creas in experimental animals, the Toronto investigators found. Lack of insulin, due to failure of the islands of Langerhans in the pancreas, causes diabetes. Diets very rich in carbohydrates, that is, in starchy and sweet foods, did not decrease the insulin content of the pancreas.

Test Aids Birth Control

BIRTH control by the calendar method may be put on a sounder and more practical basis as a result of a discovery announced by Dr. Richard Parmenter of Cornell University Medical College, Ithaca, N. Y.

A simple electrical test of a woman's fingertips, it appears from his report, may be all that is necessary to determine the so-called safe period on which the calendar method of birth control is based. Difficulty in determining the infertile and therefore "safe" period accurately has been an important obstacle to the rhythm or calendar method of birth control.

In seven out of eight normal healthy women Dr. Parmenter tested by recording the voltage of the minute electrical current at the tips of their index fingers, a marked rise in potential difference was observed to occur at some moment during the period generally considered "unsafe" because sometime during this period ovulation occurs.

If this change in potential difference marks the time of ovulation, it provides an accurate basis for calculating the "safe period." If such a test proves reliable it will also have the advantage of simplicity over other proposed tests.

Study Maturing Human Eggs

THE MATURING process of human eggs outside the body, both in glass vessels and when planted in female rabbits, is now being studied by Dr. Gregory Pincus, of Clark University, the scientist who has already caused considerable excitement by starting the development of so-called "fatherless" rabbit eggs.

These rabbit eggs were induced to start the normal processes of division and differentiation, without the intervention of the male elements or sperm cells, by treatment with salt solution and also by heat treatment.

The experiments with human eggs which Dr. Pincus reported are "distinctly not attempts to obtain human offspring," he emphasized. They are, in Dr. Pincus' words, "simply studies of the maturation of human ovarian ova."

The human eggs for these experiments were obtained from ovaries removed by surgical operation. They were nourished on human blood serum. One group was given no other treatment. Within eight and one-half hours half of these eggs were "activated," that is, started on the first stage of the process toward "maturing." Eggs in other groups were stimulated by treatment with sperm extract for from 15 to 20 minutes. A slightly smaller percentage reached the same stage of activation. Others were stimulated by heat or salt solutions. About two-fifths of these were also activated. Foster-mothering to the extent of transplanting the treated eggs to rabbit fallopian tubes did not increase the percentage of those activated. Activation of the eggs is a sort of growing-up process in which the eggs get ready for fertilization.

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GENERAL SCIENCE

Dr. Frank B. Jewett Elected President of National Academy

Head of Bell Telephone Laboratories Has Directed Revolutionary Research in Telephony and Pure Physics

See Front Cover

SCIENTIFIC research supported by industry received high recognition at the annual meeting of the National Academy of Sciences, in the election of Dr. Frank B. Jewett, head of the Bell Telephone Laboratories, to the presidency of this body of America's senior scientists.

From the laboratories under Dr. Jewett's direction have come not only many revolutionary inventions and improvements in telephony, sound equipment, and wire transmission but also researches of great consequence in the field of "pure" physics.

Two vacancies on the governing council of the Academy were filled by the election of Prof. Charles A. Kraus of Brown University and Prof. Alfred N. Richards, University of Pennsylvania.

Election as Foreign Associates, the highest honor which the Academy can bestow upon overseas scientists, was accorded to two Britons and one Netherlander: Sir Joseph Barcroft, noted physiologist of Cambridge University; Sir William Bragg, physicist of the Royal Institution, London, who delivered the principal address of the meeting just closed; and Dr. F. A. Vening Meinesz, geophysicist of the University of Utrecht, already well known in this country through his underseas researches in submarines, in which the U. S. Navy participated along with American scientific institutions.

Fifteen new members were elected to membership in the Academy: Dr. Gregory Breit, University of Wisconsin, theoretical physics; Prof. Detlev Wulf Bronk, University of Pennsylvania, biophysics; Dr. William Bosworth Castle, Harvard University, medicine; Dr. Frederick Gardner Cottrell, Research Associates, Inc., chemistry; Prof. Frederick Parker Gay, Columbia University, pathology and bacteriology; Dr. Albert Baird Hastings, Harvard University, physiology and chemistry; Prof. Vladimir Nikolaevich Ipatieff, Universal Oil Products, chemistry; Prof. Merkel Henry Jacobs, University of Pennsylvania, zoology; Dr. Zay Jeffries, General Electric Company, metallurgy; Dr. Donald Forsha Jones, Connecticut Agricultural Experiment Station, genetics; Prof. George Bogdan Kistiakowsky, Harvard University, chemistry; Prof. Warren Judson Mead, Massachusetts Institute of Technology, geology; Dr. Oscar Riddle, department of genetics, Carnegie Institution of Washington, biology; Prof. Adolph Hans Schultz, Johns Hopkins University, embryology; Prof. Philip Edward Smith, College of Physicians and Surgeons, Columbia University, anatomy.

Four Medals Presented

AT THE Academy's annual banquet four medals and awards for notable work in science were made, three to Americans and one to an English guest.

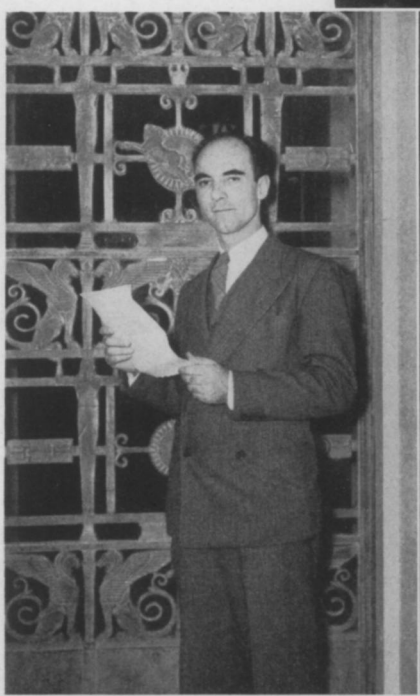
The Agassiz medal for oceanography was presented to Dr. Harald Ulrick Sverdrup, of the Scripps Institution of

ACADEMICIANS

In top picture, Dr. Frank R. Lillie, president of the National Academy of Sciences (left) greets Sir William Bragg, president of the Royal Society. Dr. Carl D. Anderson, Nobelist of the California Institute of Technology is shown at left center. Below, left, Dr. G. H. Parker, Harvard, discusses the program with Dr. Edwin C. Conklin, of the American Philosophical Society, president of Science Service.

SPRING MEETING

Arriving (center) is Dr. Arthur H. Compton, Nobelist of the University of Chicago. Prof. H. S. Burr, Yale University (right center) listens to discussion. At right below, Prof. Harold C. Urey, Nobelist of Columbia University, and Mrs. Urey watch a demonstration of the "Electromagnetic Levitator" by Lyle H. B. Peer, of General Electric (center). All photographs are by Fremont Davis, Science Service staff photographer.



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

IF 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

HOPE 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 materially 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

THE 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

PNEUMONIA 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.