

Oceanography, by Dr. T. Wayland Vaughan, formerly director of that institution.

The Daniel Giraud Elliot medal, with an accompanying honorarium of \$200, was awarded to Prof. Theophilus S. Painter of the University of Texas, in recognition of notable contributions to the science of genetics.

A second award of the Daniel Giraud Elliot medal, with honorarium, was made to Prof. Richard Swann Lull of the Peabody Museum of Natural History, Yale University. Prof. Lull is known for his work in paleontology; the award was a special recognition of a study entitled "A Revision of the *Ceratopsia* or Horned Dinosaurs."

The John J. Carty medal and award of \$3,000 were presented to Sir William Bragg of the Royal Institution, London, who delivered the principal address on the opening evening of the meetings. Sir William is distinguished for his pioneering work in the use of X-rays for the study of crystal structure.

## Cancer Diagnosis in Mice

**I**F CANCER diagnosis by changes in the body's electrical field, reported by Prof. H. S. Burr of Yale University as giving promising results on mice, proves to be applicable to human beings, a great step forward in science's fight with cancer may be taken.

Significant changes in the body's electric field occur with growth of the body cells and appear to occur at the start of the extraordinary growth of cells which produce cancer. If this is true in mice, it may also be true in men, although Prof. Burr in his paper before the Academy was careful to limit his report to experiments upon mice alone.

## Kills Cancerous Tumors

**H**OPE that cancer may some day be more effectively treated by injecting distilled water into the diseased tissue after X-raying was held out by Drs. G. Failla and K. Sugiura of Memorial Hospital, New York City, in a report presented before the Academy.

Pronouncedly favorable results have been obtained in experimental work on mice. Nothing has yet been undertaken on human cancers, however; and Dr. Failla laid special emphasis on the fact that Memorial Hospital is not undertaking this treatment of human cases until much more experimentation can be carried out on mice.

In effect, the injected water seems to kill the cancer cells by drowning, while it does not harm normal cells. The X-rays put the diseased cells in a state of "ionic unbalance" with their surrounding fluids, the effect of which is to induce a rapid intake of water by the cells. If distilled water is injected into the tissues while they are in this state, the cells take in too much of it and are killed.

Results on mice were very decisive. Mice with a certain type of sarcoma, treated with 500 X-ray units alone, showed only a 2 per cent. regression in their tumors. Similar mice given the same X-ray dosage plus distilled water injections showed a 30 per cent. regression. At 1000 X-ray units, mice showed only 50 per cent. regression in tumors treated by raying only, while tumors treated by the same raying plus water disappeared entirely.

"As to practical application of these findings nothing can be said at this time," Dr. Failla stated in conclusion. "If human tumors react in the same way to the combined X-ray and distilled water treatment as mouse sarcoma 180, the range of successful application of X-rays in the treatment of cancer will be ma-

terially increased. For, at present, good results cannot be obtained in many cases because the tumor is so insensitive to X-rays that the large dose required to kill it will cause too much damage in adjoining normal tissues."

## Like Pan of Biscuits

**T**HE granite crust of the earth that underlies the continents is not a single solid slab all formed at the same time. It is more like a pan of biscuits, with centers of solidification in a number of separate blocks, Dr. Bailey Willis, emeritus professor of geology at Stanford University, told the meeting.

Dr. Willis described in particular the formation of the largest of the continents, Asia. Asia, he said, is not the vast single sheet of Archaean granite that earlier geologists believed it to be. Several massive blocks of the continent are of that date, from a billion to a billion and a half years ago.

In between them, however, are other intrusions of much younger granites, that come down to almost modern times. Asia is thus not a solid slab of rock but a considerably varied mosaic.

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### MEDICINE

# Pneumonia Prevention By Vaccination May Be Possible

**P**NEUMONIA prevention by vaccination of all susceptible persons may be possible within three years, if the plan proposed at the Conference of State and Territorial Health Officers with the U. S. Public Health Service goes through.

The plan was proposed by Dr. Lloyd D. Felton, U. S. Public Health Service, in a report of the pneumonia vaccine he has prepared and which has been getting its preliminary trials on CCC men.

This vaccine can reduce the number of pneumonia cases at least one-half, Dr. Felton found by comparison with a similar group of non-vaccinated persons. The death rate can be reduced to at least that obtained by treatment of pneumonia with serum.

The vaccine, moreover, can apparently pick out in a group of people those who are especially susceptible to the ailment. Most persons vaccinated showed no reaction to the vaccine itself, but a few, about one-tenth, did have a reaction after the first dose of vaccine.

Dr. Felton's plan is to make skin tests with the vaccine of a large group of persons and to watch these people over a period of three years. The persons tested would be divided into two groups, those who reacted to the skin test and those who did not. If more pneumonia cases developed during the three years among the ones the test showed to be susceptible than among the other group, it would indicate that the test really picked the susceptibles.

With this as a basis, it would not be necessary to vaccinate the entire population against pneumonia. The ones needing the vaccination could be picked by preliminary skin testing, just as children needing toxoid to protect them against diphtheria are now picked by preliminary Schick testing.

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Yosemite National Park has a big Sequoia tree that leans off-center farther than the famed Tower of Pisa.