA2ZN, and latterly VK2ZN; has made a momentous move. He is now appointed to the beam station at Ballan, Victoria, and of course that means that the Old Bill will be sporting a VK3 call-sign ere long.

* * *

Now you know: We are indebted to the French language for the word "amateur."

* * *

You never know just what the score will be with BCI . . . at least that's what Crieff Retallick. VK2XO says. He had a report of BCI from Maoriland . . . no fooling.

INDEX TO ADVERTISERS

"Enno": The amateur transmitter is often blamed unjustly for interference with broadcast listeners. While I was working a New Yorker on 20-metre 'phone recently a neighbour came in to complain that I was "all over his dial." Pulling the switches, I went around to investigate. His receiver was a dual-waver with selectivity to spare, but the aerial had been connected to the gramo-pickup terminals and the earth lead to the aerial terminal. No wonder there was QRM!

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Amalgamated Wireless (Australasia) Limited is the largest radio manufacturer in the southern hemisphere and has been the leader of the industry for more than thirty-six years. It enjoys an international reputation for efficiency and the high quality of its products. The company maintains a highly qualified research staff and has large production resources for manufacturing all types of radio equipment for use at sea, on land and in the air.

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