---Rocky Mountain Crystals---

**BETTER THAN GALENA**
The most sensitive mineral oscillator known. Can be used with one or more plates of amplifier mounted, 5c.; Unmounted, 20c.; Postpaid to manufacturers, jobbers, dealers, clubs, applies for special trade prices.

**NO AERIAL**
**NO LOOP**
**NO LAMP SOCKET ATTACHMENT**

---ONLY---

**RADIODUCT**

---AND A GROUND CONNECTION---

Sold in 10-Foot Rolls
At $1.00 per Roll

*IF YOUR DEALER HAS NOT GOTTEN IT WE WILL SHIP DIRECT UPON RECEIPT OF YOUR REMITTANCE.*

**COLUMBIA ELECTRIC MOTOR CO.**
141 ADAMS STREET
HOBOKEN, N. J.
Telephone: 7331 Hoboken

---Radio World---

Speed of Radio Waves

**EVERY** amateur or other radio operator, when sending out a message, may rest assured that his signal has reached Mars in a little over four minutes, if the planet happens to be at the nearest point of its circuit, or about twenty minutes if it is at the opposite side of the sun, says "The American," New York. Whether or not there are intelligent beings, conversant with radio, inhabiting the planet, is a question that does not hold for the moment concern us.

Such speculation are of interest because they bring vividly to mind the fact of the almost unthinkable speed of the electromagnetic waves that convey the radio messages. One way of illustrating this is to compute that the radio waves would go clear around the earth at the equator more than four times in a second. In the thousandth of a second they reach out to a receiving station 186 miles away. In the hundredth of a second they would compass 1,890 miles—the length of the continent.

Meantime sound travels through the air to a distance of only a little over ten feet in the hundredth of a second. And so a curious paradox presents itself. If you were in the broadcasting room, over there in Newark, listening to a speaker who was talking into the microphone transmitter, the words would not come to your ears until later (by the fraction of a second) than the time when they had been heard by every one of the listeners using radio-receiving telephones within a radius of a hundred miles.

When President Harding delivers an open-air address which is radiophoned from the great transmitter station at Arlington, the persons within actual sound of his voice—those in the audience directly in front—are the very last ones to hear what he says.

If he were speaking through a microphone that would carry one-third of a mile, the members of the audience at that distance would hear his words at just about the same instant when the message reached the man in the moon.

Radio in Department Stores

**THE** installation of a broadcasting station in a community where as yet no other store or organization has one creates a tremendous amount of prestige and is of exceptional advertising value. It must be understood that, for the present, no direct advertising may be sent through a broadcasting station. The United States Government is issuing licenses for stations sending out only educational and recreational programs. However, in making each announcement on your radio program you are privileged to give the name of your station and its location. It is also possible to have members of your organization, or outside experts, talk on various matters of general interest which, incidentally, tend to bring business to your store. Thus, you can have your fashion expert talk on style, or have your shoe buyer talk on shoes and their effect on health, or in other words, any programs that suggest to the minds of the listener that your store is the logical center for certain lines of merchandise and for others of an associated nature.

To many anxious inquirers, **Radio World** has no free list. One copy is sent as a voucher to each advertiser or advertising agent representad in current issues. All other copies are paid for on subscription or through the news trade.

---NOVO "B" BATTERIES FOR RADIO---

**225 - 45 & 105 VOLTS**

**NOISELESS DEPENDABLE GUARANTEED**

ASK YOUR DEALER

**NOVO MANUFACTURING CO.**
424-436 W. 33rd St.
New York, N. Y.

---BUY "RITE"---

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**CRYSTAL RECEIVER**

$2.00

**RITEL'S RADIO DIRECTORY AND SERVICE**

522 Schenck Avenue, Brooklyn, N. Y.

**GITHENS TRUTONE RADIO HORN—LOUD SPEAKER**

First one to sell on ten day trial money back guarantee.

**Panel Price**

$21.00

Included

**Loud Speaker**

Trustone has been pronounced the best on the market by experts. It is said to give the purest tone end handsome appearance. The Trustone is absolutely free and may be received at no cost by every dealer that will be refunded. It is sold on a ten-day trial money-back guarantee. If not satisfied by one week's trial, return it and money will be refunded without cost. Distributors and dealers, write.

**AUTO PARTS MFG. CO.**

1815 Trombly Ave., Detroit, Mich.

---PAN-AUDIO TYPE CF-3 AMPLIFIER---

The **PAN-AUDIO** Three Stage Amplifier was designed by expert radio engineers for those who demand the maximum of high frequency, scientific construction, appearance and workmanship in radio apparatus.

The **PAN-AUDIO** is absolutely free from all buzzing and distortion. Unlike the average amplifer, it is absolutely free of static in any condition, while most of them can be easily understood.

The **PAN-AUDIO** Amplifier provides a high-class radio outfit, noted for its simplicity of operation, precision of tone and handsome appearance. It is the ideal set for receiving the broadcasting of music, lectures, reports, class clinks, radio news, stock reports and weather information.

The **PAN-AUDIO** is made of solid mahogany, hand rubbed to a furniture finish. The many parts are of best quality and lasting materials that will stand the test of the most severe weather conditions and the most severe tests in the performance of its duties.

Ask your dealer to show you the **PAN-AUDIO** today. If he hasn't got it write us direct for illustrated literature and full details.

**The Wireless Appliance Corporation**

513-C Sixth Avenue
New York