SCIENCE NEWS

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THE INTERNATIONAL COMMITTEE ON INTELLECTUAL COOPERATION

A GROUP of intellectual leaders of the world have finished six days' consideration of how international cooperation in science, literature and art can best be promoted and stimulated. As a part of the League of Nations, the International Committee on Intellectual Cooperation is charged with coordinating the intellectual activities of the world. As is the case with many of the technical committees of the league, Americans take active part in the deliberations of this body. This year Dr. Vernon Kellogg, permanent secretary of the National Research Council, attended the sessions as alternate for Dr. R. A. Millikan.

Mme. Marie Curie and Professor Albert Einstein both took an active part in this year's meetings of the committee. M. Paul Painlevé, equally well known in French political and scientific circles, former premier of France, joined in the sessions held under the presidency of Professor Gilbert Murray, professor of Greek at the University of Oxford. Dr. Aikitu Tanakadate, professor at the University of Tokio, an advocate of the Roman alphabet for the Japanese language; Professor Alfredo Rocco, Italian minister of justice; Mlle. K. Bonnevie, professor of zoology at the University of Oslo, Norway; Sir Frank Heath, British educator and scientist, and Dr. Hugo A. D. Krüss, director of the Prussian National Library, were among the members of the committee in attendance.

One of the projects considered was the possibility of various countries exchanging secondary school children in much the same way that college students, graduates and professors have visited various foreign countries as a part of their education. Use of motion pictures in teaching science, art and literature and the possibility of international exchanges of educational films came before the committee.

How to make accessible to all research workers the vast accumulations of published data on science that are being provided by the printing presses of all countries is another problem before the committee. Whether scientific discoveries and developments should be given protection similar to that afforded inventions by patent laws is a question that received some discussion this year as well as in past annual sessions.

The committee reorganized the International Institute of Intellectual Cooperation at Paris which operates under its direction and appointed an executive committee to promote greater efficiency in the work of intellectual cooperation. The staff of the Paris institute was reduced, a program of concentration was adopted and the resignation of M. Julien Luchaire, director of the institute, was accepted. M. Henri Bonnet, of France, a League of Nations secretariat official, was elected to succeed M. Luchaire.

EROS

MAINTAINING an average speed of 15 miles per second, a little planet named Eros is on its way to visit the Earth. Eagerly awaited by astronomers all over the world, this small but fascinating member of the solar system will remain in the neighborhood of the Earth from October, 1930, to May, 1931.

The present visit is the most intimate that astronomers have enjoyed since the discovery of the eccentric little planet in 1898. Never quite visible to the naked eye, it will be easily reached by field glasses and small telescopes during several months of its stay in our vicinity.

Though believed to be only about 15 miles in diameter, Eros is the most valuable and useful member of a family of 1,100 asteroids. Owing to the fact that it will come within 16,700,000 miles of the Earth, or one fifth the Sun's distance, it will be pulled out of its elliptic path by the attraction of the Earth. By carefully measuring the amount of this deviation, astronomers can determine the extent of the Earth's gravitational power, and can compute the mass or weight of the Earth more accurately than it has been ascertained by other methods. When the number of tons of material contained in Earth are known exactly, the Sun's distance can be determined by comparing its attraction for Eros with the Earth's influence.

Many astronomers, especially R. H. Tucker, at Lick Observatory, and A. Kopff, of Berlin, have devoted years to the task of preparing accurate and dependable positions of the stars near the predicted path of Eros in order that the observations of the planet may be measured with the greatest exactness obtainable.

Early in October Eros will appear in the constellation of Auriga, having a magnitude of ten, or a hundred times dimmer than fifth magnitude stars which are easily discernible to the unaided eye on a clear night. Passing south of the familiar great dipper of Ursa Major and through Leo Minor during December, Eros will move east and southward. By January 14 it will apparently stand still for a few days at the extreme eastern limit of the loop which its apparent orbit describes among the stars. This is due to the fact that we view it from a rapidly moving Earth.

At its stationary point east, Eros will be only 14 degrees north of the celestial equator in the constellation Leo, and will be of the seventh magnitude, or 18 times brighter than in October.

Moving rapidly southward, the tiny planet will cross the equator on January 27 and will reach its closest point to the Earth on February 17. Seen from a latitude of 40 degrees north, Eros will then be only 30 degrees above the southern horizon, or a third of the way from the horizon to the zenith.

Eros will then be only 70 times as far away as the Moon. The constellation Antlia in this part of the sky has no stars brighter than fourth magnitude.

On March 15, Eros will reach the western end of the loop and its farthest point south of the equator. During this part of its visit it will be observed by astronomers of the southern hemisphere, particularly in South Africa, for whom it will be high in the sky.

Retracing its northerly path, but rapidly diminishing in brightness, the planet will say farewell to the Earth in May and vanish, not into outer darkness, but into the brightness of the Sun's radiation.

EMANATIONS FROM BUTTERFLY WINGS

BUTTERFLY wings give off something—either invisible light waves or a gas—that enables them to photograph themselves in the dark. This curious discovery has been made by Austin Clark, of the U. S. National Museum, who is now engaged in trying to find out what the mysterious emanation is.

Mr. Clark mounted the wings of butterflies on paper, which was put in the bottom of a plate box to give a flat surface. A fresh plate, emulsion side down, was placed on it, and the sealed box, with light excluded, put away for a week or so. When taken out the plate had a clear picture of the butterfly wings, complete as to detail and relative intensity of color pattern. Black patches were black, orange areas intermediate and white areas white, so that on the print black areas came out white and white areas black.

The wings of 37 species of butterflies were examined, including perfectly preserved specimens reared in the dark from fully fed caterpillars and never exposed to sunlight, specimens taken in sunlight, and others which had been dead more than 30 years. The effect was less apparent in the case of the 30-year-old specimens than in the fresh ones. The only anomaly found was that the light spots of the common blue swallow-tail came out as if they were black instead of white—a reversibility previously noted in photographing the Parnassides, another group of the swallow-tail family. Color values were the same on films and plates, whereas photographers say that they are usually, but not always, reversed on films in case of gas emanation, tentatively explained as due to interaction between the gas and the film preservative.

Exposures were made with parts of the wings covered with thin slips of glass, and others with parts covered with cellophane. The latter substance is very transparent to the short wave-lengths of light, while glass is not. The glass obliterated on the negative all portions of the wings beneath them, but the cellophane only resulted in a slight dimming of the image, with no alteration of pattern. Hence whatever causes the effect on the plate will not pass a thin cover glass, but will pass through cellophane.

This would seem to lend support to the theory that the effect is due to some kind of light waves rather than to a gas. But when Mr. Clark shielded part of a wing with a bit of thin quartz, which is even more transparent than cellophane to ultra-violet radiation, he found that the quartz blocked off the effect as completely as did glass. This leaves the nature of the cause still in doubt.

BLOOD TESTS OF PARENTAGE

ARE heredity experts justified in assuming the rôle of Solomon in a dispute between parents over the identity of their offspring? "Sometimes, only," is the answer indicated by the mass of data accumulated by science to date on this question, which has awakened such controversy in the Watkins-Bamberger suit concerning the alleged interchange of babies at the Englewood Hospital in Chicago. In many instances, the experts would be forced to shrug their shoulders without essaying a definite "Yes," or "No," to the pleas of distraught parents.

While complete reports of the findings have not been made public, newspaper accounts seem to indicate that this is a case where the blood group tests to establish parentage could apply. For the parents in question are said to belong to different blood groups and the children, according to the laws of heredity, would be distinguishable by a corresponding difference in type.

Physiologists have established that practically all human beings belong to one of four principal blood groups and that children inherit the characteristics of either one or the other of their parents, if they do not take after both. Difference in blood group is readily detectable because of the clumping or "agglutinating" effect that alien blood strains have on each other, whereas blood from different persons of the same group mingles freely.

Thus if a father and mother, both belonging to Group O, were left with the choice of two infants, of Groups O and A, respectively, theoretically the Group O baby would be their blood kin, and the A Group child could not be.

Father and Mother Watkins both happen to belong to the O Group, if published accounts are accurate. But the baby delivered to them by the hospital is of Group A, and not their child by verdict of the blood tests. Mother Bamberger, on the other hand, is said to belong to the AB Group, yet the baby in her arms is an O Group child. All of which sounds like a mixup somewhere.

One caution has been urged on modern Solomons by scientists, however. Very young infants may not have their final blood group fully established. With infants less than a month old, the test should be repeated after several months have elapsed.

If this suggestion is complied with, it will mean that the disputed pair of infants of the Watkins and Bamberger domiciles should undergo a confirming test. Then, if the published accounts of the findings are accurate, the verdict should be reasonably certain.

Some idea of the difficulty may be gleaned from a report on the chances of establishing a child's paternity by blood grouping tests, mathematically computed by Dr. Sanford B. Hooker and Dr. William C. Boyd, of the Evans Memorial for Clinical Research and Preventive Medicine of Boston. They estimate that in cases where the paternity of the father alone was brought into question, the probability of establishing non-paternity was

one to five for Group O, one to 17 for Group A, one to seven for Group B and one to two for Group AB. These probabilities are based on the frequency of distribution of the groups among the white population of the United States and upon the laws governing the inheritance of blood groups.

LOW WATER LEVELS

NEW records for low water levels on the Mississippi and other mid-western rivers are being set as the worst drought in the history of the Weather Bureau continues to threaten crops. Rivers which were breaking records for height of water a year or so ago are now far below normal. At St. Louis, for instance, the gages of the Weather Bureau show a height of only 3 feet, the lowest ever recorded at this time of year, according to M. W. Hayes, in charge of the work on rivers and floods. Normally, said Mr. Hayes, the level is something like 12 or 14 feet at the beginning of August. This height is measured above the zero of the gage, which is set approximately at the lowest possible.

All along the Mississippi River system low levels are being recorded. At Davenport it is 2 feet 7 inches; at Memphis, 4 feet 8 inches; at Cairo, 9 feet 7 inches; at Vicksburg, 8 feet 4 inches, and at New Orleans, one foot three inches. At Kansas City the Missouri is 5 feet 8 inches and at Cincinnati the Ohio is 11 feet 8 inches.

Preliminary reports reaching the Weather Bureau show that this drought is the worst ever recorded, according to J. B. Kincer, in charge of the bureau's work on the relation between weather and crops. None of the bureau's records show such a deficiency of rainfall. Though the cool weather that has now come over the middle west will retard the deterioration of the crops, it will not help materially. What is needed is rain and none is in sight.

As indicating the severity of the drought, Mr. Kincer stated that the preliminary figures for July show that the lower Mississippi Valley had only a fifth of the normal rainfall during the month. The Ohio Valley has had only a third to a half of normal, the southern plains of Texas only a fifth to a quarter and the northern plains a third to a half. During the early part of the year, the rainfall was also much less than normal and this has aggravated the situation.

ITEMS

A NEW riddle may have been created by recent observations of Professor Carl Oppenheimer, of Berlin, and Hermann Junker, of Hamburg. These men have been working with extremely weak solutions of metal salts, of hormones and some of the vitamins. The solutions are so weak that they can not contain any molecules, as their concentration is one part in ten sextillions. Still these extremely weak solutions, which contain an unimaginably tiny amount of a metal salt or a physiological substance, are able to affect the rate of growth of the protozoa.

ENTOMOLOGICAL inspectors in the fruit-fly area in Florida did not find any of the pests during the month of July, according to officers of the U. S. Department of Agriculture. This does not mean, however, that the infestation has been completely stamped out, for a small focus may still exist somewhere in the state, capable of starting the mischief all over again if vigilance is relaxed. For this reason growers are zealously spraying with poison bait sprays even where the fly has not been seen for months. The material for this work is being supplied gratis by the Florida Citrus Growers Clearing House.

THE Mexican fruit fly, cousin to the European fruit fly that has caused much trouble in Florida, is again threatening the citrus areas on the southwestern border of the United States. It has not yet established itself on American soil, but its larvae have been found in a chance lot of plums from localities in Mexico supposed to be outside the "zone of defense" which the Mexican government has thrown about the area where its infestation is chronic. The fly has twice gained temporary footholds in the United States, and only by the most rigorous methods and whole-hearted cooperation by both Mexicans and Americans was the visitation stamped out.

EXPERIMENTS showing a direct connection between the center of optical function and the skin, which is the organ of tactile impressions, have been reported by Professor J. G. Dusser de Barenne, of the University of Utrecht. The experiments also showed the existence of a sense function of the visual organ outside of its optical functions. Till now the thalamus opticus has been regarded as the organ of vision exclusively. The nervous effect caused by direct or reflected light on the eye travels along the optic nerve into the brain where in the thalamus opticus the visual picture is seen. Destruction of this portion of the brain results in incurable blindness, albeit the optical apparatus may be intact. Working on cats, Professor de Barenne injected by means of a specially constructed microinjector a few drops of a weak solution of strychnine sulphate colored with toluidine. The astonishing result of these injections is the development of areas on the skin of extreme sensitiveness to pain and other stimuli. They are most marked on the side of the body opposite to the injected part of the thalamus, and on extremities like the ears.

AN effort to enlist the aid of intelligent amateurs in the preservation of the fast disappearing prehistoric Indian remains in the United States has been launched by the National Research Council, through its committee on state archeological surveys. The great majority of our Indian remains have already been destroyed, according to an account in a guide leaflet for amateur archeologists issued by the council. This destruction is partly due to plowing, road building and city development. The greatest destruction, however, has been wrought by curio hunters who have dug into Indian mounds in search of relics without realizing that they were destroying valuable historical material. The publication explains briefly but specifically the methods of digging and preserving relics approved by archeologists, and shows how the data should be recorded so that the discoveries will be of scientific value.