

MEDICINE

Nerve Root Transplanting

An operation in which the nerve root, instead of a piece of the fiber, is transplanted offers hope to victims of certain spinal cord injuries.

➤ A NEW nerve transplanting operation in which the nerve root itself instead of just a short piece of nerve fiber is transplanted was reported at the meeting of the Federation of American Societies for Experimental Biology, Atlantic City, N. J.

If as successful in humans as it was in five male Guinea baboons, it will be valuable to victims of accidental injury around the spinal cord. Some of the men who got gunshot wounds around the spinal cord in the last war might, for example, have regained lost function through such an operation if it had been developed then.

In the operation on the male baboons, a nerve root near the tail end of the spine or one of two located at the small of the back (third or fourth lumbar) was transplanted to replace the sacral nerve root which had been damaged. The sacral region is between the lumbar and tail, or coccygeal, regions. The transplanted nerve root was attached to the nerve fiber of the damaged nerve root. Within about eight months,

this nerve was able to function.

While this operation would overcome paralysis of a particular muscle or loss of a particular function, it would not cure paralysis due to destruction of cells in the spinal cord, such as occurs in infantile paralysis or in transverse myelitis.

The operation in the baboons was reported by Drs. L. W. Freeman, J. C. Finneran and L. R. Radigan of Indiana University School of Medicine and Yale University School of Medicine.

Science News Letter, April 29, 1950

ENGINEERING

TV Tuning Improved By Printed Circuit

➤ ORDINARY wiring is omitted in a new home-receiver television tuner. It utilizes printed circuits instead of wires and greatly improved performance is claimed as a result.

Printed circuits, a relatively recent invention, do not use wire to transmit electrical currents but utilize, ordinarily, painted or printed tracks of metallic ink on a plate. The printed circuit is a two-dimensional affair, an important advantage being that it saves space. The new tuner is an RCA product, and for it a photo-etch process was developed to obtain the printed circuit.

The new tuner is a radical departure from conventional wound-coil units. With tuner design involving 12 channels, each containing four tuned circuits, the printed circuit is especially well adapted to manufacture. In design, it is a small cylindrical turret-type affair. The turret employs individual coil strips or segments, each containing the printed circuit for a separate channel.

The photo-etch process developed for the RCA printed-circuit tuner begins with the photographing of a circuit drawing. A contact print is then made from the negative in a copper-clad sheet of phenolic plastic which is coated with a light-sensitive material.

The next step is the developing of the plastic sheet and then placing it in an etching solution. The solution eats away that part of the copper not covered by the pattern of the circuit, leaving the required copper circuit on the sheet.

Science News Letter, April 29, 1950

MICROSCOPY

Small Size, Low Cost in New Electron Microscope

➤ LABORATORY and industrial research will be greatly extended with a new small-size, relatively low-cost electron microscope developed in Camden, N.J. by Radio Corporation of America.

It will sell at a price low enough to permit its use by many institutions that can not afford the older full-size instrument.

The invention of the electron microscope, perfected for actual use about a decade ago, was hailed as one of the greatest achievements in science of the period. By using electrons instead of light, it permitted the examination of animal, plant and mineral structures which ordinary microscopes were entirely unable to detect.

Objects under the new instrument were magnified some 40,000 times. By means of photography these magnifications were much increased.

This new table-model electron microscope magnifies 5,000 times. Magnifications up to 50,000 diameters can be obtained by photographic enlargement. The instrument is more than 20 times as powerful as the best optical microscope, and has a depth focus 150 times as great.

While not as powerful as the full-size electron microscope, it will cost only about one-third as much. Another advantage of the new instrument is the fact that the



GEIGER COUNTER CANCER DETECTION—A tiny geiger counter is used to search for cancer of the stomach. The instrument is swallowed by the patient and indicates concentration of radioactivity, induced by isotopes, in stomach wall. Nurse Rosemary Quigg poses as the patient. The counter was developed by Dr. Seymour Gray and Dr. Charles Robinson of the biophysics laboratory of Harvard Medical School and the Peter Bent Brigham Hospital, Boston.