

MEDICINE

Meningitis Still Problem In Newborn Infants

► DESPITE MODERN drug treatment, bacterial meningitis in the newborn infant is still almost as much a problem as it was 30 years ago.

Twenty-six of 39 infants studied in Cincinnati died of this disease, three physicians report in *The New England Journal of Medicine*, 264:1115, 1961. Bacterial meningitis is a potentially curable disease but because it is difficult to diagnose in the first month of life, when it most often occurs, it remains dangerous.

Complications of birth increase the occurrence of bacterial meningitis. Infection may take place in the uterus or in the birth canal, the researchers report.

"In the majority of the infants with obstetric complications (68%) in this study, the disease began before the sixth day of life, and all infants born of mothers with fever or premature rupture of the membranes had the onset by the sixth day," the physicians state.

The difficulty of diagnosis is complicated by the signs present in other illnesses. In this study, six had diarrhea, which was the first sign in one. Significant respiratory distress was encountered in 13 patients and was the initial sign in six. The occurrence of pneumonia, gastroenteritis or other infection in a newborn infant increases the possibility of meningitis.

The researchers say that meningitis should be considered in all newborn infants who fail to do well or who are ill in any manner. The disease is more common in premature infants than in those born at term.

Drs. Robert V. Groover, Children's Hospital; James M. Sutherland, University of Cincinnati College of Medicine; and Benjamin H. Landing, of both Children's Hospital and the University of Cincinnati College of Medicine, report the study.

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MEDICINE

A Drop of Blood Tells Likely Heart Cases

► SIMPLE and inexpensive, a new test for blood fats may prove suitable as a screening procedure for people prone to heart and blood vessel disease.

It was developed and evaluated by Drs. Charles L. Heiskell and Charles M. Carpenter of the University of California, Los Angeles, Dr. Roy T. Fisk of Hyland Laboratories, and Drs. Warner Florsheim and Joseph Goodman of the Long Beach Veterans Administration Hospital.

The test detects increased blood levels of beta-lipoprotein, a fatty substance believed by many physicians to be involved in heart attacks due to coronary artery disease. This substance contains most of the blood fats, including large amounts of cholesterol.

The compound has been of much clinical interest in recent years because of the association of increased blood levels with such widely prevalent diseases as atherosclerosis

(hardening of the arteries) and diabetes, as well as old age and the post-menopausal states. But because of the present complex and expensive methods used to measure levels of the substance, it has not gained widespread clinical application.

The new test, called the Immunocrit, requires only a drop of the patient's blood serum. The beta-lipoprotein is precipitated in a tiny glass tube by a drop of antiserum. The tube is placed in a small table model centrifuge and spun. This packs the beta-lipoprotein in the bottom of the tube. A low-power microscope is used to measure the amount of fat, which indicates its level in the blood.

The simplicity of the test and minimal equipment required make it practical for the physician's office. It is believed the procedure will be useful in detecting elevated blood fat levels in men over 40, in post-menopausal females, and in diabetics.

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SOCIOLOGY

Goals and Effort Needed For Health of Society

► A SOCIETY that depends on sedatives or stimulants to continue functioning cannot survive.

Adaptation and growth in the changing world demands effort, Dr. Rene J. Dubos of Rockefeller Institute, New York, believes.

Constant exposure to a threat or stress often calls into play or increases the effectiveness of the natural defense mechanisms that exist in any individual, Dr. Dubos said.

Goals are as necessary for the health of groups, countries and civilizations as they are for the health of individuals, he stated. The civilizations that survive and grow are those built on goals that go beyond the immediate comfort, satisfactions of animal appetites and avoidance of effort.

Anything that forces man to function against his goals becomes a cause of bodily or mental disease, the scientist said. In contrast, man can overcome even the most painful physical limitations and handicaps to the extent that he is functioning "in a manner that corresponds to fulfillment."

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ASTRONOMY

Tiny Meteorites Found Pelting the Atmosphere

► TINY METEORITES one-thousandth the size of micrometeorites have been detected entering the earth's atmosphere from the moon.

The microscopic meteorites, dubbed "nanometeorites," were discovered when a U-2 research plane collected air samples 60,000 feet above the Arctic wastes.

The tiny particles were recorded on sensitive film exposed to the high-altitude air, Curtis L. Hemenway and Ernest F. Fullam of the Dudley Observatory, Albany, N. Y., and Laurence Phillips of Union College, Schenectady, N. Y., report in *Nature*, 190:897, 1961.

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IN SCIEN

PHYSICS

New Columbia Cyclotron Measures Neutron Speed

► COLUMBIA UNIVERSITY scientists at the Nevis Cyclotron Laboratory, Irvington, N. Y., have successfully operated a new facility that permits the speeds of neutrons to be studied with greater accuracy than ever before.

Three weeks of preliminary experiments with the giant Columbia synchrocyclotron, a new atomic "race track" which is a 660-foot tunnel permitting time-of-flight measurements of neutrons, and a new analyzer system, confirmed that the new Atomic Energy Commission facility for studying the interactions of neutrons with matter was a success.

The equipment comprises a neutron velocity selector system that uses the 385,000,000 electron volt Nevis cyclotron to provide short, intense bursts of neutrons on a target inside the cyclotron.

The neutrons are emitted almost instantaneously with a wide range of speeds and with random directions. A tiny fraction of the neutrons is aimed at a rectangular neutron "counter" that is situated at the end of the tunnel, about 660 feet away.

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PHARMACOLOGY

Amino Acids Trace Opium To Point of Origin

► SCIENTISTS have found a new method for pinpointing the country, and the region within the country, from which opium is smuggled.

The technique is based on amino acid content, which varies with differing environmental conditions under which the opium poppy grows. It is a refinement of a method developed by the United Nations based on mineral content of opium, a variable based on soil composition.

Dr. A. Jabbar, now at the University of Dacca in Pakistan, and Dr. E. Brochmann-Hanssen of the University of California in San Francisco, report that amino acid content of opium depends upon temperature, light and water supply during growth.

They examined 13 samples of opium from seven different countries and found that 15 recognized amino acids and three unidentified ones were present in differing amounts and combinations. They also grew their own opium and found that certain mineral deficiencies resulted in specific changes in amino acid content.

At present, the researchers reported in the *American Pharmaceutical Association's Journal of Pharmaceutical Sciences* 50:406, 1961, they are studying the influence of different environmental conditions on the resulting amino acids.

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CE FIELDS

ECONOMICS

Possible Cause of Red Chinese Famine

➤ THE FAMINE in Red China could be a result of a man-made upset in the natural balance of the country.

Although the Chinese blame a series of natural disasters for the severe food shortage, Dr. Georg Borgstrom, an authority on world food problems, said at Michigan State University, East Lansing, Mich., that reports coming from China point toward a different reason. The disasters probably were aided by a somewhat misguided policy on technological advances, he believes.

To counteract floods and erosion, the Chinese claim to have built 15,000,000 dams, drilled 41,000,000 wells and moved enough dirt and sand to build 450,000,000 Panama Canals since 1952.

"If only one-tenth of this is true, it is still a fantastic figure," Dr. Borgstrom said.

He pointed out that millions of Chinese have been moved to west and northwest China, Tibet and Sinkiang, on land that had been pasture for thousands of years.

"It is likely," he said, "that the Chinese used this manpower to build dams and plow pasture. If they did, evaporation and moisture demands of new crops could have resulted in a loss of water downstream."

As evidence, Dr. Borgstrom noted a British observer's report that a major river, the Hoangho, which originates in the west as do most Chinese rivers, had dried up completely for the first time in anyone's memory.

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High Blood Pressure Caused by Salt Impurity

➤ DOCTORS who advise patients to stop eating salt to keep blood pressure down, probably are doing the right thing but for the wrong reason, research indicates.

Such measures are based on the idea that the sodium ion, an electrically charged portion of the salt molecule, is the prime cause of the high blood pressure. But new evidence uncovered by Dr. Lewis K. Dahl and Martha Heine at the Brookhaven National Laboratory in Upton, N. Y., has shown that some impurity in the salt is just as likely a culprit.

High blood pressure, the investigators noted, is common among the Japanese, whose table salt comes from sea water and contains a mixture of substances picked up during processing. Impure table salt also is used by many other groups.

In experiments with rats, the scientists found that there was less high blood pressure among the animals who ate chemically pure sodium chloride than among

those who ate sea salt. After 14 months of eating excessive amounts of salt, the pure-salt rats averaged a blood pressure of 150, the sea-salt rats nearly 180. Anything above 140 was considered abnormally high. Control rats, those fed normal amounts of salt, averaged 120 at 14 months.

The impurity that seems to cause higher blood pressure has not been identified, the researchers report in the *Journal of Experimental Medicine*, 113:1067, 1961. They suspect a metal ion, but have not yet determined which one, if any, is responsible.

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GEOPHYSICS

Magnetic Storms Formed Earth's Magnetic Field

➤ A TINY CURRENT in the earth's core that was indirectly created by magnetic storms high above the earth is responsible for the earth's magnetic field today, an Indian scientist believes.

World-wide magnetic storms occurring throughout geologic history have continually built up the earth's magnetic field by sending currents deep into the earth's interior, Dr. J. S. Chatterjee, Jadavpur University, Calcutta, reports in the *Journal of Geophysical Research*, 66:1535, 1961. These currents, or streams of electrons, eventually reach the core where they feed the existing magnetic field.

Although the currents last or "decay" for a million years, new storms continually replenished the field until it reached the strength of the present magnetic field, the scientist said.

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New Cancer Technique Brings Some Success

➤ A NEW TECHNIQUE called regional perfusion has been successful in treating some cancers that have spread, the American Association of Plastic Surgeons meeting in New York was told.

A pump-oxygenator pours cancer-killing chemicals into arms and legs that have been shut off by a tourniquet. The technique has been most widely used in treating malignant melanoma, which usually starts in a mole, spreads rapidly and frequently causes death.

Drs. Oscar Creech Jr., Robert F. Ryan and Edward T. Kremenz, all of the department of surgery of Tulane University Medical School, reported that they had used regional perfusion in 96 cases of malignant melanoma involving the extremities.

The surgeons said the most encouraging results have been achieved with patients whose secondary cancers were treated by both surgery and perfusion. Seventy percent of this group have been free from symptoms for six to 30 months.

For 37% of the patients treated with perfusion alone, improvement was noted on an average of 17 months. One patient has had no sign of the disease for almost four years and another for three.

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MEDICINE

Nicotinic Acid Use Remains Experimental

➤ NICOTINIC ACID, widely used for the lowering of cholesterol in cases of hypercholesteremia, remains experimental, along with every other method presently employed for reducing serum cholesterol levels.

Dr. William B. Parsons Jr., the Jackson Clinic and Foundation, Madison, Wis., reports in the *Archives of Internal Medicine*, published by the American Medical Association, 107:639, 1961, that the "possibility of toxic damage to the liver, occasionally with jaundice, cannot be ignored."

Although cholesterol levels were reduced in 50 patients studied, Dr. Parsons says that in addition to effects on liver function, there were changes in glucose tolerance, slight increases in serum uric acid levels and skin changes (dryness and brown pigmentation) in some during treatment with nicotinic acid.

The mechanism of action of nicotinic acid on fat metabolism is not known, but Dr. Parsons says evidence favors "alteration in synthesis of cholesterol and fatty acids together with increased oxidation of cholesterol as a dual mechanism."

In previous experiments without dietary restriction, nicotinic acid has reduced total lipids, fatty acids and triglycerides in the same way it has reduced cholesterol.

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MEDICINE

Blood Seepage Small In Most Pregnancies

➤ IN MOST human pregnancies, no more than a fraction of a teaspoonful of blood seeps through the placental barrier from unborn child to mother, research indicates. This is particularly significant when related to difficulties resulting from such blood leakage between mother and child who are Rh-incompatible.

A group of researchers in Liverpool, England, report that among 200 mothers of newborns, only 12% showed fetal blood leakage greater than one or two milliliters, a fraction of a teaspoon.

At present they are trying to determine whether this is enough to bring about dangerous antibody response on the part of an Rh negative mother carrying an Rh positive child. In one such case where 100 milliliters, according to calculations by the investigators, of fetal blood had entered the maternal circulation, the infant was born with a severe anemia (hemoglobin 73%).

If evidence of fetal bleeding can be detected soon after it occurs, it may be possible to use a combination of injections to prevent sensitization in the mother, thus making subsequent pregnancies less hazardous.

The research is reported in *Nature*, 190:922, 1961, by Ronald Finn, C. A. Clarke, W. T. A. Donohoe, R. B. McConnell and P. M. Sheppard of the University of Liverpool and D. Lehane of the Liverpool Regional Blood Transfusion Service.

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