that experiments by the British Forest Products Laboratory indicate low doses of radiation make infertile the eggs of the deathwatch beetle, which has been literally eating away the timbers of age-old landmarks in England.

Previously there has been no effective treatment to rid ancient structures of this pest, although thousands of pounds and years of research have been spent in the effort. Now British scientists feel that exposing infested timbers to radiation doses may rid them of the deathwatch beetle's destruction.

Probably one of the first old relics they will try to save will be Nelson's flagship, the Victory, which is riddled with the pest. In one short test period, more than 7,000 beetles were picked off the lower deck of the wooden ship.

Westminster Abbey, Westminster Hall and St. Paul's Cathedral are other famous structures that need aid from the deathwatch beetle in a hurry. The eerie, tapping sound of the beetle from its cavities cut through ancient oak is a familiar one in countless old churches throughout the island.

The deathwatch beetle is a serious pest in most of Europe, as well as in England. It is found to some extent in this country, in New England. Most of the damage is done by the larva of the beetle.

If the British are successful in a campaign against the deathwatch beetle using atomic radiation, the technique may become widespread in other phases of insect control.

Perpetual Batteries

➤ SOME KINDS of electrical batteries of the future will be powered by by-product atomic radiation converted directly into electricity, Dr. E. G. Linder of the Radio Corporation of America, Princeton, N. J., told the conference.

Some atomic batteries giving small but constant amounts of power are ready for practical use. Future developments will determine whether there can be commercial developments at high power levels.

About a dozen research organizations are working on this problem, Dr. Linder reported.

Radioisotopes from the debris of U. S. atomic power reactors a decade hence might furnish the radiation that could be converted into electrical energy equivalent to 2,000,000 watts from the annual production of batteries. This possible substitution of atomic batteries for present conventional chemical ones is foreseen by Dr. Linder.

Radioactive wastes from reactors most desirable for atomic batteries include radioactive strontium 90 and yttrium 90, and tritium, or triple-weight hydrogen, probably an H-bomb element. These are cheap enough for such battery use. They also have a long enough life.

As other radioactive substances do, they require shielding to prevent radiation danger to people and damage to materials. When nickel 63 becomes cheaper than at present, it will become a favorite for use in atomic batteries, because of its long life and the tameness of its radiation.

Four main methods of converting radiation into electricity are being tried:

1. Simple collection of charged radiation by an electrode to create a voltage.
2. Using contact potential fields to separate charges and produce currents.
3. Generation of heat by radiation upon thermocouples that produced current.
4. Radiating semiconductor junctions to produce and separate out currents.

Science News Letter, September 3, 1955

TECHNOLOGY

Pave Dirt Roads With Peanut Husks

➤ INDIAN SCIENTISTS have found a way to pave dirt roads with peanut husks.

A dark liquid from peanut shells is the key material in the process that can turn rutted, muddy roads to hard, sturdy surfaces. The soil is first treated with the dark liquid and dried. Adding calcium chloride then causes formation of a gelatinous mass in the soil that holds the tiny earth particles together.

Earths with high sand content harden best in the process, L. R. Chadda and S. R. Mehra of the Laboratory at Karnal, India, report in *Highway Research Abstracts* (June).

The treatment increases the soil's resistance to friction and lowers its tendency to form mud when wet.

Chemically hardening dirt roads is a widespread practice in the United States to improve secondary arteries of travel. Furfural, a chemical from oat hulls, is one of today's most important stabilizing agents.

The Indian scientists said their process may not prove economical for large-scale road paving because of the cost of obtaining the husk liquid.

Science News Letter, September 3, 1955

MEDICINE

Doctors Should Look Warts in the Eye

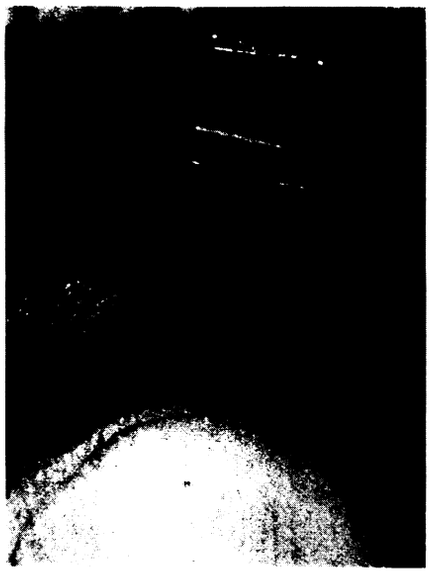
➤ IN TREATING WARTS, "look them straight in the eye, telling them they must go." This advice to doctors from a physician and skin specialist, Dr. David I. Williams, King's College Hospital, London, is given in the *British Medical Journal* (Aug. 20).

"Remember always that you must be firm and confident with warts," Dr. Williams states.

"Without such certainty of success, any treatment must fail. Even with it, failure may sometimes occur," he says, "but this fact must be kept from the wart and from the patient."

For the medical part of the treatment he uses mostly a three percent formaldehyde lotion or a lotion containing mercury biniodide and salicylic acid.

Science News Letter, September 3, 1955



HIGH - FREQUENCY TRANSISTOR — Bridged between the two center "posts" is an experimental transistor, the junction tetrode, developed by Bell Telephone Laboratories that has produced more than a billion oscillations per second.

TECHNOLOGY

Transistor Sets Record For High Frequencies

➤ NEARLY ALL the vacuum tubes in a television set can now be replaced with tiny transistors, modern offspring of the crystals in the old "cat whisker" radio sets.

The transistor took this leap into vacuum tube territory with the announcement in New York by Bell Telephone Laboratories that its latest experimental transistor has set a new high frequency record. It flipped current from positive to negative more than a billion times a second. This transistor can handle frequencies well into the UHF, or ultra-high frequency, television range.

Such high frequency would also permit transistors to take over the job of tubes in installations that pack hundreds of telephone conversations into a single set of wires. The billion-cycle transistor is called a junction tetrode transistor.

Earlier junction transistors, limited to lower frequency ranges, are composed of sandwiched layers of p-type, or positive, and n-type, or negative, germanium.

Frequency was raised in the new experimental unit by reducing the width of the germanium bar and the central p-layer, and by adding a fourth electrode. The central layer is less than five-thousandths of an inch wide.

Advantages of the transistor over the vacuum tube are that it is more rugged, does not get as hot, takes up less space and is far less wasteful of power.

Production of the new transistors is scheduled to begin this year.

Science News Letter, September 3, 1955