

the Archives of the Royal Society. If this be regarded as a valid document and date of departure, I shall have something more to say about Prof. Bose's methods. If this date and document be not valid, his claim rests upon a paper at the Linnean Society of July 21, 1902, which seems to me to be a very interesting instance of scientific mimicry. Anyone interested in the study of such phenomena will find it instructive to compare the papers mentioned by Prof. Bose, of November 9, 1901, and July 21, 1902, to the Physiological and Linnean Societies respectively. I think he should also, as regards the general method, consult my Lectures on Animal Electricity of 1897 at the Royal Institution, which have been adopted by Prof. Bose as his point of departure.

A. D. WALLER.

### British Association Meetings.

THE gradual decrease in the number of those attending the recent meetings of the British Association might suggest that the popularity or the usefulness of these scientific gatherings is on the wane. The opportunity for an instructive comparison exists in the fact that on the last three occasions on which the Association has met, it has repeated its visits to well-known centres, widely distributed. It might have been anticipated that, owing to the growth of material prosperity and of the population of these towns, a continually increasing number would have availed themselves of the advantages of these meetings. The following figures show, however, that the contrary is the case:—

Year.	Place of Meeting.	Number attending.	Year of previous Meeting.	Number attending.
1900 ...	Bradford ...	1915	1873 ...	1983
1901 ...	Glasgow ...	1912	1876 ...	2774
1902 ...	Belfast ...	1620	1874 ...	1951

Naturally the amount of grants for scientific purposes shows a similar decline:—

Bradford, 1072 <i>l.</i>	against 1685 <i>l.</i>	in 1873
Glasgow, 945 <i>l.</i>	„ 1092 <i>l.</i>	„ 1876
Belfast, 960 <i>l.</i>	„ 1151 <i>l.</i>	„ 1874

The usefulness of the Association in one direction is apparently lessened, since it has distributed about 1000*l.* less in the three years, but it may be that there is not the same necessity for assistance as was the case a quarter of a century ago, and that consequently the amount applied for by the different sections has not been as large as on previous occasions. But this does not put aside the fact that there is a distinct falling off in the interest exhibited, as tested by the numbers attending.

Supposing there is any decrease in the popular favour, and the smaller figures are not due to temporary causes, it seems worth while to ask whether any portion of the decline is traceable to reasons connected with the Association itself. This is a question which can be answered only by those who are intimately connected with the management, but there was a feeling among some of the members that the business was unduly protracted, and it was asked, with some apparent show of reason, why the meeting must always begin on a Wednesday. If the President's address, it was urged, was given on Monday evening, it would allow four clear, uninterrupted days for the business of the sections, which in most cases would be found sufficient, and then the Saturday could be employed in the manner it now is, or in winding up the unfinished sections. There may, of course, be an insurmountable objection to altering the arrangements which have existed for so many years, but which scarcely seem to meet the conditions of modern life, and it is with the view of hearing from some authoritative source the object of maintaining the old order of things that I have ventured to trouble you with this note.

W. E. P.

September 19.

### Helmholtz on the Value of the Study of Philosophy.

THE opinions of Helmholtz, even as expressed in his popular scientific lectures, have such permanent weight that you may consider the following correction of sufficient general interest to publish it in your journal.

On p. 234 of Dr. Atkinson's "Popular Lectures on Scientific Subjects by H. von Helmholtz" (second series, new edition, Longmans, Green and Co., 1893), lines 7 to 11, we read:—

"And the physician, the statesman, the jurist, the clergyman, and the teacher, ought to be able to build upon a know-

ledge of *physical* processes if they wish to acquire a true scientific basis for their practical activity." (The italics are mine.)

What may have been Helmholtz's opinion of the value of a knowledge of *physical* science to the groups of specialists above named may be gathered from other parts of his writings, but in view of the surely unjust discredit into which the study of genuine philosophy (such as Helmholtz defines it) appears to have fallen in the eyes of the followers of the "Naturwissenschaften," it would appear just to quote the original passage, whereby it will be seen that what was perhaps a printer's error in the translation has altered the whole gist of the passage:—

"Und auf die Kenntniss der Gesetze der *psychischen* Vorgänge müsste der Arzt, der Staatsmann, der Jurist, der Geistliche und Lehrer bauen können, wenn sie eine wahrhaft wissenschaftliche Begründung ihrer praktischen Thätigkeit gewinnen wollten" (Helmholtz, "Vorträge und Reden," p. 189, fourth edition, second vol., Braunschweig, 1896). (The italics are mine.) That "*psychischen*" is *not* a printer's error for "*physischen*" in the original is evidenced by the context, which is so interesting that I venture to quote it. After a brief comparison of the relation of philosophy to metaphysics with that of astronomy to astrology, Helmholtz says:—

"Ebenso bleibt der Philosophie, wenn sie die Metaphysik aufgibt, noch ein grosses und wichtiges Feld, die Kenntniss der Geistigen und seelischen Vorgänge und deren Gesetze. Wie der Anatom, wenn er an die Grenzen des mikroskopischen Sehvermögens kommt, sich Einsicht in die Wirkung seines optischen Instrumentes zu verschaffen suchen muss, so wird jeder wissenschaftliche Forscher auch das Hauptinstrument, mit dem er arbeitet, das menschliche Denken, nach seiner Leistungsfähigkeit genau studieren müssen. Zeugnis für die Schädlichkeit irrtümlicher Ansichten in dieser Beziehung ist unter Anderem das zweitausendjährige Herumtappen der medicinischen Schulen."

I have not access to earlier editions of the original German than 1896; relatively to my object, such reference seems unnecessary.

B. BRANFORD.

The Technical College, Sunderland, September 23.

### Trade Statistics.

DR. MOLLWO PERKIN repeats in NATURE, p. 443, Mr. Levinstein's statement that in foreign trade "we went back during the ten years 1891-1900" (*Journ. Soc. Chemical Industry*, pp. 893-4). The evidence given is that "in the year 1890 our total exports amounted to 328 millions sterling," whereas "the average amount during the decade 1891-1900 was only 300 millions." But why should 1890 be taken as the standard year? It happens that the exports in that year were unusually high—higher, indeed, than in any other year from 1880 to 1898. Had Mr. Levinstein been in a hopeful frame of mind, he might have chosen 1888 or 1892 as his normal year, or, much more rationally, he might have taken the average of five years, 1886-1890 (299 millions), or the average of ten years, 1881-1890 (297 millions). Any of these methods would have brought out the more pleasing conclusion that our foreign trade is advancing. My object is not to decide whether it is or not, but to protest against Mr. Levinstein's method of proof. Can we imagine a meteorologist contrasting the average rainfall of a series of years with the rainfall of a *single* preceding year and on that basis announcing a change in the climate?

The facts (often exaggerated and misunderstood) as to the more rapid advance of German exports are fully and clearly stated in "Comparative Statistics of Population, Industry and Commerce," recently issued by the Board of Trade at the price of 5*½d.* It is not clear why Mr. Levinstein makes use of the British "total" exports, including all the transit trade, while for Germany he takes the "special" exports, from which the transit trade is, as far as possible, excluded. This swells all the British amounts by something like 25 per cent. beyond what they would stand at if they represented native produce only. It does not, however, much affect comparisons of rates of progress. But it confuses abstractors—in Dr. Perkin's abstract the distinction is overlooked.

F. EVERSHERD.

Kenley, Surrey, September 9.

It is quite true, as Mr. Eversherd points out, that the exports for 1890 were unusually high, but those of 1899 and 1900 were also exceptional, owing largely to war exports; this, however, hardly alters Mr. Levinstein's contention—that the trade of the country shows a decline as compared to the trade of