Aerial Tuning Circuits
Push-button Tuning in a New Light—
push-button set in the manner already indi-
cated. In some cases, of course, remote
control would have to be used, a typical
instance being where it was desired to ob-
tain optimum signal-to-noise ratio from an
anti-interference aerial by including tap-
pings on the transformer at the "aerial" as
well as at the "receiver" end of the
transmission line.

There is yet another point. Most re-
ceivers have one or two auxiliary controls,
but these could quite easily be eliminated
in the case of push-button sets. A useful
instance is the variable-selectivity control
which is now available on many receivers.
Were it not for the question of inter-
ference, this could be permanently left in
the minimum position usually adopted for
local-station reception. In any particular
locality it is known by experience what
degree of selectivity is necessary to enable
a given station to be received free of in-
terference from other stations. Surely,
then, it would be easier to make the push-
button adjust, the selectivity at the same
time as it tuned in the station.

Simultaneously it could be arranged
that the characteristic curve of the AF
amplifier was varied so as to counteract
as far as possible the effect on reproduction
caused by the selectivity adjustment, thus
doing away with the tone control. There
seems in fact hardly any limit to the
latent possibilities of push-button control
in the matter of improving the perform-
ance of a receiver and yet simplifying its
operation.

RADIO TELEPRINTING

Eliminating Errors Due to Atmospherics

IT is well known that ordinary hand-
operated morse telegraphy is rapidly
being superseded by various automatic
printing systems. Not only is much greater
speed attainable by automatic methods, but
still more time is saved by eliminating the
necessity for translating the ordinary letters
of the alphabet, numerals and other sym-
ols, into morse; and then retranslating
them at the receiving end.

Unfortunately, the automatic systems
used on land-line and submarine telegraphs
are not well suited to wireless transmission.
In most systems each character to be trans-
mitted is translated into a telegraph code
signal consisting of a combination of
"marking" and "spacing" elements, this
process being reversed at the receiving end.

In the case of wireless communication
the addition of spurious impulses due to atmo-
spheres or to what is usually called "man-
made static" is liable to cause one letter
to be changed into another.

Several attempts have been made to
develop a method in which this defect is
eliminated. One of the most recent of these
that is developed by Le Matériel Télé-
phonique, an associated company of Stan-
dard Telephones & Cables, Ltd. The
principle on which it works is allied to that
used in the facsimile system of transmission,
and may best be described as a "scanning"
method in which each printed character
is analysed into a number of elementary lines,
and transmitted in the form of dashes and
spaces of varying length, which build up the
original character at the receiving end.

Using this method, interference cannot
change a character into another which is
totally dissimilar, the only effect of it being
to print small extra elements or to suppress
small elements of the received character.

Furthemore, the operator at the receiving
end is aware of the quality of the transmis-
sion and may request a repetition whenever
necessary.

All characters are drawn so that they
may be built up from a number of elemen-
tary lines. These elements are assembled
according to the character, and are then
scanned or analysed in seven horizontal
lines. Each horizontal line is represented
by one definite audio frequency. The seven
lines are scanned and transmitted simul-
taneously, thus enabling a relatively high
speed of printing to be attained without
necessitating very short elementary signals.
There is no need to maintain synchronism
between the transmitting and receiving
mechanisms. A special "stop-off" system
is used so that the tape at the receiver
does not continue running when signals are
not coming in, and the receiving apparatus
can, therefore, be left unattended, which
is a great advantage.

Excellent results have been obtained in
extensive tests over an SW link between
Algiers and Paris, a distance of 800 miles.
Further extensive tests between the medium-
wave transmitter of the French Meteorol-
ogical Office and a receiving station at
Brussels have been carried out under regular
traffic conditions, and have confirmed the
results obtained on short waves.

PROBLEM CORNER—13

An extract from Henry Farrad's corre-
spondence, published to give readers an
opportunity to test their own powers of
deduction:

"Bellevue,"


Dear Mr. Farrad,

The new "all-wave" superhet is a great
success, though my wife says I waste too
many evenings over it. Still, it is very in-
teresting trying to identify all the curious
things that can be heard on the short waves.

There is one thing that ought to be easy,
bearing in mind that is near home, but it has
baffled me so far. About a quarter to eleven
last evening I came across a station on 224
metres giving the usual B.B.C. news bulletin,
apparently the same as the one I had heard
from a different station a few nights ago.

When it was finished, I just ceased without
stating anything and then turned it up for
another. I looked up the B.B.C. Empire programmes and there
was no news timed for then on any wave,
and in any case there is a gap in the broad-
cast band between 20 and 25 metres, and
no station near 224 looks, even remotely
likely to be sending out B.B.C. news. I
have found the scale very accurate, so I
think I can depend on the time correctly.

As I have heard that sometimes one can
pick up a longer-wave station on its
harmonic, I have looked through the list.

What was the station? Turn to page 309.

DC/AC Inverters for Television

Receivers

The gas-filled triode inverter is a very
satisfactory method of converting DC
into AC at high power ratings, and it has
also been used at smaller ratings for oper-
ating radio receivers. For television receivers
which cannot be operated directly from DC
do mains, it would also appear to have pos-
sibilities.

Since the output from an inverter is very
far from a sine wave, there are likely to be
difficulties in providing sufficient smoothing
to prevent any traces of ripple appearing on
the picture. It is therefore suggested that
improved performance could be obtained by
locking the inverter, which is essentially free
running, into the output of the frame-
frequency time-base generator.

Two specimens of letterpress received by the L.M.T. system. In the example shown on the right the effect of atmospheres and other forms of
interference is clearly seen. It will be noticed that, although marred, the text is still perfectly legible. In the case of ordinary systems this
amount of interference might have been sufficient completely to change several letters, so leading to grave inaccuracies.