MEDICINE

Most Headaches Start Elsewhere Than the Head

MOST HEADACHES do not originate in the head.

The cause of a headache usually is not in the head, Dr. Adrian M. Ostfeld of the University of Illinois College of Medicine, Chicago, Ill., reports. About 95% of headaches result from conditions elsewhere in the body, he explains in an article in Today's Health, March 1960, a publication of the American Medical Association.

Such a simple thing as poor ventilation in a room, which results in an imbalance in the air you breathe, may cause a headache. Again, if you run a fever for any reason, the system is in an abnormal state and headache may result. If you skip a meal, your head may ache.

Concentrating on a task too long can result in muscle strain which may lead to fatigue and headache. The headache is probably the result of a release of a "pain substance" from nerve ends in the scalp, at the same time the arteries in the head have become dilated due to one cause or another.

The most common type of headache results from concentration on, or preoccupation with, something for too long a time. It is also the easiest to cure and usually will disappear with a change of position, relaxation and aspirin.

"Oddly enough, acetylsalicylate, aspirin, is an old standby, but we are still not exactly sure what it does do," Dr. Ostfeld reports.

Present medications have their place but they all have short-comings. The ultimate drug will act on the pain substance and thus control the headache safely. This depends upon advances in tissue biochemistry which may take several years.

"One problem is that you cannot give headaches to laboratory animals; this research has to be done in man," he points out.

Unpleasant as they are, headaches serve as an important warning signal of both mental and physical problems. But he stresses that brain tumor, often feared by persons with recurring headaches, turns out to be the cause in only about three out of 1,000 cases.

Science News Letter, March 12, 1960

PUBLIC SAFETY

Air Travel Still Safe, U. S. Statistics Show

FLYING AT HOME or abroad in a scheduled U. S. airliner is about as safe as ever and far safer than driving, statistics being compiled indicate.

The Bureau of Safety of the Civil Aeronautics Board, Washington, D. C., is now compiling and analyzing 1959's crashes, in which 270 persons died from crashes of scheduled U. S. airliners here and abroad. The number of passengers carried is estimated at 52,784,000.

Per passenger mile, 1959 is likely to be a bad year compared to 1958. But compared with an average of the last decade or more, 1959 may be considered a fairly safe year.

Thus 1959 will have a rate of less than one person killed for every 100,000,000 passenger miles flown. For each 100,000,000 passenger miles driven in automobiles and taxis, there are nearly three deaths.

In the first two months of 1960, two fatal crashes of scheduled U. S. airliners have caused 75 deaths—a higher number than the average in two 1959 months. The first 1960 crash on Jan. 6 near Wilmington, N. C., has been traced back to explosives aboard the plane. The other crash was Jan. 18 near Holcroft, Va.

But statisticians say no conclusions can be drawn from figures that cover just two months. Even yearly statistics, they say, are inadequate for good comparisons. Accidents, by their nature, are too random.

Science News Letter, March 12, 1960

ENTOMOLOGY

Test Insect Eradication On Tiny Pacific Islands

U. S. DEPARTMENT of Agriculture entomologists are preparing to test new methods of eradicating fruit flies on tiny Pacific islands.

One of the methods, which has proven very successful against the screwworm in the U. S., is sterile-male release. Large numbers of flies made sterile by radiation will be dropped from planes to mate with native flies. Since the resulting eggs cannot hatch, the population will be greatly reduced. Continued flooding with sterile males could eventually wipe out the flies altogether.

Another method, known as male-annihilation, will involve distributing poisoned lures to attract and kill males before they reach sexual maturity. Continued use of this method also promises eradication.

Rota, one of the Mariana Islands, has been chosen for the sterile-male release test. The male-annihilation experiment will take place on the Bonin Islands.

After the tests, the different methods will be compared as to cost, effectiveness and feasibility.

Science News Letter, March 12, 1960

CONSERVATION

Natural Enemies for Insect Pests Preferred

FARMERS NEED "sophisticated" killing methods for destroying pests, Dr. Stanley A. Cain, chairman of the department of conservation at the University of Michigan, at Ann Arbor, Mich., reported. He said most poisons kill many more creatures than the types of poisons are aimed at. This "blanket" killing through the use of DDT and similar chemicals upsets the balances of nature. "Sophisticated" killing may be accomplished by introducing a natural enemy of the insect or animal to be destroyed.

Science News Letter, March 12, 1960

IN SCIEN

CHEMISTRY

Liquid Helium 3 Gives Theory How Liquids Act

UNUSUAL properties of one of the rarest of all chemical elemental forms, helium of atomic weight 3, are giving scientists new ideas on why and how liquids are liquids.

At extreme temperatures near absolute zero (0 degrees Kelvin) (273 degrees below zero centigrade) helium engages in strange and puzzling antics. Ordinary helium of mass 4, ordinarily a gas at normal temperatures and pressures, becomes a liquid when chilled and remains a liquid even at absolute zero.

Prof. J. G. Daunt, Ohio State University physicist, has been working with the mass 3 helium isotope at low temperatures, now that it has become available through the U. S. Atomic Energy Commission as the result of radioactive disintegration of tritium or triple weight hydrogen.

Unlike its heavier isotopic brother, helium 3 does not seem to exhibit superfluidity, which means the liquid sort of runs up hill. Sound is propagated strangely in ordinary liquid helium in two different ways, but the triple helium shows what theoretically is called zero sound.

Prof. Daunt's experiments, presented in the journal Science, 131:579, 1960, suggest that by advanced magnetic cooling temperatures should be pushed still closer to absolute zero to measure high-frequency sound propagation and attenuation and scattering of light.

Science News Letter, March 12, 1960

PHARMACOLOGY

Antimalarial Drug Used As Local Anesthetic

A DRUG used successfully in treating malaria and chronic arthritis has now been found to be a good local anesthetic as well.

Dr. Edward H. Mandel of New York City reports in the current Archives of Dermatology, 81:260, 1960, that chloroquine dihydrochloride "meets all the requirements of a good local anesthetic."

In speed of action and effectiveness it compares favorably with both novocaine and xylocaine, although it is chemically unrelated to these common anesthetics.

In a group of 31 unselected patients, Dr. Mandel reports, the drug produced in all cases prompt effective local anesthesia that proved adequate for the performance of skin surgery.

No systemic or local toxicity has been observed. A disadvantage, however, is the fact that the drug causes prolonged bleeding at the sites of scalpel surgery. This anticoagulant property was unaltered by the presence of epinephrine.

Science News Letter, March 12, 1960

CE FIELDS

TECHNOLOGY

Machines Speed Up But Men Do Not

EVEN EXPERIENCED pilots sometimes misread clock styled instruments by as much as 1,000 feet, Dr. Leonard Carmichael, secretary of the Smithsonian Institution, told a safety conference.

But "a shift to direct reading dials with proper sized figures arranged like the familiar automobile mileage indicator when shown in a suitable window caused both reading time and number of errors to drop sharply."

Dr. Carmichael told the President's Conference on Occupational Safety in Washington, D. C., that the airplane dial problem illustrates the need for engineers to think about the operator of devices they design.

"Generations come and go without important changes in human anatomy or physiology but each year faster, stronger and more ingenious Frankensteins are created," he said.

"In 1909, at the first Gordon Bennett air race, the winning plane had an average speed of 47 miles per hour. Today speeds of more than 15 times this rate are not uncommon. But the accurately measured average speeds of the reactions of the human eye and of the human nervous system and of human muscles have not changed by a millisecond since 1909. It then, as now, requires at least one-fifth of a second for a human eye to initiate activities leading to muscle response after novel stimulation."

A jet pilot's reaction time, Dr. Carmichael said, is probably the same as the reaction time of soldiers in the days of Hammurabi in the 21st century B.C.

Science News Letter, March 12, 1960

ARCHAEOLOGY

Volcanic Glass Moisture Helps Date Old Objects

A METHOD has been found to determine the age of objects made from obsidian, or volcanic glass, more than 100,000 years old.

This archaeological dating method was accidentally discovered when two scientists set out to prove that the water contained in volcanic glass is absorbed from the outside and is not originally present in the glass when formed.

The surface of obsidian begins to absorb water as soon as it is formed, and the older the obsidian gets, the thicker the hydrated layer becomes. To determine the amount of time it had taken for the obsidian to absorb a layer of moisture, Drs. Irving Friedman and Robert L. Smith of the U. S. Geological Survey in Washington, D. C., used ancient man-made objects that had already been dated by carbon-14. Once the hydrated layers in objects of known age were measured, it was possible to date other obsidian objects by measuring the thickness of the hydrated layer on their surfaces.

However, much work is still required before exact figures can be obtained. One factor that determines the rate of hydration is temperature. The scientists believe that the hotter a climate is, the faster the obsidian surface will absorb moisture. Other factors to be investigated are relative humidity of any given area, and the chemical composition of the obsidian. The method is also useful for detecting fake artifacts.

Science News Letter, March 12, 1960

MEDICINE

Heart Disease Found With Radioiodine

UNSUSPECTED heart disease or suspicious heart disease symptoms may be detected by a relatively simple radioactive technique for measuring the flow of blood in the arteries of the heart muscle.

The technique was developed at the University of California, Los Angeles, Medical Center, by Drs. Ismael Mena, Leslie R. Bennett, Mark Winfield and Albert A. Kattus.

A very small amount of radioiodine compound is injected into a vein. Two scintillation counters, one placed over the heart, the other over the brain, follow progress of the compound as it goes to the heart and thence into the arterial system feeding the brain.

The difference in the rate at which the radioactive compound clears the heart and the brain is due to the flow of the compound into the heart blood vessels. In coronary heart disease some blood vessels of the heart are blocked.

Thus the flow of the radioactive material into the heart blood vessels is impeded and the more severe the heart disease the less radioactive material that can flow into the heart arteries. In fact the rate of clearance of radioactivity from the heart and brain in heart disease patients is almost identical.

In studies with the new procedure the investigators have been able to detect heart disease in subjects with normal appearing electrocardiograms. In other cases it has helped to confirm other findings symptomatic of heart disease.

Science News Letter, March 12, 1960

PUBLIC HEALTH

Lab in Austria Will Test Water, Soil, Food

THE INTERNATIONAL Atomic Energy Agency is building a laboratory near Vienna, Austria, where radioactive analyses will be made of samples of air, water, soil and food from member nations that request the tests. The testing forms part of the agency's work in promoting health, safety and proper disposal of radioactive wastes connected with the peaceful uses of atomic energy.

Science News Letter, March 12, 1960

AGRICULTURE

Soaked Peas Yield More Abnormal Seedling

PEAS PLANTED directly in moist soil produce a higher percentage of healthy plants than peas soaked in stagnant water for 48 hours before planting.

Experiments by Alex. M. M. Berrie of the University of Glasgow, Scotland, and described in Nature, 185:622, 1960, indicate that the normal course of development in the pea can be altered by exposing the seed during germination to conditions that affect oxygen respiration.

The botanist planted four sets of peas of about 200 each. One set had been soaked in running water, another in stagnant water. A third batch had been exposed to an atmosphere of 20% carbon monoxide. The fourth set was planted directly in moist soil.

He found that those subjected to running water produced 175 seedlings, five of which were abnormal. Those exposed to carbon monoxide yielded 171 seedlings, nine of which were abnormal. The peas that had been soaked in stagnant water produced 129 seedlings, including 34 abnormal ones, and the directly planted peas produced 161 seedlings, seven of which were abnormal.

The peas soaked in stagnant water, therefore, yielded fewer seedlings and a higher percentage of abnormality.

Abnormal seedlings may be due to one or more of the following reasons, the researcher reports:

1. A disturbance of the normal metabolism during the first 48 hours of germination.

2. The removal by leaching of an essential water-soluble metabolite.

3. The accumulation within the seed of of a material that adversely affects growth.

Science News Letter, March 12, 1960

PUBLIC HEALTH

Man Must Learn to Live With More Poison

AS LIFE and industry get more complex, man must deal with more and more poison, Dr. John A. Zapp Jr., of the Du Pont Company's Haskell Laboratory for Toxicology and Industrial Medicine in Wilmington, Del., said.

Man cannot get rid of poisons without giving up automobiles and other benefits of industry, Dr. Zapp told the President's Conference on Occupational Safety in Washington, D. C. He said that careful tests with animals will indicate what levels of poisons can be tolerated without harm.

The body can cope quite well with small doses of poison, he said. Almost all food and water contain small amounts of lead and arsenic. Burnt toast and charred meat contain traces of well-known carcinogens (elements that induce cancer).

Toleration points are the all-important factor, Dr. Zapp said, and illustrated: two tablets of aspirin can cure a headache, 150 can kill.

Science News Letter, March 12, 1960