MEDICINE

Leukemias May Be Licked

Cortisone and a chemical which neutralizes folic acid may be the winning team against leukemias. Cortisone alone is not permanently effective.

➤ A TWO-CHEMICAL relay team shows promise of winning the race for a reasonably effective means of checking the leukemias.

This encouraging information was disclosed to an international gathering of cancer researchers at the Ciba Foundation in London by Dr. J. H. Burchenal of the Sloan-Kettering Institute, New York.

Cortisone, the adrenal gland hormone already famous for its effect in rheumatoid arthritis, is half of the combination. Its team mate is a chemical which antagonizes and neutralizes the vitamin, folic acid.

Prior to Dr. Burchenal's disclosure the assembled cancer experts had heard the success-failure story of the use of cortisone alone in the treatment of leukemias. Dr. Burchenal himself had reported the dramatic improvement in many leukemic children and adults given this chemical.

However, the improvement lasted only a few weeks. Further courses of treatment in relapsed patients might give second improvements in children, but not in adults. Thereafter the effectiveness of the hormone fell off rapidly and the patients died of their leukemias.

Dr. Burchenal's colleagues at Sloan-Kettering, Dr. C. Chester Stock and Dr. K. Dobriner, verified the purely temporary effectiveness of cortisone against lymphatic cancers both in experimental mice and in humans.

The cancer researchers at Sloan-Kettering hope that by alternating cortisone treatment with courses of folic acid antagonists, which have themselves shown temporary effectiveness in checking leukemias, they will be able to bypass the resistance developed by the cancer cells to each of these treatments when used singly.

Science News Letter, July 29, 1950

PSYCHOLOGY-AERONAUTICS

Flying Psychological Lab

➤ HOW pilots of speedy military airplanes react to problems encountered during flight is being determined in Dayton at the Wright-Patterson Air Force Base with a new-type flying set-up dubbed an Airborne Psychological Laboratory.

High speed in the air calls for double-quick thinking and split-second action. Engineering psychologists at the Air Base are endeavoring to design and develop flight equipment that will permit the operator to function as efficiently and safely as possible.

The airborne laboratory is a C-47 aircraft equipped with special electronic scoring devices which record how accurately pilots are able to maintain heading, altitude, speed and many other variables of flying. The equipment consists of a motor generator, sensing units, a scoring console and a recording console.

Whenever a pilot adjusts his instruments to correct a flight problem the sensing instruments translate the action into electrical impulses which are recorded for future study. On the scoring console are electric stop clocks which indicate the length of time a pilot is "out-of-bounds." This is the time that he is unable to keep within the allowed tolerances for such variables as airspeed, altitude, pitch, angle of bank, rate of turn and others.

A voice recorder and motion picture camera record the pilot's comments and his eye and body movements during the tests. One of the greatest problems of flying has always been that of fatigue. A pilot may think that a long flight does not tire him, but the instrument scores show that the longer the flight the less able the pilot is to stay within tolerances.

Science News Letter, July 29, 1950

ENGINEERING

Better Heating Oil by Using Furfural as Solvent

➤ BETTER heating oil for use in homes is promised with an extraction unit using furfural as the solvent. This unit will be employed in a new refinery ready for operation in Eagle Point, N. J., by the Texas Company.

The use of furfural will also give improved fuels for diesel engines, and it greatly reduces the sulfur content of both heating and diesel fuels. This is particularly important at the present time because it is now necessary to use oil from new wells which deliver crude oil containing considerable sulfur.

Furfural has been widely used by the oil industry for the removal of sludge-producing elements in motor oils. The new $60,000,000 refinery is the first commercial extraction unit to employ furfural in the production of diesel and heating oils. Furfural is an organic chemical that can be made from farm wastes, including corn cobs.

Science News Letter, July 29, 1950

RADIO

Mirrors Reflect One Color Only for Color Television

➤ MIRRORS that reflect one color only, blue, green or red, developed in Pittsburgh at the Westinghouse Research Laboratories, promise to play an important part in the color television of the future.

The mirrors are made by depositing extremely thin layers of metallic compounds on clear glass. The process is carried out by a vacuum-spray method. The glass is placed in a glass-jar "oven" from which most of the air has been removed. A special metal compound in the jar is then heated electrically. It melts and sends vapors on to the glass sheets. The vapors solidify into an ultra-thin smooth, even film.

The thickness of the films determines the particular color the mirror will reflect. For blue, the thickness may be about one-fourth the wavelength of blue light, or about 16 millionths of an inch. For green, the layer is only slightly thicker. Red reflection requires the thickest film.

The mirrors are for use at both ends of the television system. At the transmitting

ONE AT A TIME—This clear glass sheet will soon become a mirror that "sees" and reflects only one color at a time—either red, green or blue. Demonstrated by Kenneth L. Fromm, the mirrors will be used at both the transmitting and receiving end of experimental color television apparatus.

end they pick up the color picture from the camera and break it down into its three basic colors. These are sent in the proper sequence through the system. At the receiving end, another set of mirrors gather in the colors and help regroup them in the color picture seen on the screen.

Science News Letter, July 29, 1950

MEDICINE

Aureomycin for Lumpy Jaw

➤ AUREOMYCIN may turn out to be a cure for lumpy jaw, or actinomycosis as this cattle disease that humans get is known medically.

Four human patients with this disease have now been treated successfully with the mold drug, Drs. Leon V. McVay, Jr., David Dunavant, Douglas H. Sprunt and Miss Frances Guthrie of the University of Tennessee College of Medicine and John Gaston Hospital, Memphis, report in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (July 22).

The first patient had been sick for six months, in spite of treatment with penicillin and X-rays. When he entered the hospital he had a slightly reddened mass covering most of the right side of his face and reaching down his neck. It was exuding a yellowish pus from three places.

His diet was limited to liquids because he could not open his mouth as wide as half an inch.

He was given aureomycin by mouth every four hours and a semi-paste of the mold drug was put on the sores on face and neck.

"The response was dramatic," the scientists report.

Within two days he could eat comfortably and his slight fever had gone. He continued to take the mold drug for 28 days, by which time the swelling had gone and there was only a minimum amount of scarring over the opening where the pus had been draining. He was still entirely well six months later.

While the value of the drug can hardly be judged on the basis of only a few cases, especially in a disease which tends to recur as actinomycosis does, the Memphis scientists report the good results in the hope that other doctors will be stimulated to try it in this ailment.

Science News Letter, July 29, 1950

On This Week's Cover

➤ TWO coscorobas, rare birds from South America, have established another "first" for the Philadelphia Zoo by hatching out a pair of babies. Believed to be the first of their kind ever to hatch in America, the only other record of their breeding in captivity was established in England shortly before the first World War.

The coscoroba comes closer to being a "swoose" than any other bird on the earth. Some scientists have classified it as a swan and others as a goose. Still other ornithologists look upon it as a giant tree duck. The question is—what should the hatchlings be called—goslings, ducklings, cygnets (baby swans), or "swooslets."? The parent birds are of goose size, and they have snow white plumage save for the outer wing feathers which are black. Their bills and legs are pink. The new additions are very light grey with dark markings.

The coscoroba family built a nest in February, and the female laid two eggs; however one rolled into the pool and the other was infertile. Some weeks ago they built again, and after 46 days of incubation, the young hatched out. Both parents guard the young ones jealously and shoo away the white mallards that occupy the same enclosure with them.

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Swimming during a thunder and lightning storm is not recommended; a person can be electrocuted by a charge carried by the water from the bolt striking at some distance.

Question Box

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What causes a child's head to be flat? p. 75.

Where is the land of "Singing Sand"? p. 77.

Where is the "Nursery of Man"? p. 74.

BOTANY

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GEOLOGY

How long will a man-made lake last? p. 71.

ORNITHOLOGY

What kind of gull follows a ship from shore to shore? p. 78.

ZOOLOGY

What is the age of the oldest seal? p. 70.

Photographs: Cover, Philadelphia Zoo; p. 67, Westinghouse Electric Corporation; p. 69, Crosley Motors, Inc.; p. 71, Bureau of Reclamation, Boulder City, Nev.; p. 80, McDonough Studios, Washington, D. C.

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