

not simply on the border-land where the sciences appear to come in contact, but also because it may penetrate the whole area of a science. Perhaps the time is not far distant when we shall cease to speak of "a science," and the unity of *science*, already begun to be recognised in the elementary schools, will be universally acknowledged. It has been stated that when two Sections meet in common the attendance is greater than the sum of the attendances at the separate meetings of the same Sections. This indicates the need, and the direction in which to look for improvement. On the other hand, the Association is mainly responsible for making known to the public the recent advances in science and their bearing on social life—in other words, their possible practical applications. To this end representatives of each Section should be annually appointed for the task of reporting to the next meeting, in terms which will appeal to the man in the street, the progress which has been made in the advancement of science and its applications. It has even been suggested that two sets of reports should be prepared in this way, one as described and the other for experts, and that these reports should form the chief material for the meeting, not much encouragement being offered to original papers suitable for their respective societies. In the preparation of these reports there should be much intercourse between the representatives of the several Sections, and many of them should be the result of joint work. In some cases distinguished investigators should be invited to describe their results in popular language, irrespective of previous publication in the transactions of learned societies. The advancement of science depends not only on the skill and genius of the expert, but also on the appreciation of the people.

September 24.

WM. GARNETT.

As one who regularly attends the meetings of the British Association, and in particular those of Section A, may I be allowed to state that I cannot recall in the last twenty years any meeting of the Association when the attendances at Section A were more numerous than at Cardiff. On several occasions it was almost impossible to obtain a seat in the large lecture hall assigned for our meetings unless one came in good time. This was particularly the case when the discussion took place on the constitution of the atom, so admirably exposed by Dr. Aston and by Sir E. Rutherford. A very large audience also assembled to hear Sir Oliver Lodge's controversial note on popular relativity, and the room was full for the discussion on the origin of spectra. And, too, the majority of those who attended, or at least a very large proportion, were not professional physicists, but members of the Association who take an interest in science in general, and who came to hear about the latest advances in physical science. It is for these members that the Association caters, and it would seem that, so far as Section A is concerned, it is fulfilling its functions quite admirably.

This testimony as to the efficiency of the Association may serve as an antidote to some of the jeremiads as to the decadence of the Association which have appeared in the columns of *NATURE*. The only drawback to the complete success of Section A was that some of the speakers did not seem to realise the very indifferent acoustical properties of the hall in which our meetings were held.

The relatively meagre attendance at the two evening discourses was accounted for by the local strike of tramwaymen. This made it difficult to get to distant parts of the city when the discourses were finished.

A. L. CORTIE.

Stonyhurst College Observatory, September 25.

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IN your leading article in *NATURE* of September 16 you have expressed what many of us have long felt: that the British Association is losing its interest for the people of the locality in which it meets. This is mainly on account of the highly technical character of most of the papers, which are suitable only for meetings of the special societies. The Association should not be regarded as a means of publishing new observations unless these are of fundamental importance. Its object is rather to give an opportunity for the local worker to exchange ideas with those who are more favourably placed. Again, the laboratory worker may come in contact with the practical man in many subjects to the benefit of both. Another useful function it may perform is in the discussion of border-land subjects in which more than one Section may be interested, and which do not lie definitely within the limits of any one of the special societies. In these functions, the extension of scientific interest to wider classes of the community and the removal of the barriers between different sets of scientific observers, the Association may meet a crying need of the time.

ARTHUR R. CUSHNY.

University of Edinburgh, September 27.

Uses for Aircraft.

WHEN in the year 1912 I gave the first of the James Forrest lectures on aerial flight, I said that the chief uses of aircraft would probably be for the purposes of war or for sport. As a member of the Advisory Committee for Aeronautics I have been in a position to follow the various developments which have been made since that date, but I see no reason to alter my opinion. While the cost of carriage by air is as high as it necessarily must be at present, the commercial use of aircraft on any considerable scale seems impossible. There is no difficulty in carrying goods; the difficulty is to find any class of goods which, for the sake of halving the time of transit, will bear the increased cost of carriage. A certain small amount of postal work, with a few passengers, so long as the novelty is an attraction, or in special cases, seems to be the only opening. If the ton-mile cost could be reduced to as many farthings as it now is shillings, commercial uses on a much enlarged scale would be found.

For sport and private use (*i.e.* for air-yachts) the existing patterns of machines would have to be altered to allow of a greater range of speed and a greater facility in getting off and landing. Both these objects could be attained by the introduction of wings of variable area. It would be a great advantage also, both for storage and in other ways, if the wings could be properly folded (not merely unshipped and turned back) by the pilot from his seat. I have shown in another place how this might be done for monoplanes, and for these the necessary mechanism is simple. For biplanes it would be more difficult to design, but not impossible.

Among the more special uses of aircraft may be mentioned those of map-making and exploration in difficult countries, and of obtaining information regarding winds and other meteorological matters at various altitudes.

For exploring purposes the machine should be amphibian. In New Guinea, for instance, it is only at a few places on the coast that it would be possible to come down and get off on land not previously cleared, but many of the rivers reach far inland, and (judging from photographs) places could be found even near the mountains where there is a water-surface sufficient for the purpose, provided that the machine has great climbing capacity and a wide range of speed