Supposed crude jade from Alaska.

In *Science* for Dec. 19, 1884, there was given an abstract of the explorations on the Kowak River of Alaska by a party from the U. S. steamer Corwin, Lieut. Cantwell commanding. In this abstract it was stated that beds of a beautifully mottled serpentine were found in the mountains near the river, "as well as the so-called 'jade,' used far and wide for the most costly and elegant stone implements, which is perhaps the variety pectolite recently described by Clarke from specimens got at Point Barrow." It was also stated that 'Jade Mountain' seemed to be entirely composed of the green stone, about one hundred pounds of which were collected.

The collections on the return of the party were forwarded, as usual, to the national museum, as were also those made a little later from nearly the same localities by Lieut. Stoney's party. Both lots were referred to the writer for examination and report, and were found to consist largely of serpentine and a greenish gray quartzite, together with other miscellaneous material not necessary to mention here. The serpentine is mostly the ordinary green massive variety, though a few pieces of the columnar and fibrous forms picrolite and chrysotile are present. The quartz rock, which is doubtless the material mistaken by both parties for 'jade,' is light greenish in color, very fine grained, compact, and hard. Under the microscope, it is seen to be distinctly granular, but not perfectly homogeneous, containing innumerable exceedingly minute micaceous particles of a greenish color, and to the presence of which is doubtless due the color of the stone. There are also present many minute colorless needlelike crystals too small for accurate determination. Its specific gravity, as determined by a Jolly's balance, is 2.66, and a chemical test by Professor Clarke yielded 94.49% of silica. The rock is therefore radically different, not only from the Alaskan pectolite, but from any of the so-called 'jades' from any source that have yet been examined. An examination of the collections brought from Alaska has failed also to bring to light a single implement or ornament manufactured of this material: hence we must conclude that all the parties concerned were misled by the color and hardness of the stone, and that the true source of the so-called 'jade' is yet to be discovered.

GEO. P. MERRILL.

National museum, Feb. 28.

'What is a microscopist?'

You seem to have run short of subjects for 'Comment and criticism' in your issue of Feb. 27, for otherwise I cannot believe that you would have written your ill-natured remarks upon 'microscopists.' If you had confined yourself to the definition of a microscopist as "an amateur who rejoices in the beautiful variety of microscopical specimens," I should have offered no protest; for I recognize in that definition a truthful, though only partial, description of a class to which it has long been my pleasure to belong. If you had been content to express your belief that the term 'microscopy' is a misnomer, and that the large and growing body of so-called 'microscopists' is not to be regarded as a division of the 'regular army' of science, I should still have held a humble and respectful silence, because I can see how such an opinion may be very honestly and very plausibly maintained. But your remarks call for a protest on the ground, that, instead of helping to a true estimate of the scientific spirit, they set up narrow and exclusive standards, and are essentially and offensively personal.

Microscopists, as far as they are mere amateurs and 'universal gatherers,' may perhaps not be entitled to more consideration than is due to 'camp-followers' and 'hangers-on;' although I think there is possibly a question as to your right to give them notice to leave. I am not sure but that I might argue, with some success, that many microscopists are more than amateurs, or that many recognized scientific specialists are, after all, only skilled microscopists; but why dispute over mere names? I am one of those who believe that in the most effective use of the modern microscope there are required a degree of technical skill and an amount of special knowledge which raise it to the rank of a distinct scientific pursuit. You, on the contrary, appear to look upon the microscope as you do upon the tweezers, the scissors, or the hammer, — as an instrument so simple that any student in any department may take it up without previous special training in its use, and obtain from it at once trustworthy results. But I beg to inform you, if you do not already know it, that, in the more delicate kinds of microscopical work, it is absolutely essential to employ expert methods in manipulation, and to apply very particular principles of interpretation, or else the conclusions are likely to have no value whatever. The exhibition of pretty things because they are pretty, and for the mere amusement of lookers-on, is no more microscopy than the making and administering of laughing-gas is chemistry.

But you seem to infer that microscopists are not properly scientific men, since they are not generally specialists; and the ground of your inference appears to be that such microscopists as you have happened to know have directed their attention to very various objects obtained from the different realms of nature. But might not the same criticism be made upon chemists, who analyze and weigh every sort of substance, — animal, vegetable, and mineral? Why is it more legitimate for them to rest their science upon a basis of molecular and atomic weights than for others to build a microscopical science upon a system of micrometric measurements? I should not quarrel with you if you urged the expediency of restricting the term 'microscopy' to a branch of physics, or even of optics, because we may all fairly differ about questions of classification; but, as things now are, I cannot discover the force of your objection to the recognition of microscopy as a division of general science based upon the fact that the subjects of its investigation are beyond the range of unaided vision in one direction, since astronomy, whose right to the name of a science you probably do not question, is founded upon the fact that the objects of its study are beyond unaided vision in another direction. In both cases, it seems to me, the science is conditioned by its instrumental requirements. In one instance it is the science of the microscope, in the other it is the science of the telescope. Why not object to astronomy because of its foundation in 'a common quality' of remoteness in space, or to paleontology as based upon 'a common quality' of remoteness in time?

But I have no intention of endeavoring to justify a claim on behalf of microscopists to be admitted to the sect of orthodox scientific men. I merely wish to speak a good word for the class as it now stands. I am fortunate in being acquainted with a number of cultivated and educated men, both amateur and professional, who make constant use of the microscope, either in the pursuit of their regular business occupations or in their private intellectual life, and who take pains to keep informed as to the improve-

ments being made in the instrument and its accessories, as well as in the methods of its manipulation and application. Some of them join with others of like predilections in organizations which are commonly called 'microscopical societies,' the purposes of which are mutual stimulation and the enjoyment and propagation of scientific — shall I say dilettanteism? — yes, if you like. At any rate, these gentlemen are engaged in very nearly the same kind of work that *Science* is engaged in; and many of them take your paper, and not only read it, but, when it presents subjects which they can illustrate or test by means of their microscopes, they undertake to see for themselves, and form their own conclusions. A smaller number of them even presume to make original investigations of one kind or another; and some of them actually add a new fact now and then to the great treasury of scientific truth, though it may often be such a little fact as not to attract much attention. I do not think they are usually men of great conceit; and I have never happened to come in contact with one who was over-anxious to be considered a 'regular' scientific man, or to receive any particular recognition by learned bodies. Generally speaking, I have found them to be gentlemen of simple and unpretentious devotion to nature, who had found themselves, somehow, endowed with a preference for those things which are invisible to the average sight, and who had imbibed the teachings of those who, like yourself, have advocated the popularizing of science.

But in this class are some who have earned and compelled recognition as men of science; and in London and in Brussels (to say nothing of home organizations) are microscopical societies of world-wide fame and importance, which have long been looked upon by some of us as bodies of scientific men. In their lists of fellows are such names as Dr. W. B. Carpenter, Dr. Lionel S. Beale, Prof. F. Jeffrey Bell, Rev. W. H. Dallinger, Prof. P. Martin Duncan, Dr. Henry VanHeurck, and many others whose scientific attainments speak for themselves, and no one of whom would disdain the name of '*microscopist*.' In our own country, I may with propriety mention one who has but recently passed away, and who, although possessing other claims to scientific eminence, achieved his greatest reputation and his most lasting fame in the field of pure microscopical manipulation. I refer to the late Dr. J. J. Woodward of the U. S. army, who was pre-eminently a *microscopist*, and who did every thing he could to promote and encourage the finest kind of technical and test work. His labors in that direction, with those of others of like proclivities and skill, have done more than all other causes to bring about the present wonderful perfection of the microscope objective. By the work and the demands of such manipulators, the great manufacturing opticians, like the late Mr. Spencer and Mr. Tolles, have been encouraged and stimulated to produce the latest marvels in optics, — the 'homogeneous immersion' lenses.

In view of the valuable services of such men as I have mentioned, I am at a loss to understand your arrogant assertion that 'scientific men have been very lenient towards the microscopists.' Is it to be understood that you are about to advocate some new standard of orthodoxy, or to put into operation some new formula of excommunication? Permit me, further, to inquire whether you really consider it unscientific to choose skilfully and neatly prepared specimens, carefully classified, neatly labelled, and systematically catalogued and stored? Is it amateurish to prefer a good and complete instrument to a cheap and imperfect one? Is there any particular virtue in working with poor tools when good ones can be obtained? Is there any thing unworthy in patience and painstaking? Is any thing in nature too small to be worth examination, or any fragment of knowledge too insignificant to pay for its acquisition? If you disclaim any such sentiments as these, why speak disparagingly of well-made 'slides,' of fine 'test objects,' of 'delicate diatoms' and 'podura scales,' of 'bits of tissue,' of 'polarizing crystals,' or, 'in short, almost any tiny scrap of the universe'? For when you talk so flippantly of these things, you certainly leave the impression on some minds that there may be matters so trifling and so tiny that they belittle the man who admires or studies them; and instead of promoting the general cause of science, as you profess to be desirous of doing, you cast in the way a stumbling-block of petty prejudice.

C. F. Cox.

New York, March 1.

THE SOLAR ECLIPSE OF MARCH 16.

Attention has already been drawn to the chief circumstances of this eclipse in the *Science almanac*, or at p. 578 of the last volume of *Science*, where the times of beginning and ending are given for a large number of places in the United States. The annular phase will be visible only within the limits of a belt between thirty and forty miles wide, which lies over a very sparsely settled tract of the North-American continent, and which is difficult of access at this season of the year. In the United States generally, the eclipse will be visible as a partial one on the afternoon of the 16th in the eastern states, and in the forenoon in the western.

Regarding the cycle of eclipses called the Saros, this eclipse is a 'return' of the annular eclipse of the 22d of February, 1849, visible almost wholly upon the North Pacific Ocean, the track of the annular phase skirting the eastern shores of Japan; also of the annular eclipse of March 5–6, 1867, which was visible as a partial eclipse over almost the entire European continent, and the greater part of Africa and Asia; the central line of annular phase running through northern Africa, crossing the Mediterranean and southern Italy, Russia and Siberia, and which was observed at a large number of European observatories. The next return of the eclipse following the present one will occur in the latter part of March, 1903.

Annular eclipses are usually regarded as a useless and insignificant sort of celestial phenomenon, and astronomers in the past have given very little attention to the observation of them. In comparison with the imposing spectacle of a total eclipse of the sun, an annular