

## PUBLIC HEALTH

# Present Sleeping Sickness Differs From Early Outbreaks

Rages in Summer Instead of Cool Weather, Attacks Older Persons Rather Than Young And Displays New Symptoms

**T**HE ST. LOUIS sleeping sickness outbreak differs in several respects from those of past years. It came in high summer, whereas previous outbreaks occurred in winter or early spring. It is attacking middle-aged and old persons for the most part; in earlier epidemics the young have been the chief victims. Furthermore, the symptoms by which a physician may recognize the disease show some differences from those of previously recorded cases.

These points are brought out in detail in a statement which has been sent to all state, city and local health officers in the country by the U. S. Public Health Service. The statement, which was written by Dr. James P. Leake, who is senior representative of the Public Health Service in the afflicted St. Louis area, is in part as follows:

"From August 7 to 25, inclusive, there were reported in the metropolitan area of St. Louis 213 cases of epidemic encephalitis with 28 deaths, a case fatality of 13 per cent. so far. It is apparent that the incidence for this outbreak will reach at least 30 per one hundred thousand population. Some of the cases date back to the latter part of July for their onset. Cases of apparently the same inception have been reported from other cities in Missouri and neighboring States, but it is to be remembered that so-called epidemic or lethargic encephalitis, and encephalitis not otherwise designated, have a yearly incidence throughout the entire United States similar in magnitude to poliomyelitis as judged from mortality statistics, usually without the marked seasonal and yearly fluctuation of poliomyelitis.

"Cases of lethargic encephalitis occur yearly in St. Louis, the heaviest preceding incidence having been in 1919, 1924, and 1932. Relatively fewer epidemics of this disease have been reported in the United States than in other parts of the world, the disease in the United States being apparently sporadic or endemic. Such outbreaks as have occurred in this country have been, as is

usual elsewhere, in winter or early spring. Preliminary data on age incidence show 19 per cent. of the cases among the 25 per cent. of the population which is under 15 years of age, with 10 per cent. case fatality in this age group. The incidence in this age group is about equally divided between those under and those over 10 years, and all 3 of the deaths in the group were in the former sub-division. Twenty-one per cent. of the cases have been in the age group 15 to 34 years, which comprise 35 per cent. of the total population, and there has been only 3 per cent. case fatality in this age group. Thirty per cent. of the cases have been among the 27 per cent. of the population which is 35 to 54 years old with 20 per cent. case fatality. Another 30 per cent. of the cases have been among those over 55 years old, who comprise only 13 per cent. of the population, and the case fatality in this oldest age group has been 30 per cent. In this respect also, as in seasonal occurrence, this outbreak differs from ordinary epidemic encephalitis, in which the maximum incidence tends to be in youth and the early adult years.

"There have been about 83 male cases to each 100 female, while among the total population concerned there are 96 males to each 100 females. The excess in females has been in the ages over 35 years. (Turn to Page 172)

## ETHNOLOGY

## Arabs Credit Elijah With Changing Melons to Stones

**C**HANGING melons to stones as a stroke of poetic justice against surly and stingy farmers is the miracle credited to the prophet Elijah by Palestinian Arabs to account for the round hollow boulders, some of them broken open to show the seed-like crystals lining their interiors, that litter the fields in the neighborhood of Mt. Carmel.

The legend of Elijah's melons has been dug out of the mass of native

folklore by Dr. Ephraim Ha-Reubeni of the Hebrew University in Jerusalem. It relates that once when the prophet and his disciples were walking along the highway in the noonday heat, Elijah asked some farmers if they might not have a few of the melons with which their fields are filled.

"Those are not melons, they are stones," replied a surly farmer.

"Let it be as you have said!" responded the prophet.

And the melons have been stones to this day.

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## BIOLOGY

## Life Checks Downhill Course of Energy

**L**IVING matter distinguishes itself from non-living matter most fundamentally in its ability to check the downhill course of energy, from higher forms to lower, toward a final dead level when there will be no energy differential at all in the universe and hence nothing happening at all. Entropy is what scientists have called this downhill rush of energy. Life arrests entropy, dams up the course of energy and makes use of it for its own ends, while the non-living is passive and helpless before it.

With this essential difference between living and non-living, Sir Frederick Gowland Hopkins, president of the Royal Society, introduced his presi-



ELIJAH'S MELONS

A "melon" is shown in its natural imbedded position at the top of the picture. The size of these peculiar boulders is indicated by comparison with the matchbox in the lower left corner.

dential address on "Some Chemical Aspects of Life" before the annual meeting in Leicester of the British Association for the Advancement of Science, of which organization he is also president.

The principal dammer-up of cosmic energy used by living things is chlorophyll, the green coloring matter of common plants. The energy captured from the sun by leaves runs practically all living things on earth today. But the earliest living things, Sir Frederick said, were hardly as complicated as modern higher plants. More probably they built up supplies of energy as some free-living bacteria still do, by the capture and use of wholly inorganic substances such as sulfur, iron and ammonia. A little higher in the scale are bacteria with a purple pigment that enables them to capture sunlight energy for use in building up food-sources of energy.

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#### PSYCHOLOGY

### Homesickness Preserves Family More Than Sex

**T**HE INFLUENCE holding the family is more homesickness than it is sexual, Dr. Beardsley Ruml, of the University of Chicago, told the meeting of the American Psychological Association in Chicago this week. And this feeling has other very important effects on society.

Milder forms of homesickness, known to the psychologist as "nostalgic sentiments," have to do not only with the place thought of as home, but with persons, time, and even with abstract symbols.

"They are the foundation of patriotism, nationality," Dr. Ruml said. "They operate to increase vocational and class stability and tend to promote conservatism in all forms."

"Aesthetic sentiments are in large part nostalgic, as is the romantic attitude generally. The large part played by nostalgic sentiments in religious experience is evident."

The longing for home and the familiar is not confined to any particular culture. It is commonly observed among primitive peoples. Even animals are affected, as is the dog.

Failure to properly evaluate the importance of nostalgic sentiments has seriously hampered the social sciences, and their application to statesmanship and social control, Dr. Ruml concluded.

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#### BIOCHEMISTRY

## Centrifugal Analysis of Blood Indicates Species Relations

### Rate of Pigment Separation at 75,000 Rotation Per Minute Is Basis of New Method Developed by Swedish Biologist

**U**SING centrifugal force some four hundred thousand times the force of gravity to study the relationship of animals is the latest achievement of Dr. Theodore Svedberg, of the University of Upsala, Sweden. In a lecture at the Woods Hole Marine Biological Laboratory, he described the application of this method to studies of blood of various animals.

The carriers of oxygen in the blood are colored substances called blood pigments. They are different in different animals, possessing differing molecular weights and structures. Therefore, if shaken up with a water solution they tend to fall to the bottom at different rates. To study these different rates at times short enough to be measurable it is necessary, however, to use forces that greatly exceed the force of gravity.

Dr. Svedberg has managed to produce this force by means of what is known as the ultra-centrifuge, a cell that holds the liquid to be tested, and is revolved at the terrific speed of 75,000 rotations per minute. To reduce friction it is necessary to have the entire rotating part of the apparatus in an atmosphere of pure nitrogen at a pressure about one-thirtieth that of the atmosphere.

It is as though an automobile were to keep turning a corner at a speed of about three hundred miles an hour.

Pictures are taken through crystalline quartz windows as the centrifuge revolves, and these pictures are then run through an instrument which measures exactly the density of the image, thus giving a more precise knowledge of where the blood pigment being tested was in the cell at the moment the picture was taken than is possible to the human eye.

From these studies it has been found that the blood pigments of some of the lower organisms are much more complex than man's, having molecular weights of the order of a million, as contrasted with the comparatively low one of 64,000 which is possessed by hemoglobin.

Dr. Svedberg suggests that the method may be used to tell different species apart in cases where the study of the form of the animal does not exactly place it in relation to the other animals of the same group.

Using a centrifuge that revolves at such high speeds is quite dangerous, for should some accident occur, the tremendous speed will result simply in an explosion.

"In the explosions we have experienced, the rotor has stayed inside the casing," Dr. Svedberg said.

This casing is made of special alloys, as are the other parts of the instrument, and is so constructed that the force of an explosion will be distributed partly to the foundation of the building.

Dr. Svedberg has carried back with him to Sweden for further study specimens of blood of several American marine animals, secured at the Oceanographic Research Laboratories, Woods Hole, Mass.

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#### PALEONTOLOGY

### Small Saber-Tooth Cat Found In Idaho Fossil Bed

**A** SABER-TOOTH cat species much smaller than the great tiger-sized animals made famous by the California tar-pit finds is represented by a jaw fragment from Idaho described in the current *Journal of Mammalogy* by Dr. C. Lewis Gazin of the U. S. National Museum. Another new species of extinct cat found in the same region resembles the modern puma or mountain lion.

These fossils were found among a mass of bones of extinct species of horses collected by paleontologists of the Museum. The stratum in which the find was made is of Pliocene age, perhaps two or three million years old, and dating before the coming of the great glaciers that once covered most of this continent.

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