

National Academy of Sciences Meeting—Continued

Wilson Observatory in California, represents the students of the stars, but his invention of a new type of earthquake recorder, in collaboration with his colleague, Dr. Harry O. Wood, has provided a simple means of detecting quakes.

An important chemical tool, hydrogen ion concentration determination, was developed in this country in part by Dr. William Mansfield Clark, of the Johns Hopkins University Medical School. He worked on the chemistry of cheese while in the bureau of dairy chemistry of the U. S. Department of Agriculture and later he was with the U. S. Hygienic Laboratory.

When it comes to the geology of the Appalachian Mountains, Dr. Arthur Keith, the geologist elected, can speak with authority, for that is one of his specialties. He is now with the U. S. Geological Survey.

It is to Charles Franklin Kettering, the electrical engineer of the group, that millions of farmer owe their thanks for having electrical illumination in their homes, for he perfected and put on the market the "Delco" lighting system. He developed the tetra ethyl anti-knock fuel

for autos and perfected the "Delco" ignition system for automobiles. Now he is a vice-president and director of the General Motors Corporation, and at the head of the General Motors research laboratory.

Dr. Alfred L. Kroeber, the anthropologist, is one of the leading authorities on the languages of the American Indian. He is professor of anthropology at the University of California.

Paleontology, the study of now extinct forms of animal life, finds its representative in Dr. Rudolph Ruedemann, state paleontologist for New York. He is a German by birth, and taught at the University of Strassburg before coming to the United States in 1892.

Problems of metabolism, or the functioning of the body, have engaged the attention of Dr. Philip Anderson Shaffer, professor of biochemistry at the Washington University Medical School, St. Louis.

The two psychologists are Dr. George Malcolm Stratton, of the University of California, at Berkeley, and Dr. Lewis Madison Terman, of Stanford University, California. Between them they represent two great

branches of psychology. Dr. Terman is the author of the Stanford Revision of the Binet-Simon tests, with which millions of persons have had their intelligence tested. Many other series of intelligence tests have been based largely on his work. Dr. Stratton is an experimental psychologist. One of his researches was concerned with vision, and in the course of his experiments he wore for days a pair of spectacles that made everything appear upside down.

As a foreign associate, the academy elected Sir Robert A. Hadfield, famed British engineer, chemist and metallurgist. He is the inventor of manganese steel, widely used in industry.

Dr. Joseph S. Ames, provost of the Johns Hopkins University was elected treasurer of the academy, while Dr. W. B. Cannon, of the Harvard University Medical School, and Gano Dunn, New York engineer, were elected to serve three years on the Council. Dr. George K. Burgess, director of the U. S. Bureau of Standards, was elected chairman of the National Research Council, succeeding Gano Dunn.

Science News-Letter, May 5, 1928

Man and the Universe

Astronomy

J. H. JEANS, in a lecture before the Royal Society, published in *Nature*:

The total age of the earth far exceeds the 300,000 years or so of man's existence. The evidence of geology, and of radio-activity in rocks in particular, shows that it must be something like 2,000 million years, which is several thousand times the age of the human race. Old Mother Earth must regard man as a very recent apparition indeed; he has just appeared to burrow into her, burn her forests, put her waterfalls into pipes, and generally mar the beauty of her features. If he has done so much in the first few moments of his existence, she may well wonder what is in store for her in the long future ages in which he is destined to labour on her surface. For in all probability the life in front of the human race must enormously exceed the short life behind it. A million million years hence, so far as we can foresee, the sun will probably still be much as now, and the earth will be revolving round it much as now. The year will be a little

longer, and the climate quite a lot colder, while the rich accumulated stores of coal, oil, and forest will have long been burnt up; but there is no reason why our descendants should not still people the earth. Perhaps it may be unable to support so large a population as now, and perhaps fewer will desire to live on it. On the other hand, mankind, being three million times as old as now, may—if the conjecture does not distress our pessimists too much—be three million times as wise.

Looked at on the astronomical time-scale, humanity is at the very beginning of its existence—a new-born babe, with all the unexplored potentialities of babyhood; and until the last few moments its interest has been centered, absolutely and exclusively, on its cradle and feeding-bottle. It has just become conscious of the vast world existing outside itself and its cradle; it is learning to focus its eyes on distant objects, and its awakening brain is beginning to wonder, in a vague, dreamy way, what they are

and what purpose they serve. Its interest in this external world is not much developed yet, so that the main part of its faculties is still engrossed with the cradle and feeding-bottle, but a little corner of its brain is beginning to wonder.

Taking a very gloomy view of the future of the human race, let us suppose that it can only expect to survive for two thousand million years longer, a period about equal to the past age of the earth. Then, regarded as a being destined to live for three-score years and ten, humanity, although it has been born in a house seventy years old, is itself only three days old. But only in the last few minutes has it become conscious that the whole world does not centre round its cradle and its trappings, and only in the last few ticks of the clock has any adequate conception of the size of the external world dawned upon it. For our clock does not tick seconds, but years; its minutes are the lives of men.

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