

## MEDICINE

# New Kind of Ether Acts Faster; Recovery is Easier

**Anesthetic Made-to-Order to Meet Specifications Has Now Proved Its Value in Practical Use**

**A** NEW kind of ether, faster-acting and with few or none of the unpleasant after-effects of the familiar ethyl ether, is being used in a few selected hospitals throughout the country to ease the pains of mothers during the birth of their children, to bring quick, easy oblivion for teeth extractions, and for many other surgical procedures.

Only two years old, neither yet on the market nor ready for general use, but with a thrilling history already, the new anesthetic has aroused enthusiasm in some scientists who have tried it and doubt in others.

## Made-to-Order

It was made-to-order at the request of a scientist who wrote its name and chemical formula and predicted its usefulness as an anesthetic before it actually existed. Other important figures in the dramatic development of the substance are two Canadian physicians who made human guinea pigs of themselves to test its safety, and some five hundred patients in Philadelphia hospitals and over three hundred mothers, in a Montreal maternity hospital, whose records testify to its value.

It was Dr. Chauncey D. Leake, University of California professor of pharmacology, who figured out with pencil and paper that a substance known to chemists in theory only and which combined the structural characteristics of ethyl ether and ethylene would be a good anesthetic. The substance is divinyl ether, to call it by one of its several chemical names.

Drs. Randolph Major and W. T. Ruigh at Princeton University made it for Dr. Leake.

The human guinea pigs who gave it its first human trial were Drs. S. Gelfan and I. R. Bell of the University of Alberta. These dauntless scientists put each other to sleep with it before daring to try it on patients.

Before that, Dr. Leake and associates in San Francisco, following established scientific custom, tried the new anesthetic on laboratory animals, mice and dogs.

They found, as they had expected, that it put the animals to sleep more quickly and easily than ether or ethylene and that they came out of the anesthetic more rapidly and, generally, with less nausea or other complications. There were no significant harmful effects on the various organs. Divinyl ether puts human patients to sleep in a minute and a half and they come out of the anesthetic within two or three minutes. A great advantage to the surgeon is the fact that it is better than other common general anesthetics for relaxing the abdomen without paralyzing the muscles between the ribs which are part of the breathing apparatus.

It was first used at a surgical operation by Dr. Dorothy Wood, anesthetist at the University of California Hospital in San Francisco. The patient was a very fat woman, such as would be considered an unfavorable subject for operation. The operation itself was the difficult and lengthy procedure of removing the gallbladder. At this operation the practical advantages of the new anesthetic were clearly evident, Dr. Leake observed.

## Not Ideal

However, in reporting the new anesthetic to the American Medical Association he stated that divinyl ether is not the ideal inhalation anesthetic. For one thing, it is explosive, and for another, it may prove expensive to use. Then, too, it may decompose with the appearance of such dangerous irritants as formaldehyde and formic acid.

Dr. Leake hopes that further study of the theoretic action on the body of various chemical combinations, such as led to the development of divinyl ether, will some day produce a more nearly perfect or even the ideal general anesthetic.

Meanwhile, extensive investigations of divinyl ether with animals and patients have been made by a group of Philadelphia medical scientists, Drs. Samuel Goldschmidt, I. S. Ravdin, Edward Beach, Bald- (Turn to Page 294)



## RUINS OF A PERSIAN MOSQUE

*In the early days when the faith of Mohammed was spreading, Persia had ten mosques that received mention in historic writings. This strong-walled building now being excavated in the ruins of Rayy is thought to be one of the historic ten, the mosque of Al Mahdi.*

## ARCHAEOLOGY

## Seals Unearthed At Rayy Shed Light on Persian Past

**P**REHISTORIC Persia may at last be fitted into the jig-saw puzzle of the ancient world, it appears from new evidence unearthed at ruins of Rayy, in Persia.

In prehistoric ruins of unknown antiquity, archaeologists have found fragments of pottery with impressions of seal cylinders. These seals, it is hoped, will link the ancient Persians with Mesopotamia to the westward, and more particularly with some definite period in the stream of early civilization there.

Excavations at Rayy are revealing ruins and relics belonging to almost every age of Persia's past. The expedition, under joint auspices of the Boston Museum of Fine Arts and the Mrs. William Boyce Thompson Foundation of the University of Pennsylvania Museum, is investigating an area of nearly 50 square miles.

Discoveries just announced include these: Delightfully painted pottery made in prehistoric times; about 500 copper coins dating from 125 B.C. to 12 A.D., found in a well shaft; glazed and plain

pottery of the Islamic period, beginning in 645 A.D., and tablets bearing the name of Allah in Kufic; an Islamic mosque; a tomb tower of medieval days still containing fragments of the silk, brocade, wool, and cotton garments in

which the dead were wrapped. Solid gypsum vaults of the graves are held responsible for the preservation of the fabric through more than seven centuries.

*Science News Letter, November 10, 1934*

POPULATION

## Survey Changes in Quality Of America's Population

**A**MERICA is getting her growth. Soon—within the next sixteen years—she will have reached that state of national adulthood known to population experts as a "stationary population." Provided death rates and fertility rates remain exactly as they are at the present time, by the year 1950 young Americans will come into the world only just fast enough to replace those older ones who are dying. After that there is likely to be a period of slow decrease; but scientific prediction can not reach far into the future.

This is one of the conclusions of Dr. Frank Lorimer and Frederick Osborn in a new book, "Dynamics of Population," just published by Macmillan.

Description of a population as stationary only means that its numbers are not increasing. But the population will be far from static in other respects, for some sections or classes of the population are increasing and will continue to increase at a far greater rate than others. The "stationary population" may therefore be thought of as a brew disturbed by yeast, with some elements constantly foaming to the top and other elements gradually disappearing.

### Survey Raised Questions

The investigation reported by Drs. Lorimer and Osborn was undertaken to discover what elements in America's population are increasing more rapidly and which are the ones that are in danger of being lost. They raise the question: What are the physical and mental differences between these groups? What effect will the population changes have on American life in the future?

The class of unskilled labor is increasing, the scientists found, despite the fact that America is having less and less use for untrained workers. The rural population is increasing much faster than the city population despite

the fact that America needs fewer and fewer agricultural producers. And although the United States is making a great conscious effort toward improving the social condition of her citizens and toward spreading education, these efforts are being counteracted by the blind forces governing population growth. For the number of the intelligent is not increasing nearly so rapidly as is the number of those with inferior educational background. Furthermore it is probably true, although this is less apparent, that the number of those least capable of profiting from educational opportunities is also increasing.

### Mental Race Suicide?

"Present population trends are tending to create a serious economic imbalance between agriculture and industry, and perhaps between some other groups in our economic structure," the authors say. "There is an apparent very gradual but by no means negligible drift toward undermining our most precious inheritance, the capacity for high intelligence. Very certainly there is a strong force at work that runs exactly counter in its effects on social environment to our conscious educational efforts. And yet this whole set of forces, perhaps second in social importance only to the need for a more stable and equitable economic order, has remained largely neglected by social scientists."

The remedy, it is believed, lies fortunately in measures that also make for greater social good at the present. Slum clearance is one of these. Paradoxically, the less fit classes reproduce most rapidly in the crowded conditions of the slums, while the better classes have larger families when they are not crowded. Better housing with more room serves, it seems, to reduce the number of the less desirable and also to increase the numbers of the socially fit. The improvement of the conditions

of rural living is given even greater emphasis, as tending to reduce fertility in backward areas, and to attract superior families into the rural communities that will be our chief source of future population supply.

Some extension of sterilization is recommended, but it is pointed out that in view of the principles of modern genetics no far-reaching effects can be expected from preventing a few extremely handicapped individuals from reproducing. The spread of birth control is seen to be more important, so that these measures come into general use among the less intelligent as well as among the more intelligent. Economic provisions making possible early marriages and a change of attitude toward the large family are other possible steps toward preventing the loss of America's most precious heritage, intelligence.

*Science News Letter, November 10, 1934*

### From Page 293

win Lucke, G. P. Muller, C. G. Johnston and W. L. Ruigh. Not until they had given it to nearly five hundred patients of all ages and conditions and for very many kinds of operations, did they report their results.

Its advantages are such that they think it will probably have a definite place in the field of anesthesia. Because there is very little vomiting and the patient recovers quickly after divinyl ether, the Philadelphia scientists think this new anesthetic is particularly suitable for extracting teeth and minor operations after which the patient can be up and about.

Divinyl ether does have some effect on the liver, they found, and therefore some precautions must be taken in its use. These relate to the type of patient and the length of time he must be under the anesthetic.

Careful tests of the effects of divinyl ether on the liver of dogs showed that this anesthetic does not disturb the liver to any appreciable extent, Dr. Wesley Bourne and Douglas W. Sparling of McGill University reported to the Congress of Anesthetists. It has been given to over three hundred patients at the Royal Victoria Maternity Hospital in Montreal to vanquish the pains of childbirth. From observation of these cases, Drs. Bourne and Sparling reported that the new anesthetic seems particularly suitable for this purpose. They find it not a suitable anesthetic for laboratory dogs.

*Science News Letter, November 10, 1934*