SCIENCE NEWS

Science Service, Washington, D. C.

THE COMMITTEE ON INTELLECTUAL COOPERATION OF THE LEAGUE OF NATIONS

LEADERS in the intellectual work of the world from the principal nations are meeting at Geneva this month in connection with the annual sessions of the League of Nations' Committee on Intellectual Cooperation.

This committee, organized four years ago and including in its membership such leaders in science, art and literature as Einstein, Mme. Curie, Henri Bergson, Millikan, Gilbert Murray, Lorentz, Painlevé, Mlle. Bonnevie, L. de Torres Quevedo and A. de Castro, this year has a program that includes discussion of problems vital to the spread and interchange of the world's intellectual endeavor.

A proposal for an international meteorological office, the question of a property right in scientific discovery, methods for the identification of art treasures, the establishment of an international clearing house for museum records and information, new principles in copyright laws, exchange of students and professors and methods of cataloguing and abstracting the scientific literature of the world are among the topics on the agendas as transmitted to the American National Committee on Intellectual Cooperation which has offices with the National Research Council.

The subcommittee on art and letters will consider methods of authenticating the art treasures of the world so that forgeries and fakes will be less frequent. It is also proposed to establish in Paris a central office of museums in order to list the contents of museums and arrange exchanges. The subcommittee will discuss some method of encouraging and recording translations of leading books into other languages. In connection with a proposal by Mme. Curie, fellowships and scholarships are to be considered by the subcommittee on university relations. The work of the International Institute for Intellectual Cooperation established last fall will also be reviewed.

Dr. Vernon Kellogg, permanent secretary of the American National Research Council, will be the American representative at the committee's plenary sessions on July 26 and 27 acting as alternate for Dr. R. A. Millikan.

MADAME CURIE AND INTERNATIONAL SCHOLARSHIPS

WHEN the educational theories of Madame Curie get into actual practice the world may have more first-rate scientists and more real fundamental feeling of good will between nations.

In a report to the subcommittee on university relations, which will later be acted upon by the Committee on Intellectual Cooperation of the League of Nations, she advances some new suggestions for the training of embryo scientists. Closer cooperation between master and pupil with more freedom for the student to prove his real worth are points that Madame Curie chiefly stresses.

Since science has become so specialized, students must go to the particular places where they can obtain the best training for the subject in which they are interested, regardless of whether it is at home or abroad, she maintains. In recommending a system of national and international scholarships to meet this need, she advocates two kinds: one for the student who is just beginning his research work, and the other for the advanced worker who may have already accomplished some research but who, without financial aid, would not be able to continue. The first is essentially, in her conception, an apprenticeship in which a student should work in groups of older, more experienced men until he has proved his value.

While she urges supervision and guidance of the student until he "finds himself," she would not hedge those who show real originality of mind too much about with the restrictions of academic red tape. "For," she says, "the exceptional mind is all too rare and should not suffer too much constraint."

Since this is an age of scientific development the need for more scientists is constantly growing. In consequence, Madame Curie believes that we need a more complete system of international scholarships and more endowed foundations both from governments and private donors to give adequate training to the world's scientific raw material regardless of the country in which it occurs.

SUPER-AMPLIFICATION OF RADIUM ATOMS

AMPLIFYING minute electric currents 700,000,000,000 times by the use of radio vacuum tubes to make the sound of a single atom of radium audible to broadcast listeners over an area of several thousand square miles was the feat recently accomplished at the University of Kansas, in conjunction with its radio station KFKU.

The experiment was conducted by Dr. H. P. Cady, head of the chemistry department, who made use of an old-fashioned static electric machine of two revolving glass plates; a Leyden jar, such as was used in the time of Benjamin Franklin, and an ultra-modern three-stage radio amplifier. Suspended within the Leyden jar was a brass cylinder about two centimeters in diameter and rising from the bottom of the jar like a lightning rod was a wire tipped with a fine needle from a talking machine. The needle was connected with the negative pole of the jar and the brass cylinder with the positive. When the jar was charged by operation of the static machine, it began to discharge until the resistance of the air between the needle point and the cylinder stopped the flow with a difference in potential of about 4,000 volts.

When any radio-active substance, such as polonium, the material of a gas mantle, or a clock with luminous dial,

was brought within range of the machine, some of the alpha particles from the radium got into the charged field between the point and the cylinder and ionized the air. These ions of air, by collision, multiplied the electrical force of the single alpha particle from 10,000,000 to 100,000,000 times, and this was again multiplied 70,000 times by the radio amplifier.

DISEASE-RESISTING BACTERIA

DISEASE germs are like the human beings on which they prey, in that they themselves are subject to disease that may kill them, and resemble their victims further in that some of them are resistant to their microbial ills while others easily sicken and die, just as some human beings are passed by in an epidemic while others succumb. Their resemblance to human beings can be traced a step further, for "sick" bacteria show less energy and "pep" in their mischief-making, while "healthy" ones carry on with vigor.

This is the gist of the report of a series of experiments by Dr. L. O. Dutton, at the Methodist Hospital in Memphis, Tenn., which will appear in an early issue of *The Journal of Infectious Diseases*. Dr. Dutton worked with the deadly streptococcus or chain-germ that causes blood-poisoning and other serious diseases and infections, subjecting it to the attack of bacteriophage, the mysterious invisible principle or virus that causes bacteria to sicken and die. He found that various cultures of the germ, taken from patients in the hospital, showed widely different powers of resistance to the bacteriophage, some of them dying and dissolving in a very short time, while others carried on without showing much effect.

Dr. Dutton tells of one critical case involving a human patient. This patient, a woman, was seriously sick with an infection of a strain of streptococcus which had not shown much power of resistance to bacteriophage when cultivated in a glass flask. When an injection of a bacteriophage solution was made into the patient's blood stream she at once showed signs of improvement and in time completely recovered. The assumption is that before the treatment the germs were very active; afterwards the germs themselves got sick and finally died, permitting the patient to get well.

"SILVER NIGHTS" IN SCANDINAVIA

"SILVER NIGHTS," or unusually bright twilight from sunset to sunrise, has been forecast for Sweden this summer by astronomical experts.

Formerly such phenomena caused wide-spread consternation, as the light was bright enought to read by in Stockholm at midnight. Many people thought it foreshadowed the day of Last Judgment. Now scientists have discovered that it is due to volcanic ash spreading through the upper layers of atmosphere and reflecting the sun's rays back to the earth. The recent eruptions of a volcano on the Kamchatka peninsula, of another in Japan and also that of Mauna Loa in the Pacific foreshadow a recurrence of the extra brilliant twilight this summer. The Swedish landscape is ordinarily remarkable during the long sunlit summer nights, but the silver light gives it a weird beauty.

The earliest systematic observations of the gradual spread of fine volcanic ash date from May, 1883, when the entire island of Krakatoa in the East Indies was blown up by the bursting of a volcano. The explosion was heard as far as the Philippines, Hong Kong, western Australia and India, and the amount of ashes thrown up has been estimated at 18,000,000 cubic meters. By November of that year the finer layers reached Europe, causing extra red sunsets, and in Sweden the twilight was made brighter for the next three summers. The passage from the Straits to Sweden required less than three months. In 1902, after the eruption of Mount Pelée on the West Indian island of Martinique, the dust was first observed in about six weeks. "Silver nights" were observed in Sweden again in 1908, but exactly where the dust then came from it was not possible to determine, since volcanoes often erupt in isolated regions where the event is not reported.

THE EFFECT OF QUININE ON MALARIA

CONTRARY to general popular opinion frequent doses of quinine when you go to the seaside or any place where mosquitoes congregate, will not ward off malaria. This is one of the interesting facts about malaria that have been established as a result of attempts in insane hospitals in the United Kingdom to cure paralysis of the insane by the intercurrent action of malaria. Artificially induced malarial fever is one of the most modern methods of treating paralysis and insanity, though the curative effect of fevers on mental disorders was known to such ancient healers as Hippocrates and Galen.

While cures have been effected in from 20 to 30 per cent. of the cases so treated and intermediate results have been obtained in others, the medical world has become much more interested in the disease being used as the curative agent. It has been possible to learn several things about malaria when it is induced artificially and is observable from start to finish under laboratory conditions that were not clearly understood before.

Lieutenant-Colonel P. James, of the ministry of health, states that surprisingly enough, it is difficult to adjust conditions so that the patients will infect the mosquitoes and the mosquitoes in turn infect the patients. Contrary to the belief that malaria lurks in every stagnant pool, he thinks that in nature the only mosquitoes that become transmitters of the disease are those that live under sheltered and peculiar conditions. "The human dwelling," he says, "seemed to be the laboratory where malaria infection had its origin and was cultivated," and the life habits of mosquitoes that live under such conditions should be carefully studied.

Since the blood of different patients varies widely in degree of the hospitality which it affords to the malarial parasites after they have been bitten by an infected mosquito, he suggests that future biochemical research may show a chemical difference in the blood of patients of the types that react so differently. He suggests the possibility of a blood test that would enable physicians to classify patients in this respect.

In the course of observing malarial treatment of general paralytics in five British mental hospitals, Dr. War-

rington Yorke, professor of parasitology of the University of Liverpool, found the cases of induced malaria were very easily cured with moderate quantities of quinine. Doses of quinine previous to infection will not prevent a patient from contracting malaria, but small amounts of the drug are more efficacious in killing off the parasites in the blood stream than large doses.

Dr. Yorke advances the hypothesis that when quinine is introduced into the body it is aided and abetted in killing off the malarial parasites in the blood by certain body cells. Too much quinine in a single dose, he maintains, brings about an exhaustion of those cells so that the malarial organism gets the jump on the parasitic-killing combination and the result is called a relapse. This would explain, he says, the severe relapses suffered by war cases even during the administration of large quantities of quinine. He suggests that overdosing with quinine is a very possible reason why these war cases and the majority of those met with in private practice are so difficult to cure.

ITEMS

MAKING lifeless chemicals act as though they were alive is the feat reported by M. Herrera, a well-known French chemist. M. Herrera made a solution of fourteen parts of caustic soda and one part rhodamine in 100 parts of water, and poured a few drops of this into a second solution consisting of one part olive oil and two of gasoline. The drops staged a close imitation of the behavior of amoebae, one of the simplest of animal forms. They divided, moved about slowly, elongated, formed vacuoles within themselves and constantly changed their shape. Under proper conditions they kept up this performance for as long as an hour. M. Herrera made no claim that the drops had any properties of life. The phenomenon, he said, is probably due to diffusion currents, changes in osmotic pressure, surface tension and other physical and chemical influences.

CHICKENS' eyes growing in a glass dish with no chicken to grow on were the unusual spectacles presented before a meeting of the Royal Society, London, by T. S. P. Strangeways and Dr. H. B. Fell. The two physiologists opened eggs that had been incubated for from 64 to 70 hours, removed the eyes from the embryos within, and planted them in a medium composed of the blood plasma of fowls and an extract of embryonic tissue. The eyes continued to grow and develop in what was characterized as "a surprisingly normal way."

POISON ivy meets its match in the iron compound known as ferric chloride, according to a new booklet on the toxic weed by Dr. James B. McNair, which is being issued by the Field Museum of Natural History. Dr. McNair discovered in the course of exhaustive researches on the chemical nature of ivy poison that this substance is rendered insoluble and thus made harmless by chemical union with iron. A number of soluble iron salts are effective against poison ivy, but Dr. McNair has found ferric chloride to be the most suitable. His treatment calls for a mixture of one part by weight of ferric chloride with ten of alcohol and ten of water, to be washed on the skin and allowed to dry there, before one goes into places where poison ivy grows, and also after such possible exposure. This, it is claimed, will entirely prevent the development of ivy poisoning in the great majority of cases.

A THOROUGH physical examination of the Arctic explorer Vilhjalmur Stefansson shows that in spite of, or because of, the exclusive meat diet on which he lived while in the Arctic, he is in exceptionally good condition. Dr. Clarence W. Lieb has made a complete clinical observation of Stefansson in the hope that "the facts gleaned from the study of his dietetic Arctic regimen and body physiology may throw additional light on a subject about which our knowledge is still somewhat vague and controversial, namely, protein metabolism." In a report of his findings to the American Medical Association Dr. Lieb says that "Neither Stefansson nor any of his men, so far as we could determine, suffered any ill effects from long-continued meat diet." "However inadequate the scientific check-up," continues Dr. Lieb, "it can only lead us to question the commonly accepted facts regarding a high protein diet."

HONEYCOMB in a hive afflicted with the ancient bee disease of foulbrood can be disinfected and used over again just as health officers fumigate a house where there has been a case of diphtheria. This bee disease which attacks the young bee larvae and causes great losses to the beekeeping industry was known as far back as the days of Aristotle. Formerly, in order to make sure of checking its spread, the beekeeper had to destroy all the infected combs and hives by fire. Now, however, experts at the agricultural experiment station at the University of California have found that an easily prepared solution of soap, water and formalin is a cheap and effective agent that will sterilize even the interstices of the hexagonal cells of honeycomb.

A NEW scientific institute has been founded in Berlin for the study of the physical and chemical problems underlying silica compounds and all the industries that use them, including glass factories, brick and tile yards, pottery works, lens laboratories and many others. The advance of the silica industries in the United States based on American science during the past two decades is recognized as the stimulus of the new movement. In making its recommendation the committee said, "We, in Germany, have had to acknowledge to our cost that the Americans have known better than we how to carry out in practise the spirit of scientific advance."

A NEW type of glider, or motorless airplane, is under construction in Berlin. It is intended to imitate as closely as possible the structure and soaring action of large birds such as the albatross, and has as one of its patented features joints in its wings which permit radical changes in the positions of the outer half of their length. It will be much larger than the earlier gliders, comparing in size with the average motored monoplane.