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THE APRIL 1937

RADIO INDEX

The All-wave DX Log of the World

Television Explained

500 New Stations

Some Unsolved Radio Problems

Tuning the Amateurs

No. 108

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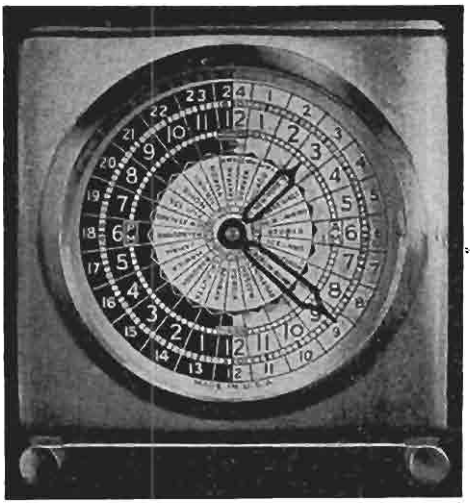

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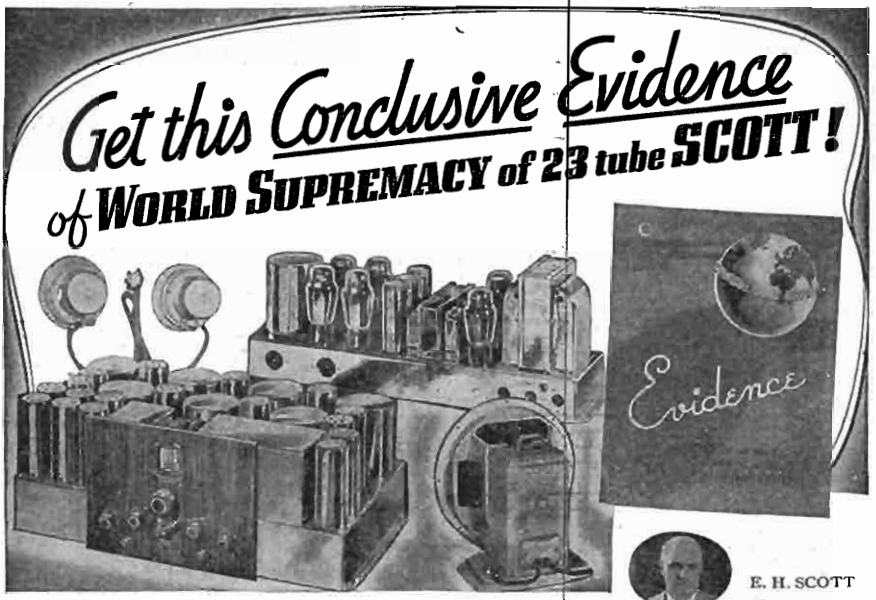

E. H. SCOTT

STORY after story—page after page—of unique and exciting experiences—written by SCOTT owners—makes this 24-page Brochure unquestionably the most fascinating book of its kind ever written:—It tells of a side by side performance comparison test of the SCOTT and other radio receivers in a large, interference-crowded New York apartment building! Of unprecedented reception piercing a network of static in the iron-ore hills of Washington State!

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APRIL 1, 1937

RADIO INDEX

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CARLETON LORD, *Broadcast*

THIRTEENTH YEAR NUMBER 108

CONTENTS

Cover Girl—Gladys Swarthout, in her own program Wednesday at 10:30 on the Red Network

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More STATIONS *and* Higher POWER

THE Engineering Department of the Federal Communications Commission has submitted a report based on the series of informal discussions which were held before the Commission last October. It will be recalled that radio station owners, engineers and others interested in the business of broadcasting were invited to discuss their problems, to report on results they had achieved and to offer their suggestions before the Commission. This testimony, consisting of 1741 pages, is the basis of a preliminary report submitted by Messrs. Craven and Ring, FCC Engineers.

The far-reaching changes suggested, which would be made gradually, would make possible the licensing of nearly 500 additional stations and, it is hoped, would increase the reliability and facility with which stations of any class would be heard in their service areas.

Frequency Separation

The engineers preparing the report state that, based on the evidence taken at the October hearings, the existing system of allocation of frequencies within the broadcast band is sound. It seems that the majority of those testifying feel that the fundamental 10 kcs. separation between stations is proper, and that the present use of clear and shared channels renders the best service.

It is recalled, however, that a few months ago questionnaires were sent to a number of broadcast engineers asking their opinions on frequency separations of 7.5 or of even 5 kcs. between channels. This plan does not meet with the approval of the Engineering Department. Quoting from the report, they state, "The evidence at the hearing showed conclusively that 10. kcs. separation between channels is the minimum separation that can be accommodated with good service. With the trend toward higher fidelity, 10 kcs. is barely sufficient. . . . The Engineering Department recommends most strongly that the Commission not change the existing 10 kcs. separation to any separation lower in value."

Assigning Channels

The Commission's present policy of proceeding with improvements on a gradual, evolutionary basis, is upheld in the report. With the exception of a small group which intimated that the existing practice fails to provide a service which is economically fair, it was generally

Sally Singer has a vibrant voice so appealing in quality that she has not had a single week's vacation from the microphone since she started four years ago. Sally is heard on the Red Network every Monday at 10:30, *on the Kreuger Musical Toast.*

agreed that the FCC is justified in continuing its policy of experimentation through voluntary action of stations rather than by "enforced costly radical changes."

In a summary, the Department recommended six classes of broadcast stations in the band 550-1600 kcs., as outlined in the table below:

Class A, similar to clear channel stations, their purpose to include remote rural coverage. Night power of not less than 50 kw. is recommended.

Class B, similar to clear channel stations, except some other stations will be permitted to use the channel. The purpose is to include rural coverage, and night power of from 10 to 50 kw. is suggested.

Class C, similar to high power regional stations, with a large metropolitan district coverage as well as limited rural coverage. The power to range from 5 to 50 kw.

Class D, similar to regional stations, having metropolitan district coverage. It is recommended that these stations have from 1 to 5 kw.

Class E, similar to existing regional stations, separated by relatively short distances. With power from 500 watts to 1 kilowatt, they will serve the cities in which they are located.

Class F, similar to local stations, having from 100 to 250 watts power.

Excluding frequencies now assigned exclusively to Canada, it is recommended that not less than 25 channels be assigned to Class A stations, and that stations in the other classes be assigned the number of channels shown in the table following:

Class B, approximately	5
Class C, approximately	14
Class D, approximately	30
Class E, approximately	10
Class F, approximately	6

Comparing this recommendation with the present set up, we find that it would result in a reduction of the number of clear channels from 40 to 25. In Class D, similar to existing regional stations, 30 channels would be available as compared with 40 at present. This classification plan, it is felt, would result in much better service, and increases in power would be permitted wherever justified.

Inasmuch as this plan permits assignment of stations of different classes to the same channel, where technically sound, it would be possible to license from 40 to 50 additional stations in the regular broadcast band. In the 1500-1600 kcs. band, anywhere from 40 to 250 new stations could be licensed, depending upon the policy to be adopted by the Broadcast Commission.

1500-1600 kcs. Band

The report suggests to the Commission that three courses of action are open, with reference to the 1500 to 1600 kcs. band. First, the entire band can be assigned to Class F stations. Second, the band can be given to Class D stations. Third, the band can be distributed among stations in Classes D, E and F. The engineers seem to favor the latter arrangement, and they have requested the advice of the Commission on the course it wishes to follow.

Summaries

The department believes that two 50 kw. stations separated by great distances and operating simultaneously at night on the same frequency, are capable of rendering good service, particularly if directional antennae are used.

The general application of synchronization is not recommended, although it is believed that synchronization is useful in certain instances.

The use of power in excess of 50 kw. is believed to be technically sound and in the interest of scientific advancement, but the economic factors involved are apt to outweigh in importance the engineering considerations.

It is felt that there is a need for increased signal intensity, and general power increases are recommended. It is suggested, however that regulations in this respect flexible enough to enable the C mission to judge each indivi case upon its merits.

TELEVISION Scans Its Subjects

• • • *By* B. FRANCIS DASHIELL

WE HEAR more and more about television every day. Even now we are told that television is to appear in colors. This latest contribution comes from one of America's pioneer television experts—D. E. Replogle. He has just patented this new color process. Then, too, we know that certain standards of television are being formulated by the Radio Manufacturers' Association, and will soon be adopted throughout the country. And the Nation's radio regulating bodies are about to fix certain television rules for the benefit of all.

Just now the leading investigators in America are Farnsworth Television, Inc., the General Electric Co., Hazeltine Corporation, Radio Corporation of America, and Philco Radio & Television Corporation. They are working on television that will "scan" the subject at an extraordinary rate of speed. This may be accomplished with 441 lines, from top to bottom, and a frequency of 30 "frames" or pictures every second. And very short waves, of course, will be used—perhaps from 42,000 to 90,000 kilocycles (42 to 90 megocycles).

But when such short waves are used it means that transmission will reach out for only visual distances. As nearly nation-wide coverage is desired, this will require more transmitters of limited range than the few now contemplated. Cities such as New York, Philadelphia, Baltimore, Washington, Cleveland, Chicago, Detroit, St. Louis and Los Angeles will have television first. And people living within a 25-mile radius about each city will be permitted to enjoy the privileges of television. The rest of the country will wait a much longer time.

High Speed Scanning

The problem of scanning pictures with 441 horizontal and parallel lines to each frame or picture, and creating 30 of these frames a second, a total of 13,000 lines a second, seems well-nigh impossible. However, in England, where certain strides with television have been made, the Marconi-E. M. I. and the Philips concern, both use 405 lines, which comes very close to the present American objective of 441 lines.

We have seen in the preceding installment of this series, how the principle of scanning can be put to slow but actual use. Then television used another crude type of scanning, but obtained a shadowy blur in the receiver that could be distinguished easily as similar to the original subject. When 30 lines to a frame became possible we thought that great strides had been made. But this scanning rate was stepped up slowly through the past decade until now 343 lines have become consistently practicable. A recent demonstration utilized this rate of 343 lines with highly satisfactory results.

To accomplish all this, certainly it is neither practicable nor advisable to use the elementary scheme previously described. In that description we utilized a drawing, in black and white, upon some transparent base. A ray of white light remained stationary, and we moved the picture back and forth but at the same

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diograms will be accepted free of charge by any amateur for transmission "ham" radio to RADEX. Contact station W8BKM or W8PNF at Conneaut

time advancing it ahead a line at a time. In this way the lines of the picture cut the light beam and reduced its illumination so that it changed the amount of electric current flowing through the "electric eye". This, in turn, varied the strength of a radio or telegraph signal and operated a pen or electric light, so that the picture was reproduced by mechanical or photographic means.

The Scanning Disc

Although the picture was completely scanned, the process took too much time and any idea of motion by television was idle thought. But the scanning of today is a much faster event. We have already discussed briefly a rotating disc invented by Nipkow. His principle is still in use, for, without it, television up to now would have been nothing more than a dream. Let us find out how the disc is used in modern scanning.

This disc, large of diameter, has many small holes centered at regular intervals along a single spiral laid out around the center and close to the rim. This spiral is very flat. Each hole or aperture is nearer the center of the disc by the width or diameter of a single opening. Figure 1 shows this form of scanning disc. When it is used it should be covered with an opaque plate provided with a small opening at the top. This opening or window is outlined in Figure 1 by dotted lines.

A spiral is laid out close to the edge of the disc. A number of holes are spaced along this spiral; the distance between being equal to the width of the window in front of the disc. In the earlier machines about 30 small holes were used, and this provided a scanning system that swept each frame of the series with 30 narrow lines. This became known as 30-line scanning. The definition of the finished picture depends, however, upon the number of lines, just

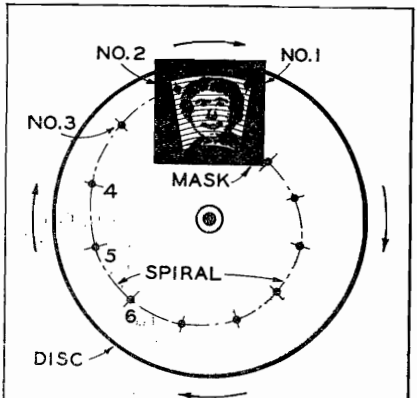


FIGURE 1

like any etching or cut in a magazine. Today, when it is planned to use a standard of 441 lines, it is readily seen that modern scanning is a far cry from pioneer methods.

How It Works

While the disc makes one complete revolution behind the opening of the masked cover, each of the apertures flash across the opening, one at a time. For instance, the first hole, or No. 1, shown in the drawing, enters the opening at the upper left-hand corner and passes out of sight at the upper left-hand corner. At that instant hole No. 2 enters at the upper left. But it is one width or diameter below the point where No. 1 entered. Then, No. 2 aperture passes across the opening and disappears just one diameter beneath the point where No. 1 was previously lost to view.

At this moment, hole No. 3 appears at the left, one width below the place where No. 2 entered, and two diameters under the point where hole No. 1 came into the opening. No. 3 quickly passes across and disappears, just as No. 4 enters. This operation continues on and on until the last aperture at the end of the spiral, nearest the center of the disc sweeps across the opening at the bottom. This is the last line

completes the "frame". The cycle is ready to begin again with the second frame as No. 1 hole at the outer terminal of the spiral once more enters the masked opening at the upper left-hand corner.

In order to observe just what happens a source of light must be placed behind the disc opposite the opening in the screen. Now, as each aperture passes in view, a spot of light will sweep across the opening, moving from left to right in horizontal, but really slightly curved and concentric lines. In this manner we appear to cut up a two-dimension picture into one-dimension lines which may be converted into flickering electric currents for broadcasting as a radio wave. This action was discussed in the previous article of this series.

Quicker Than The Eye

In the motion picture age we came to realize that there is some persistence to human vision. The eye does not shift instantly from one scene to another when two separate light sources cast successive impressions on the retina. A fraction of a second is required so one vision will fade away and permit the second to make its appearance on the eye. Haven't we all heard that a magician's hand is quicker than the eye? Motion pictures are possible only because of this slight sluggishness in our normal eyesight.

Therefore, when the disc spins at 30 revolutions per second, the small window or mask, as it sometimes is called, will appear full of bright light. At the end of each revolution, one frame is ended. But, before it fades from view, the second revolution begins and again fills the frame with light which takes the place of the previous frame that is just fading from sight. Remember, all this takes place very rapidly. Similar to the motion picture, a series of progressively appearing lines are created, each coming so quickly behind the preceding one that the eye fails to discern the tiny gap between each of the complete changes. If the changes occur too slowly, less than 16 per second, the eye begins to notice the gap or change, and flickering is noticeable. Many of us are familiar with the early, slower moving film, in the movies, and the annoying flicker that resulted.

Suppose we replace the eye which, in Figure 1, observed the sweeping of the light bands across the opening, by a highly sensitive photo-electric cell. If this cell is connected in an electric-current circuit, with suitable power amplifiers, it will control the radio waves in harmony and step with the bands of light that fly across the frame during each revolution of the disc. This arrangement is shown in Figure 2.

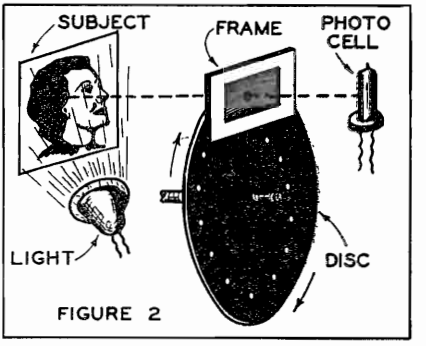


FIGURE 2

"Televising" The Subject

But all our scheme so far accomplishes is the creation of bands of white light of unvarying intensity. For this reason the frame or masked opening is filled with a white glare of light. Let us, then, place some object of contrasting colors, such as black and white, with their different shadings, back of the disc. This still picture or moving object must, however, be brilliantly illuminated by a light reflected from properly placed high-power lamps, as shown also in Figure 2.

In this case, the disc as it rotates picks up the light and dark shadows reflected from the subject and lays them down in narrow bands or strips upon the photo-electric cell. These little bands of light, or lines, vary in illumination or shading exactly in proportion to the light reflected from the subject being "televised". Then as each little aperture races across the opening, the photo cell, which is not sluggish like the human eye, but instantly sensitive to every little change in illumination, creates a constantly varying flow of electric current. The electric signals from the cell pulse or fluctuate exactly in unison with, and in proportion to, the brilliancy of the reflected light from the view being "televised".

One of the greatest problems of the scanning disc is to provide a sufficient number of apertures along the spiral so that many fine lines will sweep across the frame. The finer the lines the smoother and more perfect the details of the final picture will be. This means, of course, very small holes in the disc. But, as we also desire to obtain a picture opening or frame as large as possible, it becomes necessary to space the apertures as far apart along the spiral as may be possible, and yet have a great number of holes along the entire distance.

Many Lines Necessary

If the frame is 6 inches wide by 3 inches deep and 300 lines are laid across it, it would mean that 300 holes of little more than 1/100th inch in diameter would have to be spaced 6 inches apart along the spiral. This method calls for a scanning disc 1800 inches in circumference—something utterly impracticable. The frame openings, then, to be within reasonable limits, must be very small—less than an inch square. Sometimes a magnifying glass and mirror are necessary in order to see the picture that is received at the receiver.

In order that such high speeds may be maintained while a large number of scanning lines are laid down in one frame, a spot-light scanner, invented by Baird, of England, is employed for televising subjects in the studio. In such cases, nearby objects are scanned or televised directly by means of reflected light. But when the scene is large or some distance away, it is necessary first to make a photograph image by recording the view on a motion picture film. This is quickly developed and then passed through the scanning device where the resulting picture is dissected and converted into electrical impulses. This is the intermediate-film process system.

A beam of light from a high-power lamp is focused through a water-cooled frame at the top of the scanning disc. The disc runs in a vacuum at a speed of 6,000 revolutions per minute. It has 240 apertures (in this case) arranged, not in one, but in 4 spiral lines, close to the outer rim. A second disc acts as a rotating shutter so that only one scanning disc hole is exposed to the intense light at any single instant. The spot-light ray passing through the window and apertures of the scanning disc from the light source is focused through the window into the studio. There it sweeps across the subject itself, in lines from top to bottom, and is reflected back to a series of photo-electric cells.

Receiving The Image

The elementary television receiver also utilizes a scanning disc, but this, of course, is now out of date. In place of the disc the different systems use a cathode-ray tube. This tube is somewhat like the tall, pear-shaped, flat-bottomed flask bottles seem in chemical laboratories. With in the tube itself a very fine spot of light, caused by a thin stream electrons, sweeps across the tom in a series of horizontal

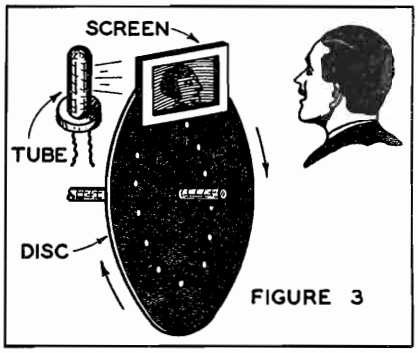


FIGURE 3

very close together—343 to the opening or frame provided. The light moves across slowly and then flies back rapidly to begin the second and next lower horizontal lines. This action is repeated again and again indefinitely. The expressions just used—"slowly" and "rapidly"—are purely relative, for all the motion is extremely fast. Each line is flashed across the surface of the tube frame in about 1/10,000th of a second. Of this remarkable cathode ray tube more will be said.

We must return to our elementary receiver. In Figure 3 we see the disc. It is identical to the one used at the transmitting station, for, it too, must revolve at exactly the same speed. We learned last month that synchronous action is needed. So, if we drive both the scanning discs at the same speed by synchronous a.c. motors, little trouble will be experienced in obtaining suitable results. However, the perfect system makes use of a synchronizing signal that starts the two discs off in step every fraction of a second.

At the receiver we utilize a glow tube or neon light. This unit varies its degree of brilliancy exactly in step with the intensity of the electric current flowing through the tube from the radio receiver. In front the disc is a masked opening or ne. This is filled with the light the glow tube, as it is passed gh the swiftly moving apertures of the disc. Again we find the sluggishness of human vision permits each rapidly moving "finger" of light to be retained on the eye until the next line is laid down in its place. In this way a picture or real image—moving or stationary—appears in the opening as we watch; and it moves exactly in accord with the original subject being televised in the transmitting studio.

Television's problem is synchronization. Mechanical television, of the kind described in these two articles, is a thing left to the pioneer ages. This is true as far as home television is concerned. Only simple, electrical methods can become popular in the home. To this end all American television investigators are working, and by now the electronic cathode-ray tube is presenting pictures that measure approximately 7 by 10 inches—something that only gigantic scanning discs might produce.

The cathode-ray tube (which falls in the same family group as the x-ray tube) has given us our answer. It simply and reliably provides electronic television without any moving or mechanical parts. There are unlimited possibilities to its speed and methods of application. It is not too much to believe that even transmitters will soon eliminate scanning discs and utilize, instead, a system of electronic scanning. In some cases a special form of cathode-ray tube with a large photoelectric plate (called a mosaic cell) is used for televising. The image to be transmitted is focused on the mosaic surface. By electronic emission, electric currents are set up which are in proportion to the intensity of the light falling upon the tiny light-sensitive particles making up the mosaic surface of the plate.

(In our next article we shall discuss electronic television by describing simply how the cathode-ray tubes work.

SW Prize Letter

By A. C. Tarr

Not only the most interesting reception, but for the most thrilling reception on the shortwaves, the 75-meter amateur 'phone band provided the listener with endless hours of breath-taking stories of humor, pathos and tragedy during the disastrous floods of the Ohio and Mississipp' Rivers in January.

The first indication of any ontoward circumstances was a weak signal from the East Coast: "QST, QST, QST—clear all bands for emergency traffic in the flood area, by order of the FCC! All stations please repeat! QST, QST . . ." The call was picked up and rebroadcast by a W5, a W9, was intercepted by a W6, and soon the band was alive with "QST, QST—QRT for flood traffic!" In a magically short time the 160- and 75-meter 'phone and the 80- and 40-meter CW bands were cleared of extraneous traffic in an efficient, speedy and courteous way which should be highly commended.

Soon other signals appeared: "CQ, CQ Memphis, urgent! Emergency traffic for Memphis!" "CQ Louisville, important messages!" And messages that meant the safety of the lives and property of thousands of flood victims were swiftly transmitted to their destinations by amateur radio. Some operators erected emergency battery-operated transmitters, for want of power. Others, the central distributing points for traffic to the flood zone, had as many as seven receivers monitoring the bands in their "shacks." Many remained on the air 24 hours daily, the operators working in shifts.

To attempt to mention even a few of the incidents of human drama unfolded would require several pages. Suffice to say, it was more intensely interesting than listening to a dozen "News flashes" on the broadcast band, and too much credit cannot be given the tireless amateurs wh even as this is being written, freely donating their services equipment that human sufferin misery may be alleviated.

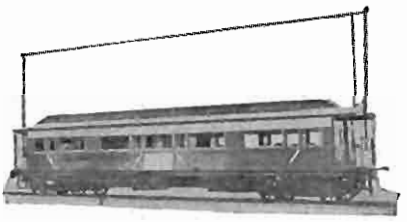
BCB Prize Letter

By Geo. K. Glass

I haven't done any broadcast band DXing since 6KW and PWX were swell catches, but I followed your Mystery Contest of 1936 with great interest and believe I'll give it a whirl this year. At least, I'll have the equipment ready if Morpheus doesn't stop me. My RCA is swell on the BCB and I have a new antenna system, so we'll see what is left of the old dial twisting ability.

I'll never forget the early thrill of DX when I lived in Western Pennsylvania and had a home-made 3-tube 'Reinartz audio generator.' Frank Jones of 6KW sent me a map of Cuba, showing all the amateur stations and PWX. KFI gave me a five-dollar gold piece for the first telegram from my state. Doc Brinkley was just beginning to spiel over KFKB and the heart of America was WHB, the Sweeny Automobile School.

From time to time, we all look back on the early days of broadcasting and recall the tremendous thrills which were in store for the original Midnight Marauders. KHJ and CZE were real DX for the lads on the East Coast. And who will forget the International Tests in 1926-27? A few of us were successful in dialing across the Atlantic, hearing flea-power stations with equipment that would be relegated to the junk pile by the DXer of today.



One of the most unique broadcasting stations in the world is 3YB, the mobile station of the Mobile Broadcasting Service, 430 Little Collins St., Melbourne C1, Australia. This station, installed in a railway car, has the privilege of moving throughout the state of Victoria and becoming for the time being the local station of the towns visited.

Station 3YB, rated at 50 watts power, works on 1060 kcs. from 3:30 to 7:30 am., EST.

Their itinerary for the months of April and May includes the cities of Camperdown (April 1 to 7); Terang (April 8 to 14); Warrnambool (April 15 to 28); Port Fairy (April 29 to May 1): Ararat (May 3rd to 12th); Warracknabeal (May 13 to 19); Kaniva (May 21 to 26) and Nhill (May 27 to June 2).

Opposite are reproduced two letters which the Editors have selected as being the best received in last month's mail. Readers are invited to submit letters for publication on this page, and the writer of the best letter each month will receive his RADEX magazines free for one year.

The best Prize Letter is to be icked by the readers of RADEX. yone who writes us is requested ·ll which of the two letters they the best.

Although WJSV always was in Washington, KOIL in Omaha and WEBC in Duluth, they have been fooling us by telling us they were in Alexandria, Council Bluffs and Superior, respectively. This was because the Davis amendment with its quota limitations prevented the assignment of these stations in the states where their main studios were located. With the repeal of the quota law the "auxiliary" studios of the stations became their main studios (which they always were in fact) and we can list them in our indices at their proper locations.

Many Unsolved RADIO PROBLEMS

● ● ● *By* RALPH STRANGER

Editor's Note: In these modern times when it is possible to maintain radio communication between the very ends of the earth without much apparent difficulty, it is quite natural to feel that the science of radio has progressed to a point where engineers know all the answers and can solve any problem that might arise. The truth is that many problems in connection with the propogation of wireless waves await solution.

Under the direction of Ralph Stranger, an organization known as the World Radio Research League was founded to utilize amateur mass listening for the purpose of scientific research and as an aid to scientists in their laboratories.

In the article which follows Mr. Stranger discusses the problems which are occupying the attention of the League.

Echoes of Long Delay

On April 14, 1927, the year of maximum of the sun spot cycle, a Norwegian experimenter, Mr. Jorgen Hals, heard a faint repetition of a morse signal three seconds after the signal was emitted. This, of course, constitutes an echo of long delay. Up to that time, round-the-world echoes occuring about one-seventh of a second after the emission of the original signal, were well known, and it is known today that they are due to a second wave which goes around the world and comes back again. But a delay of three seconds implied roughly that the signal travelled as far as the moon and back again.

Later, Hals heard an echo of 4 minutes 20 seconds delay, and on May 25, 1931, he heard on 25 meters an echo of 12 mnutes 15 seconds delay. This last echo implied that, provided it was the case of direct reflection by some distant body, the signal travelled to and from a total of 136,710,000 miles. It should be noted that the average distance of the sun from the earth is 92,000,000 miles.

Echo Tests

The first tests for echoes were carried out from the British Empire Station GSB working on 31.55 meters with 15 kw. power. Morse was transmitted, with a minute's interval between each letter. These tests were conducted at regular intervals between May and December, 1934.

We were all inexperienced at first and, at the commencement of the experiments, reports of echoes were coming in from all quarters. All kinds of noises were taken for echoes. As experience was gained, however, the "echoes" became less frequent and some serious work was done.

Unfortunately the requirements of the Empire Service made it necessary to conduct the tests in the early morning, while the best time for listening is in the early afternoon. Thus we were not disappointed when the GSB tests failed to provide any scientific evidence.

The next series of tests was broadcast by HBQ, the League of Nations station at Geneva, on 44.94 meters. While no echoes were heard during any of the transmissions, the broadcasts served to confirm the theory of Jorgen Hals that echoes could not be heard above 31.5 meters.

The Sun-Spot Influence

Since the ionization of the upper atmosphere is chiefly due to the sun's rays, especially the ultra-violet rays, any changes in the amount of the sun's radiation must affect the propogation of wireless waves. The mean distance from the sun to the earth is 92,900,000 miles, so that an electro-magnetic wave will take eight minutes 19.4 seconds on an average to reach the earth.

The sun-spots, frequently observed on the surface of the sun, vary i numbers every eleven years, so th there is an eleven year cycle maxima and minima sun-s

Some of these spots attain a diameter ten times that of the earth. Their life may vary from a few hours to some weeks, while they appear to follow the rotation of the sun, although they may have independent movements in respect to each other. The sun-spots, being of a vortex nature, produce a powerful magnetic field.

For this reason, the appearance and disappearance of sun-spots is accompanied by vast magnetic variations. Since radiation from the sun affects the ionization of the earth's atmosphere, which in turn affects the propogation of wireless waves, a large number of sun-spots will have an influence on radio communications.

It has been found that the ionized layer surrounding the earth, known as the Heaviside layer, is more ionized during the maximum of sun-spot activity than during the minimum. But systematic observations on all wavelengths extended over a series of cycles of sun-spot activity are lacking.

The Influence of the Moon

It is suspected that the moon may have an effect upon the propogation of wireless waves. There has been a suggestion that wireless signals are stronger at full moon than at new moon when, it is said, they are at their minimum.

Owing to the tidal action exercised upon the earth and its atmosphere, it may be that the moon is varying the height of the ionized layers, and thus it affects wireless reception. It may also act as a reflector of the sun's radiation and thus influence the ionization of the earth's atmosphere.

The Influence of Weather

Although we know that wireless waves are of an electro-magnetic nature and are, therefore, propoted in the ether itself, weather ot to be disregarded as a possible r affecting their propogation. tions in barometric pressure

Frank Parker, veteran NBC tenor soloist and star of the sparkling new Rippling Rhythm Revue, is heard Sundays from 9:15 to 9:45 over the Blue Network.

will also affect the upper atmosphere and therefore its ionization. It has been shown too, that there is a connection between the propogation of radio waves and temperature.

High signal level is associated with low ground temperature. The interaction (i.e., interference) between stations proves to be more prominent during cold and frosty weather.

Observations in well-defined localities can be used in conjunction with meterological charts and light may be thrown on the influence of temperature, pressure and atmospheric disturbances upon the transmission of radio. All radio listeners can make simple observations of this nature.

Reports from a number of reliable sources indicate that in different sections of the world there are so-called zones of silence, that is, zones in which wireless reception and transmission are either highly

(*Please turn to page* 75)

Checking *the* MYSTERY DX Contest

IF EARLY reports may be taken as a criterion, listeners who took part in the Mystery DX Contest over the week-end of February 20, 21 and 22 travelled a rock road. Letters from readers along the Eastern Seaboard and in the Central States indicate that reception was attempted only under the worst possible conditions.

Static apparently was severe throughout the country. Signals experienced pronounced difficulty in penetrating any distance, and even old reliable stations were conspicuous by their failure to reach many a pair of listening ears. Reports show that atmospheric disturbances were unusually heavy, and our own observations confirm this unfortunate fact.

How this rebellion of Nature will affect the outcome of the contest is, of course, impossible to state at this early date. It may be that listeners in the West worked under like difficulties, in which case all contestants would have listened under equal handicaps.

As the contest got under way, 42 stations were scheduled to take part. This was below our quota, although no less than nine cancellations resulted from the recent flood conditions in the Middle West. Following is the line-up of stations due to broadcast for the contest:

February 20th

0200-0300	CJIC	890	Sault Ste. Marie, Ont.
	KOMA	1480	Oklahoma City, Okla.
	KXBY	1530	Kansas City, Mo.
	WHAM	1150	Rochester, N. Y.
	WRUF	830	Gainesville, Fla.
0300-0400	CFCO	630	Chatham, Ont.
	KMPC	710	Beverly Hills, Calif.
	KFSD	600	San Diego, Calif.
	KVOE	1500	Santa Ana, Calif.
	WEXL	1310	Royal Oak, Mich.
0400-0500	KFVD	1000	Los Angeles, Calif.
	KMO	1330	Tacoma, Wash.
	WSUI	880	Iowa City, Iowa
0500-0600	WFBC	1300	Greenville, S. C.

February 21st

0200-0300	WAAW	660	Omaha, Neb.
	WBIG	1440	Greensboro, N. C.
0300-0400	KDB	1500	Santa Barbara, Cal.
	KDYL	1290	Salt Lake City, Utah
	KFWB	950	Hollywood, Calif.
	KFXM	1210	San Bernardino, Cal.
	KGB	1330	San Diego, Calif.
	KUJ	1370	Walla Walla, Calif.
	KXA	760	Seattle, Wash.
0400-0500	CKNX	1200	Wingham, Ont.
	CKOV	630	Kelowna, B. C.
	KIRO	710	Seattle, Wash.
	KWSC	1220	Pullman, Wash.
	WAAF	920	Chicago, Ill.
	WPHR	880	Petersburg, Va.
0500-0600	KJBS	1070	San Francisco, Calif.
	WHA	940	Madison, Wis.
	WTRC	1310	Elkhart, Ind.

February 22nd

0200-0300	WFBR	1270	Baltimore, Md.
	WIBM	1370	Jackson, Mich.
0300-0400	WMMN	890	Fairmont, W. Va.
	WNBX	1260	Springfield, Vt.
	WOI	640	Ames, Iowa
	WSYR	570	Syracuse, N. Y.
0400-0500	CMHJ	1160	Cienfuegos, Cuba
	KFNF	890	Shenandoah, Iowa
	KVI	570	Tacoma, Wash.
	WADC	1320	Akron, Ohio

As that schedule was worked out, it was felt that listeners in all parts of the country would have an equal opportunity at the list of prizes. While it is true that the 0300-0400 EST spot on February 21st found no less than seven Western stations, it is recalled that the winners of last year's contest were able to log an equal number in an hour's time. At any rate, decent weather conditions would have given every contestant a run for his money.

A possible source of confusion was the WAAF program from 0400 to 0500 EST on the 22nd. Originally scheduled as a special program for a large radio club, the station offered to dedicate the 0430 to 0445 spot to the contest. The offer was accepted in the hope that contestants would be able to dial in at the right time, although it is admitted that the quarter-hour dedication was not entirely fair.

As we go to press, we learn that transmitting difficulties prevented WSUI from broadcasting at this

signed time. The station planned to go on Sunday morning, but the actual hour has not as yet been learned.

Contest entries are arriving in every mail and it may take some time to check them carefully. The inclusion of the distance factor will complicate the work of the judges, but it is hoped that the final standings will be ready for publication in the May issue of RADEX.

Too late for inclusion among the list of contest prizes last month came the announcement from the Midwest Radio Corporation that they are offering one of their Model K-11 receivers as one of the awards. This is an 11-tube set, housed in a handsome table cabinet. It covers a range of from 23 megacycles to 150 kilocycles (13 to 2000 meters) in five bands.

During the past few weeks we had an opportunity to inspect the bound set of Study and Reference Texts, contributed by the National Radio Institute. These are the identical texts furnished students enrolled in the elementary and advanced radio courses of this school, and one cannot help but be impressed by complete coverage of the subject of radio. Each phase of radio is treated in simple terms and the reader advances from elementary principles to advanced theory in easy, well-defined steps.

In the event that the winner of these texts desires to enroll for the accompanying instruction, the NRI has agreed to make a substantial allowance for the texts against the regular tuition fees.

Listed high among the contest awards is the Hallicrafters' "Sky Buddy" receiver. This is a five-tube job which covers from 18 to 555 meters in three bands. Housed in a eautiful black metal cabinet of asing design, this receiver is an ortant part of the equipment of sands of critical amateur operators.

A study of the radio service business today would reveal why the winner of the replacement set of 12 National Union tubes is getting a very fine award. The radio serviceman must handle parts of high quality or he will lose out in the repair business from callbacks on unsatisfactory service jobs. That National Union tubes meet these necessarily rigid requirements is evidenced by the fact that they are handled by more radio service specialists than any other make. The list price of all National Union tubes is 10 cents higher than any other tube in the industry, and yet more than 20,000 radio repair men report that set owners have been happy to pay this slight premium for quality value.

DXers have long been aware that a pair of headphones are a vital part of their receiving equipment, but we often wonder how many of them realize how good a fine set of phones can be. The winner of the pair of famous Trimm Featherweight phones will, we believe, be in for a pleasant surprise when he attaches them for the first time. These phones possess a rare combination of extremely high sensitivity, rugged construction and true "featherweight" lightness. They have been used by amateur and commercial operators for years, and DXers are finding that they have the admirable quality of "extracting the last R from a very weak signal."

Of interest to DXers is the Coronet line of tubes developed by the Arcturus Radio Tube Co., Newark, N. J., contributors of a replacement set of six tubes as a contest prize. By the use of an exclusive construction, the Coronet tube has interelement capacities lower than that found in the usual glass tube. This is a decided advantage in long distance reception, for it is a well

known fact that the lower the capacitance the more critical and efficient is the receiver.

The Arcturus Coronet tube utilizes all the advantages of manufacturing technique developed in the industry, and incorporates all of the features of the metal tube. Being perfectly self-shielding, the Coronet results in quiet operation and greater sensitivity.

The Coronet tube was designed as a replacement for the glass type. It is installed by means of a special modernizer, which adapts the socket in the set to an eight-prong or octal socket, which fits the standard metal tube base used on the Coronets. Replacement is very simple, it being necessary to insert both the proper modernizer and Coronet tube in the socket. These tubes are available from Arcturus dealers and distributors throughout the country.

It is probably unnecessary to mention that the grand prize in the contest is the latest Scott Full Range High Fidelity receiver. Contestants have been aiming at this prize as the answer to their DX dreams, and well they might. Since the first of November, one of these receivers has been on test and results have shown that it leaves little to be desired as a DX getter.

However, while RADEXers undoubtedly cherish the Scott for its possibilities in long distance reception, music lovers realize that here is a receiver which offers truly fine reproduction. The perfection which the Scott laboratories have achieved was demonstrated last fall in the National Academy of Science in Washington during the Centennial Celebration of the American Patent System.

More than 1500 of the greatest scientists, engineers and industrialists of the country attended what was called a "Research Parade." For nearly three hours some of the greatest marvels of the scientific world were demonstrated. Right in the center of that program, the Scott laboratories demonstrated the degree of perfection that had been obtained in sound reproduction.

Some lucky winner is going to be the owner of a Scott receiver and other skilled dialers will receive valuable awards. The final results should be ready for the May issue. *Can you wait that long?*

A new network, known as the California Radio System, covers the metropolitan and valley sections of California. Six stations, owned and operated by the McClatchy Newspapers and the Hearst Organization, make up the group. Stations comprising the system are KEHE, Los Angeles, KERN Bakersfield, KFBK Sacramento, KMJ Fresno, KWG Stockton and KYA San Francisco.

Time Conversion Table

The time given through RADEX, unless otherwise specified, is Eastern Standard by the 24-hour clock. Our chart this month shows Central Standard Time converted to the EST 24-hour clock, and GMT.

CST	EST 24-hr. clock	GMT
11 pm.	0000	0500
Midn't	0100	0600
1 am.	0200	0700
2 am.	0300	0800
3 am.	0400	0900
4 am.	0500	1000
5 am.	0600	1100
6 am.	0700	1200
7 am.	0800	1300
8 am.	0900	1400
9 am.	1000	1500
10 am.	1100	1600
11 am.	1200	1700
Noon	1300	1800
1 pm.	1400	1900
2 pm.	1500	2000
3 pm.	1600	2100
4 pm.	1700	2200
5 pm.	1800	2300
6 pm.	1900	2400
7 pm.	2000	0100
8 pm.	2100	0200
9 pm.	2200	0300
10 pm.	2300	0400

For times throughout the en world consult the RADEX Ti Converter.

Around *the* SHORTWAVE World

IN LINE with our long established policy of always providing our readers with the best and most authentic information available, RADEX is pleased to announce the appointment of Sr. Manuel Barbera of Buenos Aires as its official representative in South America.

Our new overseas correspondent brings to RADEX many years of experience in tuning the shortwaves and a familiarity with South American stations possible only to one who is situated there. Mr. Barbera is shortwave editor of "Sintonia," English announcer at LSX, and publisher of a literary magazine.

Through our representatives situated in various parts of the world, RADEX readers are now assured of complete coverage of the world's shortwave news.

Argentina

The program known as "The Voice of Argentina" is broadcast by station LSX on Mondays and Fridays from 1700 to 1745, EST, on 10350 kcs. These programs are announced in Spanish, French, English, German and Italian. Manuel Barbera often does the English announcing.

Station LRU, the relay station of LR1, Radio El Mundo, is now temporarily off the air. All the LR1 programs are now carried by LRX on 9660 kcs, the schedule being 0600-2230.

A "Fan" in Dallas, Texas, reports reception of LRX at 0500 EST.

British Guiana

VP3MR, one of the Georgetown stations, announcing as "The Voice of Guiana," gives its frequency as 6010 kcs, according to Arman McBurney of Portneuf Station, Quebec.

Bulgaria

The Sofia s.w. station, LZA, on 14970 kcs, is heard on Sundays from 1300 to 1400 EST.

Canary Islands

War news from Generalisimo Franco is broadcast irregularly in the evenings from EA8AB, City of Tenerife in the Canaries, on about 7.01 megs.

China

Several new Chinese 'phones are reported this month. XGW on 10420, XTD on 5740 and XOU on 8040, all in Shanghai, are heard working with California. XOJ on 15800 and XTV on 9490 kcs. are the best heard stations. XTV, reported as Hankow and Canton, works with XTD in the mornings and is heard with excellent volume on the Pacific Coast. The Shanghai stations are under the direction of the Chinese Government Radio Administration, Sassoon House, Jinkee Road, Shanghai, China.

Colombia

HJ4ABH, Armenia, "La Voz de Armenia," is heard on 9520 by Mr. F. Finlay. This station relays HJ4ABN. HKV, Bogota, the Ministry of War station, tests in the evenings on 8790 kcs. HKV has been reported also on 8798, and this is where we show them in our lists.

Cuba

Broadcasting station CMX in Havana is relayed on the shortwaves by COCX on 11435 kcs, according to information received direct from the station. The schedule on shortwaves is Sundays from 0800-1200 and 1800-2200, EST, and on weekdays from 0800 to 0100 EST. The mailing address is Apartado 32.

Denmark

A postal card from C. Hasselriis, 118-18 Metropolitan Ave., Kew Gardens, N. Y., announces that a Danish newspaper, *Nordlyset*, of New York, advises that in April a new 5 kilowatt shortwave station will go on the air at Skamlbaek, Denmark. No frequency was mentioned. It was stated that there had been

criticism of the weakness of present equipment, and it is hoped the new station will provide good reception for Danes in outlying countries.

Dominican Republic

Ollie Landgraf, 97 Park St., Chilton, Wis., reports two Dominican stations. HI3C, "La Voz de la Feria," 6730 kcs., at La Romana, is heard irregularly in the evenings. HI2T, 6900 kcs, Trujillo City, was heard near 1700 EST.

Ecuador

From Clarence W. Jones, Director of HCJB, we find that this station works on two frequencies, 4107 and 8948 kcs. On 4107 the schedule is 0730 to 0830, 1130 to 1430 and 1730 to 1900, EST, daily except Monday. The 8948 kcs. frequency is employed from 1900 to 2200 EST. HCJB, known as "La Voz de Los Andes," works also on the broadcast band, on 974 kcs., where it is known as "La Voz de Quito." The address is Mr. Clarence W. Jones, Director, Casilla 691, Quito, Ecuador.

France

The French Colonial station works according to the following schedule:

0400-0500: TPA3, 11885 kcs.
0600-1100: TPA2, 15243 kcs.
1115-1800: TPA3, 11885 kcs.
1815-0100: TPA4, 11720 kcs.

Germany

The schedule of the German stations for this month is given below.

For North America:
0800-0900: DJL 15110 kcs.
0800-0900 (Sunday only): DJB 15200 kcs.
1110-1225: DJB 15200
1650-2245: DJB 15200; DJD 11770.

For South Asia:
0005-0515: DJA 9560; DJB 15200
0555-1200: DJB 15200

For East Asia:
0005-0515: DJN 9540; DJE 17760
0555-1200: DJE 17760; DJN 9540

For Africa:
0000-0200: DJL 15110
1135-1630: DJD 11770; DJL 15110; DJC 6020
0600-0800 (Sunday only): DJL 15110

For South America:
0600-0800: DJQ 15280
1110-1225 (Sunday only): DJQ 15280
1650-2245: DJN 9540; DJQ 15280

For Central America:
0800-0900: DJR 15340
1650-2245: DJA 9560

Great Britain

The month's schedule of the British Broadcasting Corporation Empire transmissions from Daventry follows:

Trans. I. (For reception primarily in the Antipodes and the Far East.)
0200-0400: GSB 9510; GSG 17790; GSO 15180.

Trans. II (Primarily for reception in India, Ceylon, Malaya and the Far East. May also be heard in West Australia, and on GSH, in Africa and the West Indies.)
0600-0845: GSB 9510; GSG 17790; GSH 21470

Trans. III. (Primarily for reception in India, Burma and Ceylon. GSH may also be heard in Africa and the West Indies.)
0900-1200: GSB 9510; GSF 15140; GSH 21470.

Trans. IVa. (Primarily for Africa. May also be heard in the Near East.)
1215-1600: GSB 9510; GSD 11750; GSI 15260.

Trans. IVb. (Primarily for Africa. May also be heard in the West Indies and in South America.)
1600-1745: GSB 9510; GSC 9580; GSF 15140.

Trans. V. (Primarily for Canada and the West Indies. May also be heard in India, Australia, U.S.A. and South America.)
1800-2000: GSB 9510; GSC 9580; GSD 11750.

Trans. VI. (Primarily for reception in Western Canada, but may also be heard in the United States and East Africa.)
2100-2300: GSB 9510; GSC 9580; GSD 11750.

Postage stamps bearing the portraits of King George VI and Queen Elizabeth will soon be issued by the 45 British Colonies, and no doubt the Dominions also will issue new stamps at about the time of the Coronation. Stamp collecting radio fans might take a tip and get some reports out to the British Colonial radio stations, taking a chance on getting the new Georgians on their veries. This might be a good time to mention to the operators of radio stations that commemorative postage stamps cost no more than regular issues, and they are always appreciated on verifications. It is an inexpensive way to create a little goodwill among their listeners.

Italy

Plans for Italy's new Imperial shortwave center, recently approved by the Italian Council of Ministers, include the enlarging of the well-known 2RO, increasing the power of the present two transmitters from 25 to 40 kilowatts, and the building of two new 100 kw. transmitters and a 50 kw. reserve transmitter. Each of the four principal outfits will be able to work on either of two wavelengths, each carrying a separate program, while the fifth (the reserve) transmitter will be able to operate anywhere between 14 and 60 meters, either as a substitute for one of the four main units or as a completely separate experimental station.

The new antenna system, both directional and omni-directional, will include fourteen lattice-work towers some 240 feet high. Particular care will be given to the beam array for Italian East Africa (Somaliland, Eritrea and Ethiopia).

Japan

JVN (10660 kcs.) and JZJ (11800 kcs.), Nazaki, are heard regularly with an R7 signal from 1600 to 1700 EST, according to J. Finlay. At this time they broadcast a program for South America and the East Coast of North America, with news items in English. The Taiwan (Formosa) station JIB is heard broadcasting music at 0630 EST on 10535 kcs. JVT has not been heard lately and it is supposed that it is off the air.

Mexico

Anthony Tarr of 909 West Lee St., Seattle, Wash., has been making a special effort to keep up-to-date on the Mexican station, which, he says, "jump around like their own native jumping beans." XEPW, Mexico City, announcing as 6110 kcs., is actually heard on 6120 and sometimes drifts to 6130 kcs. It relays XEJW, La Voz de Aguila Azteca desde Mexico. This station usually signs off at midnight but has been heard as late as 0230 EST. "A Fan" of Dallas, Texas also hears XEPW on 6130 kcs.

XEBR, Hermosillo, Sonora, on 11820 kcs., relays XEBH between 1400 and 1600 EST. The address is P. O. Box 68.

XERV, Allente de Bravo on 5920 kcs., operates irregularly. It has been heard near 0100.

XEFT in Veracruz is heard on 9460 and 9500 kcs. at midnight.

XEDQ, Guadalajara, Jal., on 9480 kcs. operates from 2000 to 2400 EST. The address is P. O. Box 197.

Panama

A new Panamanian station in the city of Aguadulce, announcing as HP5I is reported by R. B. Oxrieder. He understands the slogan is "La Voz del Interior." The frequency is announced as 11895 but it varies from 11796 to 11900. HP5B is heard on 6030 kcs. until 2200 EST on the Pacific Coast, and when this station signs off HJ4ABP in Colombia comes through.

Peru

The new Peruvian station OAX4J, "Radio Internacional, La Voz de Lima," has been reported on numerous frequencies but now seems to be settled down on 9795 kcs. The station was heard on 9328, 9340, 9330 and 9520 kcs. The shortwaver relays OAX41 between the hours of

9 and 11 pm., EST.

Another new station is OAX1A, located in Chilcayo, on 6150 kcs. The postal address is Casilla 9. The slogan seems to be "Radio Dekka" or "Radio Delca."

Portugal

Mr. R. B. Oxrieder of State College, Pa., believes that CSW operates on three different frequencies according to a regular schedule. He reports this Lisbon station on 11840 kcs. previous to 1330 EST; at 1330 it moves to 11040 where it remains until 1800, then a shift is made to 9940 kcs. The last frequency is used until about 2000. Gustave Magnuson reports two of these frequencies, and adds that CSW uses 5 kilowatts power.

Spain

A station with the call letters ECE1 in Madrid is reported by Howard M. Phillips, 3907—20th., N. E., Washington, D. C. He says the slogan is "La Voz de Espana" and that government war news is broadcast irregularly from 2000 to 2015 EST, on a frequency of 7230 kcs.

Spanish Morocco

EA9AH at Tetuan, Spanish Morocco, known as "Radio Tetuan" is operating as a Spanish Nationalist station, broadcasting on 6970. News items are given in English and talks are punctuated frequently with the phrase "Viva General Franco!" This information comes from J. F. Finlay, 352 Robie St., Halifax, N. S.

Sweden

A verification has been received from SM5SX, Stockholm, by Gustave Magnuson, 120 Porter St., Providence, R. I. The card gives the frequency as 11705 kcs., 500 watts power at present. The schedule is daily 0120-0205 and 1100-1700. Sundays 0300-1700, EST. This station also works in the 20 meter amateur band, on 14341 kcs., and plans are being made for further broadcasting on 19 and 31 meters with more power and directional antennae. The address is Royal Technical University, Stockholm. This station is also reported by Mervyn Whalen, 1022—7th St., Saskatoon, Sask., Canada. He hears it at 1500 MST on Saturdays.

U. S. S. R.

RIM in Tashkent, Turkestan, Siberia, is heard about 0800 EST phoning Moscow on 15252 kcs.

United States

A bill has been introduced in Congress asking for an appropriation for $750,000 for the construction of a high-powered shortwave broadcasting station. The station, to be built by the Navy Department, at a site close to Washington, would be known as the "Pan-American Radio Station," and its programs, educational in nature, would be intended for reception in Pan-American countries.

"I have enjoyed very good reception of station W9XAZ of Milwaukee, Wis., which broadcasts daily from noon to 2300 CST," reports L. O. Howard, 1905 Indiana Ave., Pullman, Wash. "This station, which works on 26400, with 500 watts, uses a half wave vertical antenna suspended at a height of 275 feet above the street. Reception was on a Midwest 11-tube receiver using about 100 feet of inverted-L aerial on one post and a 17-foot leg of a doublet on the other." W9XAZ is owned by the Milwaukee Journal, operators of WTMJ, but the programs of the broadcast band station are not relayed. W9XAZ is the only United States shortwave station, excepting W1XAL, which transmits programs designed primarily for shortwave listeners.

Uruguay

From our Buenos Aires representative comes official information on the new Montevideo station, CXA2. At present it is on 6000 kcs. but it will eventually shift to the assigned frequency of 6035. This will be the first shortwave commercial station in Uruguay, as their programs will

originate in their own studio without any link with a broadcast band station. The present power is 500 watts but it is hoped this will be increased soon. The experimental transmissions are aired between 1000 and 1200, and 1600 to 2200, EST. The studio address is Rio Negro 1631, Montevideo. The transmitter is located in Sayago.

Venezuela

YV1RG, Maracaibo, is now heard on 6225 kcs, but the frequency is announced as 6230. YV1RH, Maracaibo, is reported on a new frequency of 9520 by H. W. Phillips, regularly from 2000 to 2100 EST, and irregularly at other times. YV1RI, "Radio Coro" at Coro, is now on the air but working spasmodically. The frequency is claimed as 6210 but Mr. Oxrieder hears it on 6205.

Milton Rerle, the CBS "Community Sing" mirth man, is now broadcasting from Hollywood, where he is making a picture. The entire troupe, including his little stooge Jolly Gillette, Wendell Hall, Billy Jones and Ernie Hare, Tommy Mack and Andy Sannella, is heard on the Gillette Community Sing on Sunday nights at 10 pm.

Stranger

J. F. Finlay, 352 Robie St., Halifax, N. S., hears a French-speaking station on approximately 9030 kcs. which he cannot identify. Announcements are given every quarter hour and the station signs off at midnight.

Correspondence

Shortwave listeners in Florida are requested to correspond with Ollie A. Landgraf, 97 Park St., Chilton, Wis. As Ollie is a trumpet player (Union) he especially would like to hear from musicians.

"I would like to correspond with other SWL's," requests Charles Baker, 94 N. Grand Ave., Baldwin, N. Y. "I use a two tube regenerative receiver and two aerials. This set works splendidly on 5, 10 and 20 meters. I listen to all bands but like the 10 and 20 meter 'phone bands best."

Joseph Rudolph, 1403 Farmer St., La Crosse, Wis., wishes to write to other shortwave listeners and will exchange stamps and coins as well. Joseph is 17 and uses a Balkeit Globe Trotter Receiver. Among his best catches he lists SUZ, JIB, JVN, 3LR, OLR and ORK.

Tuning *the* Amateurs

● ● ● *By* **B. L. Ahman, Jr.**

How many of our readers have logged Hawaii this month? There are quite a few 20 meter 'phones in Hawaii, and K6's come in well in nearly all the states. The best-heard ones from the land of swaying grass skirts last April were K6FAB, K6FKN, K6GAS, K6GNW, K6JLV and K6KKP. April also is the month for Australians. There are any number of the VK's that can be logged, and the best time to listen in is from midnight to early dawn. As the summer approaches the Aussies can be logged even longer.

However, from the Australians logged last season our records show

only three replies. They were VK2QR, VK3KX and VK7JB. VK7JB is located in Hobart, Tasmania, and from reports of several 20 meter fans, we think he is quite reliable in replying with a QSL card. The QRA is J. C. Batcheler, 21 Quarry St., North Hobart, Tas., Australia. He comes in with a rather nice signal on the low frequency end of the band. VL2QR uses 14050 kcs. and his QRA is J. E. R. Burstall, 7 Wandeen Ave., Beecroft, NSW.

Recently CE1AH, as yet unlisted in the call book, has been heard on the extreme top part of the band talking to stations in Hong Kong. Your writer has been unable to get a whisper from Asia so far, but our readers are warned to be on the look-out for them. VU2CQ and VU7FY, Indian amateurs, are rather active.

Our mail recently included a card from SU1CH which was out almost twelve months. From the card we learn that this much-talked-about station is operated by ex-W7AUZ-7ADR, so that explains his familiarity with all the American hams. He says he uses a Zepp antenna and 500 watts, and a National FBXA receiver. His address is E. M. Chorlian, 24, Rue Tel El Kebir, Heliopolis, Egypt.

Patience Recommended

Patience is one of the virtues of the 20-meter 'phone listener, so one is advised not to get discouraged. The band plays funny tricks, and quite often will go dead within a few minutes after one has been hearing practically the whole world. That is one of the reasons it is so fascinating; one never knows whether conditions will be good or if he will be fortunate to hear a station more than a few hundred miles away.

We have been listening to the 40-meter band lately and were greatly surprised at the number of Spanish-speaking stations that can be heard and identified on that band. We would not be surprised to learn that many of our readers are interested in this band. Cuba, Venezuela, Mexico and Colombia outnumber by far all the other stations on this wave band. We have reported to a number of the stations, and right now we would like to nominate XE2CK the Orchids this month for his beautiful QSL card. It's a honey! Large modernistic red call letters on a golden yellow background with black reading matter.

Once again let us request that our readers write and let us know what they are hearing, and old-time 20-meter fans, let us know what you heard last season. Please arrange reports according to this classification: month heard, date, frequency if known, time of day and promptness in replying to reports. We wish to write this column so it will appeal to all our readers, and help from ham addicts will be greatly appreciated.

Special thanks this month go to Irv. Goodeve, Earl Roberts, Carroll Weyrich and Johnny Sanderson, seasoned 20-meter addicts all.

Guy Lombardo is a suave purveyor of sophisticated music, but at heart he is so sentimental that every year for nine successive years he has brought his Royal Canadians back to play a one-night engagement in the small town of Carrollton, Pa., just because the proprietors once helped him to get a start.

Mr. William S. Paley, President of the CBS, believes it will be two years before television receivers will start selling regularly, and that it will be a long time after that before there will be any television audiences outside of large cities. He believes broadcasters will have to foot the bills for a long period of sustaining programs before audiences become large enough to attract advertisers.

QUESTIONS *our* Readers Ask

• • • *By* B. FRANCIS DASHIELL

I HAVE just purchased a Zenith 5-S-127 radio set. The markings on the dial puzzle me. On Band C, for instance, the markings run from 5.6 up to 19, and under the different numbers, such as 6.0 and 12.0, there are, in red, the numbers 49 M and 25 M, respectively. There are others also. Then, on Band B, are markings such as, MC 6, 5, etc., and under these are the words, Aviation, Police, etc. All of the spaces between these numbers are calibrated into equal divisions. Can you advise me how to read these markings so I can figure out what stations I am hearing? Where can I get a list showing all the stations operating on both bands?

Answer. This is a very efficient new radio that you have purchased, but your misunderstanding about the wave bands is something that a great many people experience with all kinds of sets. However, your radio should come with a booklet of instructions that tell you how to operate it. But, like motor cars, one must learn what the gadgets are for and how they are adjusted. Other readers too, will be interested in your query.

The 5-S-127 Zenith is a five-tube set. There are about six different cabinet models. All have three wave bands, called the "A," "B" and "C" bands. The first, or the "A" band tunes in the broadcast stations. This band is divided into kilocycles, and these usually run from about 550 to 1,800. However, in your set, the A band is at the bottom and is divided into hundreds—with 55 meaning 550, 100 meaning 1,000 and 170 meaning 1,700 kilocycles. Stations should be received throughout the range of this band—all North American broadcasting stations.

The "B" band goes into shorter waves, but is a continuation of the "A" band. You will find the "B" band calibrated from 1.8 to 6 MC. These are in megocycles, which are merely easier ways of indicating the larger numbers of kilocycles. The 1.8 of the "B" band means that the reading is 1,800 kilocycles. It is the start of the "B" band, or where the "A" band with its 180 number left off. The spectrum of the shorter waves on the "B" band is divided into certain portions which have been assigned to different broadcast or radio services. You have found these to be marked, "Amateur," "Aviation," etc. In these groupings you will find most of the broadcasts on this band; elsewhere you will get the code signals of ships and commercial code stations scattered over the world. Remember, the numbers 4, 5, etc., really mean 4,000, 5,000, etc., kilocycles.

Now you come to the "C" band. This is still a shorter wave region of the radio spectrum. Here the numbers still are marked in megocycles, and they begin where the "B" band left off. For instance, the beginning of the "C" band is 5.6 megocycles, or 5,600 kilocycles, and is just about where the "B" band ended. Continuing on, the "C" band runs on up to 19 which really is 19,000 kilocycles or 19.0 megocycles. This is the end of the tuning limits of this set. If it had still another band, such as "D," it would continue still farther into the low waves.

In the "C" band you also find several groups marked, South America, Japan, England, etc. These mean that the shortwave stations in those lands are best found in the area so marked. The tuning of these

stations on the "C" band is very, very sharp and must be accomplished ever so slowly. So slowly, in fact, that the knob can not be seen to move.

So, owners of all-wave sets, with two or three bands, will find that these bands are really just one long band. In your case it runs from 550 to 19,000 kilocycles or 55 to 19 on all dials. The numbers beneath some of the megocycle readings on the "C" dial are references showing what the wave lengths of those points are in meters. The whole dial is divided into frequency and not wave length.

The lists of stations, in frequencies, that you desire are to be found in each issue of this magazine. RADEX makes a point of providing accurate information in this respect. If the table in the index shows that a foreign short-wave station comes in at 15.180, you will find it close to 15.2 on your "C" dial, as it operates on a frequency of 15,180 kilocycles.

Weak on Short Waves

I have a Midwest 1936 18-*tube set, but below* 4.5 *megocycles I can not receive many stations, except some amateurs between* 14.0 *and* 15.0. *Reception above this point is very good. I have a good antenna; the tubes have been checked and test high; and the set as a whole checks up perfectly at the shop of my service man. I do not get the stations I think I should for an* 18-*tube set. Also, there is some hiss when the ground wire is connected. In spite of the serviceman's o.k. I think there is still something out of adjustment and hope you can advise what to do.*

Answer. This set, of course, should perform much better than you have indicated it now acts. While all of the short-wave bands are not used for foreign broadcasting, there are certain portions where stations ought to be heard. Foreign stations can be picked up around 6.0, 10, 12, and 15 megocycles on the dial, as well as others. Therefore, a blank space between the 1.8 of the broadcast dial and the 14-15 megocycle space of the short-wave dial is far from what can be done.

We think that this is a job for your service man, perhaps a different one than the first person employed. Definitely, the signals are weak over a certain range of the set, and it may be due to the incorrect trimmer alignment in the mixer or oscillator stages, and even in the r.f. stage. A realignment of the tuning parts just mentioned over the part of the band that seems inoperative should increase the output on those frequencies. Check again and again the oscillator tube. Also, there is possible some defect between the input and output circuits of this tube.

Poor contacts on the wave band change switch controlling this part of the receiver can cause weakness of signals. Then a form of distortion, due to improperly aligned circuits, may become pronounced, even causing noise and hiss you have noticed. Incorrect alignment in the tuning circuits, and sometimes in the i.f. circuits and parts, will cause weakness over a certain portion of the tuning band without preventing the perfect operation of the set over the remainder of the band or bands.

Operating 200 Watt Set

I have a Silver Marshall Masterpiece V that draws 200 *watts of alternating current. I have been using this with a small a.c. plant where I live, but it causes too much interference. Would it be satisfactory to use a* 32-*volt battery lighting circuit and a d.c. to a.c. converter?*

Answer. We do not understand why your a.c. plant is causing much interference, unless it is driven by a gasoline engine and the sparking of it causes the trouble. A.C. dynamos usually are noiseless for they lack the commutator troubles that exist in d.c. generators. We think that

it is possible to quiet the interference given off by your present outfit if it is fitted with suitable filters. We can advise you in more detail if we know more about the electric plant and your surroundings.

Of course, a 32-volt battery system may be used to run a 32-volt motor which in turn is connected to a 110-volt a.c. generator. This is a rotary converter. The consumption of current is large, being at least 7 amperes for a 200-watt a.c. drain. We doubt whether simple vibrator converters will deliver sufficient amperage for a set as large as this one. Smaller battery operated farm sets, consuming about 50 watts or so, are satisfactorily operated on batteries with vibrator units. Even if the rotary converter should be used, you still have some problem of motor noise, but this can be filtered out. However, the great battery drain on the 32-volt plant is to be considered seriously unless you have generated and charging facilities that will take care of excessive drain.

Large Antenna System

I have purchased a Stromberg-Carlson set, but all my discussions with local people end the same way —one says that a certain aerial is good; another says it is not. My home is in a large open tract with a number of trees. I want to erect a good long antenna, about 80 *feet in a single wire. Then, in addition, I should prefer a doublet for short wave reception. What do you suggest using?*

Answer. We see no reason why most any type of doublet cannot be used. However, if you are far enough away from interference a doublet may not be necessary. They are, essentially, noise-reducing antennas. But they are also tuned to resonance with certain of the essential short waves used in foreign broadcasting.

Since you are willing to use a long, straight wire antenna, why not erect one 60 feet long, of 7-strand copper wire, with a 30 foot lead in of the same material, but covered with rubber insulation. Or a long wire, 170 feet long in one piece, if practicable, from the antenna connection on the set to the farthest end of the flat top of the outdoor portion. In this connection we call your attention to the new Philco antennas, for long outside use where isolation is possible, that come all soldered and ready to erect. These are not doublet antennas, but doublets are available now from nearly every set builder, and made to fit to the set being used.

Metal Tube Adapters

I have a Philco model 118, *with two wave bands. The set is dead from* 10 *to* 12 *megocycles. Can you advise what may be the cause of this? Also, I have noticed that one can get metal tube adapters so as to change to metal tubes. What improvement might this bring? Is there any way by which I can improve the power and distance of my day-time reception?*

Answer. When a set becomes inoperative on a certain portion of one of the wave bands it is usually due to a lack of tuned resonance on that band. A realignment of the r.f. or detector - oscillator circuit should remedy the trouble. Or a new tube in the oscillator might be necessary. See the answer given one of the questions above.

It is possible to get adapters for metal tubes, and these can be obtained from most of the larger mail order radio supply houses in the larger cities. The Alden Company specializes in tube adapters, and their products are widely handled. We do not believe, however, that substitution of metal tubes for glass tubes in sets that have not been made for them, such as your Philco, will net you any additional satisfaction. Sets that are made for either

meta-glass or metal tubes having the Octal bases that are interchangeable, can use the metal tubes if glass tubes are now being used. There are certain disadvantages when metal tubes are substituted for older glass tubes in certain sets. Heat is one of these, and space may not be provided around the tube in the older set. Then, too, the metal tube is grounded, and provision must be made for this. A new adjustment and realignment of all circuits will then be necessary. We do not recommend the change, yet there have been cases when substitutions have helped on the shorter waves. It is merely an experiment on your part if you care to take the risk.

About the only way in which you can increase the power of signals received during the day is to add more radio-frequency amplification just ahead of your set. This can be accomplished by using a signal booster. These units can be purchased complete, or if you care to build one, we suggest you write the J. W. Miller Co., 5917 So. Main St., Los Angeles, Calif., for details of their assembled kit of matched parts for a signal booster. There have been cases where old sets have been separated from their works just following the radio-frequency tuning circuits, and the output then fed into the antenna terminal of the set through a small fixed condenser. In fact ,the March issue of RADEX reports a letter from one of its readers telling just how he accomplished this little trick.

Rebuilding RCA 49

I have a 1929 *model RCA set, No.* 49. *It is a* 5*-tube job with three antenna coils. I would like to know if it would be practicable to convert it to what is known as a DX job. What would be required, and what is the cost?*

Answer. We do not look with favor on any such extensive problem as you would face if you attempted to rebuild this old model receiver so that it would pull in distant stations, many of which are on the short waves. Any such attempt would be expensive, difficult and almost entirely within the realm of an expert radio technician. We do, however, recommend that you have this set overhauled if you desire to keep it and use it. Have the tubes tested, or replace them with type 35s instead of the 24s in the first two radio-frequency stages. Do not change the detector. The type 45 power tube may be replaced with a 47 by using a suitable adapter. Clean the set carefully and have it realigned and adjusted. This operation involves all the three trimmer condensers in the r.f. stages. Have all resistors and bypass condensers checked.

Hears Code Signals

I have a 1937 *battery operated Philco model* 37-338*B which tunes from* 530 *to* 7400 *kcs. Many of the short wave signals are ruined by code. Also, when code signals are strong they come into the broadcast band and ruin some of those broadcasts. The channels that are bothered most are* 1550, 1530, 1490, 1170, *etc. Is this a weakness of all battery sets, or is it my model is bad? I use an inverted L type antenna* 100 *feet long. How many tubes does a radio need to have to get sharp selectivity?*

Answer. This is certainly not due to whether the set is battery operated or not. There is often interference on the short wave bands, some of which is found on all sets and some of which may be due to something in the set itself. Any unusual interference of this sort can be corrected by some good service man when the trouble is due to improper alignment of the tuning circuits. We suggest that this set, which should show no signs of in-

(*Please turn to page* 44)

Among *the* RADEXERS

● ● ● *By* CARLETON LORD

FOR a number of years, Canadian listeners in search of radio entertainment have been working under a definite handicap. They have seen stations to the South, in Mexico as well as in the United States, boosting kilowatts while their own transmitters have retained their relatively low power equipment.

Reception under such conditions could hardly be satisfactory. In the Toronto area, for example, the powerful WLW spread over the local CFRB and caused interference in all but the most selective receivers. Doctor Brinkley's XERA jumbled the signals of CRCT. Listeners in Montreal found that XEPN frequently spoiled CKAC—and so it was throughout the country.

In the February issue, we had occasion to remark that as long as Canadian stations continued to operate with "flea power", so long would they experience interference from modern and more powerful broadcasters to the South. A number of readers have seen fit to add a lusty "Amen!"

After considering the letters which have commented on the subject, the remarks of Martin Hanton, Vernon, B. C., appear to be typical of many Canadian listeners.

"Apparently a number of listeners are annoyed by the Mexican border stations," he writes. "In a way, I cannot blame them. And I agree with you that if the Canadian Government is not prepared to take steps to increase the power of her various stations, we will have to put up with existing conditions. However, as far as I am concerned, I listen to and enjoy American stations and programs 90 per cent of the time. So the Canadian-Mexican situation doesn't bother me.

The famous radio team "Myrt and Marge" and the newest family addition to the cast, George Damerel, Jr. George, his sister Donna Damerel, and his mother, Myrtle Vail, are currently heard on the Columbia Network, Mondays to Fridays inclusive, from 2:45 to 3 pm EST.

"Even so, when I consider that the most powerful station in Canada is only 15,000 watts, and in Mexico there are six stations of 50,000 watts and more, I sometimes wonder at the so-called efficiency of the Canadian authorities. CRCV recently accomplished an increase in power from one to five kilowatts. Five kilowatts! Why didn't they make it 20 or 25 KW while they were at it?"

Fortunately, it now appears that the government is taking cognizance of the situation. With the organization of a new Canadian Radio Commission come promises of better lis-

tening for Canadians.

"With the new C.B.C. network under the management of Gladstone Murray, new and better times are ahead for Canada," reminds Bill Clarke, Box 13, Quesnel, B. C. "He has promised a short wave station of 50 KW and three or four medium wave stations of the same power. Of the latter, one will be in the East, one on the prairies, and one in British Columbia. CFRB, Toronto, will soon have an increase of from 10 to 25 KW, while CJOR, CKCD and CKWX have asked for an increase to 1000 watts. CKCK, Regina, will soon have a new 5 KW transmitter. So you see that Canada is at last waking up to what its Southern neighbors have seen for a long time —more power for existing stations."

Without intending to be facetious, it is noted that the first step of the new CRC in providing better coverage was the addition of a new 100-watt station in the Toronto area. Operating on the 1420 graveyard channel, CRCY comes on the air at 5:30 p.m. to carry the CRC network programs in conjunction with CRCT.

Contest Enthusiasm

Judging by the letters which have been coming in during the past month, the primary interest of Radexers these days centers on the 1937 edition of the Mystery DX Contest. It is gratifying to note that the reaction of most readers fulfils the hopes of those who planned and carried out the contest details.

Whether or not they win a prize, contestants seem to agree that this DX marathon is well worth their attention. To return for three mornings to the old system of fishing for stations apparently appeals to countless itching fingers.

"I feel sure that I echo the sentiments of every DXer," predicts Kenneth R. Leu, 1447 Charles St., Rockford, Ill., "when I say that last year's Mystery Contest was the finest gesture ever aimed at the ever-increasing horde of dial twisters. Even though my efforts last year were worth no more than an honorable mention, the genuine pleasure and enjoyment derived from the contest more than compensated for the fact that I ended 'out of the money.' While other listeners may get more stations than I, still I feel certain that I'll have the most fun!"

"Although I was introduced to DXing many years ago," admits Richard H. Cooper, 412 Rayburn St., Kittanning, Pa., "my early associations with this form of dial twisting failed to make the impression with me that the first Mystery DX Contest did. I boasted exactly three verifications before your contest last year. Today my veries total some 200 and include TGW, LR1, KUJ, KXO, KHSL, KWYO, KGIW, KWJJ and many others."

Perhaps the most amazing confession comes from E. E. Mullen, 3711 La Cresta Drive, San Diego, Calif., who blandly admits that he doesn't want the grand prize," which happens to be a 23-tube Scott receiver. The answer to that one lies in the admission that he already has one.

Among the All-Nighters

"I was interested in the item recently concerning 'channel hogs,' " indicates Arthur E. Foerster, 1213 Bosart Ave., Indianapolis, Ind. "Last year a committee from the various clubs was formed for the express purpose of finding some way to eliminate the all-nighter. We contacted affected stations on the blocked frequencies, and our results were the same as yours. Out of 50 letters, we received but three replies. Two were in favor of clearing the channels and the other stated that it made no difference to them.

"It seems that most of these all-night stations have kept their transmitters going so constantly that they are about shot. Practically any station in the East and Middle West can knock WJBK off the dial.

The same is true of WEXL.

"The DXer who crabs about the all-nighters ruining DX should try getting up some morning and landing a few of the new stations going on the air. Out of 61 new ones landed so far this year, 33 were heard on frequencies occupied by 24-hour stations. And my log is now 810 heard with 794 verified."

"Your explanation of the all-night stations gives us an altogether different slant on the problem," comments Mrs. A. C. Johnson, Henry, S. D. "They have never bothered me very much, because there are so many stations which I have yet to hear."

"The article on the all-night situation seems very sensible," remarks Roy Myers, 814 S. Fedora St., Los Angeles, Calif. "There aren't enough DXers to demand the removal of these stations or to change in any way the present BCB set-up. My one big complaint is against the stations which do not sign off for the FCC frequency checks. KFAC and KGFJ rarely leave the air when a station on their frequency has a test. Listeners on the Pacific Coast are hardest hit by this, especially during the first hour of the tests. If we could get these stations off the air during the monitoring checks, I'd gladly put up with their all-night programs the rest of the month."

If Reader Myers would check the monitoring schedules, we believe he would find that stations do leave the air when their programs are likely to interfere with government tests. That question of interference, however, would not necessarily be the same for the FCC as it would for the DXer.

It must be remembered that the FCC has monitoring stations in various parts of the country, and engineers never have to go more than a few hundred miles for the stations which are being checked. Thus, they are not bothered by late programs from stations across the country and have no reason to demand that these stations sign off.

For example, if the FCC engineer in Baltimore is checking WKBO in Harrisburg, he will see that no station on 1200 kcys in the immediate vicinity is broadcasting. However, he would experience no interference from KGFJ and wouldn't care if that station blasted away all night. Thus, while KGFJ would prevent the California DXer from hearing WKBO, it would have no effect on the monitoring being done in Baltimore.

To a certain extent, the same is true of the more powerful stations on the regional channels. WAAB has been heard standing by when a nearby station on 1410 was being monitored, only to return when the check was completed.

While no definite check-up has been made, we would be glad if readers would occasionally tune to the all-nighters during the week of the frequency checks and see if they do stand by or sign off.

"Sure, I've cussed the all-nighters on various occasions," confesses Warren E. Winkley, Ahwahnee, Calif., "when they prevented me from logging a very distant station. But I know a little of the service they perform to others. And after all there are so many others that the crowd of DX hounds is buried out of sight. I think half the fun of DXing would be eliminated if we could sit down and tune in any station just by knowing it was on the air. It is the surprise element that makes DXing what it is."

Voice of Duluth

"I haven't seen a report from Duluth," observes Bill Parr, 1919 Lake View Dr., Duluth, Minn., "so I may have some news of interest to your readers. Our new KDAL is operating daily from 0800 to 2200 EST and broadcast a frequency check the second Tuesday from 0300 to 0320 EST.

Their antenna is located on Minnesota Point and high fidelity equipment is used. They tell me that they will verify all correct reports, if return postage is enclosed.

"I started DXing a year and a half ago, and my log now stands at 467 stations on the BCB and SW. Some of the better broadcast band catches include CFCH, KFBK, KGNC, KOL, KFIO, WAAT, WABY, WDBJ, WEVD, WEBR, WHDL, JBW, WMCA, NEL, 6XAI, XEAQ and XEFB. LR1 is the only real foreigner I've hear on the medium waves. My receiver is a 1936 Knight superhet. I would like to hear from any other DXers in this vicinity."

"At the present time," announces Leighton Haney, 1633 Williams Way, Norristown, Pa., "my log stands at 601 and my veries at 208. Some of the better catches are HHK, TGW, VE9EK, VOAC, VOGY, CP4, CX26, PRF3, LR1, LR4, LR5, LS2, Poste Parisien, Rennes, Fecamp, Paris, Bordeaux, Toulouse and a few others. DX so far this year has been spoiled by heavy static. I guess the unseasonable weather has done that."

"Recently I added a pair of headphones to my Victor R52," confides Carl E. Sylvester, Box 213, Yale, Mich., "and I now find that WLW can be heard at several points on the dial. The latest case was at 7:29 a.m. on January 14th. WSM had not signed on and I distinctly heard WLW's announcement on 650 kcys. I have noticed the same thing on 840 kcys a number of times. Can anyone suggest the cause of this?"

Builds Own Receivers

It has been many years since the oatmeal box era, when listeners were obliged to build their own receivers. As methods of production became more efficient, many radio enthusiasts have found the purchase of factory-built models easier on the nerves and the pocketbook. And yet we all remember the days when we built our own. One reader who still likes to do his own soldering is Jimmie Manners, 523 Brunswick Ave., Trenton, N. J.

"My old Baldwin receiver has now gone to 'Radio Heaven'," he writes, "and in its place is an all-wave job which I built myself. It was copied after the 3-tube Doerle circuit, with a few ideas of my own. I have wired in three stages of direct coupled T. R. F. ahead of the regenerative detector. The audio end has a resistance coupled 56 and a pair of 45's in push pull. Each stage of T. R. F. has its own sensitivity control. I have noticed that selectivity is extremely good when these controls are fully retarded. Sensitivity is such that it is seldom necessary to open fully all three controls."

"I am using a 5-tube Philco Model 610," greets Nicholas Woytan, 309 S. Wilbur Ave., Syracuse, N. Y., "which was purchased about a year ago. My broadcast band log now stands at 347 stations in the United States, Canada, Cuba, Mexico, Puerto Rico and Argentina. I have logged 42 states so far and hope to add a few more before the end of the season. My best catches are LR1, WNEL, WKAQ, CJRM, CKX, CMBY, CMBX, XEMO, KVOL, KFJZ and KFPL. I would be pleased to hear from other owners of Philco 610's."

"Using a 1936 Victor Model C-13-2," preambles Robert Bjur, 2626 Johnson St.. N. E., Minneapolis, Minn., "I have logged a total of 226 stations on the broadcast band. Some of the better stations are TGW, CMB, CMK and CMQ. Since I am only 17 years old and am still going to high school, I have been unable to DX to any great extent."

Early Evening Report

As has been mentioned many times in the past, the early evening hours often prove to be a happy hunting ground for DXers. On many occasions it is possible to hear stations on regular schedules which cannot

be logged at any other time. A certain amount of persistence has rewarded William J. Wood, 817½ Lake St., Oak Park, Ill., who writes:

"Recently I have been doing some DXing on the broadcast band, limiting the times to between 10:15 and 11:30 p. m., CST. So far I can report WWNC, WKZO, XENT, WHA, KFYR, WPG, KWKH, WWAE, WFBM, KTAT, KFBB, WCLS, WBOW, WLBC, WRNJ, and many others. My receiver is still the old GE K85, which was purchased over three years ago."

"Reception has been only fair this year," bemoans David M. Walton, P. O. Box 515, Picton, Ont., "although the Europeans got hot on a few nights. One morning I heard Nice, Paris, Lyons, Bordeaux, Lille, Rennes and Fecamp. PRF3 was heard on January 4th, but QRN made reception difficult. My log is now 821 and still growing slowly. I would be glad to hear from any DXers who would like to correspond."

"Reception of Japanese broadcasts has been most gratifying," submits Isaac T. Davis, Elkhart, Texas. "This morning, January 17th, I heard 30 of them very well, although time permitted me to copy but 19. All but two of the 10 KW transmitters were heard. Even some of the 500-watters, such as JOVK, JOFK, JOKG, JOJG, JOHG, JOIG and JOOG, were logged with fairly good volume. The Aussies and Zedders showed moderate strength last month and continue to be audible."

"I get most of my thrills from DXing by fishing for distant 100 watt stations," offers Ronald Barinbaum, 2312 Colorado St., Houston, Texas. "So far I have heard 52 of them, verifying 27. My best catches are WRDO, WTAX, WHBU, WGPC, WRDW and WCAX. Most of my DXing is done late at night and in the early morning. In this locality, I find the Pacific Coast stations start coming in around 10 p.m. I would like to correspond with any readers who are interested in long or short wave DXing."

"Although I first started DXing in November of 1932," recalls Manuel A. Cadilla, P.O. Box 691, Rio Piedras, P.R., "I never was able to hear a TA in the early evening until this year. Between 5:30 and 6:15 p.m., AST, I now find that Milan, Marseilles, Toulouse and Rennes are very consistent. Recently I have been hearing a Venezuelan on 1120 which announces as YV1RF in Maracaibo. YV6RV is frequently heard on 1350. There is new station on 1470 kcys which announces as HI8Q, La Voz de los Muchachos, in Ciudad Trujillo."

New Stations

While RADEX makes every effort to keep its listing of stations up to date, it is frequently very difficult to keep track of broadcasters in the Latin American countries. The short wave stations have a wide range, and consequently are heard and reported by many readers. The broadcast band stations, however, present a different problem. It is seldom that they are heard beyond the boundaries of their own country. Government regulations are lax, with the result that it is virtually impossible to obtain an official list of any accuracy. We are, therefore, anxious to receive reports from readers who are successful in tuning these small stations. A report such as that submitted by Mr. Cadilla is of infinite value to listeners who have heard but failed to identify the stations in question.

A number of readers have reported the new XEBG on 820 kcys in Tijuana. According to a verification received by Carl Eder, Willmar, Minn., XEBG operates between 0800 and 0200 EST daily, with English programs from 0100 to 0200. Reports should be addressed to the station at 1065 Second Ave., San Diego, Calif.

Clifford Drain, 617 Camden St., Parkersburg, W. Va., reports the same station, but understood the call letters as XEBD. "I have heard XEBZ, Mexico City, on 820 kcys," he writes, "but lately they have been on 810. Are they straying, or is it a new frequency? The Mexican on 1100 is XEL and they have been airing late sponsored programs, with many announcements in English. There is a station in Santa Marta, Colombia, which you don't list. It is HJ1ABJ and they operate on 1150 kcys, according to the announcement from their short wave station on 6025 kcys."

A recent "official" list from Mexico shows XEL on 780 and XEBZ on 1160, but it appears that the stations have other ideas on where they should broadcast.

Another reader to hear HJ1ABJ is Benigno Contreras, Box 74, Marina Station, Mayaguez, P.R., who writes: "I heard this station on 1150 kcys between 0400 and 0600 EST on the morning of January 17th. They were working simultaneously with their short wave station on 6025 kcys. They announced as 'La Voz de Santa Marta.'"

Other Mexican changes are reported by J. W. Hansen, 3028 Fairmont Blvd., Riverside, Calif., who says that XEC has moved from 1160 to 1150 and apparently increased their power. Clifford Drain comes back to report an XEBI at Aguascalientes, Ags., on 1000 kcys with low power. According to a letter from Alejandro Diaz of the station, the old XFC of that city no longer is in operation.

"There is a new station in St. Johns, Nfld.," advises Eddie Grant, North Sydney, N.S. "It is VOCM and they operate on 1006 kcys with 200 watts power. They opened last November and have a daily schedule from 1700 to 2030 EST. The station is owned by the St. Johns Evening Telegram."

New 2YA Broadcasting

"The 60 KW transmitter for 2YA went on the air for its first test at midnight on December 17th," supplies A. I. Breen of the New Zealand DX Radio Association, Dunedin, N.Z. "It took over all 2YA programs on December 29th and was scheduled for the official opening on January 25th. Its signal in Dunedin is particularly good. 3DB's relay 3LK at Lubeck, Victoria, came on the air the latter part of December and is now on a regular schedule on 1090 kcys. Its signal in Dunedin is good for an Australian of that power, but all new transmitters seem to be like that.

"The North Queensland Regional, 4QN, is now in full time operation, relaying 4QG. Local listeners have already reported the Western Australian Regional 6WA testing on 560 kcys, so it should be in full-time operation by the time you read this."

"A recent Caracas paper gave a list of stations," contributes Rex Davis, c/o Standard Oil Company, Cumarilio, Venezuela, "and it designated separate call letters for the short wave and broadcast band stations. Heretofore stations using different frequencies have used the same call for both, but the system apparently has been altered.

"Broadcast reception has been very good for the last two months. I'm no DX fan, but I like to fish around occasionally. During the summer months, our reception is practically all short wave. I'm using a 23-tube Scott receiver and if I don't find what I want on short waves, I go over to the broadcast band. Almost any night recently I have been getting stations all the way from the East Coast to as far West as Salt Lake City."

"I have been DXing since December 1934," declares Edward Ayvazian, 44 So. Gate Pk., West Newton, Mass., "although it wasn't until a year later that I started verifying.

For the most part, I determine the value of my veries from their scarcity in the logs of other DXers, rather than from a standpoint of distance. Some of the better catches include Falkirk, Cardiff, London, Stuttgart, Leipzig, Cologne, Toulouse, Strasbourg, Rennes, Fecamp, Paris, Lyons, Bordeaux, LR1, LS2, LR4, LR3 and Belfast. The greatest thrill I ever got was from listening to KFI for the first time; the second greatest thrill was when I received my verie from Radio Normandie. I would like to correspond with DXers in any part of the world except North America."

Future of Clearing House

A recent bulletin from Emily Griswold, operator of the I.C.C.P. Clearing House, advises that she will be unable to continue in that capacity after this year. Fully appreciating the excellent work which she has done during the past two years, it is with a distinct sense of regret that the news is passed on to our readers. Miss Griswold has earned the gratitude and thanks of hundreds of DXers throughout the United States and Canada.

While paying tribute to the retiring operator, it seems that the radio clubs would do well to devote some attention to plans for next year. After two years of operation, it should now be possible to determine whether the I.C.C.P. has fulfilled the hopes of its sponsors. Club officials should be able to decide whether they desire to go ahead with the plan or make some alterations.

If the reduction of clashing special programs can be considered a favorable result, worthy of continuation, then the clubs should make provisions for the years to come. They should decide upon any changes which may seem necessary, agree on a standard policy for the coming season, and attempt to locate some one to carry on the work of the Clearing House.

If, as was suggested by Arthur R. Willis in the January RADEX, Courtesy Programs Committees should be consolidated into a single organization, the question should be discussed and the necessary arrangements made.

However, regardless of what the ultimate action may be, now is the time to consider the problem, so that the plans may have time to mature before another season opens.

There will be two more issues of RADEX before the annual summer period of "hibernation" and we suggest that readers make a point of sending in their comments and ideas. Officers of radio clubs are invited to submit their views for publication and discussion. In this way, it is hoped that the wishes of all DXers may receive attention and some definite plan of action determined.

Want Transmitter Locations

"For a long time," reminisces Warren R. Davee, West Point, Neb., "I have been wondering why you do not publish the actual locations of the various stations transmitters. KDKA, for example, is not really located in Pittsburgh; it is in Saxonburg, Pa. Such locations may be miles from the city or town designated by the call letters. We would certainly like to see in print the actual sites of the transmitters."

Another reader of the same opinion is Carl L. Horton, 72 Green St., Athol, Mass.

It is quite true that the cities listed for the larger stations are not the true locations of the transmitters. The FCC has a regulation which is very definite on that score. Stations in the higher power classifications must have their transmitters a certain distance from the center of population. The 50-KW transmitters must be at least 15 miles distant.

This is sometimes confusing to the DXer who wants to compute the distance of a station heard. A listener in New Orleans, for example,

might figure the mileage to New York at roughly 1200 miles. Yet he might be hearing WJW near New Brunswick, which would be only 1170 miles; WABC at Wayne, 1185 miles; or WEAF on Long Island, 1215 miles. Such a discrepancy might be annoying.

And yet we cannot help but feel that it is more logical to list the location of the principal studios as filed with the FCC. This is the location announced by the station itself. It would certainly be rather confusing to hear WTAM announce at Cleveland and find it listed at Brecksville. WLW's transmitter is at Mason, but the world associates "The Nation's Station" with Cincinnati.

Cuban Specials

From Enrique Hidalgo, head of the DX Department of Station CMHJ, Cienfuegos, Cuba, comes word of two special programs for American listeners. On April 1st, CMHJ will broadcast from 0200 to 0300 EST, while on April 15th the time will be 0445 to 0550 EST. All correct reports will be verified, and the most correct and most distant reports will receive a special souvenir at the end of the DX season. CMHJ broadcasts on 1160 kcys with 200 watts power. Letters should be addressed to P. O. Box 112, Cienfuegos, Cuba.

From the Flood Area

"I have been running an emergency relief station and patrol boat in the flood," writes David F. Thomas, Proctorville, Ohio, "and as soon as I have a few hours to myself, I'm going to write a description of this catastrophe. I've seen buildings slide into the river and people drown. I've sent out food and supplies without rest or sleep for days at a time. With the exception of the relief station here, I have not heard a radio for the past 12 days. All power, gas and fuel have been off.

"I'm hoping to win the radio in the contest, as there was over seven feet of water in my house and we had to live on the second and third floors. I was able to save most of my stuff, although I did lose about $800 worth of motors, generators and other equipment from my old transmitter, WUMS. At that, I was a light loser. Many people in town lost their homes and all their belongings."

"During the past few months," reports Robert Shellard, R.D.5, Brantford, Ont., "I have been having some interesting reception on the crystal set that was described in the October 1935 issue of RADEX. At first I used an aerial 98 feet long and the stations came in between 20 and 90 turns. This winter I put up a 400-foot aerial and that changed the tuning. Now all stations come in above 60 turns and, since the coil has only 120 turns, I miss a lot of them. The long aerial gives more volume, but no more stations.

"Some of the stations logged include WLW, WOR, WJR, WJZ, WTAM, WHAM, KYW, WCAU, KDKA, WBT, WGY, WEAF, WABC, WKBW, WBEN, WGR, WWJ, WBBM, WENR, WGN, WLS, WMAQ, CKPC, CHML, CRCT and CFRB. I have also received a few local amateurs on the 160-meter band and two local CW stations on the long waves. I guess that proves that your crystal set is about 100% on receiving stations."

"Using a 12-tube custom-built Rubin all-wave receiver," observes Maurice W. Rupp, R.F.D. 1, Corydon, Ind., "I have been able to log LR5, LR4, LR1, LS2, Radio Normandie, TGW, KHBC, KGMB, KGU, WPRP, WKAQ, WNEL and 44 other stations on the broadcast band in Canada, Cuba and Mexico. I have a new 16-tube Rubin broadcast receiver ordered and hope to have it here in time to use in your contest. After I have given it a work-out,

(*Please turn to page* 47)

Hams Come Through

● ● ● *By* S. R. Lewis

THIS article about an amateur radio station in Toledo presents merely a tiny picture of the work done by amateur operators throughout the country at the time of the Ohio and Mississippi River floods. It is impossible to give credit to everyone who deserves it for marvelous work done during the Great Flood, but this story of the work of a few may be considered as typical of all. It is our small way of saying to everyone connected in any way with radio, "Thanks a million."

When Mayor Neville Miller of Louisville broadcast his request for uniformed policemen to relieve his men, most of whom had been on duty for 96 sleepless hours, the message was heard by Walter Alexander of the Alexander Radio Service of Toledo. City Manager Edy was immediately contacted and arranged to send 16 policemen the next morning, fully equipped for active service.

The City Manager suggested that if communication with Louisville was necessary, the man for the job was Lee Kemberling, one of Toledo's oldest and best known amateur operators. At the time Mr. Kemberling was on duty at No. 17 Enginehouse, where he is a City Fireman, but he was detailed to his transmitter, W8ESN. Fireman Kimberling, with the aid of Mr. Alexander and Edward Melville, changed the transmitter from 20 to 75 meters, and a call was put through to Mayor Miller of Louisville that policemen were being sent.

Then W8ESN began the task of setting up an office staff to take incoming messages, file message blanks, to arrange schedules with amateurs in other cities and to have men on the job monitoring the frequencies of contact stations. On the morning of Jan. 27 this station

was appointed the Official Red Cross Emergency station for this territory and a special telephone line was installed to connect his studio with the Red Cross offices. Nearly all the flood traffic for northwestern Ohio was handled by W8ESN after he took the air.

Mr. Kemberling enlisted the aid of Edward Melville and William Golding (W8GJS) as relief operators. J. Fred Satterthwaite, Joseph Solark and the writer, as well as other members of the Toledo Radio Club, served as listening posts. Paul Luckman, W8KPH, did a fine job as typist.

In the illustration Lee Kemberling, the Noisy Fireman of the Air, is shown in the center in front of the receiver. Paul Luckman is at the left at the typewriter. On the right is Edward Melville, experienced transmitter man who was formerly associated with the A. T. & T.

A log of emergency stations heard by Earl Roberts, 2308 Roosevelt Ave., Indianapolis, Ind., may be of interest to some readers. Most of these stations are used only in emergencies and the chances of logging them again are remote. DG9H, Centralia, Ill., a naval reserve station of 3630 kcs. WWKU, the S. S. Hawassie, 3195 kcs. WGBE, a U. S. Army Relief station at Camp Marion, Ill., on 2820. W9EW4, City Hall, Benton, Ill., on 3960. NMP3, Mayfield. Ky., on 3650. W8MGR, aboard the S. S. Kentucky on the Ohio River, 3972 kcs. DJ9C, Ridgeway, Ill., on

3920. LC9I, National Guard station at Mt. Carmel, Ill., on 3500. FY3, Golconda, Ill., on 3925. CX9G, Indiana Naval Militia at Evansville, Ind., on 2650. LC9E, National Guard at Evansville, Ind., 3925. LC9X, National Guard at Indianapolis on 4012. BU4, at Stout Field, Indianapolis, Ind., on 1584 and 1975 kcs.

Listeners Wanted

THE amateur radio stations listed below will be on the air at the times indicated and the operators request all listeners and amateurs overseas to report on their signals. Accurate reports (from abroad only), will be verified for return postage, which can be sent in the form of International Reply Coupons.

These stations will be recognized by the phrase "Calling CQ DX on schedule." Address all reports to the stations in care of The Radex Press, Conneaut, Ohio, and we will forward them promptly.

The schedules below are effective from May 1 to June 1. Time is given in GMT.

W8BKM, Conneaut, Ohio, 3985 kcs. Every hour on the hour from 2300 Sat. to 1200 Sun.

W8PNF, Conneaut, Ohio, 14206 kcs. Every half hour from 2000 to 2300 on Sat. and Sun.

W9PGC, Chicago, Ill., 14 and 28 megacycle 'phone, from 1400 to 1800 daily.

All radio amateurs who desire to contact far-off countries to complete their requirements for a WAC certificate are invited to use this column. The service is for those who use 'phone (A3) emission only. The requirements are simple: Requests are to be made in writing or via "ham" radio to RADEX. Operators must agree to QSL all correct reports if return postage is forwarded. Schedules printed in this column must be kept, on the frequencies specified.

Complete information about transmissions should be in our hands at least three months in advance to allow time for distribution of magazines throughout the entire world.

One of the widest-spread radio networks ever employed regularly is the one which carries the Saturday afternoon broadcasts of the Metropolitan Opera performances. These concerts, commencing at 1400 EST, are heard over 72 stations of the National Blue Network, KGU in Honolulu, Hawaii, 40 stations of the Canadian Network, Radiobras at Rio de Janeiro, Brazil, Radio Splendid at Buenos Aires, Argentina, and Station Expectadore at Montevideo, Uruguay. The network is, roughly, 5060 miles from east to west and 7350 miles from north to south.

The path of success travelled by Dorothy Page has carried her from stenographic duties in an office to the leading feminine role on Irvin S. Cobb's Paducah Plantation. Dorothy has sung with Paul Whiteman, Jan Garber and other orchestras, and has starring roles in two films to her credit. On the Plantation program she is known as Lucy Virginia.

WHEN a juicy rain spoils a round of golf, old Jupiter Pluvius is designated as the guilty culprit. When something happens to a spot of DXing, a lot of guys begin looking for someone to shoulder the blame.

Such was the case over the week-end of February 20-22. Not a few listeners were attempting to log a station or three during the Mystery DX Contest, only to find that many stations apparently had business elsewhere. Reception on those three days was about as spotty as any within memory.

Stations which ordinarily would be duck soup for the most inexperienced night owl, threw a tantalizing carrier just above the general noise level and refused to come a step nearer. Virtually every signal heard was unusually weak and subject to severe periods of fading.

In preparing for the first night of listening, an improvised scale was attached to the dial of the Scott. This was just a narrow strip of paper, pasted on the screen just below the arc of the tuning meter. A mark on the paper was made at the end of the maximum swing for the local KYW. Tuning for the weakest station on the dial—one whose carrier only was adible—the deviation of the tuning meter was noted by another mark on the scale. The space between the two points was marked off into 10 divisions, each of which represented a reading on a rough R scale.

Between 2200 and 2300 EST on February 19th, it was noticed that stations to the West were showing to a decided disadvantage, while those to the South were coming in with unusual strength. CMCW, for example, had succeeded in pushing WCCO completely off the dial, while an unidentified station on 790 turned WGY's usually good signal into a meaningless jumble. WBZ was fighting a losing battle on 990, and WGN simply couldn't be heard at all. KQA, usually a good bet any time after 2300, was lost in a growing fog.

A second check at midnight showed no improvement and by 0200 EST, with the contest actually getting under way, reception could only be classified as "very poor." KNX, with an R5-6 signal, was the only Pacific Coaster to be heard, while WRUF showed an R8 wallop to uphold the honors of the South. Just before 0300, KNX had added another "R" and was a consistent R7, although nothing could be heard from either KFI or KPO. KSL was a poor R6. Oddly enough, the smaller stations on the higher frequencies were doing much better. KECA, KGB and KFBK were registering an R6, with practically no appreciable fading.

And so, like the rained-out golfer, a DXer might well seek someone to shoulder the blame. We've heard a lot about the much-abused sun spots the past couple of years, but it seems unlikely that their disturb-

ances were the sole cause of the poor reception. The solar magnetic waves might affect the Western stations, but why wouldn't they have the same effect on the Southern broadcasters? And besides, with the powerful KFI and KPO quite inaudible, why should Western stations on the higher frequencies show to better advantage?

While it is improbable that anyone can offer a satisfactory answer, a study of the weather map for that night revealed three salient facts.

First of all, with the exception of a low area centering over the Texas Panhandle, relatively high barometric pressures were prevailing over the entire country. Regions of high pressure—30.3 inches—occurred over the Pacific Northwest and over the Middle Atlantic and the New England states. The unusual part, however, and the point worthy of consideration was the distribution of the pressure areas.

A region of 30.2 inches pressure extended in a line from San Francisco northeast to Bismarck, N.D., where it turned North and West into Canada. At Los Angeles, a line of 30.1 carried Northeast through Winnipeg to a point about 100 miles North of Lake Superior, where it turned East and then South to run through Erie, Pa., to Georgia and then out to sea. Running parallel was a 30.0 line commencing at Phoenix, Ariz., which went Northeast to Duluth and Port Arthur, South through Sault Ste. Marie, Detroit, Louisville, Montgomery, Ala., and into the Gulf of Mexico. Two other lines of 29.9 and 29.8 inches started on the Mexican border—the former at the Arizona-New Mexico state line and the latter at El Paso—and ran North into Minnesota and Wisconsin, where they turned South again and passed on either side of New Orleans into the Gulf of Mexico.

By likening these pressure areas to altitudes, we would find a low valley centering over the Texas Panhandle and extending Northeast to the vicinity of Oklahoma City. Beyond this region and in all directions, the altitudes would increase until they reached the two coasts, where the highest regions would be found.

Bearing this in mind, it is interesting to trace the paths of the radio signals observed during the contest. Signals travelling East and West were crossing constantly changing pressure areas, and in no case would they travel far under any given pressure. For example, the signals of KFI at Los Angeles would start at a pressure of 30.1 inches. Pressure would decrease gradually to about 29.7 at Kansas City, and then rise to 30.3 at Philadelphia. Signals from KPO and KOA would experience much the same pressure change, and as has already been observed, these stations were far below normal in strength. This gives rise to the thought that something impedes a signal which travels through areas of constantly changing pressure.

To support this theory is the already-recorded observation of the behavior of signals from the South. Checking the map, it is noticed that the path from Havana to Philadelphia was one of practically constant pressure. The various Havana stations showed exceptional signal strength. Thus, one might conclude that when travelling parallel to a line of given pressure, a signal progresses better than when crossing lines of varying pressure.

When the subject was first mentioned in the February issue, several instances were noted when pressure areas were accompanied by rather unusual reception. Checking back on those observations, it can be seen that the theory given above explains each of the cases quoted. For instance, when Belfast and Rennes were heard, a low pressure area extended Northeast the St. Lawrence

Valley and out to sea. The signals travelled along a line of more-or-less constant pressure—which in this case was low. Another instance found stations in Texas, Colorado, New Mexico and Southern California riding along a high-pressure path which was fairly constant.

The only discrepancy on the application of the theory to this year's contest observations is in the case of the stations on the higher frequencies. It will be recalled that, while KFI and KPO were inaudible on the first night, KNX showed an R6-7 signal, KSL was R6 and the smaller stations at the upper end of the band—KECA, KGB and KFBK—also registered R6. KNX and KFI are in the same city, yet one was heard and the other was not.

However, instead of weakening the theory, this observation gives rise to yet another thought. Still assuming that a signal crossing lines of varying pressure experiences some impeding force, might not this force be more potent on the lower frequencies than on the high?

The very facts of the case seem to indicate that this is so. KFI and KPO are on the lower frequencies of the broadcast band and were not heard. Using the same power and a higher frequency, KNX was able to push through. With still higher frequencies and less power, KECA, KGB and KFBK were able to deliver the same signal strength as KNX.

Checking back over past DXing, apparent proof of this contention may be found. Perhaps the toughest Pacific Coast station for Eastern listeners to hear is CKOV at Kelowna, B. C. This station uses 100 watts on 630 kcys. From the same province, stations frequently heard are the 100-watters CKWX and CKCD on 1010 and the 75-watter CFCT on 1450. On nights when CKOV was broadcasting on a clear channel and was barely audible, CFCT has been pushing the tuning meter of the Scott over to a good R6-7.

And so, DXers, there is a thought for you. Perhaps this is an explanation of some of the freaky reception we find from time to time. We are going to delve deeper into the matter and keep a check on these ideas. It is possible that some of our readers would be interested in working with us and making their own observations. If so, we should be pleased to hear from you.

Two additional BBC transmitters are to be built to provide a Regional program to the South Coast and South-West of England. The first of these will work on high power and will be situated in South Devon, replacing the transmitters at Bournemouth and Plymouth. The location of the second new transmitter has not been decided. This will be a medium-power relay station and will serve Bristol and certain areas in North Devon and Somerset not covered by the other new transmitter. The present transmitter at Washford will ultimately become the Welsh Regional transmitter. The separation of the regional services for Wales and the West of England has already been partly effected by the formation of two self-contained organizations, but the new transmitter arrangements will make the separation more complete. Since the first of February North Wales has been served by the new transmitter at Beaumaris, which is called Penmon and uses the same wavelengths and transmits the same programs as the regional station at Washford.

Three stations in the Dominion of Canada have requested power increases to 50 kw. The most powerful station in Canada at the present time is 15 kw. CKY at Winnipeg.

Starlines *and* Gossip

● ● ● *By* Betty

REDUCER: Hildegarde, the television songstress, spoke words which should be encouraging to many radio stars when she made the statement that television is the best reducing agent in the world. The lights placed over one's head keep the temperature around 90 degrees. She said as a result she lost more than nine pounds after four performances.

A FRIEND INDEED: Ed Wynn deserves the monicker of radio's Santa Claus. Among the microphone headliners whom he has helped to get their starts in show business are Fred Astaire, Phil Baker, Morton Downey, Ruth Etting, Don Voorhees, Walter O'Keefe and Charles Butterworth.

INSPIRATION: According to Guy Lombardo, it is very seldom a beautiful girl or a babbling brook that inspires a popular song. Guy recalls that it was a baseball game that inspired "That's a Dream Come True." Isham Jones, the writer, was at Yankee Stadium when Lou Gehrig came through with a two-bagger to win a game. "Whoops!" yelled Jones, "that's a dream come true!" And there was his inspiration. "Annie Doesn't Live Here Anymore" was sent to Guy as a gag by its writer who never dreamed it would be a best seller.

CHATTERBOX: Arlene Harris, the "Human Chatterbox," who talks faster and says less in her interpretations on WATCH THE FUN GO BY, is actually talking to a real person when she addresses Harry during her monologues. Harry is her husband, a doctor by profession, and enjoys her tirades hugely. There isn't any "Junior," however.

COME-BACK: Gene Austin, who was a singing sensation back in 1925 and introduced one of the greatest hits of all time, "My Blue Heaven," is making a come-back as the featured vocalist on Joe Penner's program. Gene Austin is the original crooner; he was billed as a crooner eleven years ago during a vaudeville tour, but, disliking the term for himself, somehow passed it on to Rudy Vallee. For his current appearances he has developed a new style. He plays his own accompaniment on the piano and achieves a weird, semi-barbaric effect by playing only the black keys.

Judy Canova, the subject of this hillbilly fashionplate, has made a success of that hillbilly jokin' and singin'. Judy, with Annie and Zeke, cuts up on the Woodbury program with Shep Fields and his rippling rhythm orchestra on the Blue Network on Sunday nights.

* * *

Floyd Gibbons, master fast talker, admits he will have to watch his laurels after hearing Arlene Harris on the Al Pearce show.

* * *

Al Jolson has, during the past ten years, refused fabulous offers to appear in night clubs, BUT his present radio series presents him in the mythical Club Trocadero as a master-of-ceremonies.

Lanny Ross is pilot of radio's Showboat, BUT he quit his first job after college on a tramp steamer because he had to do too many tricks at the wheel.

Radio, like the movies, has its extras. They are called "mob" players and usually get $5 a performance . . . Harry Savoy, double talking stooge, has been signed by Eddie Cantor as chief heckler for 13 weeks . . . Ed Wynn estimates he has put on comedy make-up more than 12,000 times since he first became an entertainer . . . A new dramatic series known as "Pretty Kitty Kelly" has been chosen to replace Renfrew of the Mounted over the Columbia Network . . . Burns and Allen switch sponsors this month . . . Ken Murray will be heard on the tomato juice program . . . The sponsors of "We, The People," want to shift the program to a weekday evening spot.

Somebody's just discovered how very appropriate are the initials on Gracie Allen's luggage . . . they read G. A. B.

"The Lone Ranger," one of the major productions of the Mutual Network, is now on a coast-to-coast basis. This extension necessitates three productions each day the show is on the air. It is produced at 7:30 pm EST for the Michigan Radio Network and WOR, on Monday, Wednesday and Friday. WGN listeners hear it at 7:30 pm CST on Mondays and Fridays, and at 7, CST, on Wednesdays. Western listeners hear the drama through the Don Lee branch of Mutual at 7:30 pm PST on the same days.

"Circumstantial Evidence," a new series of drama sketches, are highlights of the new Phillip Morris program. This series produced by Charles Martin, is something entirely new in radio dramatization. Actual cases in which the threads of circumstantial evidence have bound individuals to sentences of imprisonment and death and where last-minute findings have intervened, are staged.

CHATTER: KEN MURRAY, and his stooge, Tony "OSWALD" Labriola, will succeed George Burns and Gracie Allen on April 7 . . . Helen Hayes has been awarded the Diction Award for 1936 . . . she always broadcasts with her back to her supporting cast so she can hear them better . . . Jack Benny and Mary Livingstone generally use the same color scheme in their clothes. When Mary wears black, brown, gray or blue—so does Jack. But when she gets gay with yellow or pink, Jack contents himself with a tie of that color . . . Master of pretended awkwardness, Charley Butterworth, is actualy a capable dancer, plays a good piano and can sing much better than his occasional groanings lead one to believe . . . Parkyarkus, now in his own radio show, is working in a movie with Joe Penner and Milton Berle.

Edwin C. Hill, journalist and master of description, is heard over the Blue Network every Sunday at 9:45 pm EST.

Setting *the* Record Straight

. . . *By* S. RAYMOND LEWIS

DURING six years of DX activity, I have made a point of establishing certain goals to serve as stimulants to whet my DX appetite. I found that there was added interest when I was aiming at a mark, no matter how remote, and the reaching of any goal was indeed a happy occasion.

When I first started after those distant stations, I tried to hear and verify at least one station in every state and province. Each year I would try to add a definite number of verifications and push the total towards a certain figure. Later, I started out to verify every station on a crowded channel, to complete whole states, and finally to have verifications from every station in the United States.

The nearest I ever came to reaching the latter goal was in June of 1934, when I had verified all but two active stations in this country. I mentioned this point in an article, "Five Years of DXing," which was published in RADEX last May. While I felt that this was a pretty fair record, I didn't believe that it was at all unusual.

Apparently some listeners don't hold to this view. A few have written in to RADEX and protested that such a record was not possible. Others have sent me letters which certainly were not complimentary to my veracity, and probably weren't intended to be. I have been on the receiving end of epithets new to my dictionary.

For those who were inclined to doubt my claim, I am not going to offer a defense. Nor will I admit the need of one. I have the verifications in my files, where they can be inspected at any time. A check with the Midsummer 1934 issue of RADEX will establish the stations which were active in the spring of that year. The postmarks on the cards and envelopes in my files will show that verifications from all but two of these stations had been received by me prior to June of 1934.

However, for those who say that such a feat is impossible, might I suggest a slight amendment? Instead of saying that it can't be done, Let's say that the doubter hasn't been able to do it himself! That would be more accurate.

One reader suggested that I must have done a lot of travelling in the years during which I was hearing all these stations. As I have never been inclined towards nomadic ventures, he may set his mind at rest. All of my DXing has been done in Toledo. In fact, until I moved to my present location last October, my listening had been confined to the same room of the same house.

Of course, there are tricks in all trades—and DXing is no exception. A fellow learns a lot during the years and usually develops what might be termed "DX technique." That might be defined as the knowledge of how and when and where to tune, plus the time, patience and ability to put that knowledge into practice.

For domestic DXing, you can divide the stations into three general classes. The first class includes the hundred or so stations which may be heard at some time during the course of the day. The second class includes those which are back of the dominant local and semi-distant stations and which require maximum fishing before they are heard. The third class covers the daytime stations which aren't audible in your locality as well as the limited and full time 100-watters at a considerable distance. There might be a

sub-division of this last class—the stations which are now on a regular monthly frequency check schedule, and those which are not.

Naturally, reception of the stations in the first class is relatively easy. Between the hours of 6:00 A. M., when many Eastern and Central stations sign on for the day, and 3:00 or 4:00 A. M. the next day, when the last of the Western stations are heard, it is a simple matter to build up a log of at least 100 stations. If you are fortunately situated, you might even double that number without much exertion.

The stations in the second class are really the toughest to hear. They are the medium-power broadcasters on the regional channels, and they seldom go in for special programs. They can't be heard during the day and they are lost in a jumble at night.

The only way to hear them is to "park" on selected frequencies night after night until you are able to log them all. Of course, this process may result in mild insanity among the other members of the family, but that is the usual lot of radio widows and orphans. You'll usually find a night when conditions are just right for a certain station, and then you'll realize that all the trouble and grief was very much worth while.

On these early-evening "parking sessions," I have found that my booster loop system has been invaluable. When the ordinary outside aerial shows nothing but a jumble of stations, a swing of the loop will often smooth out the interference and bring in just the catch you want. I have even found that the signal from a dominant nearby station can be reduced to a point where a most distant station is easily logged.

When all others means of logging a desired station have failed, it automatically drops into the third classification—and then you have to wait for a special test or DX program. In the early days of my DX activities, these special broadcasts were too infrequent for the ease of my mind.

For a period of two and a half years, I seldom missed a chance to spend a few hours at the dial every morning. Naturally, I was able to hear practically every test program which came on the air. When a new station was built, I usually heard at least one of its first tests. When equipment tests were made, I was generally on hand for the customary three or more selections. When stations broadcast courtesy programs for the radio clubs, I could be counted on for a report in most cases.

Obviously, when a person spends so much time DXing, he is bound to build up a goodly log of stations. The chap who composed the number "Morning, Noon and Night" must have been thinking of the way I listened to my radio.

One morning in 1932, I stumbled on a group of Eastern stations which were broadcasting frequency checks for the old FRC. I landed a bunch of needed catches that winter.

In 1933, the present system of regularly-scheduled monitoring tests was started, and you could count on nearly 300 stations once a month. As these stations fell in the third classification, they were welcomed with open arms. During that 1933-34 season, I was able to log and verify virtually all of the stations which I still needed.

In June of 1934, as I have said before, all but two of the active stations in this country were specifically verified. It was a nice record and one of which I have been proud. But it wasn't outstanding, for it could have been duplicated by anyone else who had the time and patience to spend all those hours at the dials. In fact, the chances are that other DXers have equalled if not actually excelled my record.

Some listeners may be of the opinion that I used elaborate and expensive receiving equipment, but such was not the case. I did fuss around a bit with aerials and grounds, and my booster loop system was a big help, but there was very little expense there. As for the receiver itself, it was an old Crosley eight-tube neutrodyne which brought most of my catches. It wasn't until November 1933 that I "graduated" to a second-hand Silver-Marshall job of 1931 vintage. Of course I now have the new Scott which I was fortunate enough to win in last year's Mystery DX Contest, but this fine receiver played no part in the earlier record.

Conditions have changed during the past two and a half years, and it might be difficult to duplicate the record today. The FCC is creating new stations so fast that I often wonder how they can keep track of them. Test programs, with the exception of the frequency checks, are not as numerous as they once were. And yet, had I the time to spend at the dials, I could still come pretty close to verifying them all. For that matter so could most DXers!

Questions Answered

(*Continued from page* 26)

efficiency, be checked by a service man.

The number of tubes is only a measure indirectly of the selectivity of a set. The number of tuned circuits in the intermediate frequency of a superheterodyne determines its selectivity. Due to the similarity of the intermediate frequency circuits in such a set the number of tubes in it often will give a rough idea of its selectivity. It is quite possible to obtain 10 kilocycle selectivity with a 6-tube set. But we have seen three-tube sets of the regenerative type that are just as selective. It may be that your antenna is a bit too long. We think that perhaps a change to 60 feet, including lead-in, might tend to make this receiver more selective.

Adding A. V. C.

I have a 7-tube General Electric t.r.f. set, model T41, *and as you know, it has no automatic volume control. I would like to know if it is possible to install this a.v.c. circuit in the set. Not being able to purchase a new set I will have to be content with what I have, but would like to improve it.*

Answer. While it would be possible to add this a.v.c. circuit it would not be very practical. We do not know whether you have the technical knowledge necessary as the addition would involve either an extra tube or the replacement of your detector tube by a double-purpose tube, also socket, wiring, etc., and the calculating of resistances for the correct control. Much of this might also require some experimentation. Also, the type of tubes used in this set are not any too well suited to the work. In the end we would say that the expense involved, especially if you have to get someone to do the work, would be greater than the purchase of a set of modest ability with automatic volume of control.

A donation of $115 to the Red Cross relief fund was received by the General Electric shortwave stations W2XAD and W2XAF, from Venezuela, as a result of an appeal broadcast over the stations. The money came from 14 employees of an oil company in Bolivar.

Benny Goodman, known from coast to coast as the foremost apostle of "swing" music, is rehearsing the clarinet score for Mozart's "Quintet for Strings and Clairnet," which is he going to record with the Pro-Arte Quartette for Victor Red Seal records.

The Frequency Checks

THE engineers of the Federal Communications Commission have arranged a schedule of programs for the purpose of checking the frequency of a great number of low-powered stations. Interfering stations are silenced for these tests which continue for twenty minutes with frequent announcements of call and location.

These special programs take place during the second week of each month. The March tests will commence on Monday the 8th and continue through Saturday the 13th. April tests will commence on Thursday the 8th and continue through Wednesday the 14th, exclusive of Sunday; and the May tests will start on Saturday the 8th and carry through Friday the 14th, exclusive of Sunday.

The following schedule has just been received from the FCC and readers should preserve it for future reference.

The Second Monday

2:00-2:20	WLNH	1310	Laconia, N. H.
	WJBO	1420	Baton Rouge, La.
2:10-2:30	WBRB	1210	Red Bank, N. J.
	WHBB	1500	Selma, Ala.
2:20-2:40	WMAS	1420	Springfield, Mass.
	WIOD	1300	Miami, Fla.
2:30-2:50	WWRL	1500	Woodside, N. Y.
	WJBW	1200	New Orleans, La.
2:40-3:00	WOKO	1430	Albany, N. Y.
	WMBR	1370	Jacksonville, Fla.
2:50-3:10	WCAX	1200	Burlington, Vt.
	WOPI	1500	Bristol, Tenn.
3:00-3:20	KTRH	1290	Houston, Tex.
	WMBO	1310	Auburn, N. Y.
	WMSO	1420	Sheffield, Ala.
3:10-3:30	WOC	1370	Davenport, Ia.
	WCAD	1220	Canton, N. Y.
	WMFN	1210	Clarksdale, Miss.
3:20-3:40	KWLC	1270	Decorah, Ia.
	WMBQ	1500	Brooklyn, N. Y.
	WNBR	1430	Memphis, Tenn.
3:30-3:50	KFPW	1210	Fort Smith, Ark.
	WMFF	1310	Plattsburg, N. Y.
	WDBO	580	Orlando, Fla.
3:40-4:00	KABC	1420	San Antonio, Tex.
	WQDM	1390	St. Albans, Vt.
	WSMB	1320	New Orleans, La.
3:50-4:10	KADA	1200	Ada, Okla.
	WFAS	1210	White Plains, N. Y.
	WHEF	1500	Kosciusko, Miss.
4:00-4:20	KFDM	560	Beaumont, Texas.
	WCAP	1280	Asbury Park, N. J.
	KLS	1280	Oakland, Calif.
	WAGF	1370	Dothan, Ala.
4:10-4:30	KCRJ	1310	Jerome, Ariz.
	KMLB	1200	Monroe, La.
4:20-4:40	KLUF	1370	Galveston, Texas
	WDEV	550	Waterbury, Vt.
	KGDM	1100	Stockton, Calif.
	WDNC	1500	Durham, N. C.
4:30-4:50	KROC	1310	Rochester, Minn.
	KGAR	1370	Tucson, Ariz.
	KALB	1420	Alexandria, La.
4:40-5:00	KOVC	1500	Valley City, N. D.
	WBNO	1200	New Orleans, La.
4:50-5:10	KRE	1370	Berkeley, Calif.
	WLAK	1310	Lakeland, Fla.
5:00-5:20	KIEM	1450	Eureka, Calif.
	WGCM	1210	Gulfport, Miss.
5:10-5:30	KDON	1210	Del Monte, Calif.
	WMIN	1370	St. Paul, Minn.
	WTAL	1310	Tallahassee, Fla.
5:20-5:40	KUMA	1420	Yuma, Ariz.
5:30-5:50	KWG	1200	Stockton, Calif.
5:40-6:00	KGMB	1320	Honolulu, T. H.

The Second Tuesday

2:00-2:20	WBAX	1210	Wilkes Barre, Pa.
2:10-2:30	WDAS	1370	Philadelphia, Pa.
2:20-2:40	WBBL	1210	Richmond, Va.
2:30-2:50	WFBG	1310	Altoona, Pa.
2:40-3:00	WMBG	1210	Richmond, Va.
2:50-3:10	WEBR	1310	Buffalo, N. Y.
3:00-3:20	KDAL	1500	Duluth, Minn.
	KFIZ	1420	Fond du Lac, Wisc.
	WLVA	1200	Lynchburg, Va.
3:10-3:30	KPAC	1260	Port Arthur, Texas
	WOMT	1210	Manitowoc, Wis.
	WBTM	1370	Danville, Va.
3:20-3:40	KCKN	1310	Kansas City, Kans.
	WKRC	550	Cincinnati, Ohio
	WHEC	1430	Rochester, N. Y.
3:30-3:50	WNAD	1010	Norman, Okla.
	WMBC	1420	Detroit, Mich.
	WRAK	1370	Williamsport, Pa.
3:40-4:00	KFVS	1210	Cape Girardeau, Mo.
	WTAD	900	Quincy, Ill.
	WJAC	1310	Johnstown, Pa.
3:50-4:10	WTAW	1120	College Station, Tex.
	WBNS	1430	Columbus, Ohio
	WBNY	1370	Buffalo, N. Y.
4:00-4:20	WCOL	1210	Columbus, Ohio
	KOOS	1200	Marshfield, Ore.
	WBRE	1310	Wilkes Barre, Pa.
4:10-4:30	KLPM	1240	Minot, N. Dak.
	WPAY	1370	Portsmouth, Ohio
	KPQ	1500	Wenatchee, Wash.
	WPAR	1420	Parkersburg, W. Va.
4:20-4:40	KRMD	1310	Shreveport, La.
	KFIO	1120	Spokane, Wash.
	WCLO	1200	Janesville, Wisc.
	WSYR	570	Syracuse, N. Y.
4:30-4:50	KGCA	1270	Decorah, Iowa
	KORE	1420	Eugene, Ore.
	WJAY	610	Cleveland, Ohio
	WNBF	1500	Binghamton, N. Y.
4:40-5:00	KTEM	1370	Temple, Texas
	KGBU	900	Ketchikan, Alaska
	WGH	1310	Newport News, Va.
	WHBC	1200	Canton, Ohio
4:50-5:10	KGVO	1260	Missoula, Mont.
	KRLH	1420	Midland, Texas
	WHK	1390	Cleveland, Ohio
	WWSW	1500	Pittsburgh, Pa.
5:00-5:20	KGCX	1450	Wolf Point, Mont.
	WSAY	1210	Rochester, N. Y.
	WSPD	1340	Toledo, Ohio
5:10-5:30	KAST	1370	Astoria, Ore.
	KNET	1420	Palestine, Texas
	WAVE	940	Louisville, Ky.
5:20-5:40	KCMO	1370	Kansas City, Mo.
	KFJI	1210	Klamath Falls, Ore.
	WXYZ	1240	Detroit, Mich.

5:30-5:50	KIDW	1420	Lamar, Colo.
	WGAR	1450	Cleveland, Ohio
5:40-6:00	KVQ	1380	Pittsburgh, Pa.
	WCAT	1200	Rapid City, S. Dak.

The Second Wednesday

2:00-2:20	WMFJ	1420	Daytona Beach, Fla.
2:10-2:30	WAIM	1200	Anderson, S. C.
2:20-2:40	KVOL	1310	Lafayette, La.
2:30-2:50	WHBQ	1370	Memphis, Tenn.
2:40-3:00	WKAQ	1240	San Juan, P. R.
2:50-3:10	WSJS	1310	Winston-Salem N. C.
3:00-3:20	KABR	1420	Aberdeen, S. Dak.
	WFAM	1200	South Bend, Ind.
	WMFD	1370	Wilmington, N. C.
3:10-3:30	KLCN	1290	Blytheville, Ark.
	WPAX	1210	Thomasville, Ga.
3:20-3:40	KFPL	1310	Dublin, Texas
	WKBN	570	Youngstown, Ohio
	WRDW	1500	Augusta, Ga.
3:30-3:50	KGBX	1230	Springfield, Mo.
	WELL	1420	Battle Creek, Mich.
	WQBC	1360	Vicksburg, Miss.
3:40-4:00	KFXJ	1200	Grand Junction, Colo.
	KPLC	1500	Lake Charles, La.
	WADC	1320	Akron, Ohio
3:50-4:10	KARK	890	Little Rock, Ark.
	WGPC	1420	Albany, Ga.
	WOSU	570	Columbus, Ohio
4:00-4:20	KFJZ	1370	Fort Worth, Texas
	WHBU	1210	Anderson, Ind.
	WJNO	1200	West Palm Beach, Fla.
4:10-4:30	WBEO	1310	Marquette, Mich.
	WCOC	880	Meridian, Miss.
	WLB	1250	Minneapolis, Minn.
4:20-4:40	KSO	1430	Des Moines, Iowa
	WKEU	1500	Griffin, Ga.
	WMPC	1200	Lapeer, Mich.
4:30-4:50	WEXL	1310	Royal Oak, Mich.
	WHLB	1370	Virginia, Minn.
4:40-5:00	WJMS	1420	Ironwood, Mich.
	WJRD	1200	Tuscaloosa, Ala.
4:50-5:10	KFXR	1310	Oklahoma City, Okla.
	WTAX	1210	Springfield, Ill.
	WBIG	1440	Greensboro, N. C.
5:00-5:20	KFJB	1200	Marshalltown, Ind.
	WEOA	1370	Evansville, Ind.
5:10-5:30	KPDN	1310	Pampa, Texas
	WDZ	1020	Tuscola, Ill.
5:10-5:40	KELD	1370	Eldorado, Ark.
	WAYX	1200	Waycross, Ga.
5:30-5:50	KDLR	1210	Devils Lake, N. Dak.
5:40-6:00	KRBC	1420	Abilene, Tex.

The Second Thursday

2:00-2:20	WSVS	1370	Buffalo, N. Y.
2:10-2:30	WKOK	1210	Sunbury, Pa.
2:20-2:40	WRAW	1310	Reading, Pa.
2:30-2:50	WJTN	1210	Jamestown, N. Y.
2:40-3:00	WTEL	1310	Philadelphia, Pa.
2:50-3:10	WHIS	1410	Bluefield, W. Va.
3:00-3:20	KGKO	570	Wichita Falls, Tex.
	WCPO	1200	Cincinnati, Ohio
	WQAN	880	Scranton, Pa.
3:10-3:30	KFYO	1310	Lubbock, Texas
	WGL	1370	Ft. Wayne, Ind.
	WLEU	1420	Erie, Pa.
3:20-3:40	KGFI	1500	Corpus Christi, Tex.
	WIBU	1210	Poynette, Wisc.
3:30-3:50	KGFL	1370	Roswell, N. Mex.
	WBCM	1410	Bay City, Mich.
	WSAJ	1310	Grove City, Pa.
3:40-4:00	KGGM	1230	Albuquerque, N. Mex.
	WJBC	1200	Bloomington, Ill.
3:50-4:10	KGHF	1320	Pueblo, Colo.
	WHAT	1310	Philadelphia, Pa.
	WLAP	1420	Lexington, Ky.
4:00-4:20	KGHI	1200	Little Rock, Ark.
	KXO	1500	El Centro, Calif.
	WHDL	1400	Olean, N. Y.
	WSMK	1380	Dayton, Ohio
4:10-4:30	KGIW	1420	Alamosa, Colo.
	KJBS	1070	San Francisco, Calif.
	WJIM	1210	Lansing, Mich.
4:20-4:40	KGKB	1500	Tyler, Texas
	KGU	750	Honolulu, T. H.
	WBOW	1310	Terre Haute, Ind.
4:30-4:50	KGKL	1370	San Angelo, Tex.
	KSUN	1200	Lowell, Ariz.
	WCBS	1420	Springfield, Ill.
4:40-5:00	KHSL	950	Chico, Calif.
	KRRV	1310	Sherman, Texas
	WTMV	1500	East St. Louis, Ill.
4:50-5:10	KERN	1370	Bakersfield, Calif.
	WHBF	1210	Rock Island, Ill.
5:00-5:20	KHBC	1400	Hilo, T. H.
	WTRC	1310	Elkhart, Ind.
5:10-5:30	KTRB	740	Modesto, Calif.
	WWAE	1200	Hammond, Ind.
5:20-5:40	WIBM	1370	Jackson, Mich.
5:30-5:50	WALR	1210	Zanesville, Ohio

The Second Friday

2:00-2:20	WGNY	1210	Newburgh, N. Y.
2:10-2:30	WCNW	1500	Brooklyn, N. Y.
2:20-2:40	WGBB	1210	Freeport, N. Y.
2:30-2:50	KABY	1370	Albany. N. Y.
2:40-3:00	WNRI	1200	Newport, R. I.
2:50-3:10	WSYB	1500	Rutland, Vt.
3:00-3:20	KICA	1370	Clovis, N. Mex.
	WEBQ	1210	Harrisburg, Ill.
	WABI	1200	Bangor, Me.
3:10-3:30	WACO	1420	Waco, Texas
	WLBC	1310	Muncie, Ind.
3:20-3:40	WEW	700	St. Louis, Mo.
	WIBX	1200	Utica, N. Y.
	WKBB	1500	E. Dubuque, Ill.
3:30-3:50	KUOA	1260	Fayetteville, Ark.
	WAGM	1420	Presque Isle, Me.
	WHDF	1370	Calumet, Mich.
3:40-4:00	KIUJ	1310	Santa Fe, N. Mex.
	WJW	1210	Akron, Ohio
	WNBZ	1290	Saranac Lake, N. Y.
3:50-4:10	WJBK	1500	Detroit, Mich.
	WMBH	1420	Joplin, Mo.
	WRDO	1370	Augusta, Me.
4:00-4:20	KIUL	1210	Garden City, Kans.
	WCMI	1310	Ashland, Ky.
	WTHT	1200	Hartford, Conn.
4:10-4:30	WCAZ	1070	Carthage, Ill.
	WNLC	1500	New London, Conn.
4:20-4:40	WMFG	1210	Hibbing, Minn.
	WTAQ	1330	Green Bay, Wisc.
4:30-4:50	KIUP	1370	Durango, Colo.
	WPAD	1420	Paducah, Ky.
4:40-5:00	KNOW	1500	Austin, Texas
	WEMP	1310	Milwaukee, Wisc.
4:50-5:10	KGDE	1200	Fergus Falls, Minn.
	WGRC	1370	New Albany, Ind.
5:00-5:20	KIUN	1420	Pecos, Texas
5:10-5:30	KGEK	1200	Sterling, Colo.
5:20-5:40	KMAC	1370	San Antonio, Tex.
5:30-5:50	WIL	1200	St. Louis, Mo.
5:40-6:00	KGFG	1370	Oklahoma City, Okla.
5:50-6:10	KANS	1210	Wichita, Kans.

The Second Saturday

2:00-2:20	WMFR	1200	High Point, N. C.
2:10-2:30	WMFO	1370	Decatur, Ala.
2:20-2:40	WSOC	1210	Charlotte, N. C.
2:30-2:50	WTJS	1310	Jackson, Tenn.
2:40-3:00	WSIX	1210	Nashville, Tenn.
2:50-3:10	WROL	1310	Knoxville, Tenn.
3:00-3:20	KOTN	1500	Pine Bluff, Ark.
	WQAM	560	Miami, Fla.
3:10-3:30	KWYO	1370	Sheridan, Wyo.
	WCLS	1310	Joliet, Ill.
	WPRP	1420	Ponce, P. R.
3:20-3:40	KGCU	1240	Mandan, N. Dak.
	WHBY	1200	Green Bay, Wisc.
	WNEL	1200	San Juan, P. R.

3:30-3:50	KXYZ	1440	Houston, Texas
	WAML	1310	Laurel, Miss.
	WKBV	1500	Richmond, Ind.
3:40-4:00	KRGV	1260	Weslaco, Texas
	WFOR	1370	Hattiesburg, Miss.
	WJBL	1200	Decatur, Ill.
3:50-4:10	KNEL	1500	Brady, Texas
	WEED	1420	Rocky Mount, N. C.
	WGBF	630	Evansville, Ind.
4:00-4:20	KFQD	780	Anchorage, Alaska
	KVSO	1210	Ardmore, Okla.
	WFDF	1310	Flint, Mich.
4:10-4:30	KONO	1370	San Antonio, Texas
	KVOS	1200	Bellingham, Wash.
	WKBZ	1500	Muskegon, Mich.
4:20-4:40	KRLC	1420	Lewiston, Idaho
	KTSM	1310	El Paso, Texas
4:30-4:50	KUJ	1370	Walla Walla, Wash.
4:40-5:00	KCMC	1420	Texarkana, Ark.
	KRNR	1500	Roseburg, Ore.
4:50-5:10	KEEN	1370	Seattle, Wash.
	KWTN	1210	Watertown, S. Dak.
5:00-5:20	KGFF	1420	Shawnee, Okla.
	KIT	1310	Yakima, Wash.
5:10-5:30	KBTM	1200	Paragould, Ark.
	KRKO	1370	Everett, Wash.
5:20-5:40	KFRO	1370	Longview, Tex.
	KGEZ	1310	Kalispel, Mont.
5:30-5:50	KBIX	1500	Muskogee, Okla.
	KFXD	1200	Nampa, Idaho
5:40-6:00	KFJM	1410	Grand Forks, N. D.
	KXRO	1310	Aberdeen, Wash.
5:50-6:10	KGY	1210	Olympia, Wash.
6:00-6:20	KINY	1310	Juneau, Alaska
6:10-6:30	KMED	1410	Medford, Ore.

A revised Frequency Check schedule will appear in this magazine next month.

With the Radexers

(*Continued from page* 34)

I'll send along some details about the set."

When sending in reports, readers are encouraged to mention the type of receiving equipment which they are using. Whether they have a small crystal set or a large custom-built model, reception reports are of more interest when the receiver is identified. Other listeners are thus able to compare results and, perhaps, determine a set which will meet their own requirements.

"Real DX is hard to get here this season," complains Charles Hesterman, 2014 Lorne Ave., Saskatoon, Sask., "as the local QRM has improved out of bounds. It is much better than last year, and that is saying something! Apparently half the people in Saskatoon have sore backs and they all start their infernal machines going around 0230, when DX is beginning to perk up. Frankly, I believe that all the violet ray machines in the world are now in convention in my back yard. Time after time, just when I am about to get something on a foreigner, the racket commences and then it's all up.

Argentine Phones

● ● ● *By* A. M. Stevens*

The Union Telephone Company (Union Telefonica) operates the largest telephone system in the Argentine and as such also serves the Argentine with an international service by an exclusive connection with the many radio telephone circuits of the Cia. Internacional de Radio.

All of the international radio telephone circuits of the Union Telefonica are owned and operated by the Companie Internacional de Radio, S. A., Defensa 143, Buenos Aires. The exact data on these stations is given in the list which follows.

Three stations work with New York. LSN6, 21020 kcs, is used in the daytime. LSN1, 14530 is used in the morning and evening. The nighttime station is LSN2 on 9890 kcs. This is the most frequently used transmitter.

Serving London and Rio de Janeiro are LSL4, 21160 kcs in the daytime; LSL3 on 15810 in the morning and evening, and LSL2, 10300 kcs at night. LSL2 is the most frequently used of these stations.

Station LSL1 on 7901 kcs works irregularly with Rio de Janeiro at night.

Another group of frequencies is used for contacts with Madrid, Berlin and Paris. These are LSM3 on 19140, daytime. LSM2, 14500 kcs, morning and evening, and LSK3, 10250 kcs, nights.

**Mr. A. M. Stevens is an official of the Cia. Internacional de Radio so this information is accepted as positively authentic.*

Off the Cuff

THE British Post Office, which controls the British Broadcasting Corporation and its operations, will make a fight for a wider shortwave broadcasting international band at the Telegraphic Communications Union Conference to be held in Cairo this year. The BBC has reported that reception conditions on the 6 and 9.5 megacycle bands are in a chaotic condition due to the operation of allegedly unauthorized stations in those bands.

The British will make an effort to have formed an international organization which can control the allocation of frequencies on the shortwaves. It is understood France, Italy and Germany will co-operate in such a move. RADEX sincerely hopes the United States also will ally itself with such a movement. Congestion on the shortwave bands has reached a point where it is necessary to have some international regulatory power, because regulation of this nature is beyond the scope of any local authorities.

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In President Roosevelt's recommendations to Congress he supported the report of his Committee on Administrative Management, appointed almost a year ago, which urged a reorganization of about 100 of the independent governmental bureaus. Under this plan, which observers expect will meet with the approval of Congress, the FCC would be abolished and its work and personnel would be transferred to some executive department.

* * *

The new station at College Park, Md., W3XJ on 1060 kcs., is an experimental booster station, licensed to test between the hours of midnight and 6 am, EST. It is owned by McNary and Chambers.

The solution of the cross-call puzzle printed on the puzzle page last month is given below:

K
WOL
WJDX
WBRE
WMBD
WIBA
WOR
JD

* * *

A few network changes are scheduled for the near future. WOWO in Fort Wayne, Indiana, now affiliated with the CBS, will switch to the NBC-Blue on May 1. WSPD in Toledo, Ohio, on 1340 kcs, will change from the CBS to the NBC on May 1. On June 29 station WRVA in Rich mond, Va., will become a CBS outlet.

* * *

From Mr. Joseph M. Todd, Traffic Manager of KFRU, Columbia, Mo., we learn that this station broadcasts news flashes at 12:30 pm. each week day. KFRU works on 630 kcs with 1000 watts daytime power.

* * *

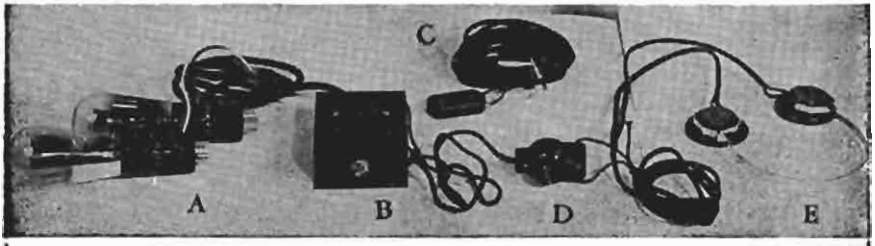
Mr. Alfred Gus Karger, popular commentator, broadcasts his talks on National Defense, American Ideals, Political and Social Economics, over the Mutual Network every Saturday at 7:00 pm, EST, according to a letter from Mr. Karger. The broadcasts originate at WLW, Cincinnati.

* * *

How many of our readers remember the call letters of the station which was located in Ashtabula, Ohio, many years ago?

* * *

What is believed to be the first two-way contact between Great Britain and Hawaii on ten meters was intercepted by Charles Shaffer, 411 Irving St., Olean, N. Y. Stations were G5ML and K6MVV.



The "Perfect" Phone Adapter

The device which makes it easy to attach headphones to any radio set. Anyone can install it, without tools, in no time at all. It cannot harm the receiver and the operation of the set is not affected in any way.

IDEAL FOR THE HARD-OF-HEARING

Those who are very hard of hearing can enjoy radio reception by using our new HOH Model Phone Adapter. It gives sufficient volume on the headphones without it being necessary to increase the volume of the receiver above normal.

THE VERY BEST HEADPHONES

For use with the Perfect Phone Adapter, we recommend the Trimm Featherweight Headphones. They weigh only 4 ounces and can be worn for hours, without fatigue. Very sensitive, designed for use by commercial operators, they get the weak signals which other, less sensitive 'phones fail to register.

We pay the postage on all orders.
If you live in Ohio add 3% for Sales Tax

The HOH Model Perfect Phone Adapter with Trimm Featherweight Headphones.. $12.00

The HOH Model Perfect Phone Adapter with a good pair of Trimm Headphones.... $6.70

In ordering be sure to give make and model of receiver and a list of the tubes used.

The Radex Press
Conneaut, Ohio

I sometimes think there should be a law requiring everyone to spend some of his spare time training for the future. I once thought all the cards were stacked against me. Now I'm making good money. Maybe my experience will show you the way to better pay too.

I THOUGHT RADIO WAS A PLAYTHING

But Now My Eyes Are Opened--I'm Making Over $30 a Week!

$30 a week. Man alive, I used to think anyone making that much was just plain lucky.

A short time ago I was just barely getting by. It was the same old story—a little job: a salary as small as the job.

If you had told me that I would soon be making $30 and more a week in my own Radio business—I'd thought you were crazy. To me, Radio was a plaything. Now I know it's a big business where specialized training pays rich rewards.

But I am getting ahead of my story—let me tell you how it all started. I was hard up because I had been kidding myself—that's all—not because I had to be. I thought a fellow either had to be lucky or have a string of college degrees to make good money.

One day I picked up a magazine and an ad attracted me because it seemed to fit my case. It said, "I will train you to start a spare time or full time Radio service business of your own WITHOUT CAPITAL."

"They're trying to kid somebody," I thought, "but I'll find out what it's all about."

I wrote in, and within a few days received a 64-page book, telling about the opportunities in Radio: how I could prepare right at home in my spare time, and how they would show me how to start making money in my neighborhood selling and repairing Radio sets. It would have sounded too good to be true if it had not been backed up by nearly 100 letters from fellows who had taken their course and were very enthusiastic about it.

What has happened since seems almost like a dream. I started to take their course, and soon I was ready to start making money in my neighborhood—as much as $5 and $15 a week. It wasn't long until I had saved enough money to start a full time business of my own.

That business in a surprisingly short time grew to the point where I am clearing over $30 a week. All this took place under the watchful guidance of my friends at the National Radio Institute. They also offered to train me for jobs in Broadcasting Stations, Radio Factories, Radio Jobbers and Dealers, Aviation Radio, Television, Short Wave Stations, Automobile, Police Radio, Loud Speaker Systems, and other branches of Radio.

THINK IT OVER

Friend—you may not be as bad off as I was—but think it over—are you satisfied? Are you making as much money as you need? Would you sign a contract to stay where you are for the next ten years at the same salary? Those are the things you have to think about—because no one is going to make it his business to push you ahead—you must make it your own business.

TAKE MY TIP

Write for their book, "Rich Rewards in Radio." It won't cost you anything except a postage stamp. It shows you a lot of things which I don't believe you know now about Radio—a lot of facts and figures on the opportunities in this new, fast-growing field—where the jobs are, what they pay, how to get ready for them. Beginners as well as experienced men are making as much as $500 to $1,500 a year more as a result of N. R. I. Training. And at the same time they send the book, "Rich Rewards in Radio," **they'll send you, without any cost or obligation, a Free Lesson,** to prove that their training is easy, practical, fascinating. The lesson they send, "Radio Receiver Troubles—Their Cause and Remedy," is valuable. And when you read this lesson, you'll know why so many fellows have mastered N R I. Training and are now making good money as Radio Experts.

You are not placing yourself under any obligation by writing for this material as they will gladly send it to anyone who is ambitious and wants to get ahead. Mail the coupon in an envelope or paste it on a 1c postcard. **Just address Mr. J. E. Smith, President, National Radio Institute, Dept. 7DO, Washington, D. C.**

J. E. Smith, President,
National Radio Institute
Dept 7DO, Washington, D. C.

MAIL THIS COUPON

Dear Mr. Smith:

Without obligation, send me the sample lesson and your book about spare time and full time Radio opportunities, and how I can train for them at home in spare time. (Please print plainly.)

Name ..... Age. . .

Address . . . . . .

City..... ..... . State . . .

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