that body, in which the following vote is recommended among others: "That, in the opinion of the board of overseers, it is advisable to permit a scientific substitute, in accordance with the terms of this report, to be offered by applicants for admission to the college for either Latin or Greek, one of these two languages always being required." The terms here referred to are substantially that the scientific substitute must be a real equivalent of the old language course in amount of time needed for it, and amount of training gained from it, and that this demands more than a 'text-book' and 'memory' study. The four members of the committee who present this majority report consider the scientific substitute above referred to as recommended by the college faculty an adequate one: a minority report from one member still maintains the need of Greek for all. Favorable action may therefore be expected from the overseers.

THE GREAT SUCCESS of the free lectures recently given at Columbia college by Professors Boyesen and Butler — applications for tickets to the second course numbering over two thousand — emphasize a point in university work that has been long and persistently overlooked; that is, the duty of the university toward the people at large. Our colleges and universities depend, for success and support, upon popular interest and encouragement. They are continually in want of money, and always desirous of attracting large numbers of students. A large endowment, provided it be judiciously administered, and a large body of students, constitute a successful university. Of course, the test of numbers is of itself of small value; but the college with a thousand students can create more enthusiasm, exert a wider influence, as well as find work for more instructors, than a college having only three hundred names on its roll. The test of numbers, then, stands not so much for itself as for what it implies and represents. But these two conditions of success — money and students — might be made much easier of attainment were the relations between the universities and the people closer than they now are. As a rule, the college professor is looked up to as a useless sort of individual, who knows a great deal, but whose knowledge is of a shadowy and unpractical character. Our professors are too prone to give encouragement to this opinion by shutting themselves up within the four walls of their studies and class-rooms, and producing no results of their labors that to the non-collegiate man seem practical. Persistence in this isolation must weaken the university, and cut it off from the very sources of its support. The university should have some message to the outside world that is of a less formal and abstruse character than that usually locked up in memoirs and the transactions of learned societies. For this the lecture-hall seems pre-eminently fitted, and through it can the university find that contact with the people that it so much needs. Especially in our large cities, and by the staff of instructors in our larger universities and colleges, is this plan feasible. For years the Johns Hopkins university has given courses of lectures on semi-popular subjects, and with great success; and now Columbia, in an informal sort of way, is trying the same experiment. Perhaps the great interest of the subjects of the courses that have already been given there — 'The tendencies of contemporary literature' and 'Education as a science' — have had much to do with the great success of the Columbia lectures; but we are fully convinced that a large variety of subjects, both literary and scientific, are capable of being treated by university professors in a way that will not only attract large audiences and be an educating influence among the people, but also bring life and strength to the university itself.

THE APRIL MEETING OF THE NATIONAL ACADEMY OF SCIENCES.

THIRTY-NINE members attended this year at the spring meeting of the academy, and found Washington in its most charming vernal dress. If we except the visit of courtesy made to the President of the United States, the only social incident of importance was a reception at which the members of the academy met the members of the local scientific societies for which Washington is justly celebrated.

The academy determined by vote not to consider the nominations that had been made for membership, so that no new members were chosen. The expiration of Professor Agassiz' term of office as foreign secretary created a vacancy; and, as he declined re-election on account of ill health, Prof. Wolcott Gibbs was selected to succeed him. Gen. M. C. Meigs and Profs. S. F. Baird, G. J. Brush, C. A. Young, E. C. Pickering, and S. P. Langley were elected to the council, and the remaining officers held over.

During the past year the government has made

to recognize his own image in a glass. Even the familiar scenes of his childhood had faded from his memory. In order to understand what he read, he had to cultivate an auditory memory, and read every thing aloud. He no longer dreamt of seeing, but only of hearing. Deprived of the mental imagery which sight furnished, and which in his case was a more serious loss than to persons with less brilliant visualizing powers, his mental life became sluggish and his moods melancholic and sad. The second case from Dr. Wilbrand's practice is no less remarkable, and presents certain peculiar characteristics. Chief among these is a falling-out of the left half of the visual field; that is, the patient could not see with the outer portion of the left retina nor with the inner portion of the right retina (homonymous hemianopsia). This symptom indicates a unilateral cortical lesion.

Dr. Wilbrand analyzes the process of vision one step further. He gives reasons for believing, that, besides the centre for the reception of the visual impression and that for its apperception, there is a third group of cells, whose function it is to store up visual memories, which form the visual memory-area (*Erinnerungsfeld*). If the retina or the optic nerve is destroyed, the result is blindness in the usual sense of the word. But the optical memory remains intact; the visual phantasy is still active; sight hallucinations and dreams may occur, and so on. If the apperceptive centre of one hemisphere is involved, then homonymous hemianopsia of the opposite half of the visual field occurs, and there is psychic blindness in one-half of the brain. If both apperceptive centres are involved, sight hallucinations are impossible; but the visual memory is not directly affected, and sight dreams may occur. If the memory-area is diseased, objects are no longer recognized as familiar: all seems strange and new. The fantasy is dulled: there are no visual imageries or dreams.

Many of these suppositions receive a striking confirmation from the observation of those born blind and restored to sight by successful operations. Such persons are just like infants as regards sight, except that they learn to see much more quickly. Their higher sight-centres must be developed, and in this process one can distinguish the three stages above marked out. Such persons recognize at once after the operation that they have a new sensation, — they see. But the object before them is not apperceived: it is not recognized as the same object they have been touching all along. They soon learn the meaning of their visual impressions, though they constantly call on the sense of touch to prevent deception; but they often fail for some time to remember what they have seen, and rarely dream of seeing things for many months: in other words, their apperceptive and visual memory-centres are developing. The chapter devoted to this topic records other interesting points in these cases, and can be recommended as an admirable account of the subject.

The rest of the book is devoted to the explanation of the detailed pathological symptoms and the discussion of their relation to the centres of language, both written and oral. This more technical part of the subject does not readily admit of a brief exposition. Suffice it to say that Dr. Wilbrand has rendered an important service to several branches of science by this convenient and thorough account of a most important topic. Some of his theories are doubtless to be modified and perhaps rejected by future research, but the spirit and point of view of his exposition is in the right direction. As was said at first, it shows the vast explanatory power of the modern theories of brain-physiology. J. J.

BASCOM'S SOCIOLOGY.

HERBERT SPENCER, who has done more than any other one man of this generation to popularize the study of social science, points out very forcibly, in his book on the 'Study of sociology,' the difficulties which beset the student of social phenomena and conditions. He shows us there that something is true of sociology that holds good in no other science; namely, the facts to be observed and generalized by the student are exhibited by an aggregate of which the student himself forms a part. His functions and life as a citizen, therefore, determine in a large measure his stand-point and methods as an investigator. It is on this account essential, in estimating the value of sociological researches, that we know something about the personality of the observer. In the case of President Bascom we are peculiarly fortunate in this respect. His long and honorable career as a teacher and professor both in the east and in the west, as well as his numerous writings in the fields of philosophy, literature, and religion, afford us ample information as to the methods and postulates of his thought.

In fact, this newest book from his pen is best understood when read in connection with his previous books on psychology, ethics, and the philosophy of religion. The tone and the style of treatment are the same in all.

In his preface to the present work, President Bascom expressly says that his aim has been to cover a large field suggestively, rather than a nar-

Sociology. By JOHN BASCOM. New York, Putnam. 12°.

of refraction being plotted as ordinates and the wave-lengths as abscissas, the resulting curve is found to be an hyperbola.

Prof. Alfred M. Mayer, in describing recent work, stated that he had succeeded, by the use of a lens of ebonite, in inflaming various substances by the concentration of dark rays, for which ebonite is translucent.

Dr. S. H. Scudder gave a general account of the cockroach in the past and present. Of all insect types, this one is best represented in the rocks, and especially the older rocks. The carboniferous, especially, may fitly be called the age of cockroaches. The paleozoic cockroaches were larger, the more recent smaller, than the modern. Mr. G. K. Gilbert discussed the geological age of the Equus fauna, maintaining that it belongs to the upper quaternary (later glacial), and not to the upper pliocene, where it had been assigned by students of vertebrate paleontology.

THE DATA NOW REQUISITE IN SOLAR INQUIRIES.

In order to obtain the greatest amount of assistance from observations of the eclipsed sun, it is necessary to consider in the most general way the condition of solar inquiry at the time the observations are made. If any special work commends itself to those interested in the problem, — work which may be likely to enable us to emphasize or reject existing ideas, — then that work should take precedence of all other.

Next, if the observers are sufficient in number to undertake other work besides this, then that work should be arranged in harmony with previous observations; that is, the old methods of work should be exactly followed, or they should be expanded so that a new series of observations may be begun in the light and in extension of the old ones.

In my opinion, and I only give it for what it is worth, the three burning questions at the present time — questions on which information is required in order that various forms of work may be undertaken to best advantage (besides eclipse-work) — are these: —

1. The true constitution of the atmosphere of the sun. By this I mean, are the various series of lines of the same element observed in sun-spots, e.g., limited to a certain stratum, each lower stratum being hotter, and therefore simpler in its spectrum, than the one overlying it? and do some of these strata, with their special spectra, exist high in the solar atmosphere, so that the Fraunhofer lines, represented in the spectrum of any one substance, are the result of an integration of the various absorptions from the highest stratum to the bottom one? This view is sharply opposed to the other, which affirms that the absorption of the Fraunhofer lines is due to one unique layer at the base of the atmosphere.

I pointed out before the eclipse of 1882 that crucial observations could be made during any eclipse, including the time both before and after totality. I made the observations: they entirely supported the first view, but I do not expect solar inquirers to throw overboard their own views until these observations of mine are confirmed; and I think one of the most important pieces of work to be done during the next eclipse is to see whether these observations can be depended upon or not.

One observer, I think, should repeat the work over the same limited region of the spectrum, near F; another observer should be told off to make similar observations in another part of the spectrum. I have prepared a map of the lines near E, for this purpose, showing those brightened on the passage from the arc to the spark, and those visible alone at the temperature of the oxyhydrogen flame. Whereas some of the spark lines will be seen seven minutes before and after totality as short, bright lines, some of the others will be seen as thin, long lines just before and after totality. We want to know whether the lines seen at the temperature of the oxyhydrogen flame will be seen at all, and, if so, to what height they extend.

2. The second point to which I attach importance is one which can perhaps be left to a large extent to local observers, if the proper apparatus, which may cost very little, be taken out.

With this eclipse in view, I have for the last several months gone over all the recorded information, and have discussed the photographs taken at the various eclipses in connection with the spots observed, especially at those times.

The simple corona observed at a minimum with a considerable equatorial extension (12 diameters, according to Langley), the complex corona observed at maximum when the spots have been located at latitudes less than 20°, have driven me to the view, which I shall expand on another occasion, that there is a flattened ring round the sun's equator, probably extending far beyond the true atmosphere; that in this ring are collected the products of condensation; and that it is from the surfaces of this ring chiefly that the fall of spot-forming material takes place.

If we take any streamer in mid-latitude, we find, that, while the spots may occur on the equatorial side of it, none are seen on the poleward side. I regard the streamers, therefore, like