SCIENCE.

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COMMENT AND CRITICISM.

THE MAP and geographical article by Lieut. Greely, which appear in this issue, may fairly be said to contain the most important additions to the geography of the polar regions which have been made in some years. The importance of the discoveries of the Greely party lies not merely in their extending the area of mapped coast, but also in the distinctive, and to some extent unexpected, character of the physical features of the region now first pointed out. The continuation of North Greenland in the direction and manner determined by Lockwood and Brainard was not unforeseen, or at least is what might have been reasonably predicted. The information as to the narrowness of Grinnell Land and the trend of its western shores is hardly what any one would have anticipated; and the discovery adds piquancy to the ordinary interest of new exploration. In this connection, the information reported by Dr. Boas is of peculiar interest. It will be singular, indeed, if it finally appears that the channel of Smith Sound, and its continuations, are projected like a 'covered way' into the realm of ice, as if for the especial benefit of explorers. The absence of any considerable body of land north-west from Grinnell Land must have an important bearing on the question of the ocean-currents of the arctic region. We commend the map to the consideration of a well-known geographical amateur, who, if telegraphic despatches are to be trusted, immediately after the receipt of the first 'cablegram' of Greely's explorations, made haste to assure the British public that there was no reason to suppose that Greely's party had been farther north-east than Beaumont Island, and that their own supposition that they had made progress was doubtless an entire misconception! The adverse critics of arctic work should bear in mind that the entire geographical and scientific work was accomplished without disease, disaster, or even serious frost-bite.

A RECENT extension of the work undertaken by the secondary meteorological services of our country is the establishment of local signals, indicating the coming changes of weather as telegraphed from the signal-office in Washington. This has been attempted by four of the local services. Ohio led the way a year or more ago by arranging with several railroad-lines for the display of colored signals on the sides of the baggage-cars, and this system has been extended into Canada and Pennsylvania. Louisiana had at last accounts sixty-seven stations at which flags were hoisted to forewarn the planters of probable frosts. Alabama has a system of three flags in nine combinations, in operation at about thirty stations. The system is approved, and is extending month by month. Several towns in New England are adopting the Ohio system, introduced here through the New-England meteorological society. Besides all these, there is a considerable number of volunteer-stations at which the 'cold-wave' flag is displayed.

The latest suggestion for local signals comes from Vermont, where it is proposed to spread the indications by factory-whistles. The point is made that the out-of-town farmers, who have especial need of the weather warnings, have the smallest opportunity of learning them soon enough, either from newspapers, post-office bulletins, or local flags. Blasts from powerful steam-whistles could, on the other hand, be heard five or more miles around; and they would carry the news to nearly every part of a manufacturing state. All the Vermont boards of town selectmen are to be petitioned to consider the matter, and we shall be glad later in the season to announce good progress in the work.

What is a microscopist? First and last, an amateur who rejoices in the beautiful variety of microscopical specimens; one who treasures slides in the exact centre of which is a ring of cement neatly put on, and holding a cover-glass under which lies some fine test-object, — a delicate diatom, a podura scale, a bit of tissue the vessels of which are injected with gorgeous red, a polarizing crystal: in short, almost any tiny scrap of the universe, if so it be pretty in the pattern of its shape and color. These same treasured slides must have neatly bordered labels, and be catalogued and stored by a special system. The microscopist is one who has a formidable and extensive deal of brass stand, which can hold together a cabinet of appliances; and he will display the most admirable patience in getting them in position, until at last he sees the specimen, and is ready to clean and pack away his apparatus. His series of objectives is his glory; and he possesses a fifteenth of Smith and Brown, which will resolve a band of Nobert's not to be resolved by the objectives of any of his friends. His instrument is his pet: about it his interest centres, while the direction of his studies is determined, not by any natural bond between the objects, but by the common quality of minuteness. Is it not curious? Imagine any one deliberately setting out to study whatever he could cut with a knife. We should pity the man who chopped up the sciences according to the instrument he used. We cannot be brought to regard anatomy as a department of cutlery, nor can we seriously admit histology as a department of microscopy.

Scientific men have been very lenient towards the microscopists; and yet the latter, who have long been allowed to march as hangers-on to the regular scientific army, have gradually lagged behind. The army has grown, and divided into many separate corps, traversing the country of the unknown in all directions, and the microscopist knows not whither to follow. If he turns in any direction, he must join with the special work there, and can glean only in one field: he is no longer the universal gatherer. One must be of the army to be with it, and the forces are too scattered for any hanger-on to flit from one division to another. The would-be microscopist has no place among scientific investigators. He must enlist in one company and there remain, or else be content to rank as an amateur, and not as a scientific man.

LETTERS TO THE EDITOR.

**** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The north magnetic pole.

With my article in *Science*, No. 98 (Dec. 19, 1884), entitled 'The Netschilluk Innuit,' there appeared a map of the distribution of those Eskimo, in which I placed the north magnetic pole in about longitude 99° 35′ west from Greenwich, or about sixty-five miles due west of the position given by Ross, its discoverer, in his sledge-journey of 1831. Since this map was issued I have received two letters from well-known scientific gentlemen, and a personal inquiry from another, asking why I so mapped this change in the magnetic pole, and on what observations or conclusions it was based, even though I had put an interrogation-point after the words indicating the position. It is well known that many calculations have been made respecting the western movement of this pole since its discovery; and, varying as they do, they all, so far as I have seen, would place it much farther to the west, for the year 1879, than my location gives it.

The above inquiries and facts make me think it would be interesting to give in your publication the rude and approximate manner in which I located it as above, leaving each one to judge of its value. Its latitude I assumed to be the same as that determined by Ross, as all writers speaking of its revolution, whatever be its rate, give the geographical pole as its centre. Its latitude, therefore, would not vary. I consider this co-ordinate, determined in this manner, by far the most unreliable of the two; I believe, however, that those interested in the subject will consider it also the least important, as being the least likely to vary considerably. My only instrument for determining the position of the pole was an ordinary compass, but an extremely delicate and reliable one in its proper sphere, and returning to the same point, in the temperate zones, to within less than a degree of arc started from any position that could be given. When at Cape Felix, the most northern point of King William's Land, the needle remained sluggishly in almost any position that was given it; when pointed in a north-east or south-west direction, I thought I detected a slight tendency to move to the westward. At Franklin Point I made some seventy-five to one hundred observations (the exact number I have in my journals, packed in Portland, Ore.; but I think my memory will be close enough for descriptive purposes, and probably more exact than the rough approximations), and the horizontal needle now commenced to show a little activity; a mean of the observations showing about longitude 99°, where its direction cut the Ross latitude of the magnetic pole. Near Point Little, I took the longest and most careful series of observations, and the needle always returned to within 18° (this I distinctly remember) of the pole as I have located it in the Netschilluk map, and this