

THEORY IS THAT
SHORT WAVES IN
DAY ARE BETTER

(By NEA Service)

HARTFORD, Conn., April 11.—A new theory, and an invention announced by the American Radio Re-
searchers here, promise to affect
radio so profoundly that both its
principles and practice may be revolu-
tionized.

The theory, that the sun affects
short waves so as to make them
travel greater distances during day-
time than the long waves do even
at night, and with much less power,
is the invention—a static eliminator
that any experienced radio builder
will be able to construct.

The more revolutionary of these
inventions is the new theory, be-
cause it means practically the over-
coming of present-day methods and
principles in radio transmission. If it
is proven and accepted as true.

The static eliminator, long sought
by radio engineers, will in short or-
der be an addition to the modern
radio receiver, to filter atmos-
pheric and other unwanted noises
from it.

John L. Reinartz, famous amateur
experimenter, is responsible for the
invention. Dr. Galen McCaa of
the laboratory of Horace A. Beale,
at Parkersburg, Pa., is the in-
ventor of the static eliminator.

Paradoxical Conclusions

Reinartz's theory is based on his
paradoxical discovery that, while
long waves traveled farther at night
than by day, short waves went far-
ther by day than at night. In addition
to the discovery that there is a
relationship between the sun's effect,
the distance and the wave
length of the radio wave.

Shorter waves, contends Reinartz,
can penetrate farther into the iono-
sphere layer of atmosphere, and
the sun than can longer waves, ap-
pear to be the point at which they are
reflected. Being reflected at a greater
height, the shorter waves form a much
larger circle at which they appear
on the earth's surface than the long
waves, and so cover greater dis-
tances.

Reinartz has been testing this the-
ory for the last eight months, in co-
operation with the naval research
laboratory at Bellevue, Washington.
Dr. McCaa has obtained proof from
hundreds of transmission schedules
in connection with other amateur
stations, during various weather con-
ditions, and finally during the recent
eclipse.

Dr. McCaa's Device

The experiments were conducted
on wavelengths ranging from one to
20 meters.
Dr. McCaa's static eliminator is
the product of a year's experiments.
It is still to be perfected.

The eliminator is based on this theory:

Static dischargers, and power leaks
from high tension wires, act as
shock absorbers to receiving antennas.
No matter what wavelength the an-
tenna is tuned to, the static dis-
charges will be received, and will ap-
pear to the receiving detector. If
we could tune the antenna to the
wavelength of the signal we want to
receive, and then tune the static to
a different wave, the disturbance
would be either eliminated or so
mitigated that its effect on the re-
ceiver would be negligible.

This is what Dr. McCaa's device
does. It consists of an oscillator and
several extra coils and is hooked to
any type of receiver.

DIET OF JAZZ IS
DOOMED FOR RADIO

"The radio industry can't live on
an endless diet of jazz," Secretary
Hoover said in an interview on the
future of radio broadcasting.

Improvement of programs he
deems more important now than
further regulation until it becomes
possible to say what form of regu-
lation is needed. The British licens-
ing system, to cite one regulatory
suggestion, would never be tolerated
in this country, the secretary thinks.

"This country would never stand
for licensing or taxing radio listen-
ers," Mr. Hoover said. "That idea
only works when one company has a
monopoly and all the revenue so di-
vided goes into one pool, and we
don't like monopoly."

"And then how are you going to
keep the unlicensed folks from lis-
tening? Are you going to have a
police force snooping around for
illicit aerials and searching people's
homes?"

"People go into theaters and pay
admission and that solves the prob-
lem right there for the stage or con-
cert hall, but it is obvious that there
is no such way of getting the radio
audience to pay for what it gets.
So you've got to approach that some
other way—leaving out the license
tax scheme."

"I've heard only one very reason-
able suggestion. That is to fix a
stamp—tax—say 2 per cent, for in-
stance, on the sale of radio equip-
ment. One company reports sales
amounting over \$25,000,000 in 1923,
and that will be a good deal higher
this year. You could provide
enough that way to pay for daily
programs of the best skill and talent."

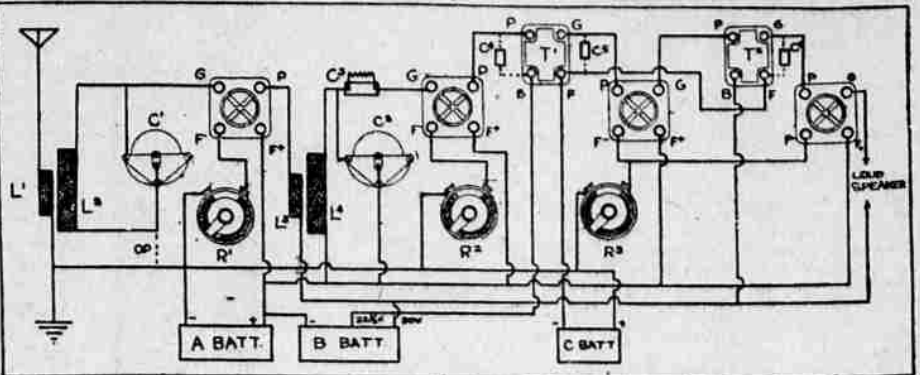
"Radio is becoming more impor-
tant in the life of the country every
day. It is already one of the neces-
sary adjuncts. Right now I think
the most important thing is improv-
ment of what is put on the air. It
is because that takes care of itself,
so long as the material put out is
really worth while. That is the most
vital thing of all."

OFFICERS MISSING

LONDON, April 11.—No trace has
been found of the British flying offi-
cers missing since a large bombing
raid fell into the sea off the coast
of Kent near Worthington yesterday.
Two other men who were rescued are
in a hospital.

FOUR - TUBE SET IS CHEAPLY AND EASILY BUILT

Construction Should Not Cost More Than \$40; Exceptionally Clear Tone Results
From Four-Tube Radio Frequency Receiver Pictured Below



By ISRAEL KLEIN
(NEA Service Writer)

HERE is a description of a four-
tube radio-frequency receiver
that excels as to tone quality, is
easy to build and operate and has a
little better than average selectivity
and sensitivity. It should not cost
more than \$40 to construct.

The set will tune out local stations
to get distance, but anyone who wants
loudspeaker volume on signals com-
ing from stations 1500 miles away
should not assemble the set. Its
range on the loudspeaker is limited to
about 800 miles in good weather, but
the quality and volume on the nearby
stations is excellent.

The parts:

- L1 and L2, L3 and L4, two honey-
comb coils, 75 turns each.
- C1 and C2, .0005 mfd. low-loss vari-
able condensers.
- R1, 25-ohm rheostat.
- R2, 25-ohm rheostat.
- R3, 25-ohm rheostat.
- C3, .00025 fixed condenser, with
grid leak mounting.
- C4, battery, 4 1/2 volts.
- T1, audio transformer, 6-1 ratio.
- T2, audio transformer, 3-1 ratio.
- Seven binding posts.
- Panel, 7 by 21 inches.
- Baseboard, 7 by 20 inches.
- Four tube sockets, wiring and oth-

er material for construction of set.

Fifteen turns of wire are taken off
each honeycomb coil to constitute the
primaries. The remaining 60 turns
make the secondary on each.

To complete one coil, unwind the
15 turns, cut the wire, lay it aside,
then put a drop of sealing wax on
the end of the coil to hold the wire in
place.

The two pieces of thread length-
wise around a vaseline bottle. In other
words, if you stand the bottle on
end, four threads should be perpen-
dicular to the bottle and equidistant
from each other at the sides.

Wrap the 15 turns of wire taken
off the original coil around the bottle
in such a way that the threads, clip
the threads and tie up the newly
wound coil.

Remove the wire from the bottle,
put it inside the honeycomb coil and
you have L1 and L2. L3 and L4 are
made similarly.

L1 and L2 should be mounted two
inches from the rear of the base-
board in front of the aerial and
ground binding posts and perpendicu-
lar to the panel. L3 and L4 are
mounted at right angles to L1 and
L2 in the middle of the baseboard,
directly behind C2.

The first tube socket should be
placed between the two variable con-

densers which are fastened to the

left half of the front panel. Other
instruments are mounted in the cus-
tomary manner.

One 25-ohm rheostat may do the
work of all three, if proper connec-
tions are made.

In the accompanying diagram are
shown several optional connections.
These are suggested purely for exper-
imental purposes, in individual cases.

The set first should be tried out
without the line labeled "OP" con-
nected. Note the selectivity. Then
make this connection and again watch
the selectivity, or ability to tune
out a strong local station.

C4 also is an optional connection,
as are C5 and C6. If placing C4
across the primary of the first (6-1
ratio) transformer improves recep-
tion, leave it; if not, don't use it. If
you have them on hand, try out vari-
ous capacities of fixed condensers at
C5 and C6.

UV201-A tubes are used through-
out. Ninety volts of B battery are
required on the amplifiers and from
18 to 22 1/2 volts on the detector tube.
The aerial should be no longer
than 80 feet, including the lead-in,
unless little selectivity is required.
A long aerial will increase the vol-
ume and range, however.

In ownership from July 14, 1919,
to January 31, 1923.

"It is a serious question, which
must be decided by the courts,
whether Hazeline was acting within
his legal rights in withdrawing his
license."

Fee Aid to Ships

Back of this suit, however, A. H.
Grebe sees an attempt of the Hazel-
ine interests to boost their stock.
"I view this suit as a political ges-
ture intended to create renewed in-
terest in the declining stock issue
of the Hazeline corporation and its
licenses," he says.

COUNTRY DOTTED
WITH NAVAL RADIO

(By NEA Service)

WASHINGTON, April 11.—Uncle
Sam's naval radio communica-
tion service, invaluable as it is ex-
pected to be in war time, is proving
a valuable asset in peace.

It is saving lives at sea through
the service of its compass stations.
It is saving the government some
\$2,500,000 annually in messages sent
out for other departments.

It is more than paying for itself.
Not counting the transmitters on
naval ships, airplanes and other mo-
bile units, the service has a total

D. V. HUMRICK TO
RETURN FROM TRIP
FOR RADIO SURVEY

Message for All

Besides these and its own mes-
sages, messages to and from all
other government departments are
handled through the naval radio sta-
tions. In this way the government
is said to save about \$2,500,000 an-
nually.

Yet the U. S. navy pays for mes-
sages that happen to be handled
through foreign stations. For in-
stance, if a naval ship in Borneo,
not within communication of a U. S.
naval radio station, sends a message
through the Dutch station there,
Holland sends in a bill for the ser-
vice, and Uncle Sam foots it.

Besides radio, the naval commu-
nications service conducts other forms
of communication, such as messages
by light and sound, by pigeons, by
posts and, of course, the mails.

Bureau of Mines
Takes Over Helium

WASHINGTON, April 11.—(AP)—

The bureau of mines, under an act
passed late in the last congress, will
take over from the navy about July
1 the production of helium, the gas
used in inflating the giant dirigibles
Los Angeles and Shenandoah. This
transfer is not expected by Dr. S. C.
Lind, chief chemist of the bureau, to
involve any marked change in policy.

No appreciable quantity of helium
is being exported now, and the new
law provides that export applications
must be made to the secretary of the
interior and permission obtained from
the president, on the joint recom-
mendation of the secretaries of war, navy
and interior. This provision was put
into the law to permit future Ameri-
can trans-oceanic air lines to have
a supply of helium on hand at their
foreign terminals.

Officials of the bureau are careful
to point out that the new law against
helium exportation will not militate
against foreign scientists who desire
a small quantity of the gas for their
laboratories.

ADVICE FOR A WIFE

TOKIO, April 11.—(AP)—A letter
picked up on the beach near Kama-
kura and handed to the police con-
tained these injunctions from a jeal-
ous naval officer to his wife:

"Never converse with the postman
or the tradesmen. Have the news-
paper and letters delivered through
the slit in the door. Don't go to the
public bath at night."

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came in for classical selections than
for jazz. As a result, Vin James,
pianist of Belleville, Ill., sat for three
hours at the KSD piano and played
76 pieces of music.

The program ranged all the way
from "Largo," of Handel to "Red
Hot Mama," but jazz took a minor
part.

By the requests sent in, the most
popular piece asked for was the
"Peer Gunt" suite of Grieg. Next
came Percy Grainger's "Shepherd's
Hey" and "Country Gardens," "Hen-
ry VIII Dances" by German, and the
"Sonata Pathetique" by Beethoven.
Other popular classics also received
more votes than jazz.

Among jazz pieces, Irving Berlin's

"All Alone" led the list. "Follow the
Swallow" and "What's Become of Sal-
ly" had the least requests.

Microphone Only
For Entertainment

CHICAGO, April 11.—Broadcasting
station WGN, here, is trying to set an
example for other stations to follow.

It is declining to answer requests
for special numbers or even tele-
grams and letters of appreciation
radio. Persons requesting a special
song and others receive their acknow-
ledgment and thanks by mail.

The microphone is kept clear for
the entertainments and lectures alone.

LARAWAY'S

Summer
Radio

PERFORMANCE!

That's the Thing

The Radio industry has become stabilized and is entering
upon an era of expansion in commercial, educational and
entertainment fields undreamed of a few years ago.
Reputable Radio sets are now generally known making
it an easy task to select a model suitable to your own
particular needs and location:

—HERE YOU ARE—

- Gliffen, 4-tube Nutrodyne
with speaker, tubes, batter-
ies and all com-
ponents, only..... \$125
- Gliffen, 5-tube Nutrodyne
distance set all
complete..... \$200
- Atwater Kent, 5-tube model
all complete, ex-
everything, only.... \$170
- Super-Heterodyne Radiola,
complete with everything..... \$280

We are exclusive dealers for the Atwater Kent
Radios.

Convenient Terms on Radio at Laraway's

Laraway Music Stores

Enchanted
Evenings!

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RADIO SET

to enjoy the fascinating programs folks are enjoy-
ing in their homes nowadays? Radio brings you
music, educational talks, concerts, latest world
happenings—and at a very reasonable cost—if
you see us for your set.

The Famous Globe No. 770

WILL GIVE YOU THE VERY QUALITIES YOU
WANT MOST—The ability to find and hold stations,
without interference, accurate logging and exact repro-
duction. "Stand by" with this receiver and always be
assured excellent radio entertainment.

GLOBE RECEIVER, with four UV 201A
Radiotron tubes; storage "A" Battery; 90-
volt Dry "B" Battery; Loudspeaker; cords
and plug, complete
at \$108

The Only Exclusive Radio Store in Eugene—
Where service department is always at your command

Radio Supply
COMPANY
684 Olive Street

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Greer-Callahan Store

858 Pearl St. 858 Park St.

Call and see our new ranges and davenport—No obligation to buy