

N.Z. Short-Wave Club

From the Secretary's Pen

MANY short-wave listeners have noticed the absence of club announcements and technical talks from our stations on the 80-metre band. It appears that such broadcasts contravene the P. and T. regulations, and consequently they have ceased. However, I have written the authorities and am hoping for permission to continue.

There is a tactful way of dealing with interference, or what we think to be interference. If a station appears to be broad, the best way is to interview the operator and, in nine cases out of ten, the interview will be satisfactory to both parties. In some cases a long aerial is to blame.

We are gaining many new members who, having conquered the broadcast field, are entering into the gentle art of short-wave. Of course, we must confess to inserting the broadcast coil ourselves occasionally, just to see what is doing there, but we usually switch back again.

These hard times make us economise, and we have to make two valves reach out as far as we can. There is an advantage in this though, because it keeps our tuning in practice.

Our monthly circular will be a little late this time, for our printer sat up to catch a new station and caught the 'flu instead. In this issue the club artist makes his appearance, and a new list of stations has been prepared.

Address letters, A. B. McDonagh, Secretary N.Z. Short Wave Club, 274, Cuba Street, Wellington.

Short-wave News

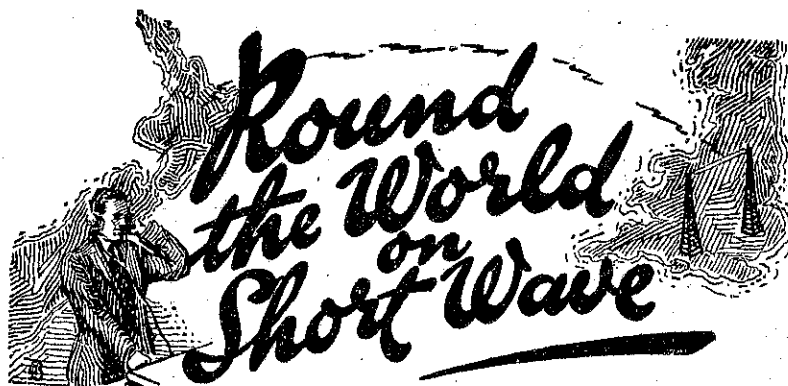
NZ26W, Geo. E. Briggs, Moreere, H.B., writes: "I notice you mention the 'Kestrel' 3. I have converted my set and am getting excellent short-wave results. On Thursday, 10th, I tuned into EAQ just as he was signing off. He announced: 'Am very sorry, but we have to close down the telephonic station. Good-bye.' Have not heard him on his mid-day session or duplex since, so it sounds as if he has gone off the air. At 9 p.m. on the 10th there was a station on about 31.5 metres, music at R3."

STATION 8XAL write the secretary, NZSWC, that they will put on another 24-hour broadcast on the last day of September, commencing at 5 a.m. GMT and concluding at 5 a.m. GMT on the first day of October. All listeners hearing them are invited to send in reports, either direct or through the club.

NZ6TW, F. W. Fielder, Hataitai, writes: "Received VK3LR about 79 to 80 metres, from 7.15 p.m. Children's sessions, a lady talking, selections from Mayfair. Time given as three minutes to 7; still on at 9.30 p.m. Static and QRM were bad, but strength was R6 to 7. The next two evenings they were only R3. The first transmission came through splendidly."

Radio-minded Criminals

GEELONG Gaol, Victoria, is apparently the rendezvous of Australia's radio-minded criminals. According to the "British Australian" the prisoners have bought an all-electric receiver with their own money. They wired the prison themselves, making connection for headphones to most of the cells. In addition a loudspeaker has been installed in the exercise yard.



The Hazards of the Higher Frequencies

SEVERAL months ago the explosion of a gun turret on one of the U.S. Navy's warships was stated by experts to have been "caused by heat generated by high-frequency waves from the ship's short-wave transmitter."

On the very short waves these induced currents take on a much more serious aspect, so serious, in fact, as to amount to a real menace to the safety of equipment and even of the ship itself and its crew.

That, at any rate, is the view held by Admiral Hughes of the U.S. Navy, who has recently issued a preliminary summary of what he officially terms the "hazards of high frequency," and promulgated some very definite orders restricting the use of high frequency (short-wave) wireless. According to these orders:

Minimum of 75 Metres.

"No radio transmitter on board ship shall be operated on frequencies above 4000 kc. (75 metres) when the following conditions hold:

"1. During target practice when powder is out of the magazines.

"2. When fuelling ship with fuel oil or gasoline.

"3. When wing-tip flares are installed on planes and the flares are near objects which might be seriously damaged or cause serious damage as a result of the flares igniting. Wing-tip flares should only be installed on planes when necessary."

In addition, the order forbids the operation of transmitters on frequencies above 4000 kc. while aircraft or boats are being fuelled on deck.

In his report on the subject the Admiral says:

"Investigations have been conducted in the fleets and, under the direction of the Bureau of Engineering and Ordnance, at the Naval Radio Laboratory, to determine what, if any, extra fire or explosive hazards may be introduced by the use on shipboard of high frequency radio transmitters.

"It has been known for years that currents of considerable magnitude are induced in conductors in the vicinity of an energised antenna whenever their electrical length is such as to approach resonance with the antenna, and that potentials are induced in large metallic bodies, insulated from the ground, when in a strong field under an antenna.

"An example of the first kind is the current induced in standing rigging not broken up by insulators; an example of the second is the spark which can be drawn from an automobile parked under a large energised antenna.

A gun, if loaded, might be prematurely exploded by either (1) heat generated by eddy currents, or (2) currents induced in fire-control wires. It should perhaps be explained here that modern naval guns are fired by remote electrical control, an electric spark touching-off the firing charge.

Powder exposed in open containers might be fired by a chance spark between two metal objects, one unearthed and in resonance with the transmitting aerial, and the other earthed.

Possibility of Sparks.

Similarly, resonance between the transmitter and an armoured petrol-filling hose might result in a spark occurring between the metal nozzle and the filling cap of the petrol tank; and, again due to resonance, currents might be induced in the wiring to wing-tip flares which might be of sufficient magnitude to ignite the flares, perhaps causing a serious fire or explosion on the deck of a battleship or aircraft carrier.

Old-time wireless men, and especially those who have had sea experience, will by this time be thinking: "Why don't they earth everything properly and stop making a song about it?"

Very excellent—on the longer waves. But this example will serve to illustrate the difficulty on short-waves. During the course of investigations which were made on the U.S. battleship Texas, it was found that on turret No. 3 the muzzles of the guns became quite hot when a nearby aerial radiated only 1 kw. at 16,000 kc. (19 metres).

The guns were one full wavelength in length, and the distance from the trunnions to the muzzles was three-quarters of a wave-length. It is conceivable that at considerably higher powers, or higher frequencies, the breeches themselves might get hot enough to prematurely fire the guns.

Easily Measurable Voltages.

At any other frequency the trunnions would have effectively earthed the guns. When the muzzles of the guns are exposed to high-frequency radiations, as they must be, the entire gun commences to oscillate electrically, with the result that low though easily measurable voltages are produced at the breech, even though this end is shielded from the electric field by the turret.

Actual experiments showed that the energy, under certain conditions, was sufficient to light an 18 to 24 volt lamp connected between the breech and the turret, explode a primer in the breech of the turret gun by using the energy fed into the turret by a special tuned circuit, light aeroplane running lights when the plane was exposed to the field of the aerial, and set off the primers of wing-tip flares.

Evidently, therefore, some very real hazards exist, and restrictions are obviously necessary.

Valves of the Future

INSPIRED by the advent of the pentode valve, George Lewis, of the Arcturus Valve Company, at an engineers meeting, reviewed the effect of valve developments and what they have meant to radio in the home.

"There is no question," says Mr. Lewis, "that the pentode is the valve

of the day. The pentode, of course, has three grids, and is to the screen grid valve what the screen grid is to the three element type.

"As a matter of fact, radio history seems to be summed up in the addition of electrodes to the fundamental principles of the two element valves of Fleming and Edison, known as diodes. Back in 1907 De Forest added a grid to the Fleming valve, and increased its utility a hundred fold. This three element valve was termed a triode. About fifteen years later the second grid was added to this modern Aladdin's lamp, and we were able to work new wonders with the genil of radio. The name, tetrode, was applied to this type. Now we add a third grid or fifth element and have the pentode.

"With each element that has been added to a radio valve it has, inversely, made possible the reduction in size of radio sets. The early sets were large, cumbersome affairs, while the present-day sets are less than half the size of their predecessors, and thousands-fold more efficient.

"What shall we look forward to in the way of further developments—a hexode, octode or even dekade?"

H. G. Wells Broadcasts

H. G. WELLS, the well-known novelist and historical writer, has declared that he likes broadcasting. He recently was heard over the B.B.C. network in a series of talks on "Russia in the Melting Pot." At first Mr. Wells was very nervous, and much difficulty was experienced in persuading him to appear before the microphone. His conversion came about while he was waiting on his local railway station for the train which was to take him to London for his first broadcast. The signalman, who knew Wells, put his head out of the box and said, "I am looking forward to your broadcast to-night, Mr. Wells. I have my set here in readiness to listen." Wells was so impressed by the thought that his voice would be heard even in a railway signal box that during the journey to London he carefully revised his notes.

"Doping" Music

HOW much a control-room engineer may interfere with the output from the orchestra in the studio has long been a bone of contention between the musical and technical staffs of broadcasting organisations. Apparently the discussion will be at an end so far as the new Budapest transmitter is concerned, for the plans include the provision of soundproof glass cases to accommodate the conductor, who will hear his orchestra as it is heard by the radio listener.

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