

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.

lower end of the magnification range overlaps that of the conventional light or optical microscope, permitting the student to progress by stages from the known to the unknown.

An important feature of the instrument is the use of permanent magnet lenses requiring no stabilization circuits and controls, according to Dr. Robert G. Picard of the RCA laboratories.

Marked simplicity is achieved without

sacrifice of high-quality performance, he stated, by means of a combination of design factors centering around an entirely new electron optical system employing permanent magnet lenses instead of the conventional electromagnetic or electrostatic lenses. Through the use of these permanent magnets, unusual stability is permanently achieved. Voltage stabilizers, current regulators, power supplies, coil windings and many controls are eliminated.

Science News Letter, April 29, 1950

PSYCHOLOGY

UN Atmosphere Analysis

► THE group atmosphere in United Nations meetings is not conducive to a thoughtful consideration of the merits of proposals, Dr. Lillian Wald Kay, psychologist of Washington Square College, New York University, told the meeting of the Eastern Psychological Association in Worcester, Mass.

Her conclusion was based on a scientific analysis of the official summaries of the debates on atomic energy of the "Ad Hoc Political Committee" of the United Nations General Assembly in November, 1949, after President Truman had announced that an atomic explosion had occurred in Russia. Only one out of five of the statements made dealt with a discussion of the proposals.

The Communist countries attempt to dominate such proceedings "by sheer force of words," Dr. Kay found. The Soviet Union had the floor for 21% of the time, contributing 109 statements out of the 217 contributed by the Sponsoring Powers.

"Although the casual newspaper reader is not always aware of it," Dr. Kay commented, "other countries than the big five do contribute to U. N. discussions." Altogether, there were 518 units of discussion, 301 not contributed by the Sponsoring Powers being divided among 32 other countries.

All the remarks, Dr. Kay found, could be placed in five categories of content: review of the past history of the Commission; discussion of the proposals; discussion of the characteristics of atomic energy; prestige appeals (reference to prestige figures) and discussions of motivation.

Only 113 of the 563 ideas expressed—20%—had to do with evaluation of the proposals, although 19 countries, including the five Western Powers, concentrated their discussion in this category. Review of the past history of the Commission was primarily a Western device. Of the 29 items in that category, 20 were contributed by the five Western Powers. Censure of the Soviet Union was often implied in these reviews, but rarely, if ever, overt.

The use of prestige references was restricted to the Soviet Union delegation.

The discussions of motivation nearly all attributed evil motives to other delegations. This was also primarily a Soviet device, it was found.

Outcome of the discussions was a failure to break the impasse on the question of atomic energy.

Science News Letter, April 29, 1950

The small amount of sulfur in an egg is sufficient to cause the tarnishing of silverware; the tarnish is silver sulfide.

● RADIO

Saturday, May 6, 3:15 p. m. EDST

"Adventures in Science" with Watson Davis, director of Science Service over Columbia Broadcasting System.

Dr. Kirby S. Howlett, Jr., President of the American Trudeau Society of the National Tuberculosis Association, will talk on "Chemicals Against Tuberculosis".

(This program, originally scheduled for April 22, was postponed due to baseball.)

Stappak is a coined word for a hard wood made by compressing softwoods.

SCIENCE NEWS LETTER

VOL. 57 APRIL 29, 1950 No. 17

52,100 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., North 2:25. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change, please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1950, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STATE 4439.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horowitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences; Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; L. A. Maynard, Cornell University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore Secretary, Smithsonian Institution; Rene J. Dubos, Rockefeller Institute for Medical Research. Nominated by the Journalistic Profession: A. H. Kirchofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: H. L. Smithton, E. W. Scripps Trust; Frank R. Ford, Evansville Press; Charles E. Scripps, Scripps Howard Newspapers.

Officers—President: Harlow Shapley; Vice President and chairman of Executive Committee: Alexander Wetmore; Treasurer: C. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Ann Ewing, Wadsworth Likely, Margaret Rallings, Sam Matthews. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg

Question Box

ENGINEERING

What now makes possible cheaper, smaller TV sets? p. 268.

ENTOMOLOGY-PLANT PATHOLOGY

What is the consensus regarding the Food and Drug hearings? p. 263.

MEDICINE

What effect do ultrasonic beams have on gallstones? p. 261.

What is the good news about paraplegics? p. 268.

Photographs: Cover, U. S. Public Health Service; p. 259, Harvard University News Office; p. 261, Westinghouse Electric Corporation; p. 263, Bell Telephone Laboratories.

What is the new aid for cancer detection? p. 262.

What part of the nerve is transplanted in the new operation? p. 259.

PSYCHIATRY

What are the three kinds of fright from which sick children suffer? p. 258.

ZOOLOGY

What is the purpose of the rat movies? p. 261.