This made the cell theory of Schleiden and Schwann a possibility.

Without detracting at all from the epoch-making work of these two men, and with great admiration for that of Schwann, who accurately described for the first time many types of animal cells, the present writer finds himself unable to give them sole credit for a theory that had been taught forty years earlier in France.

Not one of these pioneers knew how new cells originate. It was the deep secret that most intrigued the active minds of the two Germans. They made their guess, and guessed wrongly, but their observations in confirmation of Robert Brown's important discovery, and Schwann's clear pictures of animal cells, have given them the distinguished place that they deserve among the founders of the cell theory. Whether they should be given exclusive credit for the theory that had been taught in Paris forty years earlier by Lamarck, and admirably supported by beautiful plates prepared by Mirbel showing plant structures, the reader may judge for himself by reading a review of the whole situation in the current number of *The Scientific Monthly*[1], and, better, by perusing the original books and papers to which reference is therein made.

Reviewed now, after the lapse of a century, the different methods and temperaments of the various writers are thrown into bold relief, and one is forcibly reminded of the folly of unchecked speculation and the wisdom of guarding the indispensable imagination by keen, untiring observation and experiment.

JOHN H. GEROULD
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SCIENTIFIC EVENTS

DISINTEGRATION OF ELEMENTS[1]

I HAVE been asked to say a few words about a telegram in the *Times* of March 14 giving an account of a paper communicated to the American Chemical Society at Chicago by Dr. G. Wendt and Mr. C. E. Iron. It reported that, when a powerful condenser discharge at 100,000 volts was sent through a very fine tungsten wire, the filament exploded with a "deafening report," producing a flash estimated to correspond to a temperature of at least 50,000° F. The telegram states: "After the flash he (Dr. Wendt) found atoms of tungsten decomposed into simpler atoms and the result was the change of metallic tungsten into gaseous helium." The experiments were made to investigate whether any atomic disintegration can be effected by such high temperature discharges, and apparently the authors believe that they have obtained positive results.

We must await a much fuller account of the experiments before any definite judgment can be formed; but it may be of interest to direct attention to one or two general points. During the last ten years many experiments have been recorded in which small traces of helium have been liberated in vacuum tubes in intense electric discharges, and it has been generally assumed that this helium has been in some way occluded in the bombarded material. On modern views, we should anticipate that the disintegration of a heavy atom into lighter atoms, *e. g.*, into atoms of helium, would be accompanied by a large evolution of energy. Indeed, it is to be anticipated that the additional heating effect due to this liberated energy would be a much more definite and more delicate test of disintegration of heavy atoms into helium than the spectroscope.

Our common experience of the large effect of temperature in ordinary chemical reactions tends to make us take a rather exaggerated view of the probable effects of high temperatures on the stability of atoms. While it seems quite probable that momentary temperatures of 50,000° F. can be obtained under suitable conditions in condenser discharges, it should be borne in mind that the average energy of the electrons in temperature equilibrium with the atoms at this temperature corresponds to a fall of potential of only 6 volts. In many physical experiments we habitually employ streams of electrons of much higher energy and yet no certain trace of disintegration has been noted. In particular, in Coolidge tubes an intense stream of electrons of energy about 100,000 volts is

[1] The Dawn of the Cell Theory, *Scientific Monthly*, Vol. XIV, No. 3, pp. 268-277, March, 1922.

[1] Sir Ernest Rutherford, in *Nature*.

constantly employed to bombard a tungsten target for long intervals, but no evolution of helium has so far been observed.

A RESEARCH FELLOWSHIP IN BACTERIOLOGY

THE Society of American Bacteriologists at its recent meeting in Philadelphia, appropriated a fund for the support of a research fellowship in pure bacteriology. While excellent work is being carried on in many places, nearly all the problems under investigation have as their aim a practical application and there are, therefore, many gaps in our knowledge of fundamental principles. The society, believing it to be the duty of bacteriologists to fill these *lacunæ,* requires that the line of work to be carried on under its fund must concern a purely scientific and fundamental phase of bacteriology, although a certain latitude of choice will be permitted, conditioned by the previous training and the desires of the research fellow himself.

Applicants for the fellowship must have the degree of B.S. or its equivalent. The successful candidate, through arrangements now being made, will receive academic credit for the work done from a university of recognized standing. One hundred dollars a month will be available for the living expenses of the fellow. Approximately half his time will be devoted to details connected with the society's collection of bacteria, deposited at the Army Medical Museum.

The selection of the research fellow will be in charge of a committee consisting of:

Dr. Victor C. Vaughan, chairman of the Medical Section, National Research Council, *Chairman.*

Captain C. S. Butler, Medical Corps, U. S. Navy, commandant, Naval Medical School.

Dr. Geo. W. McCoy, director of the Hygienic Laboratory, U. S. Public Health Service.

Dr. John R. Mohler, chief, Bureau of Animal Industry.

Mr. L. A. Rogers (president of the Society of American Bacteriologists), in charge of research laboratory, Dairy Division, Bureau of Animal Industry.

Colonel Joseph F. Siler, Medical Corps, U. S. Army, Division of Sanitation, Office of the Surgeon General of the Army.

Dr. Erwin F. Smith, pathologist in charge, Laboratory of Plant Pathology, Bureau of Plant Pathology.

This committee will have general supervision of the work, approve the problem selected and pass upon the thesis which the fellow will submit as the report of his research. Applications for and communications concerning the research fellowship should be addressed to the chairman of the committee, Dr. Victor C. Vaughan, National Research Council, Washington, D. C.

A. PARKER HITCHENS,
Secretary of the Committee
ARMY MEDICAL SCHOOL,
WASHINGTON, D. C.

THE CULTURE COLLECTION OF THE SOCIETY OF AMERICAN BACTERIOLOGISTS

THE Society of American Bacteriologists has taken over the collection of cultures which for the past ten years has been maintained at the American Museum of Natural History by Professor C.-E. A. Winslow, and has deposited it at the Army Medical Museum, where facilities have been arranged for its housing and maintenance.

The following committee will be in charge:

Dr. J. M. Sherman, Dairy Division, Bureau of Animal Industry, *Chairman.*

Major G. R. Callender, curator of the Army Medical Museum.

Dr. Geo. W. McCoy, director of the Hygienic Laboratory, U. S. Public Health Service.

Major H. J. Nichols, Army Medical School.

The president of the society.

The secretary of the society.

These and other members of the society in and near Washington will do volunteer work and the research fellow will do part time work in maintaining the collection. No charge will be made for cultures. In making requests, the classification of the society should be followed as far as possible. Mail should be addressed to the Department of Bacteriology, Army Medical Museum, 7th and B Streets, S. W., Washington, D. C.

J. M. SHERMAN
Chairman of the Committee

STATION FOR THE STUDY OF DECIDUOUS FRUITS AT STANFORD UNIVERSITY

THE United States Government has established an experiment station on the Stanford campus in cooperation with the university for scientific work on the breeding and improve-