the same antagonistic action of ions as in the case of heart muscle. Similarly, blood plasma may be regarded as an emulsion of fibrinogen and other colloids in an aqueous medium, and the blood clot an emulsion of water in fibrin. The production of the latter system is favored by calcium salts, but is retarded by sodium salts.

Clowes has shown that there is a very close resemblance between the effects produced in emulsions of oil and water and those produced in biological systems, and he has made the valuable suggestion that the cell membrane is a system, a colloidal emulsion, of two phases; a watery solution of protein and a lipoid phase. In the resting state of the cell the membrane consists of an emulsion of protein solution in lipoid, the latter being the continuous phase. In this state, therefore, the membrane will be permeable only to the substances that are lipoid-soluble. In the active state of the cell, there is a reversal of the emulsion, and the aqueous phase becomes the continuous one. In this case, substances soluble in water will now be able to pass through. In each instance, however, regarding the emulsion-membrane as a sieve, the membrane will be permeable only to those substances the particles or molecules of which are small enough to pass through the "pores" between the droplets of the dispersed phase.

We can thus regard not only the protoplasmic cell contents but also the surface layer or cell membrane as a colloid system, and by adopting the view, probably not complete in itself, that the cell membrane is a complex emulsion of colloids, the two phases of which are capable of undergoing reversal, we can explain many of the phenomena associated with the action of the cell membrane.

Although we must recognize the essential importance of colloidal matter in connection with the phenomena of life, and matter in the colloidal state is the vehicle of life; although, further, we may interpret much of the behavior of living matter in terms of physics and chemistry, I am of the opinion that we can not explain life itself in terms of physical science. There seems to be no continuity between inanimate colloidal matter and living matter, but there is a distinct and sharp break in the curve of relations. In other words, life is a new factor, a new set of potentialities, introduced into inanimate matter. Life is a new creation.

ALEXANDER FINDLAY

UNIVERSITY OF ABERDEEN

WALTER SCOTT HENDRIXSON

ON July 1, Professor Walter Scott Hendrixson was found dead in his summer cottage at Portage Point, near Manistee, Michigan, where he had been temporarily alone. Death had occurred suddenly from hemorrhage in the brain.

Professor Hendrixson was born in Ohio in 1859; was graduated from Union Central College, Meron, Indiana, in 1881; was instructor and later professor of physics and chemistry at Antioch College, 1882–8; assistant and graduate student in chemistry at Harvard 1888–90, receiving the degrees of A.M. in 1889 and Ph.D. in 1903. He came to Grinnell College as professor of chemistry on the Dodge foundation in 1890, and at the time of his death was the senior member of the Grinnell College faculty, yet a most active and aggressive member and a valued adviser in affairs of the college.

During leaves of absence from Grinnell he had spent one year as graduate student at Goettingen and Berlin; one semester as lecturer in chemistry at the University of Illinois; a year as research fellow at Johns Hopkins University. He was a frequent contributor to the *Journal* of the American Chemical Society; was a member of learned societies; had served as president of the Iowa Academy of Sciences.

As a teacher, Professor Hendrixson was an inspiration to his students, sending many of them on to graduate and professional work in chemistry. As a chemist, the work of his earlier years was with water analyses and in the investigations of artesian waters underlying Iowa, by the United States Geological Survey. In his later years he has been a regular contributor in the development and applications of electrometric methods in chemistry, his last publication bearing date of May 5, 1925.

As a fitting and permanent memorial of a long and distinguished service, Professor H. W. Norris, a colleague of more than thirty years, has proposed the establishment of the Walter Scott Hendrixson Memorial Fund, for the promotion of research in pure science by members of the faculty of Grinnell College; a fund, the income of which is to be used for the promotion of research by paying the actual expenses involved in original investigations. The aptness of this suggestion was immediately recognized and measures promptly taken looking toward securing an endowment of not less than $10,000 for such a memorial.

FRANK F. ALMY

SCIENTIFIC EVENTS

RESEARCH AND INDUSTRY IN GREAT BRITAIN

THE British Science Guild have published a report, by the Research and Inventions Committee of the Guild, on the present position with regard to the supply of trained scientific research workers, and their utilization in industry.

The committee find according to a report in the London *Times* that, comparing the year 1923–24 with the year 1913–14, the number of full-time students in science at the British universities shows an increase of 60 per cent., while the number of bachelor degrees obtained in science has more than trebled. Over the same period, the number of full-time, post-graduate students engaged in scientific research has increased to more than four times the 1913–14 figure. The Department of Scientific and Industrial Research, the committee observe, have afforded great assistance to research students in training, but, except in one or two instances, the Research Associations of the department do not appear to be very extensively developed.

The funds at the disposal of the department are large, but in view of the sums annually spent on scientific research in the United States, and our general public expenditure, they can not, in the opinion of the committee, be described as adequate to the great needs of our industries. It appears from inquiries that there is considerable unemployment among recently trained scientific research workers, and that this is most serious in the case of research chemists.

The committee conclude that the value of scientific research to industry is now widely recognized; but that the part that industry itself can play in maintaining an adequate supply of research workers, and in promoting or supporting scientific research, is not so well understood. They suggest that the government could offer considerable inducement to commercial firms to support research, by permitting sums devoted to this purpose to be treated as trade expenses for the purpose of assessment for taxation. They consider it imperative that, before more men and women are encouraged to undertake scientific research training, the demand for them should first be assured. The committee do not look to the greater industrial concerns—many of which already realize to the full the value of scientific research—to provide a solution of the present difficulty, but rather to the hundreds of smaller firms whose industrial research associations, if fully developed, could utilize many more scientific research workers; to the benefit, the committee submit, not only of each particular industry, but of the industry of the country as a whole.

The committee further suggest an extension of the method adopted by the various research committees and coordinating boards of the Department of Scientific and Industrial Research, and by the Ministry of Agriculture and other Departments; a inquiry with a view to the establishment of an organization on the lines of the "A. D. Little" Laboratories in the United States; and also an extension of the scheme at present in operation in Bristol University, under which an industrial firm endows for two years a research student who works on a special line of investigation in the laboratories of the university.

In a memorandum appended to the report the committee strongly recommend the formation of a permanent expert advisory committee on industrial inventions, the functions of which would be (1) to examine the claims of inventions and to decide which are of probable industrial value; and (2) to arrange for the semi-large scale, or complete commercial trial, of inventions passed by the committee.

RESULTS OF THE ASIATIC EXPEDITION OF THE AMERICAN MUSEUM

THE American Museum of Natural History has received cables from Roy Chapman Andrews, leader of the museum's third Asiatic expedition, now in Mongolian territory, giving details of the progress of the expedition. Dr. Clark Wissler has made public the following statement:

The results of the third Asiatic expedition prove the presence of early man in Asia and that is no mean achievement. It is certain that when the first try for paleolithic man in central Asia not only returns rich collections, but reveals two widely separated horizons, it is certain that the whole chapter of stone age history is to be read in Asia as well as Europe. This prospect holds out a promise for America, where there has been no clew to the direct relation of prehistoric man to the ancients of the old world.

Having found the implements which are associated with Neanderthal man in prehistoric Europe it can be safely predicted that sooner or later his bones will be found in Mongolia. The recent discovery of a Neanderthal skeleton in Palestine brings this type of fossil man one step nearer to Central Asia.

This discovery by the American Museum of Natural History adds another epoch to the prehistory of man in Asia. Andrews reports that a large collection has been made, sufficient fully to characterize the culture, and that it is parallel to the Azilian of Western Europe.

Azilian is the last of the old stone age cultures and marks the transition to the neolithic, or second great stone age. But the report goes further in stating that the finds promise to be somewhat older than the Azilian of Europe, which would put them back well within the old stone age.

We are also told that some sites examined yielded mouterian stone tools. This is a period in stone age chronology far back of the Azilian, in fact just before the appearance of the more modern types of man in Europe, or in the time of the Neanderthals.

ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE fifty-fourth annual meeting of the American Public Health Association will be held in St. Louis,