To do this, the Englishman must talk Chinese to the Chinese and the man from China must talk English to us. We are not effectively doing this now, but your society is doing more than any other agency to standardize procedures and make intelligible to those in other fields the work of the optical physicist and your president is doing his share of the work. We can only make use of your instruments as you make it possible for us to understand and use them. But we too are to blame, for our words and phrases so often must be only meaningless words to you, for so often we discover that they mean very little to us also.

CONCLUSION

In a very brief way I have tried to show how absorption spectra have been intimately related to the development of our knowledge of chlorophyll. One hundred years ago Stokes discovered several laws that are very applicable to-day. For apparatus he used a boarded-up window, a slit in a plank, a lens and a prism. Instead of thinking how much we have accomplished with highly refined instruments we biochemists should rather humble ourselves by thinking how little use we have made of the instruments which you have so nobly perfected.

For fifteen years the work of Willstätter has lain almost unnoticed. Perhaps much more time must elapse before we become conscious of how to apply the principles and procedures which he has developed for fractionally separating an organic substance from many others. He has successfully isolated four chemical substances from masses of organic substances most difficult to manipulate. What has been done with chlorophyll *a* and *b*, carotin and xanthophyll can be done with other organic substances. By spectrophotometric methods any substance can be traced through any number of fractional separations. Transmittancy measurements combined with centrifugal methods and fractional separations in solvents should make it possible to separate organic substances of which our knowledge as yet is very incomplete. Delay in using fundamental principles discovered by others is a question of psychology and not one of biochemistry or physics. Our delay is measured by the amount of time that it takes us to become wholly conscious of that which most unconsciously lies immediately before us—much that we have learned must be temporarily forgotten before we can become conscious of the real situation. It is further measured by our stubborn unwillingness to give up ideas which we have held from our youth. Once we get the viewpoint our sails will be set in a straight course to study the things that are fundamental and so full of spiritual significance for us all. Our concern is with life and how to live it more normally and completely by living in complete harmony with nature's laws and not forever opposing them. That is my motive for a critical study of biochemical compounds, using light, a fundamental something which can be accurately measured, as a final test.

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CHARLES DEPÉRET

THE sad news comes from the University of Lyons of the sudden death of Professor Charles Depéret, dean of the science faculty of the University of Lyons and one of the most distinguished leaders in the long line of paleontologists of France who have succeeded Cuvier, the founder of this great branch of biology. According to a note received from M. Frédéric Roman, professor of geology in the University of Lyons, the death of Professor Depéret occurred, following a geological excursion in the south of France.

Charles Depéret was eminently a collector and field observer both in vertebrate and invertebrate paleontology. He naturally succeeded Albert Gaudry in the series of monographs on the fossil mammalia, especially of Southern France, so that we owe to him the scheme of geologic and paleontologic correlations between the Upper Tertiaries of France, England and Italy, which have been elaborated through the work of the present writer into very close comparisons of the Tertiary faunal horizons. Both in descriptive and in philosophic paleontology, Charles Depéret was a master. His talent in invertebrate paleontology and geology was not only shown in his great correlation scheme of the Tertiaries but was extended in recent years into the correlation of the Pleistocene through the rising and falling sea-levels and shore-lines surrounding the Mediterranean and extending up along the eastern borders of France and Great Britain. The establishment of four great *Étages* dividing the Pleistocene by marine stages similar to those by which the Pliocene and preceding Tertiaries are divided is his last and perhaps one of his greatest contributions to geology and paleontology.

He was a man of most genial and delightful personality, generous in the exchange of ideas and materials and inspiring to all the younger men who came in contact with him. Thus he leaves a school of younger geologists and paleontologists, many of whom have collaborated with him and participated in his field excursions and observations, and will sustain the high traditions of French paleontology and geology. To all these colleagues in the University of Lyons and to members of his family we extend our most

sincere sympathy and this expression of our profound admiration and esteem.

Among his principal works were: "Recherches sur la succession des Faunes de Vertébrés Miocènes de la vallée du Rhône" (1887); "Les Animaux Pliocènes du Rousillon" (1890); "La Faune de Mammifères Miocènes de la Grive-St. Alban" (1892); "Les Vertébrés Oligocènes de Pyrimont-Challonges (Savoie)" (1902); "Les Transformations du Monde animal" (1907); "Monographie de la Faune de Mammifères fossiles du Ludien inférieur d'Euzet-les-Bains (Gard)" (1917).

HENRY FAIRFIELD OSBORN,
Membre de l'Institut de France

FRANZ KEIBEL

WORD has been received of the death of the German embryologist, Franz Keibel. Following a prolonged illness he died in his 68th year on April 27, 1929, in Berlin. Professor Keibel was well known to the anatomists in America, many of whom worked under him in his Freiburg days. A still wider acquaintance has resulted from the series of publications entitled *Normentafeln zur Entwicklungsgeschichte,* an encyclopedic survey of the embryonic anatomy of various groups of vertebrates, and from the "Manual of Human Embryology," edited in collaboration with Professor Mall. The latter constitutes the most comprehensive treatment of human embryology that has ever been produced. In both of these important works there was participation on the part of American investigators and this led to exceptionally close relations between Professor Keibel and the workers in this country. In 1906 he received the honorary degree of LL.D. from Harvard University and for the years 1914 to 1917 he had an appointment as research associate of the Carnegie Institution of Washington, collaborating with the newly established department of embryology.

The greater part of Professor Keibel's scientific activities were prosecuted in Freiburg i. Br. During this fruitful period he became widely known through his numerous morphological studies in vertebrate embryology and through his larger treatises on such problems as gastrulation, cephalization, the germ layers and the origin of the mesoderm. Among these are found papers that will endure for all times. His scholarship and his talent as a teacher found their expression in the works mentioned above, the "Normentafeln" and the "Manual of Human Embryology," both of which are outstanding contributions.

In 1917 he succeeded Schwalbe as professor of anatomy at Strassburg, only to lose the position a year later upon the occupation by the French. The transfer of Sobotta to Bonn made an opening for him at Königsberg i. P., where he became ordinarius and director of the anatomical laboratory in 1919. Three years later (1922) upon the retirement of Oskar Hertwig he was appointed professor of anatomy and director of the anatomico-biological institute of the University of Berlin, a chair of distinction, and this he held until the time of his death.

G. L. S.

CAREY V. HODGSON

CAREY V. HODGSON, hydrographic and geodetic engineer and assistant chief of the division of geodesy, U. S. Coast and Geodetic Survey, and his ten-year old son, were drowned while canoeing in Chesapeake Bay, near Annapolis, on Sunday, May 19, 1929. His body was recovered on May 22 and buried, with full military honors, in Arlington National Cemetery on Saturday, May 25. At the time this was written, the body of his son had not been recovered.

Major Hodgson was born at Wilmington, Ohio, July 11, 1880. He was a graduate of Wilmington and Haverford Colleges, receiving a B.S. degree from both of these institutions. He entered the field service of the U. S. Coast and Geodetic Survey March 31, 1904, and remained with that bureau until his death except for a short period when he was engaged in private engineering work, and during the World War.

In 1917, he was transferred to the Corps of Engineers of the Army and commissioned a captain. He served in France with the 29th Engineers and, while there, was promoted to the rank of major. On March 9, 1929, he returned to the U. S. Coast and Geodetic Survey and resumed his duties with that bureau.

While in the Coast and Geodetic Survey he served on many hydrographic and topographic parties and also on vessels of that bureau engaged in surveying the waters of Alaska and the Philippine Islands. While in the Philippines, he commanded the survey ship *Research.* He had charge of many geodetic parties, engaged principally in triangulation, base measurement and the astronomic determinations of latitude and longitude. He was appointed assistant chief of the division of geodesy in 1920 and served in that capacity until his death.

Not only did he make a notable record in the latter position, showing marked executive and technical ability, but he also took an active part in other engineering lines. He was secretary of the executive committee of the division of surveying and mapping of the American Society of Civil Engineers, member and director of the Washington Society of Civil Engineers, member and director of the Society of Amer-