

MEDICINE

Story Of Three-Year Sleep Told For First Time

Experimental Treatments, Including Transfusions, Serum, and Induced Fevers and Chills are Described

FOR the first time, the medical story of Patricia Maguire, the Oak Park, Ill., girl who has been sleeping for more than three years, is being told. Her family physician, Dr. Eugene F. Traut of Oak Park, has written his first report of the case. (*Journal of the American Medical Association*, April 6)

Although Miss Maguire has been asleep for more than three years, she has not broken the record for long-distance sleeping. Sixty-four other cases of prolonged somnolence have been reported, the editor of the medical journal points out, and some of them have been of longer duration than Miss Maguire's famous case. In her case, the period of complete somnolence was brief, the patient soon responding in some way to questions.

Miss Maguire went to bed on February 15, 1932, Dr. Traut's records show. This was ten days after she had first visited the doctor's office complaining of her inability to keep awake on elevated trains and of drowsiness at work.

Within three weeks from that first visit, she became irrational and was unable to swallow. Her temperature rose, her pulse quickened, she became rigid and there were other evidences of acute epidemic encephalitis, more commonly known as sleeping sickness. For two months the young woman had to be fed by a rubber tube through the nose. Her daily diet at that time consisted of four coddled eggs, one pint of milk, one pint of cream, the juice of six oranges, cooked cereal, thin custard, vegetable soup, brewers' yeast and, after her fever subsided, cod liver oil.

Her ability to swallow then returned, and she is now fed with a spoon.

Eleven months after she became ill, Miss Maguire had recovered sufficiently to stick out her tongue when the doctor asked her to. About that time she contracted pneumonia and for a time had to be placed in an oxygen tent. She convalesced from the pneumonia after serum treatment.

Then followed a long period of experimental treatments. She had a blood

transfusion from her healthy stepfather. Injections of serum from two persons who had recovered from encephalitis eight or ten years previously were given her twice a week for several weeks. After this she became more alert. Other treatments were tried—iodine injections, weekly chills induced by typhoid vaccine, fever treatments in heated cabinets and numerous other measures, none of which had any apparent effect.

For the last seventeen months, Dr. Traut has noted signs of returning intelligence. Miss Maguire is in a stupor about 80 per cent. of the time between 5 a. m.

and 8 p. m. During the night she is apparently in a deep natural sleep.

Most of the time during the day the young woman lies with her eyes closed, her arms tensely bent and her fingers clenched. She rolls about and groans.

His widely-publicized patient will now raise her hand or smile if she is asked to, the doctor reports. She will read and follow the same commands if they are written on a slate. When asked how many of five apples remain after two have been sold, she raises three fingers. Recently she has held her head up while sitting.

Her mother's requests get the best response; evidently she is able to distinguish her mother from other persons.

Dr. Traut describes Miss Maguire's present appearance as that of a well nourished person with good color. Her muscles, he says, are large and strong. Her temperature and pulse are normal. Her right leg has gradually become half an inch shorter and her right thigh is one inch less in circumference than the left.

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CHEMISTRY

Good Anti-Knock Gasoline Made From Coal in Germany

THE FAMOUS German I. G. chemical works of Oppau-Ludwigshafen have just completed a three months' trial run with a continuous process for making gasoline from coal. A thousand kilos (450 pounds) of coal yielded 600 kilos (270 pounds) of gasoline of good anti-knock quality.

Using the Bergius process of hydrogenation, powdered coal and heavy oil are mixed in a chamber with catalysts under a pressure of three hundred atmospheres and 460 degrees centigrade temperature.

Pressed by the lack of petroleum products within its boundaries and the lack of colonies which might produce petroleum, Germany for years has continued gasoline-from-coal research. The present trial run is one of the largest ever completed.

And Great Britain, just across the North Sea, has gone into the field, not because its colonies do not yield oil for gasoline, but to encourage the industry in event of war. The British Navy buys large amounts of British gasoline made from coal and low grade oils at high

prices to subsidize the industry and keep it going.

Gasoline from coal and low grade oils is technically possible but hardly profitable in America. It costs at least three times as much at the factory for a gallon of coal-made gasoline as for a gallon of the current American gasoline now on sale here.

With the warning of the U. S. Geological Survey that present petroleum reserves, if used at present rates, will last only another thirteen years, government scientists suggest, at every opportunity, that the United States should enter into a study of coal gasoline. The U. S. Bureau of Mines, while not doing this type of research at present, has the problem near the top of its list and will undertake investigations when very modest funds are appropriated.

From the American standpoint the main problem still to be solved is the optimum conditions for using American coals, which differ decidedly from European coals.

Already American oil companies have devised processes whereby low grade petroleum can be turned into superior gaso-

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.

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ZOOLOGY

Efforts to Grow Baby Rabbits in Glass Fail

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

ATTEMPTS 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.

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PHYSICS

Lamps "Work Themselves To Death" to Overcome Fog

FOG, 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 lighthouses 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.