GREAT BRITAIN PLANS TO PASS LAWS GOVERNING GROWTH AND USE OF RADIO

DECLARES CONTROL BY GOVERNMENT TO STOP INTERFERENCE

English Expert Visits U. S. to Study Broadcasting Conditions.

"Great Britain will solve the interference problem in radiophone broadcasting by government control and regulation," according to A. P. M. Fleming, C. B. E., manager of the research and educational department of the Metropolitan-Vickers Electrical Company, Manchester, England. Mr. Fleming represented England at the international convention of the Institute of Electrical Engineers and the International Electro-Technical Commission at Niagara Falls, just ended.

"We have learned many valuable lessons from the broadcasting experience of the United States," said Mr. Fleming. "One of the things we have learned is to avoid the establishment of innumerable radio stations, with no plan of co-operation between them. Eight 1½ kw. stations are contemplated and some of these will probably be built this year. These stations will be located in the principal cities throughout the British Isles and will be operated so as to eliminate the chaos usually found where no rules are in force.

Prevent Broadcasting.

"We have no such thing as broadcasting in Britain at present in the same sense as the term is used in America,' he said. "Government restrictions have prevented it, on account of the possible interference with the requirements of the navy, mercantile marine, war services and aeroplane traffic. But the largest manufacturers of radio apparatus have co-operated with the British government officials in working out plans for the proper control of broadcasting.

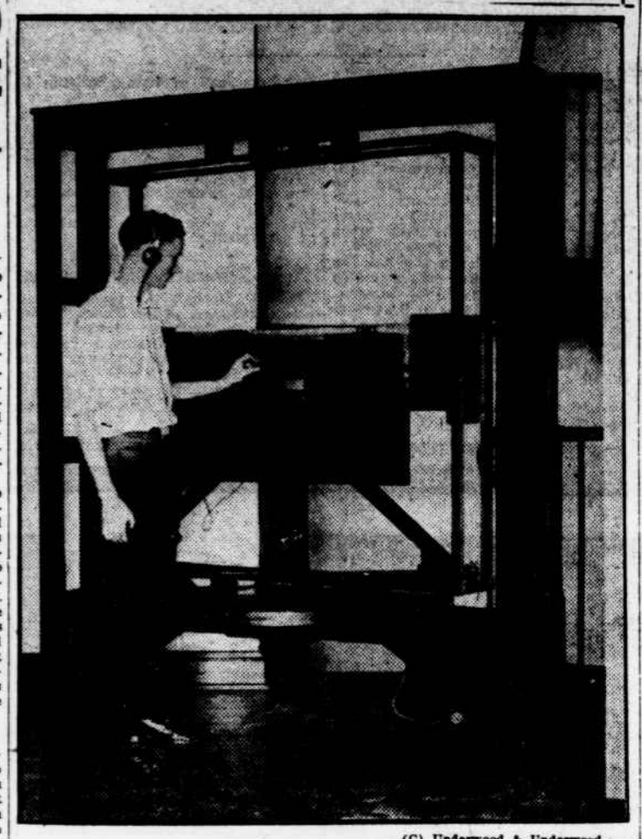
"The broadcasting stations will be operated on strictly regulated wave lengths and other set rules, which will be published for the guidance of radio receiver owners. Every radio set owner will be required to pay an annual tax, also, and there will doubtless be special restrictions applying in times of national emergency.

"One thing that British manufacturers have had to do that was not necessary in America, was to study out closely the cost of receiving sets. The average Britisher can afford to spend very much less than the American in purchasing apparatus of the nature of a luxury. But even with that drawback the British manufacturers see a great field ahead for the radio."

Makes Radio Survey.

Mr. Fleming, in addition to representing the Institute of Electrical Engineers of England at the Niagara Falls convention, is making a survey of radio developments in America. His survey may have considerable bearing on the regulations drawn up for government control of broadcasting in England.

Tests Directional Loop.



(C) Underwood & Underwood.

This five-foot loop used for determining the direction of radio signals is being experimented with at the Bureau of Standards by F. H. Engel. The loop, on being rotated is alternately in a strong and weak magnetic field detected by the strength of signals heard. From scale readings the direction of the received signals is calculated.

New Mexico Boy Wins Hoover Cup

Reward for 1921 Is Made for Best Amateur Station.

Following the announcement made one year ago by Secretary of Commerce Hoover that a cup would be offered to the best amateur station in America, much interest has been manifested by young radio amateurs in the competition. It was won last year and has just been awarded to Louis Falconi, builder and operator of station 5ZA at Roswell, New Mexico. The conditions of award are that the cup shall be given by the board of directors of the American Radio Relay League.

Secretary of Commerce Hoover, who is in charge of governmental radio regulation, last fall offered a cup to be presented each year during his administration through the American Radio Relay League to America's best all-around amateur station, the major portion of which is homemade, as determined by a consideration of the extent to which the apparatus was homemade, ingenuity displayed, electrical efficiency, transmitting range, receiving performance, observance of radio law, ability of the operator, amount of amateur traffic handled, and completeness of the station log.

For several years Falconi's station, 5ZA, has been the chief connecting link between the Mississippi Valley and the West Coast. He has had a splendid station located in a territory where amateurs are very rare, and so has been strategically located for the establishment of amateur records. His station has been heard in every State in the Union except Maine, by ships off the Atlantic Coast, and in the Pacific, and he is consistently heard in the Hawaiian Islands. His station equipment not only includes a spark transmitter, but a continuous wave transmitter, I. C. W. telegraph and a radiophone. The phone has been heard as far East as Indiana and almost every place inside that range. The equipment is entirely home made.

SUPER-REGENERATIVE EFFECT OF CIRCUIT IS EXPLAINED

New Device May Supersede Present Appliance When Made Practicable.

All owners of regenerative sets have noticed that when they turn their dials too far loud howls are produced. This is because the tube starts to oscillate within itself. The new Armstrong Super-Regenerative system of which so much has been heard, owes its remarkable results to those oscillations, which it uses to increase the loudness of the signals while eliminating the howling. The system is described in the Wireless Age, explaining that Armstrong takes advantage of regeneration to the limit of a tube, and still prevents it from oscillating. He has discovered that he can stop oscillations in a negative resistance circuit either by introducing resistance in the circuit at definite intervals or by reducing the amount of regeneration, so that the circuit resistance becomes positive and negative alternately. In both cases the effect is to give the circuit first a positive and then a negative resistance. This alternation is sufficient to prevent oscillations. During the negative resistance period we can make full use of the very great amplification produced—but just as the circuit is about to start oscillating of its own accord, we introduce a positive resistance During the positive resistance period, the circuit, of course, cannot oscillate and the resulting amplification of the incoming signals is much less than before.

Could Be Done Mechanically

This variation between positive and negative resistance may be made at any frequency desired, provided that it is less than that of the incoming oscillations. No doubt it could be done mechanically by connecting a resistance in the tuned grid circuit, regenerating beyond the oscillation point, with the resistance short circuited, and then alternately short and open circuiting the resistance at any desired frequency. Variation in regeneration may be accomplished in a similar manner by mechanically varying the plate voltage of the regenerating tube, so that the grid circuit resistance is alternately positive and negative. Then again, we may use a combination of both methods.

But moving mechanical parts may be dispensed with and vacuum tube oscillators employed to produce this variation in circuit resistance or amount of regeneration. These methods are illustrated in the diagrams.

Shows Regeneration.

Figure 1 shows how the amount of regeneration is varied by varying the plate voltage. The first tube is the regenerator, which introduces negative resistance in the grid circuit. Incoming signals are coupled to the grid circuit, amplified in the first tube and fed back to the grid by means of the tickler coil. The tickler coupling is made large enough to carry the circuit beyond the oscillating point. The second tube acts as oscillator of any frequency desired. Generally, one of about 10,000 cycles is suitable. The amateur and experimenter will recognize the usual oscillating circuits. The coils and condensers should be so selected as to give this frequency (which corresponds to a wave length of about 30,000 meters).

Note that the plate oscillatory circuit is also in the plate circuit of the first tube. The plate voltage of this regenerating tube is thus varied at a frequency of 10,000 cycles. When the oscillations are such as to make the plate more positive, regeneration is increased beyond the oscillating point, and the signal amplitude increases to a very great value.

Just as the tube is ready to burst into oscillations of the circuit frequency, the applied frequency reduces the plate voltage to a low value, and thus reduces regeneration and introduces a positive resistance in the grid circuit—effectually cutting off any sign of free oscillation. A very high degree of amplification is thus obtained during those half cycles of the 10,000 cycle oscillations when the plate is made more positive.

The grid circuit of the first tube is coupled to an aperiodic coil in the grid circuit of the last tube, which acts as a detector. Rectification is accomplished by applying a negative potential to the grid, instead of the usual condenser and leak. But it is really immaterial which method is used. The first tube may be an amplifying tube, such as a UV-201. But it is desirable to have power tubes, UV-202, for the oscillator and detector, because of the energy they are required to handle. Nevertheless, UV-201's may be used throughout.

Suitable Values.

For the receiving circuits, the coils and condensers should be of values suitable for tuning to the wave length range desired. In the oscillatory circuit, the coils should be quite large—with an inductance of the order of 100 or 200 millihenries. (Honeycomb or Duo Lateral Coils No. 1250 or 1500, approximately.) Pie-shaped coils used in spark transformers, having 1,500 to 2,000 turns, are suitable here. The condensers are ordinary 43 plate variable air condensers.

The system shown in figure 1 should present no great difficulty in operating or adjusting. The condensers and coupling in the oscillator are adjusted until a very high pitched whistle is obtained. Then the receiving and regenerative circuits are tuned to the station to be received in the usual manner. In fact, the operation should be much easier than that of the average receiver.

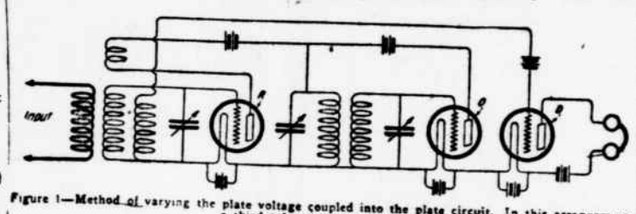


Figure 1—Method of varying the plate voltage coupled into the plate circuit. In this arrangement a third tube acts as a detector

IN THE AIR TODAY.

WASHINGTON.

NAA—NAVAL RADIO STATION.
2,650 Meters, Spark.

12 m. and 10 p. m.—Time signal.
10 p. m.—Weather reports, ship orders, naval press news.

360 METERS UNLESS OTHERWISE NOTED.
Eastern Standard Time.

WDM—Church of the Covenant. Church Services.

KDKA—PITTSBURGH.

10 a. m.—Services of the Point Breeze Presbyterian Church, Rev. H. P. Barker.
1:45 p. m.—Children's Bible story, "Stumbling Blocks."
2 p. m.—Radio Chapel, Rev. Johnston Calhoun.
Open air services.

KYW—CHICAGO.

3:30 p. m.—Radio Chapel service.

WGI—MEDFORD-HILLSIDE, MASS.

7:45 p. m.—Police reports.
8 p. m.—Radio Chapel service.

WSB—ATLANTA, GA.

12 m.—Church services.
6 to 7 p. m.—Radio Chapel.
9 to 10 p. m.—Services.

WJZ—NEWARK, N. J.

2 p. m.—Radio Chapel services by the Rev. John A. Carlisle, Forest Hill Presbyterian Church.
5:30 p. m.—Readings and records from "The Bubble Books That Sing," by Ralph Mayhew.
6 p. m.—A special story for Boy Scouts from "Tad Sheldon, Boy Scout," by John Fleming Wilson.
6:30 p. m.—"Is Honolulu Up to Date," by Edith McDowell.
7:15 p. m.—Concert by the Fairfield Quartet.

AMATEUR WRITES NEW RADIO BOOK

A new radio book "Modern Radio Operation," has been carefully written to interest the average man who is just beginning to take notice of radio, while the more advanced chapters, to which the early chapters lead in logical fashion, contain many details and data that the most experienced amateurs will find new, novel and exclusive. In the opening pages, J. O. Smith, the author, gives a simple outline of the principles upon which radio communication is based, and includes illustrations and details of the principal broadcasting stations, with several of which he has been connected in an operating or advisory capacity. He then takes up the design and operation of vacuum tube receiving sets and transmitters. There is a particularly forceful and impressive analysis of the comparative merits of spark and continuous wave transmission, illustrated with facts drawn from Smith's long experience in working with other amateurs using all types of transmitters.

Broadcasting Programs, Dates and Wavelengths for This Week.

LOCAL STATIONS DAILY EXCEPT SUNDAY.
Eastern Standard Time.

NAA—NAVAL RADIO STATION.
5,950 Meters, C. W. (Arc).

8:45 to 9 a. m.—Live stock receipts, markets.
10 a. m.—Weather forecasts for New England, Middle Atlantic and Southern States.
10:30 a. m.—Meteorological report.
11:15 to 11:20 a. m.—Hogs, Chicago and St. Louis.
11:20 to 11:40 a. m.—Fruit and vegetable shipments.
1:40 to 2:25 p. m.—Fruits and vegetables.
2:25 to 2:55 p. m.—Crops and special market news.
3:45 to 4 p. m.—Closing, live stock.
4:00 to 4:15 p. m.—Hay and feed markets. Monday, Wednesday, Friday.
5 p. m.—Weather.
5:30 to 6 p. m.—Marketgram.
On Saturdays no schedule after 2:25 p. m.

2,650 Meters, Spark. (Sunday Also.)

12 m. and 10 p. m.—Time signal.
10:01 p. m.—Weather reports, ship orders, naval press news.

WWX—POSTOFFICE DEPARTMENT STATION.
All Radiophone 1,160 Meters.

10 a. m.—Weather report.
10:30 a. m.—Fruits and Vegetables. Local wholesale.
12:30 and 2:15 p. m.—Livestock, Chicago and St. Louis.
3 p. m.—Crop and special market report. Press.
3:30 p. m.—General fruits and vegetables. Press.
5 p. m.—Dairy products, New York and Chicago.
5:30 p. m.—Grain report. 7:30 p. m.—Livestock. 8 p. m.—Fruits and vegetables. Press. 9:30 p. m.—Weather report.
On Saturdays, no schedule following the 12:30 p. m. livestock report.

360 METERS UNLESS OTHERWISE NOTED.

WMU—Doubleday-Hill Electric Company.

4:30-5:30—Music. Baseball scores from The Herald.

WJH—White and Boyer.

4 to 4:30 and 5:30 to 6 p. m.—Music and features.

WEAS—The Hecht Co.

3 to 4 p. m.—Music. Retail merchants reports.

MONDAY—WPM—Thomas J. Williams, Inc.

8 p. m.—Music.

TUESDAY—WJH—White and Boyer.

7:45 p. m.—Music.

WEDNESDAY AND FRIDAY—NOF.

8:30 p. m.—Music, 412 meters.

WEAS—The Hecht Co.

7 p. m.—Music and features.

THURSDAY—WMU.

8 p. m.—Music.

DISTANT STATIONS DAILY.

KDKA — Pittsburgh; WJZ—Newark; KYW—Chicago; WBZ—Springfield; WGI—Medford, Mass; WVP—Fort Wood, N. Y.; WGY—Schenectady, N. Y.; WSB—Atlanta, Ga. Also KQV—Doubleday-Hill Electric Co., Pittsburgh, Pa., on Monday, Wednesday and Thursday nights at 8:30 o'clock.

WATCH HERALD DAILY SCHEDULE FOR PROGRAM.

LISTENERS-IN COLUMN.

In this column are published comments relative to local and distant broadcast stations. Prejudiced or unfair criticisms are not desired and will not help the status of broadcasting in general. Inefficient construction or operation of receiving sets may account for distortion of music heard in certain instances.

August 10.

To the Radio Editor:

I have noted with interest the articles in The Herald on the subject of "listening-in." Much has been said about local broadcasting and interference, but little is offered in the way of suggestions for the elimination of this interference or its cause.

I do not mean to reflect on the intelligence of the radio enthusiast when I say that in most cases so-called interference could be eliminated by proper manipulation of the receiving set. The proper operation of a receiver to get maximum results is not merely a simple "twist of the wrist," as most advertisers would have us believe. Skilled operation comes only with time and painstaking effort.

Most of the present sets, particularly crystal sets at a nominal price, are single circuit outfits, and should not be expected to be selective. These sets find a ready sale because of their simplicity of operation and cheapness. It is well to remember that selectivity and ease of operation do not go hand in hand. If the "fan" desires ease of operation, he gets it with a sacrifice of selectivity and vice versa. The elimination of interference means coupled circuits with a resultant increase of effort on the part of the operator to get satisfactory results.

I have found that in most cases the persons who complain most about "amateur interference" are those who have cheap sets or have not been properly instructed in the operation of sets, which, with proper manipulation are very selective. It does not seem to be general knowledge that practically all of our government and commercial stations using arc or tube transmitters emit harmonics which are multiples of the fundamental or "true" frequency. For instance, the writer has on numerous occasions copied KDKA on approximately 180 meters, although their "true" wave is 360 meters.

Naturally with high power transmitters located in and around Washington, it is possible to pick up harmonics of the fundamental wave lengths which in some cases are so powerful as to seriously interfere with broadcast reception. The amateur is unjustly blamed for this interference, because the listener is not familiar with the code, and the moment he hears dots and dashes transmitted he thinks that it is amateur transmission. Very little commercial and government radio traffic is handled at the present time by radiophone. The greater proportion is radio telegraph.

In regard to the criticism of a recent writer on the fact that although NOF was supposed to be tuned to 412 meters, they interfered with his reception on 360 meters. Relatively, Anacostia is a very powerful transmitting station. Being so close to Washington it is very difficult to work through them, not because of a lack of sharpness of tuning but simply because of their high power. Enthusiasts in and around Newark and Pittsburgh and the other high power commercial stations are handicapped in the same way.

A word for the amateur. He has done much during the past few years toward the progress of the radio art. He has co-operated very closely with the Department of Commerce and other government departments. It is admitted that if it had not been for the amateur this country would have been seriously handicapped for proficient operators to do their "bit" during the world war. At times there are amateurs who "jam the air," breaking up concerts and official transmissions, but such actions are quickly outlawed by those of the fraternity who are really interested in worth-while work. Proof of deliberate interference means cancellation of the license of the offending operator, and in some cases confiscation of his apparatus.

I have noticed of late that several new so-called radio clubs have sprung up. They claim that they are established solely for the betterment of the art. In most cases they seem to be established for commercial gain. The Washington Radio Club is an institution which is absolutely noncommercial. Its members are those who are interested in radio for the sake of the fascination of the game alone. The club has adopted tentative rules for handling of traffic, which if adhered to will go a long way toward the elimination of interference. Outsiders are always welcome at the semimonthly meetings, which are held at the American Association of Engineers' Hall, Thirteenth street and New York avenue.

I see no real need for or possible good resulting from the establishment of numerous radio clubs, each working against the other for its own interests. Order out of chaos will only result from unified action and a "get-together" spirit.

JOSEPH H. SCHMIDT.
Assistant Radio Inspector, Naval Radio Laboratory, Navy Yard, Washington.

INVENTOR REVEALS MYSTERY OF TUBE

An interesting story is associated with the much talked of super-regenerative circuit invented by Maj. E. H. Armstrong. It will be recalled that a long period of litigation followed the announcement of Armstrong that he had invented a regenerative receiver, the forerunner of the present super-regenerative circuit.

Lee De Forrest, inventor of the De Forrest vacuum tube, was certain that developments made by Armstrong originated with him (De Forrest). The court, however, ruled otherwise and gave to the younger radio expert the credit. It then developed that De Forrest, who had the essentials of the regenerative system in his own hands, had not been able to fathom the possibilities of his invention. He conceived of more than he was able to demonstrate. It was here that Maj. Armstrong, after months of exhaustive study and experimentation, determined just how much the vacuum tube was capable of. He found what De Forrest missed; he worked the vacuum tube to the limit of its possibilities and brought it to its present perfection. The newer super-regenerative effects are but a continuation of this laborious and determined study into the secrets held bound till the advent of the inventor's touch.

BOOM IN RADIO IS LOOKED FOR IN FEW MONTHS

Great Public Demand Is Expected in Fall Market.

Continued from Page Six.

models, and these improvements are no less adaptable to their radio set than newly designed dash board control meters to an automobile, nor will the expense of adding them be any more excessive.

Great Adaptability.

The adaptability of the radio set is the strongest point in its favor. Wherever human beings are congregated or isolated radio may be made to play an important part. So long as radio messages, whether prose or song, are transmitted and so long as the medium for that transmission is the limitless ether, man equipped with a radio receiving set cannot be deprived of receiving full benefit thereof. Amundsen, now on his way to the topmost portions of the earth, will attempt by radio to keep in continuous communication with countries in both hemispheres. South Sea Islanders have been photographed pop-eyed in wonder at the startling contrast afforded by the white man's gift of a radio set and its strange noises as compared with the dull monotonous thud of their tom tom drums.

During the recent strife in Ireland the country, except for communication maintained by wireless transmission, was entirely isolated from the rest of the world because the commercial cables had been severed. Life prisoners barred from association with their fellow beings and hospital patients unable to seek their choice of entertainment, are now permitted to "listen-in" for their instruction and amusement. Sick people confined are comforted by radiophone concerts. Such sources of amusement are enjoyed by ship passengers hundreds of miles at sea and by miners leagues beneath the earth's crust. Radio in a comparatively brief period, because of its adaptability to the uses of mankind largely through the development of the radiophone, has passed from the lone investigator in the experimental laboratory to the crowd where it is welcomed so fast as manufacturers of radio apparatus can produce the sets and parts needed for listening-in.

Automobile Radio.

Not least in all its present-day uses and one which has led manufacturers to enter the field of special design is the installation of radiophone sets in automobiles. The use of radio in autos is less practiced than it will be another summer. While en route, the receiving set as now constructed does not lend itself to efficient operation under conditions of noise and vibration consequent to automobile travel. But at noonday or nightfall when the travel-weary tourist camps by the roadside for a period, radio dispels a part of the day's fatigue. Nearly all radio receiving sets are portable. A brook where one would naturally appease the thirst serves as an excellent ground. Tall trees selected for their shade and shelter provide ample support for aerial wire. It is only necessary then to unpack the radiophone set as one would unpack the thermos bottle and camp stool.

Writing to a New York daily recently a writer who had experienced this auto radio, said.

"We thought that you and your readers would be interested in our experiences here at Goodhue Lake, N. Y., with radio.

80 Miles From Rochester.

"We are about eighty miles from Rochester on a camping trip. The lake is about a mile long and a quarter of a mile wide, entirely surrounded by heavily wooded mountains. The forest extends clear to the water's edge. We brought with us a type H. R. receiver and HZ two-stage amplifier. We had to erect our aerial between two trees, and the most we could get up was eighty-five feet, and this only about thirty-five feet from the ground and entirely surrounded by trees, in some places not more than a foot clearance. The wire is only about six feet from the roof of our camp. For a ground we attached a wire to the top of a biscuit box and dropped it from the porch into the lake resting on the bottom about a foot deep.

"In short, it seems that we have the worst possible conditions—in a sort of trough in the earth, surrounded by trees.

"We have been able to get some fine concerts here from stations such as Schenectady, Rochester, Newark, Detroit and Indianapolis, but last evening, at 12 midnight, we received a splendid concert from Atlanta, Ga., broadcast by the Atlanta Journal."

It may be readily judged therefore that no use to which man would be likely to subject the new art would overtax the possibilities of a radio set.

It is not reasonable to suppose that a device so readily adaptable to the services of every man will be less in demand than it is today. Rather will the fall season witness an unprecedented demand for radio and more radio.

M. D. M.

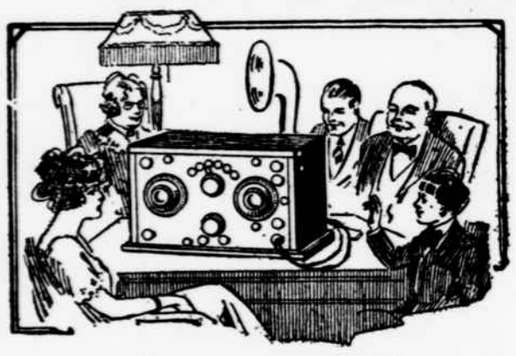
RADIO WARNS OF FOREST FIRES

Fire in the forests, that guard the cultivated fields of the Western States! Trees are threatened and catastrophe seems certain over a wide area of fertile farming land. Let these trees burn and the farms that now supply an important percentage of American foodstuffs would dry and harden into another Sahara.

An airplane patrol detects fire while still a small blaze. The observer in the airplane notes the smoke, spots its position on a map and by radio transmits, "Bushes afire in XYZ valley point about 145 north 72 west.

The operator at the airdrome copies the message and hands it to a telephone operator, who quickly consults his map, finds the location of the fire and telephones to the nearest forest ranger. The latter goes quickly to the spot, summoning aid if necessary.

Such is the procedure at the High River Air Station, typical of all the others. This station was established last year for the fire protection of the forests on the eastern slope of the Rocky Mountains, and radio plays an essential role in the work.



Listen In!

A Radio Expert—ready and anxious to help you—at Peoples' Radio Dept.

Visit Peoples Radio Department at our Store No. 2, Seventh and E streets. You'll find a complete stock of first-class Radio Equipment at prices that are eminently fair. Complete machines and necessary parts are here in a pleasingly large assortment. Our radio expert will consider it a pleasure to serve you.

Standard V. T. Sockets	35c to $1.50
Stromberg Carlson Plug	$1.25
Pacent Plug	$1.25
Pacent Twin Adapter	$1.50
Pacent Multijack	$1.50
Pacent Jack S. Circuit	80c
Pacent Jack D Circuit	$1.00
Ant. Insulators—all types	10c to 90c
Spaghetti, tubing, per foot	10c
Audiola Crystal Receiving Set, with R. S. phones and antennae equipment, complete	$25.00
Audiola Set, separate	$15.00
Mesco Jr. Receiving Set, complete	$20.00
Mesco Phones, 2000 ohms	$5.00
Westinghouse (Baldwin, Type "C," unit), loud speaking attachment for phonograph, with cord and plug	$18.00
Aeriotron, 6-V. U. T.	$6.50
Aeriotron, 1½-V, W. D.-11, V. T.	$8.00
U. T. Socket for type W. D.-11	$1.50
Special—U. V.-201 Radiotrons, were $6.50	$5.20
Grebe C. R.-5 Receiver	$80.00
Grebe Type Rork, 2-stage amplifier	$55.00
Magnavox (loud speaker)	$45.00
Magnavox (loud speaker)	$85.00
Vocaloud (loud speaker)	$35.00
R. C. Radio Transformer	$6.50
R. C. Audio Transformer	$7.00
Paragon V. T. Control Unit	$6.00
Paragon Filament Rheo	$1.00
Nutmeg Buzzers	56c
Nos. 22, 24, 26 single and double cotton covered wire, ¼ and ½-lb spools	30c to 65c
U. V.-200 Radiotrons	$5.00
R. C. Power Transformer, model U. P. 1968. Regular price, $25.00. Peoples price	$20.00
Service, "Little Wonder" Crystal Set, complete	$15.00
Service, Intermediate Wave Crystal Set, complete	$32.50
Binding Posts	4c to 25c
Galena (tested)	20c and 30c
R. R. S. Multipoint Crystal, very sensitive, guaranteed	60c
Ruco Receiver, Det. and 2-stage	$130
Westinghouse R. C., Det. and 2-stage	$130
Dictograph Phones, 3000 ohms	$10.00
Brandes' Phones, 2000 ohms	$8.00
Universal (Roller-Smith), 2000 ohms	$8.00
Murdock Phones, 3000 ohms	$6.00
Mesco Phones, 3000 ohms	$6.00
Copperweld Ant. Wire, 200 feet	$1.00
7-strand Ant. Wire, 100 feet	75c
Geraco, H. R. Dial	$1.00
Anti. Cap. Dial	$1.00
Fada Inductance Switch, with contact points	55c
Wound Coils, 6-inch	90c
Wound Coils, 8-inch	$1.20
Acme Single Phone	$2.00
43 Plate Variable Condenser	$4.00
23 Plate Variable Condenser	$3.00
3 Plate Variable Condenser	$1.70
Simplex Filament Rheo	$1.00
Atwater Kent Filament Rheo	$1.25
Ajax Vernier, Filament Rheo	$1.75
Atwater Kent Audio Transformer	$7.00
Atwater Kent Variocoupler	$8.00
Atwater Kent Variometer	$8.00
Dubilier Ducon	$1.50
Pacent Audioformer	$5.00
Honey Comb Coils—	
No. 35—Unmounted for	65c
No. 50—Unmounted	70c
No. 75—Unmounted	74c
No. 100—Unmounted	85c
No. 35—mounted	$1.00
No. 75, mounted	$1.25

PEOPLES DRUG STORES

ALL OVER TOWN

Opening Announcement

Washington's Moderate Rate Store

All Radio Supplies and Parts

Complete sets, advice free of charge. Installation of apparatus. Let us demonstrate our

Complete Crystal Detector Set

$5

You are invited to listen-in daily, 12, 1 and 4 p. m.

The Radio Shop

1321 G Street

The Store With the Open Doors

WILLIAM A. EATON

FACTORY REPRESENTATIVE FOR

C. BRANDIES, Inc.—Head Sets.

PACENT ELECTRIC CO.—Radio Essentials.

DUBILIER CONDENSER AND RADIO CORPORATION—Mica Transmitting and Receiving Condensers.

GENERAL RADIO CORPORATION—Variometers; Vario-Couplers.

"MUSIC MASTER"—Horns and Loud Speakers.

ELECTROD CORPORATION OF AMERICA—Grid Leaks.

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Washington, D. C.

RADIO SETS BUILT TO ORDER

We can take care of your Radio troubles. Our Service Dept. conducted by expert Radio mechanics.

LARGE ASSORTMENT OF PARTS ON HAND

Capitol Radio Sales Agency

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Only Exclusive Radio Store.