THE LEON MANDEL GUATEMALA EXPEDITION OF THE FIELD MUSEUM

A ZOOLOGICAL expedition, sponsored by Leon Mandel, of Chicago, to make extensive collections of birds, mammals, reptiles and amphibians of Guatemala for the Field Museum of Natural History, sailed from New Orleans on November 22, aboard the steamship *Tivives* for Puerto Barrios.

A few weeks hence, after preliminary reconnoitering has been completed and definite camps established, Mr. Mandel is expected to join the expedition for a few weeks' vacation. This is the second expedition in which he has personally participated as a collector. In 1932 he organized and led the Mandel-Field Museum Zoological Expedition to Venezuela which was conducted aboard his yacht *Buccaneer,* making a long sea voyage and penetrating the innermost navigable reaches of the Orinoco River.

Karl P. Schmidt, assistant curator in charge of reptiles at the museum, is leader of the party. He is accompanied by F. J. W. Schmidt, biologist; Emmet R. Blake, ornithologist, and Daniel Clark, general assistant. The expedition will remain in Guatemala for about six months, surveying various regions of the country, which is remarkable for its diversification of climate and altitude. This diversity of habitat, which results in a wealth of species of animal life, reaches its maximum for Central America in Guatemala. The country is of special interest zoologically also because it is the meeting ground of North and South American types of life.

The Field Museum has for years carried on an extensive program of investigation of the fauna of the American tropics, and the present expedition is for the purpose of furthering these studies. While the expedition's primary aim will be to collect specimens for addition to the museum's scientific reference collections, it will also seek material for exhibits, including species of tropical reptiles, and of Central American birds to be used in a series of groups reproducing their natural habitats.

Leader Karl Schmidt will concentrate his efforts on reptiles, while his brother, F. J. W. Schmidt, will specialize on mammals and Mr. Blake will have charge of bird collecting. Karl Schmidt's share in this expedition will be a continuation of his work on the Central American fauna for which he was awarded a fellowship in 1932 by the John Simon Guggenheim Memorial Foundation. As far back as 1923 Mr. Schmidt made extensive collections in the adjacent countries of Honduras and British Honduras. Among the most interesting creatures to be collected on the present Guatemalan trip are arboreal salamanders and frogs, many of which have extraordinary breeding habits. F. J. W. Schmidt has for several years experimented with special methods of collecting mammals, and will apply his experiences on the exceptionally rich mammalian fauna of Guatemala in the hope of collecting new and little-known forms. Mr. Blake was one of the principal collectors on the Mandel-Field Museum Zoological Expedition to Venezuela in 1932, on which he collected and prepared more than 800 birdskins within a period of five weeks in the mountain rain forests of the Mount Turumiquiri region.

ESTABLISHMENT OF THE MARTIN GUSTAV AND CAROLINE RUNICE HANSON FUND AT THE SMITHSONIAN INSTITUTION

THE September, 1933, number of *Minnesota Medicine,* page 589, gives an account of the presentation of a gold plaque to Dr. Adolph M. Hanson, of Faribault, Minnesota, by the State Medical Association "in recognition of his discovery and isolation of the parathyroid hormone and in grateful appreciation of the distinction thus conferred upon the medical profession of Minnesota." This recognition in his home community happens to coincide with the granting, after an extensive interference proceeding in the course of which four other claimants were eliminated, of basic U. S. patent No. 1,890,851 to Dr. Hanson for an "Extract of the Parathyroid Gland and Process of Preparing Same."

An interesting story lies behind this scientific achievement.

When Dr. Hanson returned from the war in 1919,[1] he left behind him an enviable record of work in neurosurgery done under the stress and strain of the battlefield; naturally he sought something to divert his mind from reliving the experiences he had just gone through. Although engaged in the practise of medicine, he decided to work toward his master's degree at a near-by college, and chose the parathyroid gland as his subject of study since comparatively little was known about it at that time. He rigged up a small laboratory in his basement and obtained permission from the college to do the necessary laboratory work there in his spare time.

After a preliminary chemical study of the gland he identified xanthine as the predominating purine body by following the standard procedure of boiling the gland in dilute sulfuric acid. He then tried boiling it in dilute hydrochloric acid to see if xanthine could be isolated in the same way, but to his surprise the solution behaved quite differently. He was led to suspect that some substance peculiar to the parathyroid glands could be isolated in larger amounts with hydrochloric acid than with sulfuric acid. This, together with the knowledge that hydrochloric acid was sometimes injected to relieve tetany in dogs, suggested the possibility that hydrochloric acid

[1] Dr. Hanson contributed the chapter on "Management of Gunshot Wounds of the Head and Spine in Forward Hospitals, A. E. F.," to "The History of the Medical Department of the U. S. Army in the World War," edited and published by the Surgeon-General of the U. S. Army.

might have some selective activity on the parathyroid. He called his solution Hydrochloric X and described it in the *Military Surgeon* for April, 1923. The article attracted little attention partly because endocrine workers did not regularly review the *Military Surgeon* for articles in their field and partly because they doubted the advisability of boiling a gland with a mineral acid in order to extract an active principle! Nevertheless, Hanson arranged to have his Hydrochloric X tested on parathyroidectomized dogs and was gratified with the result. He was convinced that he had hit upon a method of releasing the substance in the parathyroid gland that was responsible for raising blood calcium and relieving tetany in dogs. He published his results in the *Military Surgeon* for January, 1924. They were soon ably confirmed and extended by Collip (1924).

It is now learned that Dr. Hanson, immediately after having been awarded his patent, assigned to the Smithsonian Institution at Washington all income and royalties accruing to him. The grant has been accepted by Dr. C. G. Abbot on behalf of the institution and will be known as the Martin Gustav and Caroline Runice Hanson Fund, thus assuring that all income will be used in the furtherance of science. Three of the largest pharmaceutical houses in the country are already operating under the patent, namely Parke, Davis and Company, Eli Lilly and Company and E. R. Squibb and Sons.

The spirit which motivated Dr. Hanson through all the years when he worked alone on his problem, sacrificing his resources with the disregard of one truly unselfish, is well illustrated by his final act in the interests of science.—OLIVER KAMM.

AWARD OF THE COMSTOCK PRIZE OF THE NATIONAL ACADEMY OF SCIENCES TO PROFESSOR BRIDGMAN

THE Comstock Prize of the value of $2,500 was presented to Dr. Percy W. Bridgman, Hollis professor of mathematics and philosophy at Harvard University, at the dinner of the National Academy of Sciences held at Lowell House, Harvard University, on the evening of November 21. The report of the chairman of the Comstock Fund Committee, Dr. Max Mason, president of the Rockefeller Foundation, was made by Dr. Fred E. Wright, home secretary, and the presentation was made by Dr. W. W. Campbell, president of the academy. The report of the committee was as follows:

In awarding the Comstock Prize for the five-year period ending in the present year, the National Academy of Sciences recognizes the brilliant achievements of Percy Williams Bridgman in advancing our knowledge of the behavior of matter. Bridgman is both an experimenter and a theorist. Working indefatigably in a field of great experimental difficulty, he has derived an enormous array of fundamental facts, while new insights and physical concepts have come from the keen analysis of his theoretical studies.

Most of Bridgman's work falls into three categories: the first, so peculiarly his own, the behavior of materials under high pressure; second, the properties of single crystals at normal pressures; and, third, the application of thermodynamics to electrical phenomena.

To catalogue the phenomena and the material studied under the difficult technique of high pressures, and, of recent years, low temperatures as well, gives a picture of the astonishing extent of Bridgman's work. He has studied compressibilities, melting points, polymorphic transitions, electrical resistance, thermo-electric behavior, thermal conduction and viscosity. An idea of the amount of material gained through these difficult studies may be obtained from the fact that compressibilities have been measured for 80 solid compounds, 54 elements, 60 liquids, as well as several gases. To state very briefly some of the general results obtained, it has become clear that most of the compression of substances at high pressure is provided by the compression of the atoms and molecules themselves, and not by diminishing the space between them; that previous ideas on the course of the melting curve must be modified since, for example, there is no critical point, but melting temperature may rise with pressure until the atoms break. Theories of the solid state must reckon with Bridgman's result on polymorphic transitions. Why, for example, should rubidium chloride be forced by high pressure from a face-centered to a body-centered cubic arrangement when calcium chloride is not so affected? Many anomalies are shown in Bridgman's studies of electrical resistance under pressure. In 1930 a result of outstanding and fundamental significance was obtained. Working at enormous pressure and at low temperature, Bridgman determined that a temperature of minimum resistance exists for the alkalies. Lowering the temperature beyond this point increases instead of lowers the resistance. This result, of far-reaching importance, must be a guide for all theories of electrical conductivity.

A large series of determinations of the behavior of single crystals has resulted from Bridgman's development of an easy way of forming single crystals of metals and salts. In recent years he has determined for many such crystals the elastic constants, electrical resistance, thermal conductivity and thermo-electric effects.

In a series of articles Bridgman has applied thermodynamic analysis to electrical phenomena, with results of far-reaching importance. It was thus discovered and experimentally demonstrated that an internal Peltier heat in crystals exists where the direction of current flow changes. This means that the direction of motion of an electron in a metal can not be changed without the expenditure of a definite amount of energy, the result again furnishing a fundamental fact which must be reckoned with in electron theory. Through application of thermodynamics to the transverse galvano-magnetic effects Bridgman has shown the existence of a new physical concept, a thermo-motive force, by virtue of which under proper conditions temperature differences may exist within a material without heat flow. Bridgman