A LIFE-SIZE PICTURE
On the opposite page is shown a home scene where Peck's television receiver, operating in an illuminated room. Pictures a television subject's head in full size with a sound accompaniment. The top photograph on this page shows the 6-meter special television beam antenna which projected the pictures over a distance of over 70 miles.

Reporting Progress....

TELEVISION

TELEVISION has arrived in Canada. It is not "still in the laboratory"; it is not "just around the corner" or the familiar "two or three years off." It is actually on the air daily over the Peck Television Corporation station, VEBAK, located in the Dominion Square Building, Montreal. And Canadian radio manufacturers are preparing to put a low-cost radio-and-television receiver on the market.

Nor is it the "flickering" television such as has been broadcast formerly in America; both transmitter and receiver differ greatly from apparatus which has hitherto been shown. The transmitter uses an entirely gearless scanner and with a 300-watt antenna input is sending a strong signal more than seventy miles on the 5 to 6 meter channel. Twenty miles had previously been considered the practical limit for this 5-6 meter television prior to Peck's experiments.

The receiver, too, is different. It projects a 14 inch by 16 inch picture on a screen with enough brilliance to be readily visible in a normally-lighted room. It uses no costly cathode-ray tubes; its only elements which need replacement are a $1.50 light-valve tube and a 10-cent automobile headlight bulb (the light source). Both of these elements give 100 hours service.

VEBAK was erected in the middle of May, 1935, as a 20-watt station. It then had a service radius of about ten miles. As the engineers under the personal direction of William Hoyt Peck, president and chief engineer of the corporation, furthered their experiments, the power was gradually increased to 300 watts and the range for an R9 signal was increased to 75 miles easily.

To understand how Peck has more than trebled the range formerly believed possible for ultra-short waves, it is necessary to know something of his background. Briefly, he is one of America's foremost experts in the field of optics, and sprang into international prominence during the World War, when he devised a means of making sextant mirrors that had hitherto been obtainable only from Germany.

Phenomena Studied

Knowing the familiar fact that ultra-short waves are in many of their characteristics similar to light waves, Mr. Peck brought his years of optical training to bear upon the problems which they presented. He understood the refraction of light by the earth's atmosphere, which enables us to see the sunset some twenty-eight minutes after the sun has sunk below the horizon and decided that the same phenomenon might hold for similar radio waves.
Peck likewise, from long study of light reflectors, developed a theory for directional antennas, which has worked out in practice. "If you set up an automobile headlight bulb with no reflector behind it," says he, in explaining his theory, "it will illuminate only a small area. But if you add a correctly designed reflector, the beam may be projected a mile or more in a single direction. We are now applying this principle to the propagation of ultra-short radio waves."

The Reflector Antenna

The output of the Peck Television Corporation’s transmitter is fed into a single upright antenna—a small copper rod atop the Dominion Square Building. On three sides of this antenna are similar rods, tuned to the requisite frequency and placed 5/4-wavelength away. These are the reflectors, each collecting the energy radiated into its quadrant and reflecting it back to the antenna proper. By adjusting the length of the reflector rods, their resonance and therefore their efficiency may be controlled, so that it is possible to tune them in such a way that signals can still be heard on the "dead" sides of the antenna as well as along the path of the beam. In this manner, it is possible for the one transmitter to serve two areas; i.e., the area immediately surrounding the transmitter (in this case the city of Montreal), and the area traversed by the beam, which at present lies between Montreal and the outskirts of Trois Rivieres, Quebec.

At the side of the antenna from which the beam emanates, two upright metal rods are arranged. These, however, are placed in line at correct distances from the antenna and consequently act, not as reflectors, but as "electrical lenses," for their effect is to concentrate the beam along the predetermined course, and to keep it from spreading.

The receiving antenna for these waves is also an upright rod and Peck has discovered that as little as five feet difference in the placement of a receiving aerial which is seventy-five miles from the transmitter may mean the difference between an adequate signal and total lack of reception. He explains this by pointing out that it is possible for a reflected wave, out of phase with the direct wave, to cancel out, but that by moving the receiving antenna a quarter wavelength, the phase shift problem is overcome.

Approximately, 1,000,000 persons are within the area in which J. L. Cassell, Joseph Dusck and other Peck engineers have conducted tests during the past three months. Their figures show that signals of sufficient strength to overcome local interference are heard throughout this entire territory. The engineers have established field headquarters at the Hotel Lafleur, Louis ville, Quebec, where Roland Lafleur, manager of the hotel, had been acting as an unofficial observer, making nightly checks on the signal strength of VESAK. Later a complete receiving installation was made here as a permanent test station. The hotel, one of the largest in that part of Quebec, was thus the scene of Canada’s first major television demonstration.

Nor is the Peck optical antenna system the only new development of this organization, which has steadfastly adhered to mechanical scanning in preference to the much-publicised cathode-ray equipment. "There is no need to use more than 180 lines unless you want to watch television (Turn to page 186)
Servicemen's Profits

(Continued from page 153)

the mere sum of seventy-five dollars. The result was simply that the truck drivers left no electric call and relay near the door in such a way (Figure 1) that when the truck drivers backed up to the building to unload the truck, the trolley would interrupt a beam of light and ring a "bell" at a critical distance. This man, who made the installation did not buy a complete photo-electric kit but rather only the components that he could not himself assemble. The job (with "bell") cost him only $5.00.

The light source was made from an automobile light reflector, a bell ringing transformer and a two-way lamp. The truck drivers would leave a trolley unattended and not busy—just that it would work along the lines pointed out here and you also can cash in!

This is the kind of electronic equipment that these small manufacturers can buy and the radio man can sell at a reasonable price with some margin of profit. And there are plenty of other little jobs that can be done with this equipment which ordinary people do not need help with.

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Canadian Television

(Continued from page 143)

in the use of the plane. The second being an improved system by which the pilot can see the ground from his plane. This system is known as the "telemeter." The telemeter is a combination of a camera and a radio beacon, and it operates in the following manner: The camera sends a signal to the radio beacon, which sends it back to the ground station. This signal is then picked up by the pilot's radio receiver and converted into a visual image on a screen. The pilot can then see the ground from his plane and make the necessary corrections in his flying.

This system is very useful in flying over areas that are difficult to see, such as mountainous or wooded regions. It is also useful in night flying, where visibility is low.

The telemeter is a valuable aid to aviation, and its use is increasing as more pilots become familiar with it. It is an important tool in the development of safe and efficient air travel.
the only answer to the problems which have previ-
ously confronted television.
It has consistently and repeatedly been said that television is still several years away, on the other hand, claims he has produced a sys-
tem which the press and the public have pro-
mounced better than the DX. Peck finally admits that television has arrived. You can look for announcements coming from radio manufact-
urers, in the very near future, stating the ap-
plication of Peck receivers on the market—
and at a surprisingly low price. The Federal
Commission of the United States has, in all good
faith, been guided in some measure by the statements of leading radio-
manufacturers in making their estimate of the status of te-
vision, according to general rumors. Consequent-
ly, they have taken no action in the matter and it will be dif-
ficult for the independent television companies to keep abreast of developments here. But when Mr. Peck went to the Radio Commission of Canada and explained his system to them and showed them evidences of performance, a Canadian
company was promptly granted, and a
radio station in Canada was permitted to engage in experiments. The
success of this venture will, no doubt, serve as an example to other
countries in this field.

Ten Meters Active Again

Several months ago we had a department
devoted to 10-meter activity. It seems as though our plan for activity has been
put aside for the past few months. This
and early summer a number of new sta-
tions appeared on the band, supplement-
ing the old-timers who were still in the
field, but many of the DX stations have
been lost due to the band being crowded.

During the last six months the band has been
increasingly crowded with DXers. This activity may be partly responsible for this.
A number of stations have put exception-
ally fine DX stations on the band, and this is
not uncommon during favorable conditions
to hear out-of-district stations and even
some out-of-country signals.

One of the most active pioneers on the
band is WW7P. 7TP's present layout uses a
202-A in the final amplifier with about 220
watts input. He may be heard almost every
night, with DX stations working the DX band
with good reliability. WW7P has been on
the band since 1926 and still sticks by it,
alternating his activity with 20-meter opera-
tion. He was heard recently working a

A good antenna is as necessary to fine reception of short wave programs as the tubes themselves. If you would like to bring
in foreign stations at any time without the usual man-made interference, get your new Brownie All-wave Antenna. Your Brownie will not only reach out any other antenna, but will add new high fidelity to local broadcasts.

The Brownie is made by an old-established maker of electrical products—constructed on the famous Doubleday System and equipped with a super-efficient matching transformer. Don't you believe Brownie results until you try it yourself. Fits any set and is easily installed. At your dealer's or write direct.

Porcelain Products, Inc., Dept. E, Findlay, Ohio