repeated. Usually the infant won eventually and peace was restored."

As any well-informed modern mother might expect, it was Mona—the older mother of the large family—who clung to the now outmoded practice of rocking the babies to quiet them. When one of her infants was restless or complaining, Mona would hold her hand or arm under the baby and then move her arm rhythmically back and forth until the child was soothed to rest. The mother was so large and the babies so tiny that both twins could thus rest on one arm of the mother.

Diet a Problem

The baby's diet is a matter of concern for the chimpanzee mother as it is in the human nursery. Here is no problem of "formula" or of providing essential vitamins. Rather at first it is a problem of preventing the infant from grabbing and eating food not intended for him. There is a possibility that in thus restraining the infant the chimp mother is acting selfishly, because she wants to eat the food herself. The scientists are willing, however, to give her the benefit of the doubt and give her credit for an instance of maternal care.

At any rate, after the first few months of life, the infant is permitted and even encouraged by the mother to take supplementary feedings.

At the end of his first year, the chimpanzee infant is eating everything, although he has not yet been weaned. He eats cereal, vegetables, fruit and milk—just about the same foods that Junior begins to consume at the same age.

With the chimp baby's growing independence in the matter of food comes also an increasing tendency to be free of the mother's solicitude in other ways. Although the mother still watches over the infant, it is more likely to be from the background.

Suspicious at First

During the first weeks of the infant's life, the mother was constantly on guard, suspicious of everything and everybody whose relations to her infant she did not know. This aggressively precautionary and protective attitude is likely to disappear before the baby is a year old.

"Pati, for example, who for several months constantly guarded Ben, rarely trusting him beyond reach and almost never beyond sight, and responding instantly to any threat to him and to his calls for help, became so far indifferent to such things during the twelfth month," the scientists report, "that instead of rushing to him at the first cry of alarm, she would pause to look about, and then either calmly disregard the crying or go to him slowly.

"Yet even at this time, if she observed something in the environment which seemed seriously to threaten her infant, she would hasten to him and he would hide himself in her arms."

So it is emphasized that these animals, so close to humans on the evolutionary ladder, are, like man, extremely dependent in the early months of life. Upon the mother lies the responsibility for teaching the young infant the skills that are necessary for his survival. The chimpanzee, it appears, like the human baby must be taught to walk, to climb, to protect himself, to associate with others of his age, and even, to a certain extent, to eat.

Like the human mother, the ape protects her young, runs to answer his call or cry, remains close to his clinging arms, but later gently teaches him to loosen the baby grasp and travel independently of her.

Science News Letter, July 11, 1936

PHYSICS

Electricity of Blood Cells Enough to Light a Lamp

THE RED blood cells of man and animals as carriers of electricity are being studied at the Biological Laboratory, Cold Spring Harbor, Long Island, it was revealed before the meeting of the American Physical Society, in Rochester, N. Y.

Dr. Laurence S. Moyer and Dr. Harold A. Abramson reported that red blood cells of man, among the animals studied, have the highest effective electrical charge at their surface, equivalent to 15,000,000 electrons. Electrons are the unit charges of electricity.

Studies of the amount of electricity carried by the blood cells have an important relationship to such basic human problems as the coagulation properties of the blood and problems connected with the anemias. For example, it has been found that in certain cases of with the anemias. For example, it has cells apparently possess a mechanism which is capable of preserving the normal surface charge of the cell in spite of wide variations in the surface area during the course of the disease.

A good idea of the size of this surface charge may be obtained from the estimation that if the charges from blood of a full-grown man could be collected and made to pass through a 25-watt electric bulb it would burn for at least 5 minutes.

Of all the animals studied in the tests Drs. Moyer and Abramson found that the rabbit had the lowest electric charge density—only 1,890 electrostatic units. Man and the rhesus monkey (used in experimental studies of infantile paralysis) had about the same charge density, 4,500 units. The dog had the highest charge density, 5,600 electrostatic units.

Electrons Born

Sprays of electrified particles shoot out, now and then, from all kinds of matter. Rocks, metals, even our own bodies, are subject to this effect which physicists say is due to the unceasing cosmic-ray bombardment.

Disruption of atomic nuclei by the highly energetic cosmic-ray particles has been regarded as a likely explanation. The particles making up the spray were thought of as the flying debris from a shattered atom.

But it now seems more likely that the atoms remain intact during the collision and that the cosmic rays suffer the major damage. According to Dr. and Mrs. Carol G. Montgomery of the Bartol Research Foundation of the Franklin Institute the spray particles are pairs of positive and negative electrons created in that intense electric field which surrounds the nucleus of every atom. The raw material for the process is the energy of the cosmic-ray photons.

Dr. Montgomery described to the meeting experiments which he and his wife performed with a device called an "ionization chamber." Different kinds of material—lead, tin, iron, magnesium—were piled about the chamber and their electrical effects recorded on yards and yards of photographic film.

The heavier the material surrounding their chamber, the larger was the number of particles shot out in every spray. Heavier atoms have stronger electric fields about them; have greater power

MEASURING CURRENTS

Professor Harold A. Abramson with equipment for measuring the electrical charge of blood cells. The blood cells are placed into the glass apparatus on the stage of the microscope and their speed in an electric field is observed.

to rip cosmic-ray photons apart, as it were, and convert the pieces into pairs of electrons.

The reason for favoring this interpretation over that of atomic disintegration lay in the mathematical relation between the number of particles per spray and the weight (atomic number) of the material from which the sprays came. The law which Dr. and Mrs. Montgomery found to govern cosmic-ray sprays was the same as that which others have found for the case of conversion into electrons of the gamma rays (also photons) from radioactive substances.

Science News Letter, July 11, 1936

PSYCHOLOGY

Psychologists Mass To Attack World's Social Problems

SCIENTISTS are massing their forces for a new attack on war, depressions, and unemployment. Research programs, in which several hundred psychologists will cooperate to tackle the great social problems afflicting the world today, are now being planned. Just as the great minds in the field of psychology gathered in Washington at the call of President Wilson to attack the major psychological problems of the World War, so today psychologists are gathering for a similar concerted action against the social conditions that threaten peace and progress, and even civilization itself.

More than 200 psychologists from American universities have already joined in this great movement. They plan to organize a national society next September.

War Psychological

War, such as the one now seriously threatening Europe and the whole world, involves psychological problems, these scientists believe. Popular notions about man's instincts and emotions may be so incorrect as to have grave significance for the control of war. These are the contentions of Dr. I. Krechevsky, psychologist of the University of Chicago, who is a member of the committee organizing this movement.

"Economists, politicians, physicists, editorialists, munitions manufacturers, and 'philosophers' have not hesitated to advise society on problems of social motivation, the inevitability of war as 'inherent in human nature,' and the like," Dr. Krechevsky said. "What psychologists have come forth to substantiate or refute these psychological 'laws'?

"These are important psychological questions in themselves. That their answers may have important social implications does not make them any less so and should not frighten us away from them.

"There is, we believe, a definite need for an organization to encourage, promote, and support, both financially and 'morally,' such research."

Started Last Fall

The germ of this new mass movement on economic and social problems was first observed last fall at the annual meeting of the American Psychological Association at Ann Arbor, Mich. Hundreds of petitions were submitted to the association from universities all over the nation protesting against the "waste of human minds" when scientifically-trained men were put to work at "leaf-raking" or even allowed to sit idle and useless while the nation suffered under the depression.

President Roosevelt and other spokesmen of the New Deal were quoted as pointing to fear and the panic of human minds as the basic cause for the great economic depression of the nation. Yet despite this general recognition of the psychological nature of the problem, psychologists have not taken an active part in the government's attempts to cope with it.

There are no psychologists among the brain-trusters, it was pointed out by Dr. A. T. Poffenberger of Columbia University in his address as president of the American Psychological Association.

Psychologists Under Cover

"The success of the psychological contribution depends upon how well it is kept under cover," Dr. Poffenberger said, referring to the employment in the government service of psychologists as "statisticians" or "economists" instead of openly as psychologists. However valuable the psychological work may be, diplomacy dictates that it shall function under an assumed name." But the employment of psychologists in even this "left-handed" way is the exception rather than the rule.

During the crisis of the Great War, psychologists met in Washington and worked out a plan in record time for making a psychological assay of the hu-