

RADIO

Prints Radio Newspaper

A new communication system, called Ultrafax, can send a million words a minute, including illustrations, by television and radio relays.

► TELEVISION, radio relays and facsimile are combined in a new communication system called Ultrafax, demonstrated in Washington by the Radio Corporation of America. It reproduces in the receiving station a full page of printed or written matter with illustration, as is done by facsimile, but it does it at television speed, and it can send a million words a minute.

As explained by David Sarnoff, president of RCA, one possible development with Ultrafax is the exchange of international television programs achieved on a transoceanic basis. A service of television and Ultrafax would permit the same receiving set to bring various types of publications into the home without interrupting the program being reviewed. Special attachments to the television receiver would be required.

He pointed out the possibility of the establishment of great newspapers as national institutions and the instantaneous transmission and reception of complete editions in every home equipped with a television set.

The Ultrafax system, it was explained, combines the elements of television with the latest techniques in radio-relaying and high-speed photography. In regular service the transmissions could be radio-relayed any distance by using the commercial radio-relay system towers which are now being erected for television. They could cross the ocean by means of air-borne relay stations in airplanes traveling in lazy circles over properly spaced locations. It would be possible to have the same transmitter that broadcasts the television program simultaneously broadcast the radio newspaper.

Ultrafax's remarkable speed, RCA engineers explained, is possible because full pages of information are transmitted as television pictures at the rate of 15 to 30 a second. The steps in sending include the preparation of data to be transmitted, to assure a continuous flow at high speed, scanning the copy with what is known as a flying-spot television scanner, transmission of the television image as ultra-high radio-frequency signals, and reception on a projection-type television kinescope, or picture tube, from which incoming messages are recorded on motion picture film, or ultimately directly onto photographic paper.

At the end of the transmission, the exposed film can be transferred quickly to a special processing unit developed by Kodak Research Laboratories. The film is passed through a miniature developing tank, rinsed and fixed in less than 15 seconds and dried in 25 seconds more. The Ultrafax

film may be enlarged to full-sized copy by means of a high-speed continuous process machine.

Science News Letter, October 30, 1948

MEDICINE

Cures Reported from Cancer Battlefront

► HERE IS WHAT is happening on the national cancer battlefront, as reported to the American College of Surgeons meeting in Los Angeles.

There were 343 patients cured of cancer and 132 who survived over a five-year period at The Tumor Clinic of King County Hospital, Seattle, Washington, according to Dr. Donald V. Trueblood, director.

Twenty-five out of 49 victims of cancer of the breast were cured over a five-year period, 34 out of 77 with cancer of the neck of the uterus and 22 of 38 with cancer of the body of the uterus, at the Tumor Clinic, Emory University Hospital in Atlanta, Dr. J. Elliott Scarborough, Jr., reported.

Of 244 patients with cancer of the large intestine on which follow-up work was done, 122 survived five years or longer at the Scott and White Clinic, Temple, Texas, Drs. George V. Brindley and R. R. White indicated.

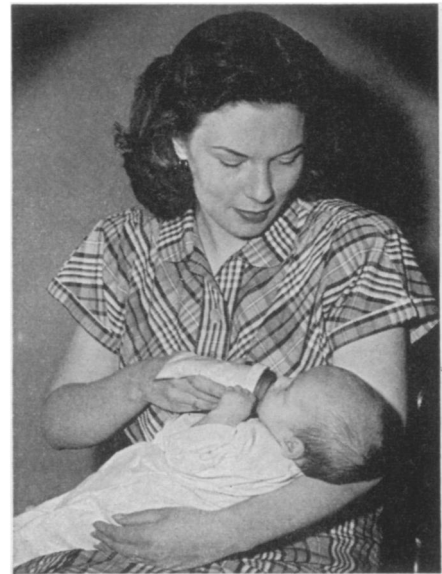
"During a 12-year period, 4,000 patients were cured of cancer at the Veterans Administration Hospital, Hines, Illinois," according to Drs. Charles B. Puestow and Joseph R. Hufschmitt, and Philipp W. Zinkgraf.

The five-year survival rate in six upstate New York counties based on study of all cancer cases reported from 1940-1944 is 26%, data presented by Dr. Frederick S. Wetherell, of Syracuse Memorial Hospital, shows.

"A good deal of statistical evidence is now available which indicates that the curability of cancer is increasing year by year," Dr. Edward J. Ottenheimer of the Windham Community Memorial Hospital, Willimantic, Conn., told the cancer symposium.

In the seven-year period, 1935 to 1941, there were nearly 13,000 cases of proved cancer in Connecticut. "The increase in five-year survivals since 1935 ranged from 9% to 37%," he stated. "This striking change has not been confined to cancer of any particular organ, but applies in different degrees to cancer of every important site as well as to the total group."

Science News Letter, October 30, 1948



NEW NURSING BOTTLE—The mother is shown feeding the baby out of a new collapsible, disposable nursing bottle that requires no washing or sterilizing.

INVENTION

New Plastic Nursery Aid Eases Feeding of Babies

► IT WILL BE "Shellie-fed" instead of bottle-fed for modern babies whose mamas do not breast-feed them, if the hopes of inventor and producers of the newest nursery aid, called Shellies, are fulfilled.

The baby will get his formula from a collapsible bag that can be thrown away after use. Soft and cuddly Shellies, with their specially designed nipple, are said to give the baby much the feeling of security and warmth that breast-fed babies get while nursed by their mothers. Because the bottles are collapsible, there is no back-pressure, no air for the infant to swallow and consequently less need for "burping."

Shellies were invented by a registered nurse, Mrs. Adda May Allen, of The Plains, Va. They are produced by the Shellmar Products Corporation of Mount Vernon, Ohio. They are about to be placed on the market, on a regional basis at first, and will be available at drug, department and infant specialty stores throughout the nation "reasonably" soon, the manufacturers of the plastic bottle announced.

Shellies come in a long roll, each bottle sealed off from the next in line. They are already sterilized and since each is thrown away after its use, bottle washing and sterilizing are eliminated. They will cost about one cent apiece, but to use them mothers will also need a bottle expander, bottle rack, aluminum inner rings, plastic outer locking rings, special "natural-action" nipples and plastic shell caps to protect the

nipples until use. Price of the entire outfit has not yet been set.

Saving in storage space is an added advantage pointed out by the manufacturers.

One hundred empty Shellies take up less space than one four-ounce glass bottle. And they will not break or burst even when dropped on a hard surface.

Science News Letter, October 30, 1948

PALEONTOLOGY

Near-Human Pygmy Race

➤ AFRICA once had a pre-human race of pygmies—or near-pygmies—who lived in caves, knew the use of fire, and used big bones of game animals as clubs in hunting and fighting. Their average weight was probably under 100 pounds, yet they had brains as big as modern gorillas weighing four or five times that figure.

This description of a "new," although long-extinct, race of human (or near-human) beings sums up three years' work by scholarly pick-and-shovel men under the direction of Prof. Raymond A. Dart of the University of the Witwatersrand, Johannesburg, South Africa. He presents his findings in detail for the first time in the AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY (Sept.).

Crucial find in establishing the identity of this race of little near-men was a broken piece of skull, representing a considerable section of the bulging back portion of the cranium. It has definite human characteristics, Prof. Dart declares.

In the same cave were many bits of charcoal embedded in the solidified debris, together with some bones that were also charred—strong evidence of the use of fire. Baboon skulls, always broken as by a heavy

blow, he takes as evidence that the cave-dwellers were meat-eaters and hunters. Ends of long bones of animals are battered, as if used for clubs.

The new find belongs in the same general group to which the name Australopithecus was given some 25 years ago. The long word translates into English as "southern ape," because when the first fossils were discovered, and for a considerable time after that, it was thought that they were apes with some human characters, rather than small, highly primitive men. However, declares Prof. Dart, every find of Australopithecus that has been made since has tended to push him further away from the apes and closer to human status. In this, he adds, several other researchers on ancient man agree with him.

Because the newly found skull fragment appears to be quite distinct from the Australopithecus types hitherto known, Prof. Dart considers it to represent a distinct species, and he has accordingly given it a new name: *Australopithecus prometheus*. The second or specific name is that of the hero of ancient Greek mythology who first taught men the use of fire, and is a reference to the traces of fire found in the cave.

Science News Letter, October 30, 1948



CELLS IN THE MOUTH—Here is the way the cells which form the skin of your mouth would look in a photograph taken with the ultraviolet phase microscope. These epithelial cells are greatly magnified.

PHYSICS

Phase Microscope and Ultraviolet Spy on Cells

➤ LIVING CELLS will be spied upon in more detail than ever before through the extension of phase microscopy into the ultraviolet.

Ultraviolet photographs made with a phase microscope, which takes advantage of the fact that light travels in waves to bring out details without preliminary staining, were sharper than those made with visible light.

More details show up in the ultraviolet photographs of cells from the skin in the mouth than were visible in previous pictures, report A. H. Bennett, D. L. Woernley and A. J. Kavanagh of the Scientific Instruments Division, American Optical Company, Buffalo, N. Y. This instrument shows great promise, they state in the JOURNAL OF THE OPTICAL SOCIETY OF AMERICA (Aug.).

The ultraviolet phase microscope, first of its kind to be reported, incorporated a filter that produced a rather broad band of ultraviolet radiation and another band extending into the near infra-red. The photographic film was such that it picked up only the ultraviolet radiation.

Science News Letter, October 30, 1948

Man is not the only animal that makes hay in the summer; the rabbit-like *cony* of the Rocky Mountains cuts grass and other plants and, after they have dried in the hot sun, carries the hay by mouthfuls to his den for winter food.

MEDICINE

Diet Is Aid in Liver Ill

➤ A DIET rich in protein, supplemented with vitamin B complex, improved the health and prolonged the life of patients with cirrhosis of the liver, which is often the result of overindulgence in alcohol.

Traditionally, the diet prescribed for liver disease is one that is high in carbohydrate but low in protein and fat. This study was made to contrast the results between 124 patients treated with the new diet and 386 patients treated with the traditional diet, and appears in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 23).

The work is reported by Drs. Arthur J. Patek, Jr., Joseph Post, Oscar D. Ratnoff and Harold Mankin, and Robert W. Hillman, of the Goldwater Memorial Hospital and the College of Physicians and Surgeons, Columbia University.

In 61 patients of 115 (nine not having been followed long enough) the unsightly accumulation of fluid in the abdomen disappeared, as did the jaundice and swelling, there was a gain in weight and strength and improvement in liver function.

At the end of one year, 65% of the

patients treated with the new diet were alive and only 39% of the control group studied for contrast; at the end of two years, 50% of the treated patients and 21% of the controls were alive, and at the end of five years 30% of the treated patients and 7% of the controls were alive.

The scientists chose a diet rich in protein and ample in carbohydrate and fat for these patients because there were signs of malnutrition. Ninety-one patients, they found, had lived on poor diets mainly deficient in meat and dairy products.

Twelve patients furnished further proof that this dietary treatment was effective. After recovery following treatment, they fell into their former drinking and poor eating habits. Relapse of their former condition followed. "In effect, they reproduced the conditions of the experiment," the scientists point out. "The fact that these 12 patients responded well to the same treatment on two or more occasions suggests that improvement resulted from treatment and that it was not 'spontaneous.'"

Science News Letter, October 30, 1948