

MICROSCOPY

TV Linked to Microscope

A color-sensitive television camera looking through a conventional high-powered microscope, gives scientists hope of learning new facts about living cells.

See Front Cover

➤ BY LETTING a color-sensitive television camera look through a conventional high-powered microscope, scientists now have the hope of discovering new facts about living cells.

The new RCA television-microscope combination tested at Princeton uses new television tubes that range from the infrared to the ultraviolet ends of the visible light spectrum.

Contrasts between the various chemical and structural parts of living cells are picked up more effectively by this new television technique than by either the human eye or the photographic plate. Television views can now replace the staining of killed cells as well as tedious photographing through color filters.

Discovery of unknown particles in living cells has already been made by Princeton University scientists using the new television-microscope tested by Dr. A. K. Parpart, chairman of the Princeton department of biology.

Within a few weeks the new technique will be used on cancer cells and tissues in hope of finding useful clues to the problem of malignancy.

Many components of living cells normally visible only after killing and staining can be studied by switching the television scanning from a vidicon tube sensitive to the blue end of the spectrum to one most effective in red light. This gives superior contrast.

Some parts of the cells are visible in one kind of light and invisible in other wavelengths.

The television cameras used are adaptations of those used in industrial television systems, such as used for viewing dangerous atomic installations and watching remotely controlled machinery. Their application to microscopy was done by L. E. Flory and J. M. Morgan of RCA Research Laboratories. Dr. Parpart and Mr. Flory are shown with the instrument on this week's cover.

Television microscopes will allow large audiences in classrooms and lecture halls to see what now can be viewed only by a lone researcher with his eye glued to the microscope eyepiece. Princeton physics classes have already used the new combination to see the Millikan oil drop experiment and the Brownian motion.

Science News Letter, January 20, 1951



LIGHT—This aluminum power line clamp is designed to reduce radio interference caused by electrical discharge from high-voltage lines.

plane Company. The device will also prevent the power line electrical losses occurring where conventional clamps are used.

These clamps will soon be installed on new power lines being constructed by the Bonneville Power Administration, Portland, Ore., leading from the government dam on the Columbia River at Bonneville. Boeing has just received a contract with the Bonneville authorities for \$140,000 for the delivery of 18,000 of the new clamps. They will be used to hang the power conductors from standard insulator strings.

Made of aluminum, the clamps are non-magnetic to prevent electrical losses occurring where conventional steel-type clamps are used. The lower part of the new clamp is a "skirt" to shield the vulnerable portions from the electrostatic field set up by high voltage.

Science News Letter, January 20, 1951

MEDICINE

Comatose Patient Saved

Woman 73 years old with gall bladder removed was restored by artificial kidney after her own organs failed to function.

➤ AN ARTIFICIAL kidney saved the life of a 73-year-old woman with high blood pressure. The case was reported to the Surgery Study Section of the U. S. National Institutes of Health.

The patient had had her gall bladder removed. For eight days afterwards her kidneys failed to function and the patient was in a coma. When the artificial kidney took over, the patient regained consciousness, sat up and ate and retained 1300 calories of food daily, even though her own kidneys did not resume functioning for four more days.

Her case, one of 150 in which the artificial kidney is credited with saving life, was reported by Dr. John P. Merrill of the Peter Bent Brigham Hospital, Boston.

Kidney function after major operations, Dr. Merrill pointed out, frequently is im-

paired. The resulting urine retention or anuria may be prolonged and severe enough to endanger life. The artificial kidney does not affect the anuria or restore the kidney to normal. But it can take over some of the normal kidney jobs, saving the patient from poisoning through disturbed body chemistry until the patient's own kidneys have recovered.

Science News Letter, January 20, 1951

ENGINEERING

New Clamps Reduce Radio Interference

➤ RADIO interference from high voltage electrical transmission lines is reduced with a new suspension clamp developed by the engineering division of the Boeing Air-

AGRICULTURE

Scotch Farm Research Unit To Serve World

➤ A NEW research unit devoted to agricultural problems is beginning operation on a 3,000-acre former estate near Edinburgh.

The Edinburgh Centre of Rural Economy, as the converted estate is now known, is planned to become a world-wide center for agricultural and horticultural research, with over 300 students from all parts of the world. Of these, 40 are already in residence.

Commercial production of tomatoes is the first project. Horticultural, agricultural and allied research organizations in Scotland cooperate.

Science News Letter, January 20, 1951