

line. The next step would be to use the tarry products from petroleum distillations for the same purpose. And finally would come the use of coal dust itself.

While America has not the immediate economic pressure for starting coal dust gasoline research, a decade hence the situation will be different. Government scientists, foreseeing this day, are itching

to get at the preliminary work so that when the time comes they can present a whole program to relieve the problem. At present what work has been done in the United States has been mainly in university laboratories, so much so, in fact, that the problem is principally of academic interest.

*Science News Letter, April 13, 1935*

ZOOLOGY

## Efforts to Grow Baby Rabbits in Glass Fail

### Attempts at Ectogenesis Are Temporarily Checked Because Hormones Act Only Through Mother's Body

**A**TTEMPTS at ectogenesis or "babies born in a bottle" have been checked, temporarily at least, because certain hormones necessary to the early growth of the egg and embryo act only indirectly through the mother's tissues.

Discovery of how these four essential hormones act was made by Prof. Gregory Pincus of Harvard University. Prof. Pincus' success in fertilizing rabbit eggs in a test tube, announced last year, attracted wide notice as a first step toward ectogenesis, a process long dreamed of by romantically-minded scientists. In this earlier experiment the eggs were fertilized in a test tube and then brought to birth within the body of a foster mother rabbit. (*SNL, March 10, 1934*)

His latest efforts were directed toward the next step, continuous growth of the eggs and embryos outside the mother, a feat as yet unaccomplished by scientists. Prof. Pincus tried to do this by adding certain gland products to the material in which the eggs were placed for growth outside the mother's body.

These are thyroid and pituitary hormones which affect the maturing of the egg in the ovary; oestrin, a primary female sex hormone affecting the later growth of the eggs; and progesterin, a female sex hormone affecting the growth and implantation of the eggs in the walls of the uterus.

Allowing the egg to develop normally and removing it from the mother's body after it had become implanted on the walls of the uterus, Prof. Pincus succeeded in keeping the embryo alive in a culture dish for about 48 hours. At this stage blood vessels began to form and the heart began beating but all attempts to keep the embryo alive beyond 56 hours

after separation from the mother failed.

Adding to the culture the hormones which brought the embryos through the same periods in the mother's body was also unsuccessful.

From the fact that the cultures still die at the same critical points, even after the hormones had been added to their nourishing growth medium, Prof. Pincus concluded that the hormones act on the eggs and embryos through the maternal tissues rather than on the eggs directly.

Prof. Pincus' attempts to grow the eggs outside the maternal body failed at the critical point in the development which has blocked previous attempts by other scientists. Normal cleavage of the cells followed fertilization and continued until 128 cells were formed.

At this point, when a cavity is ordinarily formed within the ball of cells and the embryo begins its growth, development outside the mother's body be-

came abnormal and the entire organism collapsed with irregular growth.

Further efforts to perfect a culture which will allow the eggs to get past the critical stage at which science is now stopped are progressing along three lines. In the first, the mother is injected with each of the hormones and the effects on the egg studied. Varying strengths of solutions of the hormones are being added to the cultures to learn possible effects in another method. Still a third line of attack takes the eggs placed in cultures or those of injected mothers and places them in new mothers. Results of these efforts are not yet available, since the research has just begun.

While other scientists have conducted research on the effects of sex hormones on female reproductive organs, Prof. Pincus' experiments are among the first to study the effects of these hormones on the egg itself.

*Science News Letter, April 13, 1935*

PHYSICS

## Lamps "Work Themselves To Death" to Overcome Fog

**F**OG, worst enemy of seafaring men approaching harbor, can be fought with a new weapon now. What and how, was described before a joint meeting of the American Physical Society and the Optical Society of America, in session at Columbia University.

The new trick in fog-conquering is to operate the electric lamps in light-houses at much more than their normal voltages during foggy periods. Gjon Mili, engineer of the Westinghouse Electric Lamp Company, disclosed that the bureau of lighthouses, U. S. Department of Commerce, has been



### TESTING FOR LIGHTS

*Gjon Mili is measuring, with a foot-candle meter, the intensity of light passing through a chamber filled with fog in the laboratory of the Westinghouse Lamp Company.*