bandry; H. S. Marks, Cornell, instructor in mechanical engineering; J. F. Meister, Cornell, instructor in electrical engineering; G. F. Sykes, Brown, instructor in zoology and physiology; S. M. Dolan, Notre Dame, instructor in civil engineering, and Grace Campbell, Iowa State College, instructor in mathematics.

DR. MARTIN H. FISCHER has been appointed professor of physiology in the medical department of the University of Cincinnati.

ROY GRAHAM HOSKINS, Ph.D., formerly teaching fellow in physiology at Harvard Medical School, has been appointed professor of physiology in the Starling Ohio Medical College. He will be assisted by Dr. Clayton C. McPeek.

DR. A. J. GOLDFARB (C. C. N. Y., 1900, Ph.D. Columbia, 1910) has been appointed a tutor in biology in the College of the City of New York.

F. M. HANDY, M.A., has been appointed instructor in geology in the University of Colorado to take the place of Assistant Professor Ralph D. Crawford, who has been granted a year's leave of absence.

PROFESSOR GUY WEST WILSON, of Upper Iowa University, has accepted the position of assistant in vegetable pathology in the North Carolina Agricultural Experiment Station.

GEORGE D. HUBBARD, Ph.D. (Cornell), for the past five years assistant professor of geology at the Ohio State University, has resigned to accept the professorship at Oberlin College made vacant by the resignation of Dr. E. B. Branson.

DISCUSSION AND CORRESPONDENCE

THE SPECTRUM OF MARS

TO THE EDITOR OF SCIENCE: In the article by Messrs. Campbell and Albrecht, published in your issue of June 24, and read before the National Academy of Sciences at its April meeting, one is led to infer, though it is not expressly so stated, that the application of the Doppler-Fizeau principle to the study of the Martian atmosphere originated with Dr. Campbell.

Would it not have been more courteous to have mentioned the previous work by the same method by Dr. Slipher, along lines suggested by Dr. Lowell, and published in Bulletin No. 17 of the Lowell Observatory?

There is, moreover, such a striking similarity in the reasoning in the two articles, as to suggest that, though Dr. Campbell omitted to mention the bulletin, he had not neglected to read it.

G. R. AGASSIZ

TO THE EDITOR OF SCIENCE: The last paragraph of Mr. Agassiz's note suggests a charge, but thinly veiled, which no responsible man should make, certainly until after using all reasonable means for obtaining the other man's point of view. A basis for such a charge is to me unthinkable; overlooking the moral question involved, and commenting upon only a minor aspect, it is always the writer failing to give credit who suffers the consequence.

I am indebted to Mr. Agassiz's manuscript, which the editor has kindly forwarded to me, for my first information concerning an article on this subject by Professor Lowell. Looking up the reference, I find that Professor Lowell's article is stamped as received at the Lick Observatory on August 22, 1905. I was then in Spain observing the eclipse of August 30, 1905, and did not return to Mount Hamilton until November 22, 1905. I did not then, nor later, see Professor Lowell's article. None of my colleagues called my attention to it, and my first knowledge of it came to-day. The article was undoubtedly overlooked by and unknown to my colleague, Albrecht, also, or he certainly would have mentioned the subject when we were observing the spectrum of Mars, and especially when we were preparing our paper on the subject. I regret the oversight.

Professor Lowell's and Dr. Slipher's articles referred to form a four-page Bulletin of the Lowell Observatory. We have received neither index nor table of contents to the Lowell Bulletins, and probably none exists. The articles in question appear not to have been published

in any astronomical journal, either in full or in abstract, by Messrs. Lowell and Slipher; nor have I seen reviews of these articles by others.

When I was photographing the spectrum of Mars in December, 1896, with the high dispersion of a Rowland grating, fourth order, 14,438 lines per inch, as described in the *Astrophysical Journal,* volume 5, page 236, 1897, I realized that the Doppler-Fizeau principle offers great advantages for solving certain questions of the Martian atmosphere, as the water vapor and oxygen lines introduced in the Martian spectrum by the earth's atmosphere would be displaced with reference to corresponding lines in the Martian spectrum; but that the method could not be applied, with high dispersion, as the critical lines are all situated in the red, orange and lower yellow, for which regions sensitive plates were not then available. The isochromatic plates of that date gave under-exposed images. However, the question of applying the method by means of the three-prism spectrograph, which had then been in successful use for nearly a year, was thoroughly investigated to determine whether the dispersion of the three-prism instrument, when adjusted for the orange region, would be sufficient to separate or broaden appreciably the Martian and telluric lines when Mars was near quadrature in the first half of 1897. It was found that the dispersion was too low to afford any hope of success, and as the comparatively insensitive dry plates would not admit of higher dispersion, the subject was temporarily dismissed.

I find that Dr. Slipher's observations were first attempted in 1902–03, not published till August, 1905, and again early in 1905; but as his telescope had a smaller light collecting power and his spectrograph apparently a lower dispersion than I had considered using in 1897, his efforts failed. Here is his conclusion: "Measures were made, but they were difficult, uncertain and discordant, and neither proved nor disproved the displacement."

I note that while Professor Lowell recognized the existence of the method of solution in October, 1902, as stated in his bulletin, he appears to have published nothing until August, 1905.

Appropriate notes will be published in the Lick Observatory Bulletins calling attention to Professor Lowell's and Dr. Slipher's articles, as well as to Dr. Slipher's results in low dispersion photography of the Martian and lunar spectra obtained in the summer of 1905, which led him to the conclusion: "No bands or lines could be seen in Mars that were not in the moon, nor any that were certainly stronger in the planet than in the moon. In short, the spectrum of Mars appeared the same as that of our equally high moon, so far as selective absorption is concerned."

W. W. CAMPBELL

MT. HAMILTON,
August 15, 1910

QUOTATIONS

THE SHEFFIELD MEETING OF THE BRITISH ASSOCIATION

HUXLEY, in one of the last of his addresses, expressed some apprehension lest science should be crushed by the weight of the very gifts which she had demanded with such insistence from nature. The same thought has been present to many minds during the Sheffield meeting of the British Association, although it may not have been formulated with any preciseness. There was a time, not so many years ago, when men of science could aspire to the possession of an all-round acquaintance with many, if not all, departments of natural history, as it was then called. That time has gone by, and the infinite specialization which is a leading characteristic of science to-day is becoming more and more embarrassing to those engaged in the advancement of knowledge. This may be one of the causes of the comparative paucity of the numbers attending the Sheffield meeting. At first it seemed as if the members and associates would fall short of the number which took part in the previous meeting at Sheffield thirty-one years ago. Happily, this has not proved to be the case. There have been 1,449 members and associates this year, as compared