

they are members of the vast brotherhood of "searchers," but it will also help to bring closer together the members who find themselves in various places where they are practically strangers. The sign of the DX Club badge should in itself be sufficient introduction. I am hoping to see others of the club support this suggestion. I find the DX notepaper very useful, and it helps me considerably in sending for verifications.—"Vogeltown" (New Plymouth).

A New Short-waver.

THE recent American mail brought in 10 verifications, as follow: KFOX, KFWB, KTAB, KDYL, KGA, KOIN, WTIC, KFSD, WSUI and KRLD. The wonderful service which KFOX has maintained since going on the air was illustrated in the interesting folder which accompanied their letter. Although of only 1 k.w. power, they have had reports of reception from all over the world. Did any D.X.-er hear the American station on WENR's frequency on the evening of April 12, broadcasting an anniversary programme until 6.30 p.m. and giving the call WLS? I held him until 6.30 p.m., when WENR commenced a programme of dance music. As WLS is listed with a power of only 5 k.w. and yet came in with strength equal to that of WENR with a power of 50 k.w., it may have been a rebroadcast of the former station by WENR. The Europeans which could be received at fair strength a short time ago seem to have petered out, the German regional on 276 metres (1090 k.c.) being the only one worth listening to.

A new short-wave transmitter has been heard during the early morning operating on the 49-metre band, just below the Vatican station. The call was given as "Allo, Allo, hier Radio Moscow." This means that Russia has now three high-power short-wavers on the air, RV15 on 70 metres and two at Moscow on 49 metres and 45 metres. With regard to Mr. Ellis's suggestion concerning a badge for the D.X. Club, I think that it would be quite a good idea, but we would have to leave the design to his own judgment.—D.T.H. (Timaru).

KGW Controversy.

J.P.C. (P.N.): Thanks for your support in the KGW-KZRM controversy. If D. McL. (Wellington) reads my note of 20/3/31 he will see that I am referring to a specific instance quoted by "Switch." Some months ago B.C. (Hamilton) was asking about S.W. stations in Honolulu. I have advice to-day that there is no broadcasting station, but there are eleven S.W. commercial telegraph stations and about 26 amateurs, two of whom have radio phone transmitters. No W.L.'s mentioned, however. Had 13 carriers on the early morning stations, but too much static to do anything with them. Two of them, on 216 and 220 m. (approximately), were, I think, French, and were very strong about 6.20 a.m.—"Cromdale" (Otago).

71A Launceston, at R7.

ON April 14, using a three-valve battery, set with 'phones, I received 71A, Launceston, at R7, static being severe. He called N.Z. and expressed the hope that "all N.Z. listeners were well tuned-in." He also asked for reports. "Ocol" (Hawke's Bay). Re station on 508 m. (590 kc.), using a det two audio, I picked this station up on April 13 and 14. Strength on the latter occasion was very good. A lady and gentleman were conducting a conversa-

tion in Japanese. No call was given.—"Mike" (P.N.)

Americans Coming In.

LATEST loggings are: WOWO, Fort Wayne, 1160 kc. (259m.); 2MO, Gunnedah, 1330 kc. (215m.); and KSTP, 1460 kc. (205m.). The latter was heard testing on April 11, when his location was given as "St. Paul and Minneapolis." Strength R7. Mr. Ellis's suggestion re DX Club badge is excellent.—N.J. (Masterton).

KSTP Test Programme.

"WIRELESS BUG" (Raethi): I also heard the test programme from KSTP, St. Paul, and think you will find that the owners are the National Battery Broadcasting Company. Once the announcer gave it as N.B.C., but quickly corrected himself. Before 8.15 p.m. a frequency test was carried out. B.W. (Stratford): KSTP is announced as "KSTP, St. Paul at Minneapolis." J.P.C. (P.N.): I heard 2BE, Sydney, on 316m. (950 kc.), about two years ago,

DX Competition

DX-ERS, do not forget that the next period for the DX Cup closes on June 30. By this date all logs must be in our hands. Remember that Australian stations received in daylight can be entered in the competition, and that the winner in each district receives a certificate. We have received interesting letters from DX-ers and it appears that the next competition will be keenly contested.

but the station was partially destroyed by fire, and I have not heard them since. Recent verifications have been received from KOIN and KWK. Has any DX-er received a verification from COHB, Harbin, on 445m. (675 kc.)? Has any DX-er heard what I take to be a new Jap. station on 365m. (820 kc.), just above JOIK? It can be heard almost any night at about 9 p.m. at quite good strength. R.A.S. (Mamaku): I have heard WO1, but only once. This was about a year ago, when they were broadcasting a test programme at approximately 10 p.m. Mr. Ellis's suggestion is just the thing.—R.J.R. (P.N.).

Waste Transmission Power

Of American Stations

THOUGH American broadcasting stations use an aggregate of nearly 1500 kilowatts of power, an engineering professor of the Massachusetts Institute of Technology has estimated that the total power received by the average receiving set's aerial amounts to the equivalent of the energy consumed by the common housefly walking a distance of one foot up a window pane.

An engineer of the Federal Radio Commission has also calculated that, with 13,500,000 radio receiving sets in use in the United States, their aggregate "consumption" of broadcasting power amounts to only 13.6 watts. All the rest of the broadcast energy is dissipated in space.

DX Reception Controlling Factors

THE first point to be considered in respect to obtaining D.X. reception is the ratio of signal level to noise level. A station broadcasts by means of other waves, the amplitude or power in the transmitted waves becoming weaker in proportion to the distance it has travelled. This is known as attenuation, and the strength of a signal at a particular point the "signal level." This varies from day to day, and is nearly always higher at night.

There is always a certain amount of static or atmospheric disturbance, due to free electricity present in the earth's atmosphere. The strength of these disturbances varies from place to place, and from day to day, while local disturbances emanate from electrical appliances, and a certain amount of noise is generated in the receiver itself.

Three components therefore make up the noise level: Atmospheric, man-made static, receiver noises.

We thus find that there are two levels to be taken into consideration—signal level and noise level. If on a particular night 2BL's signal level at a particular place in New Zealand is above the noise level, then a good set can pick up, and reproduce, 2BL satisfactorily.

But on another night, or even at a different time on the same night, the signal level of 2BL may drop, the noise level rise, or both. Now, it is obvious that if the signal from 2BL drops below noise level, leaving no signal margin to be amplified, no set can possibly reproduce 2BL satisfactorily.

Another important factor in d.x. reception is the fading and distant effect which frequently occurs and which is often incorrectly ascribed to some fault in the receiver.

A normal broadcast station emits two waves, "ground wave" following the curvature of the earth, and the "space wave," which travels upward until it meets the conducting layer in the upper stratum of the earth's atmosphere, called the Heaviside layer. The wave is reflected from this layer and comes to earth at some point distant from the station.

At certain points both waves may be picked up by the receiving aerial; these

Australian License Numbers

Exceed 300,000

	Number in force at 31/12/30	Ratio to 100 of population
New South Wales	119,659	4.79
Victoria	139,020	7.76
Queensland	24,332	2.57
South Australia ..	28,803	4.95
Western Australia	8,450	2.01
Tasmania	7,901	3.58
Commonwealth	328,165	5.07

Picture Transmission

RECENT experiments in the transmission of pictures by wireless between Japan and Germany, via U.S.A. and Great Britain, were very successful. The reproduced photographs were of a high order, and in some cases were capable of newspaper reproduction.

having travelled along different paths, at the same speed (186,000 miles per second), obviously rarely arrive together ("in phase"). They may be of equal strength, in which case, if exactly 180 deg. out of phase, they will cancel one another and no signal will be heard.

When of different strengths, one will sometimes assist the other, and at other times act in opposition and fading and distortion result.

Finally, for good quality reception, the detector must be supplied with adequate signal voltage, so that even when the signal level: noise level ratio is favourable, and there is no ground and space wave interference, it is still necessary to have sufficient r.f. amplification so that the signal voltage may load the detector adequately.

Where distant reception is desired, at least one, and preferably two stages of r.f. amplification, using the modern screen grid valves, should be employed. Even then there will be occasions on which pleasurable reception is not possible, no matter how good his equipment may be.

(By courtesy Philips Lamps.)

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It has long been felt that Radio Enthusiasts would much appreciate definite information and instructions on Radio Set Building—and it is with this idea that the "Radio Hobbies Club" has been formed. Membership is absolutely FREE, and "Radio Circuits" will be published regularly containing interesting and instructive information on Radio circuit building.

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