

MEDICINE

Sewage Tests Give Lead In Infantile Paralysis War

A NEW lead for the attack on the still unsolved problem of how infantile paralysis spreads from one patient to another appears in a report by Drs. John R. Paul, James D. Trask and C. S. Culotta, of Yale University. (*Science*, Sept. 15)

During the epidemic in Charleston, S. C., this spring, the Yale investigators discovered infantile paralysis virus in the sewage in that part of the city where most of the patients were concentrated. This is the first time infantile paralysis virus has been found in sewage, although evidence has accumulated within the past two years suggesting that the virus might get into sewage systems in the same way that typhoid fever germs can get there.

The discovery may mean that sewage is a link in the chain which leads infantile paralysis from one patient to another. The Yale investigators state that their work does not show whether this is the case or not.

Science News Letter, September 30, 1939

PUBLIC HEALTH

Teach Night Driving To Reduce Accidents

MOTORISTS when first learning to drive an automobile should be given some of their instruction in driving at night, the American Medical Association suggests. The fatal motor accident rate at night, on the basis of traffic, is more than three times the accident rate during daylight, it is stated.

Night driving involves a different technique from day driving because of the difference in visibility and in the reactions of the driver. The hazard of falling asleep at the wheel is naturally greater at night, and even if the driver does not actually fall asleep he is likely to be more tired and less alert than during the daytime hours. The menace of the drunken driver is also greater at night, it appears. A report of the National Safety Council shows that more than three-fourths of the accidents in which the driver had been drinking occurred between 6 p.m. and 6 a.m.

Besides being responsible for his own condition, and for his skill in driving at night, the driver is responsible for the condition of his car. Headlights, it should be remembered, lose as much as half of their effectiveness in a short time unless they are kept clean and adjusted.

On the matter of speed, drivers are

advised that they should lower their speed at night in order to keep their safe stopping distance within the range of clear visibility.

The pedestrian also has some responsibility in night motor accidents. Too many pedestrians make the mistake of thinking that because they can see the headlights on the automobile, the driver can see the pedestrians. This is not necessarily the case. Pedestrians are urged, for their own safety, to wear light clothing and to carry a light when walking on the roads in rural districts at night. Even carrying a white handkerchief would help considerably to make them visible to the approaching motorist.

Highway officials are responsible for the design and maintenance of the roads and also for installing adequate signs and warnings designed for good visibility at night. The Safety Council suggests that they consider installation of good illumination of heavily travelled and dangerous main roads and flood-lighting of railroad crossings, intersections and other special danger zones.

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MEDICINE

War On Infantile Paralysis May Be Advanced By Rats

RATS promise to allow the search for a cure or preventive of infantile paralysis (poliomyelitis) to go ahead at full speed regardless of war or financial considerations.

Dr. Charles Armstrong of the U. S. Public Health Service has succeeded in giving the disease to rats. Before this latest accomplishment at the National Institute of Health, scientists trying to control poliomyelitis had only monkeys and children as guinea pigs for trial of new preventives or treatments. No other animals but monkeys and humans were known to contract the disease.

Monkeys, the standard animal for poliomyelitis research, are costly, both to acquire and to keep. At present the purchase price is about \$10 per monkey, but it is expected to rise as war interferes with importation of the animals. The price of a rat, on the other hand, runs around 60 cents and is not expected to fluctuate because of war.

The infantile paralysis virus has now been carried through seven transfers in the Eastern cotton rat. More studies are needed, Dr. Armstrong said, to determine how susceptible this animal is to the disease, before much can be said about how valuable the rat may be in speeding the infantile paralysis fight.

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IN SCIENCE

PSYCHOLOGY

Monkeys Could Use Tools Long Before the Apes

LONG before man evolved, or even the higher apes, such as chimpanzee, gorilla or orang-utan, arose in the long millenia of biological development, tools were being used. You don't have to be a man to use tools, monkeys can use them with relatively high intelligence and even insight. Dr. Carl J. Warden, Columbia University associate professor of psychology, has completed tests on Old and New World monkeys with food as the incentive that causes the animals to use their brains and hands intelligently.

A tempting morsel was placed outside the cage out of arm's reach. Nearby was a rake that could be used to hook it, a simple problem almost too easy. It was more difficult when the nearby rake was too short but could reach a longer rake outside another side of the cage and this rake could reach the food. This required brain and hand work.

Some monkeys would use up to eight progressively longer rakes to reach food. This takes thinking through a problem, what psychologists call insight.

Significant fact: Chimpanzees, and presumably men, without frontal lobe of their brains, cannot solve such problems. With animals so deprived, out of sight is out of mind.

Observes Dr. Warden:

"Failure to get the food caused some of the monkeys to act very much like spoiled children. When the problem became too difficult for some of them to solve they flew into a tantrum, kicking their feet, biting the rakes and tearing their hair. On the other hand success often made them eager to continue using the tools. A difference between the abilities and temperaments of the individual monkeys was distinctly noticeable."

Interesting speculation: If man had evolved from New World stock instead of from the same lower animals as Old World monkeys and higher apes, he might be more intelligent. Dr. Warden found that the New World monkeys learned "far more quickly than those from the Old World."

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E FIELDS

PUBLIC HEALTH

Unstable Societies Suffer From Ulcers, Coronary Ills

THOUGHTS for our rushing daily life from Prof. L. J. Henderson, Harvard chemist-physiologist, contained in his paper before the Fifth International Congress for the Unity of Science:

When societies are too unstable, individuals suffer. Disease of the coronary arteries, gastric ulcer and duodenal ulcer are most frequent in unstable societies. An index formed by adding appropriate measures of the incidence of these diseases and of divorce, and subtracting a measure of attendance at church, might sometimes run more or less parallel with an index of industrial development.

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ZOOLOGY

Worms Have Own Rules For Growing New Heads

CUT AN angleworm in two and what do you have?

Two worms, says the common or garden variety of natural-history observation. Two worms—maybe, says science.

The head-end half of a bisected angleworm usually grows a new tail-end, but the tail-end half can grow a new head only under certain conditions, states Dr. Libbie H. Hyman of the American Museum of Natural History. Dr. Libbie has bisected many more worms than most of us do, and what is more has kept them under close observation afterwards, which the rest of us don't bother to do.

Growing a new tail on the head-end half is no trick for a worm. Even without bisection, worms are constantly adding to their stature (horizontally) by growing new segments in the after part of their bodies, just forward of the rearmost segment. So when they are chopped in two, whether accidentally or on purpose, all the front half needs do is continue the natural order of things.

Growing a new head-end on the amputated tailward half is more of a job. It might not seem so to a superficial observer, who can see no more head or tail to an angleworm than there is to a piece of boiled spaghetti. But despite appear-

ances an angleworm does have a head—enough to provide a local habitation for that all-necessary organ, the mouth, and to accommodate the simple brain that suffices for an angleworm's needs.

The head-forming potential in an angleworm seems to be tied up very closely with its nervous anatomy, which consists principally of a double chain of nervous tissue running along the underside of its body. The farther forward the cut is made the easier it is for the decapitated annelid to re-capitate itself, for the forward end is in head-dominated territory, speaking in terms of the animal's body polarity. If the cut is made so far aft as to be in tail-dominated territory, no new head can be formed.

Strangest of all, if partial cuts are made, severing the nerve-chain at several points in the head-dominated part, a new head will crop out at each incision. Thus science has taken the old Hercules-and-Hydra story and gone it one better.

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PSYCHOLOGY

U. S. Starts Program Of Psychological Research

MORE than \$100,000 will be spent by Uncle Sam in psychological research in connection with the civil aviation training program.

This is believed to be the only fund set aside specifically for research in this field since World War days, when the Army intelligence test was developed by the nation's leading psychologists working cooperatively.

The new fund will be devoted mainly to improving methods of training although an attempt will also be made to develop aptitude tests for the best selection of young men naturally fitted to become good flyers, Dr. Dean R. Brimhall, of the Civil Aeronautics Authority, psychologist who is guiding the program, told a Science Service representative.

Universities all over the country will be asked to cooperate, he said, and the actual research work will be done in the university laboratories. It is hoped by this plan to secure the cooperation of the best minds in the field of occupational and educational psychology.

This is also a new departure, for the scientific research conducted by the United States Government has in the past usually been done only in Government laboratories or by Government scientists.

Aid has been asked of the National Research Council in selecting psychologists for cooperation.

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PHYSICS

"Sound Your A" Is Out Now It's On the Air

SWING bands may be guilty of every other felony in the musical calendar, but there's no excuse any longer for their being out of tune—or for more high-brow musicians, either, for that matter. Never again will it be necessary for one tuning-up performer to ask another to "sound your A, please." Uncle Sam is doing that all the time, now, through the National Bureau of Standards.

Station WWV, Beltsville, Md., with a frequency of five megacycles, is now keeping continuously on the air the musical tone of A above middle C, or 440 cycles per second. This is interrupted only during the short periods of other Bureau of Standards broadcasts on the same radio carrier frequency. To insure identification of the station, the call letters WWV are given every ten minutes both by voice and in telegraphic code.

The accuracy of the 440-cycle standard pitch as transmitted is better than one part in ten million, which is far beyond any musical requirement.

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PHYSICS

Polaroid Lenses Can Be Ground to Prescription

BBETTER protection against sun glare while driving is promised by the latest development in the use of polarized light, eyeglasses with polaroid lenses ground to the proper oculist's prescription to correct defective vision.

Thousands of billions of little crystals per square inch imbedded in cellulose plastic, each standing parallel to the others like well-drilled soldiers, pass through polaroid's glare defense lines only light vibrating in one plane. Such anti-glare glasses with plain lenses have been available for several years, four-eyed drivers wearing two pairs of glasses and thus becoming six-eyed to blot out the high-lights and shine. It took American Optical Company five years to perfect sandwiching the anti-glare stuff (much as auto safety glass is manufactured) between optical glass that can be shaped like ordinary glass lenses. The future: How soon will auto manufacturers get together and put polaroid in all headlights and windshields to end the menace of headlight glare on highways? That is a method successful only if all cars are so equipped.

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