

**RADIO TO GUIDE FISHERS
IN SEARCH FOR HERRING**
Gothenburg, Dec. 6.—(By mail.)—The radiophone is becoming a serious menace to the safety of the herring off the Swedish coast. The fishermen out at sea soon will be told from the Gothenburg radio central the exact location of the herring schools. This unique service, which will tend to eliminate

wasteful waiting on the part of fishermen, and will doubtless mean a considerable increase in the catches of herring, is the newest commercial use to which the wireless telephone will be put in Sweden, according to plans just completed. While merchant vessels have for some time been required by law to carry wireless equipment, the smaller

fishing vessels have hitherto operated without systems of communication with the land. They will now receive weather reports, forecasts and news, as well as the radio tips regarding the appearance of the herring. Plans are on foot to distribute news in Sweden by radio telephone. Experiments are being made from Stockholm as a centre.



Columbia
New Process RECORDS

**Melody
unmarred by
distracting noise!**

Columbia discovers a process which produces records virtually free from objectionable surface noise.

As a phonograph owner you have always been annoyed by the swish, grinding and scratching noises of records. This "surface noise" has been considered impossible to remove. After years of experiment the Columbia Graphophone Company to-day presents to the world a record that is virtually noiseless.

An ultra fine surface
This record has been made possible by Columbia's patented laminated, or three-ply construction. The core or centre leaf in Columbia New Process Records, because it is absolutely distinct from the playing surfaces, is made of a harder, more durable substance. Over this rigid backbone are laid the two playing faces made of the new, ultra fine, ultra smooth surface fabric.

Just pure melody
With New Process Columbia Records you get all the real beauty of voice, all the exquisite delicate tones of the 'cello and the violin! You get melody unmarred by objectionable surface noise that has been

considered impossible to remove until Columbia removed it!

Fully protected by patents
In no other record can you get the same wonderful degree of surface quietness and pure, uninterrupted music, for the simple reason that Columbia alone possesses the secret of making a material which, employed as a surface for phonograph records, obliterates obnoxious and intrusive surface sounds.

Here are two new dance records, New Process of course, and your dealer will gladly play them, or any other recent Columbia selections. You will be delighted by the clear reproduction of every note—nothing is lost by surface sound.

Bees' Knees and Lovin' Sam—Fox-Trot Ted Lewis and His Band A-3730 75c
Sixty Seconds Ev'ry Minute—Fox-Trot The Columbians A-3745 75c
To-morrow Morning—Fox-Trot Eddie Elkins' Orch. 75c

10" double disc New Process Columbia Records cost only 75c

COLUMBIA GRAPHOPHONE COMPANY, TORONTO 230

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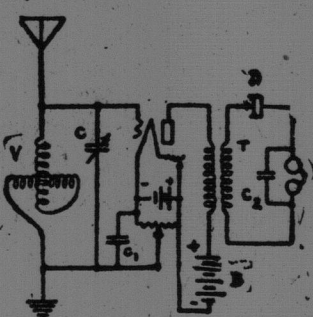
FIFTEEN MINUTES OF RADIO EACH DAY

By Edward N. Davis
Formerly Technical Electrical Expert For U. S. Government

Lesson No. 204.
AMPLIFIED CRYSTAL RECEPTION.

Under normal conditions a crystal receiver is sufficiently sensitive to operate satisfactorily for the reception of music or speech within a radius of twenty-five miles from a broadcasting station. Within this range the minute amounts of energy in the electromagnetic waves have the necessary strength to properly actuate the crystal detector and thereby convert the high frequency oscillations into impulses that flow in one direction. After rectification these impulses are impressed upon the sensitive mechanism of the receiving telephones and converted into audible sounds.

When the energy contained in signals radiated from a distance transmitting station is too feeble to operate the crystal detector, it is possible to build up the strength of the original radio wave by inserting one or more stages of radio-frequency amplification between the antenna and the crystal detector. In the accompanying diagram is shown a circuit adapted for short wave reception, consisting of one stage of radio-frequency amplification used in conjunction with a crystal detector.



The tuned circuit consists of the variometer or variable inductance (V) and the variable tuning condenser (C), these elements being adjusted to the frequency of the incoming signal. The voltage variations of the signal are then impressed upon the grid of the amplifier tube, the filament of which is heated by a six-volt storage battery known as the "A" battery. The voltage variations on the grid cause amplified voltage variations in the plate circuit which includes the "B" battery with a potential of approximately forty-five volts and the primary coil of the radio-frequency amplifying transformer (T). A potentiometer having a resistance of 200 ohms is connected to the sliding contact so as to adjust the potential of the grid to the critical value necessary to obtain proper amplification without distortion. The condenser (C-1) has a capacity of .002 micro-farad and provides an easy path for the oscillations of radio-frequency.

The amplified radio-frequency oscillations in the plate circuit are transferred by means of the voltage amplifying transformer (T) and impressed upon the crystal detector (D). By means of the increased strength obtained through amplification, the signals actuate the detector and are converted into a series of uni-directional pulsations, each pulsation placing a charge on the plates of the telephone condenser (C-2), which has a capacity of .002 micro-farad.

The receiving telephones are connected across the condenser and the charge leaks through them in the form of current variations which act on the diaphragm and reproduce the sounds of music or speech which originated at the transmitting station. Although the oscillations impressed upon the detector are rectified into uni-directional impulses, it is important to note that these impulses have a high frequency and would be obstructed by the large impedance of the receiving telephones were it not for the easy path provided by the telephone condenser (C-2). This condenser is sometimes omitted, due to the capacity existing both in the telephone leads and between the windings, but as the value of this capacity is small, better results are obtained by using the condenser.

If the crystal of galena is employed for the detector the opposing contact should be a fine wire resting upon a sensitive point of the crystal with a light pressure. With a crystal of carborundum, however, the firm pressure of a sharp contact is necessary and also the addition of an external circuit consisting of a low voltage battery regulated by a potentiometer, thus providing a steady flow of current through the crystal and rendering it more sensitive.

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BIG DOPE RING IS BROKEN UP

U. S. Federal Agents Arrest Twenty-four Persons, Four of Them Women, in Buffalo Raids.

Buffalo, Jan. 11.—Twenty-four persons, including four women, are under arrest on charges of violating the

Federal Narcotic act as a result of the raids by Federal agents, Ralph H. Oyler, Federal chief for New York State, who personally directed the raids, declares that a vicious dope ring which had been operating in this city for years has been broken up, and all the ring leaders are in custody.

More than forty persons were found in the several places raided. All persons in the places raided were taken to the Federal Building, where their records were taken. Most of them were drug addicts. One has given the Federal agents valuable information which probably will result in the arrest of a very prominent Buffalo druggist.

Among the prisoners is John Mangano, a druggist, who is alleged to be one of the principals in the drug ring,

though not the chief druggist in the outfit. The Federal agents say Mangano has been supplying street peddlers with dope for the last year. When his place was raided the agents found cocaine and morphine valued at \$2,000 ready for distribution to agents.

Newsboys have been in Mangano's employ for some time, and used newspapers as a side line, the Federal men allege, and others who are charged with selling and possessing drugs have been supplied from the same source.

Two Bremerton navy men are planning a trip across the United States by canoe when they are discharged in September, 1923.

SCIENTISTS TO EXPLORE AUSTRALIAN MYSTERY LAND

British and American Group to Search Wild Interior of Continent.

Sydney, N. S. W., Dec. 13.—(By Mail.)—A vast area in central Australia that has remained virtually a mystery land because of its inaccessibility is to be penetrated by a group of British and American scientists exploring under the auspices of the British-American Exploration Syndicate.

Two of the explorers are C. W. Rogers, of San Diego, and Sergeant A. A. Waelly, who was with the 18th American Engineers in France. Final arrangements will be made in Townsville and the party will sail around Cape York and across the Gulf of Carpentaria to Port Darwin, where final stores will be shipped. An endeavor will be made to land between Port Darwin and Broome.

The party intends to proceed inland through country inhabited by negro tribes, which are said to be hostile to white men. The explorers hope to conciliate the tribe members and to gain much valuable assistance from them. The equipment of the party will include a small wireless telegraph plant by which it is hoped that communication may be maintained with some of the cattle stations on the northwest coast. A motion picture machine will be used and pictures will be taken of various features of the country and of the tribes, if possible.

It is estimated that the expedition will be away between eighteen months and two years. They hope to work across Australia to the south.

Thirty per cent. of the automobile tires manufactured in the U. S. are used west of the Mississippi river.

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MUTT AND JEFF—MUTT HAD VISIONS OF AFFLUENCE

