

MEDICINE

Gamma Globulin Makes Antibiotics Stronger

► ANTIBIOTICS can be made more powerful by combining them with gamma globulin, Dr. Burton A. Waisbren, Milwaukee County General Hospital, Wauwatosa, Wis., has found.

A combination of the antibiotic Chloromycetin and gamma globulin, a sterile solution of antibodies found in normal human blood, was able to stop infection in cases where "vigorously administered" antibiotics had been useless by themselves.

The combination was first tried in three patients whose conditions were leading to complete invalidism and early death despite heavy doses of drugs, Dr. Waisbren reports.

The results exceeded expectations by apparently curing three hopelessly ill individuals. Next, the combination was tested in a larger series of cases.

Reporting on 10 out of 46 cases in the *Antibiotics and Chemotherapy Journal* (June), Dr. Waisbren found "rather marked improvement." Six of these cases had not been helped by prolonged doses of antibiotics alone.

The addition of gamma globulin to antibiotics was "suggested to us" by Dr. Myron W. Fisher of Parke, Davis & Company, Detroit, Mich., who found that the gamma globulin could increase the curative action of an antibiotic by as much as 50 times in animals, Dr. Waisbren says.

It is possible that gamma globulin alone could have produced the same results but this is doubtful.

In three cases where gamma globulin alone was given, the results were not as satisfactory as when antibiotics were added.

Science News Letter, August 31, 1957

ANTHROPOLOGY

Ape Men More Often Hunted Than Hunters

► THE APE-MEN of Africa who may have been our direct ancestors were probably the prey of the wild animals of their day, not the hunters.

Among the fossil bones remaining from these Australopithecines there is a very high frequency of jaws, skulls and upper cervical vertebrae. Of the hundreds of bones that have been discovered, there is not one single whole limb. And among the thousands of bones of other animals found with the Australopithecine remains, there is a very high frequency of heads.

This peculiar outnumbering of skulls has given rise to speculation among some anthropologists that the Australopithecines were hunters, and particularly head hunters and trophy keepers like your sportsman friend who puts up the elk head over his mantle.

To throw more light on this possibility, a study has been made of the eating habits of wild carnivores on the Wankie Game Reserve, Southern Rhodesia, Africa. Results of the study are reported by Dr. S. L. Washburn of the University of Chicago in the *American Anthropologist* (Aug.).

He found that the "selective eating" of wild animals could account for just such peculiar preponderance of head bones as had been found in the Australopithecine remains.

Of 35 wild animal kills examined by Dr. Washburn, the skull was missing from only one, while in a third of the kills, the skull and closely associated parts were all that were left.

Dr. Washburn concludes that the reason so many primate fossil remains are restricted to teeth and jaws is because these are the least edible parts of the animal. They were what was left when the beast, or beasts, of prey had chewed up the other parts.

Anthropologists are greatly interested in just when in the course of evolution men became hunters because hunting involves so much advanced behavior. The hunter must be developed enough in intelligence to invent tools or weapons to kill his prey and must be developed enough socially to cooperate with a group and to share food with his fellows.

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ANIMAL PHYSIOLOGY

Blindfolded Bats Find Way Home Over 60 Miles

► BATS TAKEN out of their cave and transported up to 60 miles away can fly straight home even though they have been blindfolded, Dr. H. C. Mueller and J. T. Emlen Jr., University of Wisconsin, Madison, reported in *Science* (Aug. 16).

The bats were taken out of an inactive lead mine in southwestern Wisconsin and identified with distinctive markings painted on their wings. They were transported eastward and released at spots from five to 60 miles away from the cave. When they came winging back into the cave they were caught in a net, and their exact time of arrival was recorded.

Homing speeds ranged up to 19 miles per hour, indicating that the bats got their bearings quickly after release and flew straight home.

Six percent of the 60-mile group made it back while 72% of the five-mile group came back.

To test the effects of vision on their homing ability, 25 of the bats were blindfolded with eye caps made from lamp black and collodion.

In general, these performed as well as the bats that could see.

Bats are known to detect objects in their paths by the location of echoes and are even capable of learning landmarks and complex room arrangements that way.

But other studies have suggested that the type of bats used in the homing experiment can only use this hearing sense for a distance of about 10 yards.

This makes it hard to believe that the bats could attain an "auditory familiarity" with an area of 50 or 60 miles in radius.

This hearing sense, the authors conclude, may be involved in homing ability, but it does not offer a complete explanation of the phenomenon.

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IN SCIEN

MEDICINE

Cirrhosis of Liver Ranks In Top Ten Death Causes

► CIRRHOSIS of the liver is now among the ten leading causes of death in the United States, the Metropolitan Life Insurance Company has reported.

Eighteen thousand Americans died of the disease last year. In one age group, 45 to 64, it is outranked only by heart disease, cancer and cerebral hemorrhage as a cause of death.

Cirrhosis of the liver is a condition in which liver cells begin to die and the victim becomes weak, mentally dull and yellow from jaundice. More than one-fourth of the deaths from the disease are reported to be associated with alcoholism, but the data appear incomplete.

Exactly what causes the disease is still unknown. It can be caused by chronic poisoning from either carbon tetrachloride or phosphorus but in the large majority of cases there is no known liver toxin.

In many cases, the condition remains latent and is never discovered until a post-mortem examination is made.

If the disease is recognized early and proper treatment is begun, recovery can be expected. Once jaundice has appeared, however, the outlook becomes grave.

Diet therapy is the most effective treatment available. Patients are urged to eat a diet rich in meat, milk, fish, eggs, fruit and green vegetables and are kept in bed most of the time if jaundice has appeared.

It generally takes several months for the treatment to show any results and the first signs of improvement are an increased appetite and sense of well-being.

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ENGINEERING

Engineering Salaries Reported Still Climbing

► THIS YEAR'S engineering graduates at the Illinois Institute of Technology, Chicago, have received an average of \$82 per month more for beginning jobs than did their predecessors only last year.

Taken as a representative class of graduate engineers throughout the country, the 1957 starting salaries indicated spiraling prices for new engineers is still the trend.

"Salaries have increased every year since 1938, when we began keeping records," Earl C. Kubicek, director of alumni relations and placement, said.

Then, graduates averaged \$100 per month.

January and June graduates at the Institute this year started work on an average salary of \$473 per month. Electrical engineers received the highest bids, averaging \$515 per month.

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CE FIELDS

ENTOMOLOGY

Radiation Makes Wasp Heat-Cold Resistant

► AN ALMOST microscopic wasp is being toughened with radiation in preparation for an attack on California red scale, a major pest of citrus orchards.

Dr. Paul H. DeBach and Ernest B. White, entomologists at the University of California's department of biological control in Riverside, are bombarding the wasps' genetic structure with X-rays. They then subject large numbers to extremes of heat and cold to obtain resistant survivors.

A variety of this parasitic wasp, originally imported from China less than ten years ago for the purpose of controlling red scale, that could survive extreme temperature changes could then be colonized and spread through citrus orchards. The wasp feeds on the red scale, an insect that causes millions of dollars in tree and fruit losses each year.

After studying more than 30 generations of the wasp, Dr. DeBach reported, "We are beginning to get an improvement in the insect's ability to withstand extreme heat and cold. How much of the improvement is due to X-radiation over selection alone is not yet evident."

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PSYCHOLOGY

Rats Reared in Dark Able to See Depth

► RATS CAN JUDGE distance or depth even when they are reared in darkness and are tested only 20 minutes after being brought into the light.

In an experiment designed to throw light on whether the ability to judge depth is learned or inborn, a group of scientists at Cornell University, Ithaca, N. Y., devised a purely visual cliff and watched the behavior of rats raised in the light as compared with those raised in the dark.

The visual cliff was prepared in this way: two thicknesses of glass were held parallel to the floor and four feet, five inches above it. A board four inches wide extending across the middle of the glass served as a place for the rats to stand. Between the two sheets of glass on one side of the board patterned wallpaper was inserted. On the other side, the glass was left clear but the floor and the walls below the glass were covered with wallpaper of the same pattern. On both sides, the glass was only three inches below the board on which the rats were placed.

Nineteen dark-reared, hooded rats and 29 light-reared litter mates were tested one at a time on the apparatus.

Of the light-reared rats, 23 jumped off on the "near" side where the wallpaper pattern could be seen only three inches down. Only three went down on the "optical cliff" side

where the glass shelf was clear and the bottom was visible 53 inches down. Three stayed on the board for the five minutes of the test.

For the dark-reared rats, results were practically the same.

Fourteen jumped off on the "near" side, three on the cliff side, and two stayed on the board.

For comparison, another ten rats, all light-reared, were tested in an apparatus in which the wallpaper was inserted between the glass sheets on both sides. These rats showed no preference for either side.

The experiment is reported in *Science* (July 12) by Drs. R. D. Walk, E. J. Gibson and T. J. Tighe of the psychology department at Cornell.

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MEDICINE

Heart Cases Get Instant Relief From Cold Plasma

► A RAPID, cold plasma injection that can bring a heart attack victim out of shock within 60 seconds is reported by Dr. Arthur Vogelsang, London, Ont., Canada, in the *Canadian Medical Association Journal* (Aug. 1).

The special technique was discovered by accident when an emergency patient arrived so near death that no time was allowed for the usual warming of the plasma from a blood bank.

"The result would need to be seen to be believed," Dr. Vogelsang noted in his report of the case.

Within 30 seconds the deathly pallor of the skin had changed to a natural pink, consciousness returned, and, at the end of a minute, blood pressure climbed back toward normal. The patient, a 60-year-old man, continued to make an uneventful recovery.

The severe shock and blood vessel collapse that can follow a coronary heart attack is one of the most appalling emergencies confronting a physician. Most authorities agree the mortality rate from the condition is at least 80%.

Dr. Vogelsang had tried rapid plasma infusions in earlier cases and obtained better results from this than from any other type of treatment. But it usually took more than an hour to relieve the shock and during this time additional damage was probably being done to the heart.

The new rapid, cold plasma treatment has since been tried on two more critical patients, both of whom were out of shock within one minute.

"All three patients, after becoming conscious, shivered violently and then broke down into a fit of sobbing for a few minutes. There were no other side effects," Dr. Vogelsang reports.

The dramatically quick effects probably come from the heart's being stimulated by the cold plasma. Once the heart contractions become stronger, the brain receives more oxygen and can regain control over the normal circulation processes which have stopped.

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PHYSIOLOGY

Brain Damage Related To Tooth Enamel Faults

► DEFECTS in the tooth enamel of brain-damaged children may give a clue as to when the brain was damaged, W. F. Via Jr., D.D.S., and Dr. J. A. Church, Henry Ford Hospital, Detroit, Mich., report in the *Journal of Diseases of Children* (Aug.).

Tooth enamel forms at a definite rate and, once formed, cannot be remolded or reorganized like most other tissues. But its growth is interrupted, causing enamel faults, by events which may also cause brain damage.

These include Rh blood factor reactions, prematurity, bleeding during pregnancy, toxemia, abnormal delivery and breathing difficulties immediately after birth.

By spotting enamel faults and checking medical histories for possible brain-damaging events, the time of the event can be more accurately dated and the cause confirmed, the authors report.

They studied 100 children born with brain damage and 100 apparently normal children. Sixty-eight of the abnormal children had enamel faults while only 10 of the normal children did.

Of the 68 abnormal children with teeth defects, 44 were found to have a history of potentially brain-damaging events which occurred at the same time the tooth defects appeared.

The brain and enamel may be damaged by the same process or the enamel may be damaged by disturbances caused by the already injured brain, the scientists believe.

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ICHTHYOLOGY

Hybrid Clams Faster Growing Than Purebred

► WHAT KIND of offspring result when a northern clam meets a southern clam is, as a result of some scientific prying into clam behavior, no longer a secret.

The hybrid offspring grow faster than those having both parents from northern waters, biologists at the Virginia Fisheries Laboratory, Gloucester Point, have reported.

For the past three years Dr. J. D. Andrews, Dexter Haven and Curtis Leigh have been carefully observing the offspring of more than 400 clams. During the summer months they have gone to the bottom of the York River and dug out the clams, making measurements of the bivalves. Each clam is numbered in red. This enables the biologists to tell where its parents originated, when it was planted and how much it has grown since the last inspection.

The hybrids are approximately two inches long now while the northern clams are only a little more than one and one-half inches. The offspring of southern clams did not survive the second winter.

The biologists believe that one day clam "growers" may be able to improve the yield and quality of their "crop" by hybridization just as the farmer now does with his land crops.

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