

the simpler methods of qualitative analysis, and may then go on to work at the commoner kinds of rocks and the elements of microscopic petrography. During the summer months I would take him into the field, but not do more than impress upon him some of the broader aspects of outdoor work, such as the connection between physical feature and geological structure.

During a second year stratigraphical geology should be lectured upon and studied from books, and so much of animal morphology as may be necessary for palæontological purposes should be mastered. The practical work would lie mainly among fossils, with a turn every now and again at mineralogy and petrology to keep these subjects going. Out of doors I would not yet let the student attempt geological mapping, but would put into his hands a geological map and descriptions of the geology of his neighbourhood, and he would be called upon to examine in minute detail all accessible sections, collect and determine fossils, and generally see how far he can verify by his own work the observations of those who have gone before him.

Indoor work during the third year would be devoted to strengthening and widening the knowledge already gained. Out of doors the student should attempt the mapping of a district by himself. It will be well, if there is any choice in the matter, to select one in which the physical features are strongly marked.

This sketchy outline must serve to indicate the notions that have grown up in my mind on the subject now before us, and the methods I have been led to adopt in the teaching of geology. I trust that they may be suggestive, and may call forth that kindly and genial criticism with which the brotherhood of the hammer are wont to welcome attempts, however feeble, to strengthen the corner-stones and widen the domain of the science we love so well, and to enlarge the number of its votaries.

LETTERS TO THE EDITOR.

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British Association Procedure.

I AM glad to see a letter from my colleague, Prof. Armstrong, on the subject of the procedure of the British Association. I am not disposed to take an exaggerated view of the harm that may arise from the mild excitement and dissipation which seem to be inseparable from gatherings of this kind; but I do not regard with satisfaction the prospect of annulling half the good effect of my much-needed rest and annual dose of fresh air, by spending a week in crowded rooms in the middle of a great town. The disinclination to run this risk increases, and the risk itself seems to increase, when the date fixed for the meeting is selected in such an unfortunate way as to cut in two the summer holiday of many members, and especially of those who are teachers, whether in school, college, or university.

Having been on two separate occasions concerned in making preparations for the reception of the Association, I know something of the circumstances which have to be considered. One of the most important points is the provision of suitable rooms for reception and Sectional business. These are very commonly obtained in colleges or schools, and cannot be placed at the disposal of the Association till the holidays begin. But all schools or colleges break up before the end of July, and the last days of July or the first days of August would be the most convenient time to the great majority of those who form the most numerous and active attendants at the meetings. The weather at that time is also more likely to be favourable to garden parties and excursions than at any time late in August or in September. That, at least, is my own opinion as to the time of meeting.

Then as to the work of the Sections. As a Sectional Secretary I have read papers (other people's) at 3 o'clock in the afternoon to an audience consisting of a Vice-President impatient to follow the President to lunch, two reporters who were not listening, and my wife making signals of distress from a back bench. As a Sectional President I have sat at the same hour, luncheonless and weary, while a paper which seemed as

long and as discursive as the story of the Ancient Mariner, was droned forth by the author to an audience of about three persons fidgeting like the belated wedding guest. I wonder whether this sort of thing is supposed to be of any use to anybody.

The change which I proposed, and which was in part embodied in a recommendation from Section B to the Council, consisted in altering the hour for Committees from 10 to 9.30, and beginning general business at 10 instead of 11; the Section to close at 2.

The only objection I heard to 9.30 was that some members might be lodged at a distance, and find it difficult to attend so early. I never could see much except laziness at the bottom of this objection. The only other that occurred to me was that possibly sometimes the Committee business would occupy more than half an hour. But this difficulty, even if real, chiefly arises from the practice to which Prof. Armstrong has referred, of making the Committees so large.

This practice serves no obvious purpose except that of advertising a certain number of people who like to see their names in print. I believe the demand for election upon Sectional Committees would be considerably reduced if the names of the Sectional Committees were no longer printed. It would be quite sufficient for the purposes of business to give in the Journal only the names of the officers.

I think, further, that something should be done to reduce the cost of a meeting to the town visited by the Association. The gorgeousness of the entertainments given, and the demands made upon provincial pockets, have become so extravagant that none but wealthy or ambitious towns can face the luxury of a visit of the British Association.

WILLIAM A. TILDEN.

Birmingham, September 1.

WHILST I entirely agree with Prof. Armstrong as to the desirability of reform in regard to most of the matters to which he has called attention, I would like to point out that in one respect the large Sectional Committees have perhaps served a useful purpose. Nowhere are the older and younger men of science brought so extensively into direct contact with each other as at the meetings of these Committees, and hence they have served perhaps more than anything else to introduce the younger provincial men to their older and younger brethren of the metropolis and to each other.

If it be admitted therefore that a chief object of the Association is that its members shall meet, I think, speaking as a provincial, that there is much to be said in favour of the retention of moderately large Sectional Committees; though no doubt the introduction of such reforms as would tend to discourage the presence on them of those who are out of place would add to their usefulness in every way.

W. A. SHENSTONE.

Clifton, September 2.

Fine Group of Sun-spots.

THIS morning I saw a very large cluster of spots in the sun's northern hemisphere, and nearly at mid-transit across the disc. The group is elongated east and west, and there is a fine spot at each of the extremities. The length of the group is about 113,000 miles; it exhibits a very complicated structure, and I have made a drawing of it with some difficulty, owing to the rapid changes it is undergoing in detail. A 3-inch refractor, power 90, defines the object well, and reveals many peculiarities in its form. Though I have termed it a group of spots, it might with propriety be called a single spot, for it is connected with wisps of penumbra, and chains of small spots, which altogether represent an extensive area of disturbance.

On looking at the sun with the eye simply protected with tinted glass, I see the group of spots distinctly, and it would form quite a conspicuous appearance to the naked eye should the sun rise or set in a fog during the next day or two.

I ascertained by frequent scrutiny during the first half of the present year that the sun's spots were usually very small and fugitive, and the present fine display of *maculae* is therefore all the more worthy of observation and record.

Bristol, August 31.

W. F. DENNING.

Organic Colour.

IN considering the causes of bright colouring in animals and plants, I think the physical meaning of colour has not been sufficiently regarded.