

ARCHAEOLOGY—MATHEMATICS

European Mathematician Studies "Old Files"

GOING over old files—thousands of Babylonian business letters, contracts, school books, all written on clay—is the task that has drawn a celebrated mathematical historian to America. He is seeking light on the beginnings of arithmetic in Babylonia, and even before the Babylonians.

Although he has been in the United States only a few weeks, Prof. Otto Neugebauer, formerly of the University of Copenhagen, has already checked 25,000 Babylonian tablets at Yale off his list of things to do.

Author of a three-volume work on all known ancient mathematical texts, Prof. Neugebauer will make his headquarters at Brown University, as professor of mathematics. He plans to examine Babylonian writings at the University Museum in Philadelphia and other outstanding collections of these ancient records.

Science News Letter, April 1, 1939

PSYCHOLOGY

Hypnosis Used To Study Memory Perversions

DID you ever walk into a strange house and have the feeling that you had been there before? Or perhaps you have puzzled your mind over why a person you had never met before seemed familiar.

Most people do have experiences of this sort. Psychologists have a name for it—the phenomenon of *déjà vu* (already seen). It is also termed paramnesia, meaning a perversion of memory in which a person believes that he remembers events or circumstances that never happened.

The only explanation for the phenomenon, which is more apt to occur when you are tired or ill, is that some features of the new acquaintance were similar to those of a person you already know, or that some element in the new situation is one you have actually experienced before.

With an idea of finding out more about this phenomenon, H. Banister and O. L. Zangwill, psychologists of Cambridge University, turned to hypnotism.

On the first day of their experiments, undergraduate students of psychology, ignorant of the purpose of the study, were shown colored postcards and given odorous substances to smell. On the following day each of the undergraduates was hypnotized, shown more postal

cards, and given more things to smell, and at the same time was told that he would forget all about these things and be totally unable to recognize them when he awoke. On the third day the student, wide awake again, looked at and smelled all the things of the first two days plus a few more of the same sort. The ones from the second day's test all seemed familiar, but the student did not remember having seen or smelled them the day before while hypnotized.

Reporting the tests to the scientific journal, *Nature*, the Cambridge psychologists conclude that the impression of familiarity typically arises under certain conditions, such as illness or fatigue, in which the brain cannot subject impressions to introspective scrutiny.

Science News Letter, April 1, 1939

PHYSICS

Atomic "Gun" Developed To Bombard Live Materials

A NEW device used to bombard biological specimens with negative charges of electricity, the electrons, has been developed by a four-man research team of scientists at Massachusetts Institute of Technology and Union College.

The new design permits multiple samples of organisms to be placed in the machine on a drum which, by rotation, brings any particular specimen into the beam of the electrons.

In the apparatus electrons are made to "shoot around a corner" and hit their objective. As they issue from a filament they speed off and are bent by an electrostatic field in a curvature that amounts to 90 degrees. This action spreads out the beam and keeps all electrons of any single energy moving together.

This spectrum of electron energies falls on a metal plate which contains a slit. Only a narrow band of the electrons, having almost exactly similar energies, can pass through this narrow slit and strike the biological sample.

Source of the electrical "kick" behind the electron "bullets" is a Kenotron tube which supplies voltages from one to 15,000. The entire apparatus must be exhausted with vacuum pumps during operation.

Drs. Franklin S. Cooper, Charles E. Buchwald, Caryl P. Haskins and Robley Evans of M. I. T. and Union College describe the new instrument. They report (*Review of Scientific Instruments*, March) that plans are now under way for a larger device which will permit the use of voltages above 15,000.

Science News Letter, April 1, 1939

IN SCIENCE

AERONAUTICS

Research Lag Main Cause For Alarm In Aviation

THE LAG in aeronautical research behind Europe is the chief cause for alarm in the American aviation picture, G. Grant Mason, Jr., member of the Civil Aeronautics Authority, told the Society of Automotive Engineers.

Expanded European research facilities, combined with quantity production facilities, may produce a surplus of high performance commercial airplanes which will cut seriously the American export market, he indicated.

"With that situation confronting us," he told 200 aeronautical engineers, "the President has transmitted to Congress a request for an additional \$12,140,000 for the construction of new research facilities at Langley Field and for a new N. A. C. A. (National Advisory Committee for Aeronautics) laboratory at Sunnyvale, California. Congress is considering additional legislation designed to stimulate greatly increased experimentation and development by the industry. All of this will be of tremendous benefit to the future progress of aviation."

Science News Letter, April 1, 1939

PUBLIC HEALTH

Influenza Epidemic Less Except In Two Sections

INFLUENZA is declining in all parts of the country except Virginia and the Southwest, reports received by the U. S. Public Health Service show. Total for the nation for the week ending March 18 was 15,921. The previous week's total was 18,135.

This epidemic was not of special significance from the standpoint of the number of reported cases but public health officials point out that it was unusual because it started at the time of year when influenza epidemics in the past have been on the decline and the peak this year came during the second week of March, much later than usual. The first week of February is the latest previously recorded peak week for an influenza epidemic. This was in 1920.

Science News Letter, April 1, 1939

E FIELDS

MEDICINE

To Train Dental Interns In Army Hospitals

THE U. S. ARMY is for the first time undertaking to train dental interns in its hospitals. Announcement of this new departure, seen as a development that will make the Army dental service more effective as a health service, was made by Brig. Gen. Leigh C. Fairbank, Chief of Dental Staff, U. S. Army, at a meeting of New York's Second District Dental Society. Brig. Gen. Fairbank is the first dentist to reach this rank in the Army.

Outstanding graduates of dental schools this year will be chosen for the new Army hospital internships.

Science News Letter, April 1, 1939

EDUCATION

Nursery Schools Could Be New Billion Dollar Industry

AMERICA can have a new billion dollar a year industry if it wants it. Children cry for it—those who have had a taste of it.

No, not candy, but nursery schools. Conventional schooling starts at six, or five where there are kindergartens. But intensive educational experiment and pioneering practice since the World War shows that the whole future lives of little boys and girls are greatly benefited by a special kind of schooling for those from two to six. Nursery schools under the guidance of trained teachers, supplementing the benefits of the home, bring the children into a happy, effective world ideally fitted for them. They like it, it is good for them, their parents appreciate the advantages and the child grows faster in intelligence as the result.

Public education has had its greatest development in America. Fathers and mothers have wanted their children to have more advantages than they themselves had when they were young.

With a gradually decelerating population growth, there will be fewer children in future years. There will be less pressure on the school systems of our nation. Interestingly, this comes just as the

worth of so-called pre-school education is being demonstrated.

There are about 600 to 700 private and public nursery schools in addition to the 2000 WPA nursery schools created in the past three years and available only to children of those in the very low income brackets. This means that little more than 100,000 children are in nursery schools whereas there are about a hundred times that many, some 10,000,000 children of nursery school age.

Here is material for a great educational expansion, an extension of the educational system into the younger years of childhood in order to have better men and women of the next generation. This expansion may well become economically possible with the continued decline of the birth rate.

Where WPA nursery schools have operated there is a growing demand from mothers and fathers who want to do better by their children. It is a folk movement with the same virility shown by the earlier American passion for free schools.

Science News Letter, April 1, 1939

PHYSICS

Cosmic Ray Particle Creates 50,000 Offspring

ASINGLE cosmic ray of high energy can create 50,000 other particles in a tremendous "burst" of atomic energy, Prof. Enrico Fermi, Nobel Prize-winner in physics for 1938, told the joint meeting of the Washington Academy of Sciences and the Philosophical Society of Washington.

Prof. Fermi, formerly of the University of Rome and now at Columbia University in New York, said that a cosmic ray with a thousand million million (1,000,000,000,000,000) electron volts of energy could produce such bursts over an area of about three hundred square yards.

Discussing the "mesotron" particle—new atomic particle about 100 times as heavy as an electron—Prof. Fermi credited the young Japanese physicist Yukawa with predicting the existence of such particles several years before their discovery in cosmic radiation. Yukawa, however, suggested the particles to interpret the inner binding energies with the hearts of atoms. It is the mesotron particle that now appears to account for the enormous piercing power of many cosmic rays which can pass through a whole yard of dense lead or into the earth, where they have been detected in deep mines.

Science News Letter, April 1, 1939

ASTRONOMY

New "Asteroid" Turns Out To Be Ten-Year Comet

WHEN Prof. Y. Väisälä of the University of Turku in Finland recently reported the discovery of a new tiny asteroid, astronomers throughout the world were interested but not surprised, for the Finnish astronomer is a specialist in finding such stellar wanderers.

Surprised, however, were astronomers when they learned that the asteroid, provisionally called object 1939 CB, had been found to be a comet with a 10-year period as a result of new observations by Prof. Väisälä.

The new Väisälä comet is very faint, of the 15th magnitude, and can be seen only with powerful telescopes. It is located in the "sickle" of the constellation Leo just north of the bright star Regulus. It passes the north-south meridian line about 9:30 o'clock in the evening. On March 15, its position was right ascension 9 hours, 37 minutes and six seconds and its declination plus 23 degrees seven minutes.

Despite its faintness, a short tail about one degree in length has been observed by Prof. G. Van Biesbroeck, of Yerkes Observatory.

Observed by Dr. H. M. Jeffers of the Lick Observatory, University of California, is the Pons-Winnecke comet, now back in the region of the sun and visible to powerful telescopes on earth. This comet is near the constellation of Bootes, which contains the bright star Arcturus. The comet passes the meridian line about three o'clock in the morning. Position of the Pons-Winnecke comet on March 17 was right ascension 14 hours, 36 minutes and 11.7 seconds and declination plus 31 degrees, 20 minutes and four seconds. At that time it was very faint, about the 17th magnitude.

Science News Letter, April 1, 1939

ARCHAEOLOGY

Carved Footprints Found In Rocks on Missouri Farm

CARVED representations of human foot and hand imprints have been found in rocks older than the Coal Age on the farm of Thomas L. Donnell near Festus, Mo. Human-like imprints in Coal Age rocks have been attributed to extinct giant amphibians, but these particular markings, reported by Robert McCormick Adams of Webster Groves, Mo., indicate their origin as artifacts by marks of the pecking tools with which they were cut.

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