



#### NOTHING ABNORMAL

Early Stone Age people would not have made a "murder mystery" of this skull with a round hole evidently pierced by some heavy, pointed instrument, found in the upper cave at Choukoutien, China. It was apparently "natural" to die violently, in those days.

#### ANTHROPOLOGY

## Violent End Was 'Natural' To Earliest Human Beings

**V**IOLENT death, so shocking to modern sensibilities, was the "natural" mode of exit from earthly existence to people of the Old Stone Age. This was true over 500,000 years ago, in the days of Peking Man, earth's earliest known humans, and it was true less than 50,000 years ago, in the later part of Paleolithic time.

Studies of Peking Man remains reported by Dr. Franz Weidenreich of Peiping Union Medical College support earlier findings by the French scientist Henri Vallois and extend the date of "natural" violent deaths back to the half-million year mark and beyond.

Dr. Weidenreich based his study on the 38 known *Sinanthropus* skulls, and on seven skulls of later Old Stone Age date found in upper levels in the same series of caves at Choukoutien. In both groups of skulls, the majority of specimens carry evidences of violence: they are either caved in, as by a club, or pierced, as by a spear or stone knife.

Life was short as well as full of trouble, in the old Chinese caves. Fifteen of the

38 Peking Man skulls were of children under 14 years old, as shown by state of dental development. Not all the adult skulls could be assigned ages because the material was so fragmentary. However, of those that could be provisionally dated, three appeared to be less than 30 years old, three between 40 and 50, and one patriarch appears to have been over 50—maybe as much as 60 years old.

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#### OCEANOGRAPHY

## Water Pressure Helps Get Sea Bottom Samples

**A** NEW device for getting core samples from the ocean bottom, using the ocean's own depth pressure to drive the sampling tube into the mud, has been invented by Drs. Hans Pettersson and Borje Kullenberg of the Goteborg Oceanographic Institute in Sweden.

The first successful ocean-bottom core sampler was invented in the United States by Dr. Charles S. Piggot of the Carnegie Institution of Washington. This device

employs a small charge of cannon powder to force a long tube into the bottom, cutting out a core or plug, exactly after the manner of a market-man's watermelon sampler.

Such cores, brought to the surface and taken to the laboratory, can be studied in great detail to learn the recent geological history of the ocean bottom.

The Pettersson-Kullenberg sampler uses a similar tube, but instead of loading gunpowder into the chamber at the top, merely exhausts the air from it. When the lower end of the tube touches bottom it automatically opens a valve which permits the great pressure of the water at depth to act against this vacuum, forcing the tube downward. The inventors hope to be able to obtain 30-foot cores by their new method.

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#### PHYSIOLOGY

## Rumored "Pep Drug" Use By German Bombers Doubted

**A**RE GERMAN dive bombers drugged before the take-off, like horses before a race, to improve their performance?

Persistent though still unconfirmed reports state that they are and that the reports are the subject of scientific investigation in this country.

The "pep" medicines used for this drugging are said to be ephedrine, familiar to asthma sufferers, and benzedrine, known as "pep pills" to students who took them before examinations.

Scientific comment on the report is that even if true, it is doubtful if the "pep" chemicals would produce the desired results.

Both these chemicals raise the blood pressure. Many persons who have suffered from low blood pressure and been treated with ephedrine can testify to its "pepping up" effect. Benzedrine is useful in the sleep disorder, narcolepsy, because of its wake-up effect. This is what prompted college students to use it before examinations. Because benzedrine is a dangerous drug, medical authorities look upon its use in this way with disapproval.

At first glance it would seem that either or both of these might well improve the performance of dive bombers. To scientists, the catch is that there is little or no evidence to show that blood pressure is lowered during rapid descents from high altitudes. If the blood pressure is not significantly lowered, there would be no scientific reason for giving either ephedrine or benzedrine to raise it.

It might even be dangerous to give these medicines. They are extremely

powerful chemicals, safe when properly used in certain conditions. Their action, however, has been studied on animals and patients with certain definite ailments. So far as can be learned no studies have been reported which would show

what their effects might be on a healthy dive bomber. Until such studies have been made, medical scientists would hesitate to recommend this use of the drugs for fear of possible disastrous results.

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## PUBLIC HEALTH

## Water May be Means Of Spreading Poliomyelitis

### Swimming Pools Another Possibility; Chlorination May Not Give Protection Against Paralysis Virus

**D**RINKING water and the water in swimming pools may after all prove to be a means by which infantile paralysis is spread.

Fresh evidence strongly supporting this old theory, which scientists in recent years have discounted, is reported by Dr. J. Emerson Kempf and Dr. Malcolm H. Soule, of the University of Michigan (*Proceedings, Society for Experimental Biology and Medicine*, June).

Chlorination as now practised to make drinking water and swimming pool water safe does not kill the virus of infantile paralysis, the Michigan scientists have discovered.

"The possibility that drinking water, adequately chlorinated according to accepted standards, may be a factor in the epidemiology of poliomyelitis (infantile paralysis) must be recognized as a result of these findings," they state in their report.

"As a corollary, attention is directed to the shortcoming of this method for the protection of swimming pool water since carriers may discharge the virus from the intestinal tract or the naso-pharynx and the chlorine content of swimming pools is apt to drop significantly during peak bathing loads."

The discovery that the infantile paralysis virus can survive in chlorinated water was made after several other scientists had found the virus in sewage in the Charleston and Detroit epidemics in 1939. The infantile paralysis virus was also found in the intestinal discharges of healthy persons in contact with infantile paralysis patients in a Detroit institutional outbreak.

While this indicated that water could carry the germs in the same way that it can carry germs of typhoid fever, scientists did not believe that drinking water was a means of spreading the in-

fantile paralysis virus. For one thing, big epidemics of the disease occurred in large cities with chlorinated and presumably safe drinking water. As recently as 1939 French scientists reported that chlorine in a concentration of four-tenths parts per million in tap water destroyed the virus.

In ordinary practise in this country, however, a residual chlorine content of one-tenth to two-tenths parts per million for one-half to two hours is considered adequate for the production of a safe water. The Michigan scientists have now found that "chlorine in a concentration of five-tenths parts per million, which is an amount in excess of that usually employed in municipal practise, did not inactivate the virus of poliomyelitis in one and one-half hours."

The idea that infantile paralysis could be spread by water is not new. Many persons are said to have been attacked by the disease after going in swimming. This method of spread, however, seemed unlikely to scientists after experiments which seemed to show that the virus of the disease is spread through the air and enters the body through the nerves of smell in the nose.

Drs. Kempf and Soule do not say in their report that the disease is not spread via air to the nose. They only show that the other method of spread via water is possible. They point out that more sensitive methods of detecting the virus of infantile paralysis in water are needed, and that because these are lacking, negative results of tests do not necessarily assure that the water is free from the virus. The germs of typhoid fever, for example, are seldom found by direct tests even though they may be present in the water supply.

The problem of finding a means of making drinking water free from infan-

tile paralysis virus by treatment other than chlorination is probably the next one public health scientists will tackle. On this point the Michigan scientists say: "Whether the aluminum hydroxide sedimentation process previous to chlorination would produce virus-free water cannot be answered in this paper."

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## PHYSIOLOGY

## Night Vision Sharpened By Drink on Previous Day

**H**ERE'S a surprise for motorists accustomed to well-founded warnings of the dire results of drinking before driving an automobile:

A cocktail or other alcoholic drink might make driving at night safer by improving the driver's ability to see in the dark. The drinking, however, must be done 24 hours previously in order to be effective.

This possibility is seen as a result of tests showing the effect of alcohol on vitamin A in the body. Lack of this vitamin, obtained from such foods as butter, egg yolk and carrots, leads to night blindness. Vitamin A lack can be determined either by special eyesight tests or by blood tests.

With the blood tests, Dr. S. W. Clausen and associates of the University of Rochester School of Medicine discovered that giving dogs two ounces of alcohol in water promptly increased the amount of vitamin A in their blood.

The same thing happens to humans, Dr. L. B. Pett, of the University of Alberta, now reports. Dr. Pett has been making daily eyesight tests for vitamin A on many people during the past two years.

"On several occasions unaccountably short recovery times (indicating higher blood vitamin A levels) have been observed the day following the taking of alcohol," he reports (*Science*, July 19).

The alcohol apparently mobilizes the vitamin A from its storage place in the body, presumably the liver, getting more of it into the blood for distribution to other parts of the body, including the eyes where it is needed for normal vision and for preventing night blindness. Dr. Pett's visual tests show that the vitamin not only gets into the blood under the influence of alcohol, but into the eyes where it improves ability to see in the dark.

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The United States now makes 96% of its dyes.