

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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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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## 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-

## 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.