PEDIATRICS

Short Pregnancy Cuts Rh Factor Death Toll

➤ BY ARTIFICIALLY ending pregnancy at the end of 34 to 36 weeks, the lives of babies who would otherwise die before birth from Rh factor blood disease can be saved, Dr. Bruce Chown, a Winnipeg, Canada, pediatrician, reported to the Canadian Medical Association meeting in Edmonton, Canada.

More than half of these sick babies would probably live if delivered early.

In Rh incompatibility, the mother's blood undergoes an allergic reaction to that of her unborn child and develops antibodies to it which can damage the child's red blood cells. The condition is known as erythroblastosis and, while it does not usually affect a mother's first child, it often seriously threatens the life of later ones.

Children born alive may be saved by blood replacement through transfusion and by careful study the doctor may be able to tell whether early delivery is indicated, Dr. Chown reported.

In an Rh negative mother who has already lost one Rh positive baby before birth, the chances are that nine out of ten of the following Rh positive babies will die before the 40th week of pregnancy. Early termination of pregnancy will save better than half of these babies.

If two babies have been lost before, the chances are that almost 100% of future Rh positive babies will die before their 40th week. More than half of these, too, can be saved if pregnancy is further shortened to between 32 and 34 weeks.

However, before pregnancy is terminated early, the doctor must take into consideration the chances of death from prematurity.

Science News Letter, July 6, 1957

PHARMACOLOGY

Enzyme Shots Relieve Bad Drug Reactions

➤ PENICILLIN, the commonly used antibiotic credited with saving hundreds of lives, is not an unmixed blessing. Every year an estimated 600,000 persons receive a bad reaction from the drug which can be anything from an annoying itch to sudden collapse and death in rare cases.

An enzyme, called penicillinase, that can relieve these allergic reactions by quickly eliminating penicillin in the blood stream, was reported by Capt. G. M. Davis, Medical Corps, USN, Great Lakes Naval Training Station, and Dr. R. M. Becker, Madison, Wis., to the American Medical Association meeting in New York.

The enzyme, originally discovered in 1940, is produced by many strains of bacteria.

When it was injected into persons who had been showing various degrees of penicillin reaction it brought dramatic relief within a period ranging from a few hours up to 24 hours. Most of the patients had complete freedom from itching and swelling in 24 to 72 hours.

Penicillinase should be kept on hand in every doctor's office or hospital where penicillin is administered, Dr. Becker reported.

Within 15 to 60 minutes after it is used, no circulating penicillin can be detected, he said.

The penicillinase tested was supplied by Schenley Laboratories, Inc., New York, which plans to make it generally available to the medical profession under the trade name Neutrapen before the end of the year.

Science News Letter, July 6, 1957

ENGINEERING

Solar-Heated Offices Keep Occupants Warm

➤ AN OFFICE building heated only by the power of the sun has been operated successfully through the major part of its first winter, three engineers told the American Society of Mechanical Engineers meeting in San Francisco.

The solar-heated office building, claimed to be the first such building in the world, is located in Albuquerque, N. M.

The unique structure is the home office for F. H. Bridgers and D. D. Paxton, consulting engineers, who together with Roger W. Haines described the first winter's operation of their own solar-heated building to the Society.

The engineers reported "no attempt can be made to evaluate performance in detail as yet."

But to attest to the fact that they did not suffer during last winter, they told the Society "the system has performed satisfactorily through the worst part of the winter, including a much cloudier than normal January."

To heat the building with solar energy, the engineers designed and built a south-facing flat-plate collector that forms most of the south wall of the building. The inclined collector uses heat from the sun to raise the temperature of water. Heat from the water stored in a 6,000-gallon underground tank is used as needed to warm the building.

Whether the solar-heated building is practical dollarwise, the engineers would only say that an "economic evaluation is not possible at this time."

Science News Letter, July 6, 1957

FORESTRY

Fertilizer Increases Fir Trees' Growth

➤ GROWTH of young Douglas fir trees can be doubled by use of nitrogen fertilizer.

Two University of Washington professors report fertilized 30-year-old trees add 65% more timber volume a year than non-fertilized trees.

Drs. S. P. Gessel of the college of forestry and R. B. Walker of the botany department made public the results of research that started in 1951. Studies of cost factors are being made.

Commercial Christmas tree growers are specially interested because the fertilizer improves the appearance of young trees while speeding their growth.

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IN SCIEN

PHYSIOLOGY

Tranquilizers Help Mice Survive Drowning

➤ NEWBORN rats and mice survive total immersion in water twice as long as usual when treated in advance with chlorpromazine, a tranquilizer.

This is the finding of Dr. William A. Hiestand, Purdue University professor of physiology, who believes that chlorpromazine-treated animals can survive drowning because the drug reduces their body temperature greatly.

Newborn rodents can carry on some breathing through the skin, enough to permit them to withstand underwater treatment that would snuff out the lives of older rodents. When their body temperature is lowered by chlorpromazine, the metabolic process slows, decreasing the oxygen demand.

Previously, Dr. Hiestand verified studies on the temperature effects of chlorpromazine, finding chlorpromazine-treated animals cooled in a water bath lose 24 degrees centigrade body temperature, in comparison to the one- or two-degree loss in control animals not given chlorpromazine.

Science News Letter, July 6, 1957

HORTICULTURE

Aluminum in Soil Affects Hydrangea Color

➤ ALUMINUM in the soil has been identified as the cause of puzzling and costly variations in the hydrangea blossoms' color.

Scientists at the U. S. Department of Agriculture's research center in Beltsville, Md., found the same pigment, anthocyanin, in blue and red flowers. The difference was that blue flowers contain more aluminum than the red.

The presence of aluminum in the soil also intensifies four yellow pigments found in hydrangea flowers for the first time. These pigments are present in the flowers, regardless of their color. USDA scientists believe the ratio of these yellow pigments to the blue may determine the kind of off-colors, such as magenta, mauve and lavender, that florists dislike.

Acid soil does not in itself cause changes in plant pigments, as had been thought. However, mildly acid soil can not supply much aluminum to plants and, in general, the greater the soil acidity the more aluminum available.

Drs. Sam Asen and N. W. Stuart, plant physiologists, Agricultural Research Center, and H. W. Siegelman, horticulturist, Agricultural Marketing Service, who made the study, reported that a system of nutrient control, including chemical supplements, can probably be worked out to give dependable hydrangea color.

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CE FIELDS

PALEONTOLOGY

Dinosaur's Thigh Bone Found in Marl Pit

➤ THE THIGH BONE of a duck-billed dinosaur, described as one of "the most spectacular and successful ornithopod dinosaurs," has been discovered in a greensand marl pit near Sewell in Gloucester County, N. J.

About 24 inches long and as "big as a man's arm," the bone was identified by Prof. Glenn L. Jepsen of Princeton University as belonging to a species of trachodont. These giant lizards attained lengths of 30 to 40 feet and walked upright. Their skull and lower jaw were characteristically very broad and flat, similar to a duck's bill.

The thigh bone has been dated as approximately 70,000,000 years old. This was determined by measurement of the radiogenic strontium present in the greensand marl pit.

Additional excavation in the marl pit has revealed marine fossils, including the incomplete skeleton and shell of a sea turtle.

Science News Letter, July 6, 1957

PUBLIC HEALTH

Develop Glass for Radiation Detection

➤ IT CAN NOT be distinguished from window glass, but it can detect exposure to dangerous gamma radiation or X-rays, and tell how big a "dose" a person has received.

The new radiation-sensitive glass was developed by Dr. J. H. Schulman of the Naval Research Laboratory, Washington, D. C., and was described to the American Institute of Electrical Engineers, meeting in Montreal, Canada.

Made by dissolving silver metal into a melt of high phosphate-content glass, the crystal-clear substance glows a bright orange under ultraviolet light if it has been exposed to gamma or X-rays up to about 5,000 roentgens intensity. Rays of around 400 r can kill a human being. When the radiation is very intense, the glass darkens visibly in color.

These qualities make the glass useful as a detection device for persons working with nuclear materials who must know what "dose" they have accumulated for safety reasons.

For medical uses, a "needle" one twenty-fifth of an inch in diameter and a quarter of an inch long was made of the glass. Radiologists in several hospitals have found the tiny needle ideal for inserting into hard-to-reach spots such as cancer tissue and bone cavities, to record the amount of radiation these spots received under treatment.

Millions of roentgens must be used to kill bacteria in food which is being treated with atomic radiation to prevent spoiling. A little square of the radiation-sensitive glass on food containers could tell at a glance just how much sterilizing radiation the food had received. Food inspectors' jobs would then become easier if nuclear sterilization of foods should become widespread.

Approximately 3,000,000 little dose-meter "radiation lockets" for use by persons exposed to nuclear radiations have been made. Roughly the size of two quarters placed back-to-back, they cost about 50 cents each to make. Mass production may bring this down to ten cents.

Science News Letter, July 6, 1957

MEDICINE

Operation Re-Routes Fluid from Mouth to Eye

➤ AN OPERATION in which moisture from the mouth was routed to an eye that was drying up has saved the sight of a veteran, the American Medical Association learned at its New York meeting.

The unusual operation, believed the first ever performed in the United States, involved the transplanting of the parotid duct, a tubelike passage in the cheek. The transplant changed the flow of a fluid from the mouth to the eye, where the veteran's tear glands had stopped producing the needed eye moisture.

Similar operations have been performed in Russia and China, but the American case is thought unique because a second operation was necessitated to alleviate excessive moisture in the eye.

Both operations were performed by Dr. James E. Bennett, attending ophthalmologist at the Veterans Administration Hospital, Cleveland, Ohio. He was assisted by Dr. Arby L. Bailey, chief resident of ophthalmology at the VA hospital.

Science News Letter, July 6, 1957

TECHNOLOGY

All-Aluminum Subways May Replace Steel

➤ CANADIAN transportation engineers are learning that all-aluminum subway cars may cost less to run and maintain than the steel cars now in use.

Cars with aluminum bodies and underframes were strong, light and corrosion resistant, reported L. W. Bardsley of the Toronto Transit Commission to the American Institute of Electrical Engineers meeting in Montreal. It costs $66 a year per car just to paint and inspect steel cars, but the aluminum cars remained bright and shiny due to a protective oxide on the surface of the metal.

The aluminum cars were nine percent lighter than the 47-ton loaded steel ones, and each cost $531 less per year to run and maintain. Longer bearing, wheel and track life, and either more passengers carried at the same speeds, or a faster train schedule with the same number of passengers, accounted for the lower maintenance and operation costs.

Science News Letter, July 6, 1957

TECHNOLOGY

Advanced Design Helps Microwave Relay System

➤ A GREATLY improved microwave relay system capable of handling more than 10,000 telephone conversations, or 12 television programs plus 2,500 telephone conversations, has been developed. The television may be either color or black-and-white.

The system takes advantage of such advances in solid state electronics as the silicon rectifier, transistors and ferrite switches that can switch rapidly and automatically between regular and emergency equipment in less than a thousandth of a second, M. B. McDavitt of Bell Telephone Laboratories announced at the European Symposium on Radio Links, meeting in Rome, Italy.

The new Bell system, called "TH" for short, beams signals much like a searchlight beams visible light, with short wave, high frequency radio waves relaying the information from one line-of-sight "link" to the next.

The "TH" system is extremely rapid and efficient, providing increased capacity to handle information used in teletype and data transmission.

Present plans set the date for the installation of the new microwave system for late in 1959.

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PHOTOGRAPHY

Aerial Color Photos Used for Prospecting

➤ AERIAL color photography is being used by geologists and minerologists to get around the old problem of "not being able to see the forest for the trees." In their case, though, the forest is the earth itself.

Subtle shadings in mineral deposits, marking the dividing line between worthless rock and valuable minerals, are easy to overlook if you are on the ground.

Hycon Aerial Surveys, Inc., Pasadena, Calif., is using an old Indian trick to skim over this obstacle in the U. S. and South America.

When the Indian in new country wanted to find out if buffalo herds passed by recently, he would climb the nearest hill and look out over the land. Buffalo trails would stand out as light green swaths cut through dark green prairie grass. Seen up close, the "trails" would merely be tousled blades of grass and no path could be found.

Instead of hills, Hycon is using fast twin-engined aircraft with "guns" loaded with color film. Changes in shade or tone on the film give a skilled interpreter an idea of what mineral deposits the plane flew over and where they were.

Three-dimensional photo-interpretation and infrared photography as well as color photography are giving such persons as foresters information on the health and resources of their timberland, uranium hunters clues to otherwise invisible deposits, and oilmen, geologists, city planners and prospectors a wealth of data about their respective areas of study.

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