ELECTRONICS

TV From Abroad?

Experts fear that television programs from foreign countries may interfere with reception here during the coming sunspot cycle.

➤ TELEVISION SETS in the United States may soon start picking up flickering, ghostly pictures and voices speaking foreign languages.

These interfering signals will be television programs from foreign countries.

The reason is the sun is beginning to act up again in its regular 11-year cycle that affects shortwave transmission. Television signals are just above the shortwave band. But when solar activity is high they can, like short waves, be picked up over immense distances.

The greatest interference is expected to be on the low-numbered channels. Many foreign countries, including Mexico, Puerto Rico, Britain, Belgium, Germany, Spain, Switzerland, Brazil and Argentina, televise programs in this low range that may be picked up here when atmospheric conditions are right. These shortwave television signals can be very powerful, and may replace local programs sporadically.

Some experts claim that the interference will become a real nuisance to television viewers in the United States, especially those in the fringe reception areas. Others believe that foreign reception will be a rare, freak occurrence. They all agree, however, that the problem is bound to get worse in the next few years.

Actually, very little is known about what will happen. During the last peak in the sunspot cycle, the difficulty did not arise because there were almost no foreign channels broadcasting on these susceptible frequencies. Today there are many all over the world, and more are expected to go into operation in the coming years.

Even now, as we come out of the low point in the sunspot cycle, U. S. stations are sometimes picked up in South American countries.

The reception of foreign channels in the United States may vary from a fairly clear picture, complete with sound, to all sorts of interference patterns and screeches or a combination of these effects. The reception, experts at the Federal Communications Commission pointed out, depends upon how active the sun is going to be in the coming cycle and what broadcast systems are used on the foreign station.

When the sun hurls out huge torrents of fiery hydrogen, a layer of the earth's atmosphere about 150 miles up, called the "F-2" layer, is affected. Ordinarily this roof of ionized air will reflect broadcast waves in the regular shortwave frequencies, from four to about 30 megacycles. But when the sun really acts up, the bounce can occur up to 50 or 60 megacycles, which is in the range of channels two and three.

When a local television station broadcasts, there are two possible ways that the signal can be picked up. The first is the beam that moves straight from the broadcast tower to the pickup antenna. The second is a wave that goes upward, then bounces back to earth from an atmospheric layer. This broadcast beam continues to be reflected back and forth between the earth and the layer, allowing reception all over the world when conditions are just right.

Reception of foreign television programs, when and if it comes, is expected to be primarily from South America, though there is a definite possibility that European stations will also come over.

Perhaps the greatest interference rate will be encountered on television sets in areas where reception is weak. The local signal they pick up is not as steady and is more easily affected by foreign programs.

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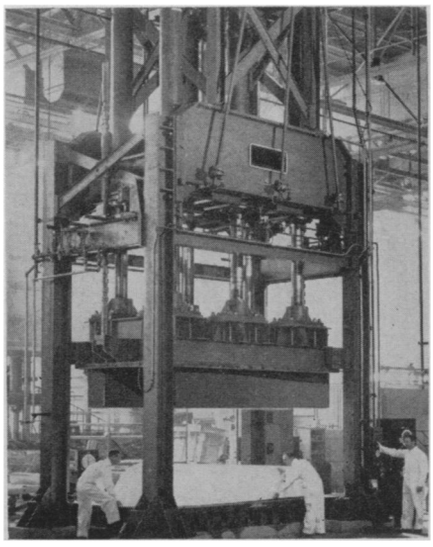

BOAT PRESS—Workmen prepare to remove a hull from this 700-ton press, believed to be the largest of its kind. It was designed for forming one-piece plastic hulls for outboard motor boats. This machine is one of five of its kind that has been installed in Goodyear Aircraft Corporation's plant.

MEDICINE

Pain Is Like Speedometer

➤ PAIN IS like the speedometer which shows how fast your car is moving. The pain tells the rate at which your body is being damaged.

This comparison was given by Dr. James D. Hardy of the Naval Air Development Center, Johnsville, Pa., at a meeting of the Philosophical Society of Washington, D. C. Dr. Hardy is research director of the Aviation Medical Acceleration Laboratory at the Center.

Unfortunately for doctors trying to diagnose damage to the body from the symptom of pain, this symptom does not tell how much nor how serious the damage is. Pain only tells the rate at which the damage is done.

The finding of pain as a speedometer for damage explains the common experience of having a cut hurt worse when the knife is dull than when it is sharp, Dr. Hardy said. The damage is being done more slowly though the cut may not be as deep.

Using the speedometer comparison further, Dr. Hardy pointed out that when you reach your destination the speedometer of your car reads zero. Similarly, when damage has been done to the body, there is no pain. The pain of the damage only comes while the damage is being inflicted. This explains why a severely wounded man does not necessarily feel pain.

Patients can die of cancer with little or no pain, Dr. Hardy declared. The reason cancer in its late stages is usually painful is because the cancer growth has grown big enough to press on other structures in the body and cut off their blood supply. As these other structures are being damaged in this way, pain is felt.

In some cases of severe wounds, pain is felt after the wounding. This is because neighboring pain fibers are being secondarily damaged and the pain is coming from them as they are damaged.

While Dr. Hardy has not studied all kinds of pain, he feels that the finding about pain telling the rate of damage holds true in all cases. If a person has a pain in his stomach, for example, it may be because acid is eating the lining of the stomach. When he takes a glass of milk, this removes the damaging agent and he feels no more.

Pain must be distinguished from other feelings such as fear, anxiety, hostility, sad ism and masochism, Dr. Hardy said. Cultural influences must also be excluded in studies of pain.

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An *ostrich egg* weighs about three pounds and the empty shell can hold the contents of 18 hen eggs.

One person in ten spends some part of his life in a *mental hospital.*