accident" as he confesses; (b) that he regarded it as air containing nitrous particles; (c) that he remained in complete ignorance of its nature till March, 1775, before which time Lavoisier was well acquainted with its principal properties, and had recognised many of its functions.

10. "Cavendish discovered hydrogen in 1784." On the contrary, he described it in his "Experiments on Fictitious Air," published in 1766.

11. "Davy abjured Lavoisier's *principe oxygène*, and by his numerous discoveries gave the chemical edifice so rude a shake that it had to be taken down and rebuilt." From our point of view, in spite of the numerous discoveries of Davy, the edifice erected by Lavoisier, and which is still standing, had not to be taken down and rebuilt, except in one small part. The theory of acidification was a small part of Lavoisier's labours, and it was Berthollet who called chlorine *oxy muriatic acid*, and who thought that he had proved it to be a compound of muriatic acid and oxygen.

12. Mr. Tomlinson after asserting that "chemistry has no nationality," and "that discoverers are mutually dependent," goes on to say with strange inconsistency that chemistry "had no proper existence for us until Dalton discovered its laws." Surely this is almost as if he slightly altered the "complacent statement of Wurz," and said, "Chemistry is an English science; it was founded by Dalton of immortal memory." We do not think that many will differ from us when we say that chemistry was a science long before the time of Dalton.

Thus we have endeavoured to show that of the nine dogmatic assertions given above (numbered 4-12):—one, viz. 9, is correct; three, viz. 7, 8, and 11, are open to grave question; while five, viz. 4, 5, 6, 10, 12, are altogether erroneous.

There is no possible excuse for us to remain any longer in ignorance of the mighty works done by Lavoisier. The fine quarto volumes, 1862-1868, published by the French government, are a fitting monument to the genius of the man. The petty jealousies which disfigure the history of science during the end of the last, and commencement of the present century, ought to find no place in our minds. The Republic of Science is large enough for every man to receive his due.

G. F. RODWELL

The Comet

IT would scarcely perhaps be civil to take no notice of Mr. Backhouse's letter in NATURE, vol. xxvii, p. 52, the object of which seems to be principally to discredit my account of the disappearance of the comet in a moonlit sky. Still less, however, would it be reasonable to take offence at it—albeit, Mr. Backhouse is wrong. Indeed, a little more reflection might have shown him that ample time having elapsed without any correction from me appearing in your columns, the presumption must have been strong that I had nothing to correct. I have in fact seen the comet frequently since—as well as many times before—and am moreover really experienced enough not to have made quite so gross a blunder; or at least to have found it out, if I did make it, when so many subsequent opportunities permitted. Besides that, I have fortunately the following testimony in corroboration. One of my sisters wrote, "What you did not see of the comet agrees exactly with F.'s experience. She looked out at Court-Lodge: splendid night; many, even small, stars, though moon shining bright; but the comet *wasn't to be seen*, though she and Miss B. scanned the whole fine expanse of east and southeast sky." Another wrote about the same time that though visible two days later, it was so pale that she did not wake a nephew who wished to see it. My drawing of the 23rd October has two stars above the nucleus, with one of which it made the base of an isosceles triangle, the other being at the vertex. These two stars were plainly visible all the morning of the 30th, but not so high above the roof across the way, but what the motion of the comet since I last saw it (23rd) may have lowered it enough to conceal the nucleus. In fact, either I am wholly right as to the disappearance, nucleus and all, under moonlight, or at least the nucleus must have been concealed. There is no other alternative. As to the great sweep of tail—let us be reasonable in our guesses as to the fallibility of others however improbable their evidence. May not something for instance be ascribed to the London atmosphere as likely to increase the amount of moonlight reflected? It was for this that I wished the observation made public, viz. as a real phenomenon having a real cause; all the more interesting that it was so surprising—nay, as it seems, so incredible. My only regret is that I have been now tempted into so long a reply.

Before I leave the comet, may I presume to express my surprise that the question as to this comet's return is still *sub judice*. It is said that three well observed places are enough to determine the elements of a comet's orbit. But this one has surely furnished more nearly a score since its perihelion, to say nothing of those before—which no doubt belong to a previous orbit. It is not without fear that I may be misunderstood, that I ask of those who are skilled in such things for an explanation, knowing that of all men they are most deeply interested in the early solution of such a question. It may be said that the observations at and about the time of perihelion have scarcely yet reached this country; but is not the fact that the comet was at one time, which I imagine is known with some certainty, *behind the sun's disc*, equivalent to an observation of its place sufficiently exact to rank with others in calculating the orbit? I do not presume to say that it is so. I merely formulate a question which, in its general bearing, must surely be agitating the minds of many besides myself, after all we have read about the possible past history and future fate of this remarkable comet. It has now been under observation during two months, in which time it must have traversed nearly one quarter of its entire orbit, if an elliptical one of moderate extension. Its present path in space must be so nearly straight that continued observation can hardly be expected to furnish improved data until, if ever, departure from that shall settle the question decisively in favour of an elliptical path. But is it for this that we must wait? I can hardly think so, for surely no comet has ever yet been *seen* in the neighbourhood of aphelion.

J. HERSCHEL

30, Sackville Street, November 18

An Urgent Need in Anthropology

BOTH zoology and geology possess a yearly "record" of the work achieved in their respective domains, but anthropology still remains without that aid to its proper advancement. All workers are of course cognisant of the current bibliography given in the German anthropological publications, and the supplemental information on the same subject contributed by Dr. O. Mason in the *American Naturalist*, and are not unappreciative of the same; but these lists are but partial, and necessarily incomplete, as must be evident when the peculiar nature and wide scope of the study of man is taken into consideration.

Compared with anthropology, the record of zoological work is simple in the extreme. Zoology possesses its accredited organs and regular channels of publication, and with trifling exceptions, its yearly work can be gleaned from these sources. But what is anthropology? It may be described as the very Talmud of humanity with its "Mishnah" of ethnological facts, and its "Gemara" of anthropological conclusions. Scattered up and down the bye-ways of literature, here and there recorded by the traveller, illustrated by the historian or accentuated by the essayist, hidden in blue-books, and awaiting extraction from medical reports, existing in the papers of the missionary and the publications of the statisticians are the unaccumulated and unrecorded facts and observations which form the foundation on which to rear a complete science of man. Our own savages afford as excellent illustrations of the comparative in civilisation as do the primitive peoples of the jungle or the swamp, and hence a large fund of information is still to be supplied and tabulated from our city alleys, prisons, and lunatic asylums. To the question, Is such a record needed? must be added, How is such a record possible?

It seems at once clearly impossible that such a work could be either intrusted to the care of one man, or to the men of one nationality. No individual can be expected to have perused the whole current literature of his country, and could such a phenomenon be discovered, it is still more unlikely that he would combine in himself those qualities which are necessary to detect the varied data that make for anthropology. An alternative course, however, is present, which is possible, and not too exhaustive as regards time and labour. In each country where anthropology is cultivated as a science, a few of its votaries could form an association for the purpose of abstracting from its literature such facts, arguments, and observations as appertain to the study of man, and these might, in a condensed and tabulated form, appear as a regular yearly contribution in the pages of the different publications of the varied ethnological and anthropological societies which now embrace so many nationalities. It is perhaps not presumptuous to say that these papers would not be the least valuable in the volumes in which they appeared. It seems work that anthropological societies might