

the patient lives in a dream world more or less oblivious to reality, 35 were free of all symptoms after treatment.

Doctors do not like to use the word "cure" but the layman would call these patients cured. Another 25 patients were improved. The other 79 showed no change after the treatment.

Used with considerable success in treating mentally sick people all over the world, the treatment has possibilities also, Dr. Katzenelbogen said, of adding to scientific knowledge of energy interchanges in the body and specifically of the body's utilization of sugar and of the role of insulin. For this reason, Dr. Katzenelbogen and associates, Drs. Alexander Simon, Anna R. Coyne, Charles E. Vigue and Robert Cohn, investigated the blood and brain wave patterns of the patients undergoing treatment.

## 'Flu Vaccine May Come

**A** VACCINE for protection against influenza and solution of the problems of virus-caused diseases such as infantile paralysis may be achieved by a new scientific approach described by Prof. Ernest W. Goodpasture, of Vanderbilt University School of Medicine, Nashville, Tenn.

This approach or technic, using chick membranes to grow viruses, may prove as valuable for the conquest of virus-caused diseases, though in a different way, as the new chemical, sulfanilamide, has proved for conquest of bacteria-caused diseases like streptococcus infections.

The anti-influenza vaccine particularly seems very close at hand. The virus of epidemic influenza, when cultivated on successive chick membranes, lost its disease-producing power to such an extent that it did not cause sickness when dropped into the nose. At the same time, it increased the level of the body's own flu-fighting forces in about one-half of those tested. Development of this weakened virus with good immunizing ability, which Prof. Goodpasture called "very promising for an eventual successful vaccine for human epidemic influenza," was achieved by Dr. F. M. Burnet and collaborators at the Hall Institute, Melbourne, Australia.

This and possible solution of other virus disease problems all hinge on the original discovery by Prof. Goodpasture and his associate, Dr. A. M. Woodruff, that the chorio-allantois of developing chicken eggs is an ideal substance on which to grow the virus that causes

fowl-pox. It has since been found that this same membrane of the developing chicken egg can be used for cultivating viruses of other diseases, including yellow fever and influenza, and for studying these viruses. Bits of human skin can also be successfully grafted onto the egg membrane and the grafts can be used to study virus infections.

Yellow fever vaccine, which has been used on over a million persons in South America, is now being produced from chick embryos.

Vaccine used to protect animals against the so-called horse sleeping sickness, which has spread to humans and killed several children last fall, is also being produced from virus grown on chick embryo membranes. If a vaccine is needed to protect humans from this animal plague, it may be produced in the same way.

Viruses such as cause these ailments and the more familiar infantile paralysis, unlike other disease germs, cannot be grown on chemicals outside the body. For this reason progress in the control of such diseases has lagged behind that in other diseases whose germs can be more easily cultivated and studied. Heretofore scientists have had to use laboratory animals and expensive monkeys in attempts to conquer the virus diseases. The chick membrane technic is far superior, Prof. Goodpasture believes, and should be more extensively used.

## Barrier Against Germs

**T**HE BODY'S Maginot Line against invading pneumonia germs, which bars their passage from lungs to blood, may have been located as a result of research reported by Dr. O. H. Robertson of the University of Chicago.

In the depression of the lung known as the hilum are lymph nodes which Dr. Robertson believes "may constitute the principal barrier to the passage of pneumococci from the infected lung into the blood."

The blood has certain natural pneumonia-germ-killing powers. Studying this during the course of pneumonia in dogs, Dr. Robertson found that usually so long as the blood could kill the germs, none could be found in the blood and the animal recovered. In numerous cases, however, the germs were found in the blood even when the blood had marked germ-killing ability. Given sufficient time, however, such blood, in test-tube experiments, was capable of destroying large numbers of pneumonia germs. Apparently the blood's (*Turn to page 221*)



### BOMBS FOR LIGHTING

*In each of these tiny glass capsules is a bit of metallic sodium, ready to be converted into gas that will give that easy-on-the-eyes golden glow to new lamps.*

ENGINEERING

## Explode Tiny Sodium Bombs To Produce Highway Lamps

**T**HE golden-hued sodium vapor lamps which are coming into use for highway lighting are produced by miniature "bomb" explosions, it is reported from the research laboratories of the General Electric Company.

The explosions are necessary to transfer the hazardous sodium metal, which burns when exposed to air, to the long glass tubes that become the source of the golden-colored light.

The sodium bombs are little capillary tubes filled with the proper amount of sodium. One sodium bomb is placed in the lamp tube and after the tube has been evacuated a high frequency coil is placed about the tube. The extremely short radio waves from this coil induce electrical currents in any metal in their path. The only metal is the sodium sealed in the thin-walled bombs. The induced current heats the sodium metal. Soon a sufficiently high temperature is obtained to make the metal burst its thin-walled container.

Thus the sodium is released into the outer tube and is ready to become part of the sodium vapor lamp. The tiny fragments of glass, at the most only six thousandths of an inch thick, are simply left inside as an undistinguishable dust.

*Science News Letter, April 8, 1939*