

Prof. Roberts-Austen, then one of the secretaries; he kindly gave me an introduction to Prof. Adams, the president, and the two were good enough to sign my recommendation form. Who furnished the third signature I never ascertained. In spite of this somewhat inauspicious *début*, it was my good fortune after, and solely as the result of, a few years' more or less regular attendance at the meetings to have made a large number of acquaintances, and, I may say, very good friends, among the leaders and workers in science. I have long regarded my connection with the Physical Society as the source of one of the chief interests of my life; and for the highly valued honour you have done me in electing me to be your president, I cannot sufficiently express my thanks."

Bidwell's first communication to the Physical Society was read on March 13, 1880; it was entitled "On the Influence of Friction upon the Generation of a Voltaic Current," and was a simple investigation into the causes of the operation of the Edison "motograph" or chalk-cylinder telephone receiver. He considered his experiments to show conclusively that the explanation of the changes of friction in that instrument is the electrolytic liberation of a film of hydrogen gas. For the next three or four years he was chiefly occupied with the photo-electric properties of selenium. He invented a method of telegraphic photography based on the use of selenium. In the course of his work he did much to clear up the obscurities and contradictions which until then had hung over the behaviour of selenium. Being himself an excellent mechanic, and having equipped for himself a workshop in his house, he constructed, with his own hands, many simple and beautiful experimental appliances. His method of constructing selenium cells with copper wires wound upon a slip of slate or of mica brought selenium cells within the reach of all experimenters. He investigated the effects of temperature and of moisture upon selenium cells. He also investigated the kindred properties of cells made with mixtures of sulphur and carbon. The next subject to claim his attention was the alleged change in the resistance of carbon under pressure, which led him to a careful investigation of the whole question of microphonic contacts. In an article communicated to the Royal Society, he considered the methods of measuring the electrical resistance of contacts, and found that though the moment before the measurement is made the resistance may be sensibly infinite, the very act of measurement reduces it to a few hundred ohms. Here he touched the question of the coherer, which was destined in a short space to become, in the hands of Branly and of Sir Oliver Lodge, so vastly important for the study of radio-telegraphy.

Bidwell was always a most conscientious worker, never satisfied to publish until he had convinced himself of the reality of his results, and of their originality. He took endless pains to discover what might have been previously published on any subject at which he was working. He had a curious distrust of himself while at work, coupled with a singular confidence in the results when they were once established. He had a profound dissatisfaction with half-knowledge, but yet those subjects as to which knowledge was in an imperfect stage possessed for him a singular fascination. Most of his work consisted in unravelling paradoxical facts or obscure phenomena. Thus he investigated the magnetic expansion of iron, and cleared away the obscurity involved in the case of straight rods by the action of their poles, by showing that an iron ring (which possesses no poles) also expands on being magnetised. In connection with this subject, he re-examined the law of magnetic traction. He was the discoverer, too, of the paradoxical fact that an iron electromagnet, if

its core is made of an iron tube with short plugs fitting loosely into its ends, when it is magnetised grows longer by pushing the plugs out, instead of attracting them in. Later, and by a beautifully refined piece of home-made apparatus, he showed that the impact of light is able to affect directly the magnetic state of a carefully demagnetised soft iron rod.

His attention was then directed to the subjective phenomena of vision, and he made innumerable experiments on the "ghosts" that are seen following in the train of a luminous body moving across a dark field. He produced some very extraordinary and paradoxical illustrations of colour-vision by intermittent illumination and vision of coloured objects, which he caused to appear of tints complementary to their actual pigments. The result of these investigations he embodied in a most interesting book, written in a popular style, but essentially scientific throughout, called "Curiosities of Light and Sight," published in 1899. He lectured more than once on these matters at the Royal Institution. Unhappily, in his experiments his eyesight became seriously impaired, and he was threatened with blindness. Fortunately, however, after many months he recovered, and was able to read without pain. In 1900, Bidwell received from his own University of Cambridge the degree of D.Sc. He had been elected a Fellow of the Royal Society in May, 1886; and he served on the council of that society from 1904 to 1906. His presidency of the Physical Society in 1897-9 has already been alluded to. Amongst his later work was the writing of the article on magnetism for the new volumes of the "Encyclopædia Britannica." In consequence of troubles arising from an affection of the heart, Shelford Bidwell had not been able to attend any scientific meetings for more than eighteen months, his last visit to the Royal Society being in May, 1908. He died on December 18 at his residence, "Beechmead," Oaklands Chase, Weybridge, at the age of sixty-one.

DR. R. BOWDLER SHARPE.

IT is with great regret that we have to record the death of Dr. Richard Bowdler Sharpe, at his residence in Chiswick, on December 25. Although Dr. Sharpe had been in indifferent health for some considerable time, he was on duty at the Natural History Museum at least as late as December 14, so that the fatal attack was of comparatively short duration.

Born in November, 1847, and therefore just over sixty-two years of age at the time of his death, Dr. Sharpe was the son of T. B. Sharpe, a publisher, of Cookham and Malvern Link. Educated at Brighton and at Peterborough and Loughborough grammar schools, he entered the service of Messrs. W. H. Smith and Son at the early age of sixteen, and after remaining two years with that firm, migrated in 1865 to the establishment of Mr. Quaritch. Two years later he was appointed to the newly-founded librarianship of the Zoological Society of London, a position which brought him into contact with Dr. P. L. Sclater, and thus no doubt tended to foster that taste for ornithology with which he had been imbued from very early years. Be this as it may, by 1872 Dr. Sharpe had become an accomplished ornithologist, and he was appointed in that year to a senior assistantship in the zoological department of the British Museum, a position from which he was promoted to an assistant-keepership in the vertebrate section in 1895, this latter post being held by him at the time of his death.

Dr. Sharpe was a Fellow of the Linnean and Zoological Societies, an LL.D. of Aberdeen University,

and holder of the Emperor of Austria's gold medal for distinction in science; in 1905 he was president of the fourth Ornithological Congress, which met in London.

In addition to being joint author of the earlier portion of the "Birds of Europe" and sole author of various bird-monographs such as those of the kingfishers and birds-of-paradise, Dr. Sharpe compiled 13 out of the 27 volumes of the invaluable British Museum "Catalogue of Birds," and was responsible for the whole of the 5 volumes of the companion work, the "Hand-list of Birds," of which the last volume was completed only a short time before his death. As regards his knowledge of the external features of birds, and his capacity for identifying species, Dr. Sharpe was, if not unrivalled, at all events unsurpassed; and his preeminence in these respects received world-wide recognition. Unfortunately, he knew little of the anatomy of birds, so that in his address on "Attempts to Classify Birds," read before the second Ornithological Congress at Budapest, in 1891, he had to depend for this portion of his subject on information borrowed from Seebohm, who had in turn been mainly dependent upon Kitchen Parker. Under Dr. Sharpe's supervision, the collection of bird-skins in the British Museum increased by leaps and bounds, and has now attained vast dimensions, while it is specially valuable on account of the number of "types" it contains.

As a relaxation from his ornithological studies, Dr. Sharpe devoted, during the later years of his life, a considerable amount of time to the natural history and antiquities of Selborne, where he owned a cottage in which he spent much of his holidays. As the result of these leisure-time studies, he brought out a beautifully illustrated edition of "White's Selborne" in two thick volumes.

THE NATURAL HISTORY MUSEUM.

THE *Times* of December 28 includes further correspondence upon the question of the separation of the Natural History Museum from the British Museum. In the two letters subjoined, Prof. A. Sedgwick and Sir Ray Lankester reply to the letter of Sir Archibald Geikie, published in that journal on December 13, and reprinted in *NATURE* of December 16.

I much regret that it should be necessary for me to address you again on the subject of the Natural History Museum, but the publication of the correspondence between Mr. Lowther and Sir Archibald Geikie in your issue of December 13 last leaves me no alternative. The only satisfactory thing about the correspondence is the admission by Mr. Lowther that the Trustees are uneasy in their own minds as to the satisfactoriness of the present arrangements. They "are anxious to be reassured," Mr. Lowther writes, "that the management of the Natural History Museum is adequate." This is a sign of grace, if only a small one, but such as it is we are thankful to have obtained it.

Before proceeding to deal with Sir Archibald Geikie's letter, there are two small points to which I desire to call the attention of your readers. The first of these concerns the views of the Trustees as to the proper person to call in for judgment in a matter directly concerning the administration of the Museum. They call in one of their own body. This seems to me to constitute a new departure in judicial procedure. The second is the fact that the President of the Royal Society, in his capacity as Trustee, has allowed himself to be nominated public censor of those of his colleagues who in the last forty years have expressed objections to the system which is under discussion. I also desire to emphasise the following points:—

(1) In this prolonged agitation it has always been the system of administration, and not the persons administering

the system, which has been impugned. (2) The living protagonists of the agitation hold that a system of control by Trustees is the best, provided that their number is small and that the scientific element, whether professional or other, is not represented as such (see *NATURE*, April 29, 1909, p. 254).

I now proceed to the consideration of Sir Archibald's letter. It is painful to me to have to call in question the deliberate statement of a much respected friend, and one who holds the high and honoured position of President of the Royal Society. It is hard to be certain of one's motives, but I believe that my sole motive in the present case is that of the interests of science. I also wish to say that I have the same belief as to the reasons which have induced Sir A. Geikie to write his remarkable letter. The issue between us, therefore, is simply one of fact, and can only be decided by an inquiry. I had hoped, especially after Mr. Montagu's letter to you of November 19, that the Trustees might be willing to set their own house in order, and that an inquiry might be avoided. I have not always held this view, and for two years, acting in conjunction with my colleagues, I pressed for an inquiry; but I came to see that there were many difficulties in the way of an inquiry and objections to the possible legislation which might result therefrom, and that the essential points in which we deemed the museum administration defective might be remedied by the action of the Trustees themselves. I therefore welcomed the suggestion in Mr. Montagu's letter, and wrote to you to say so. But so long as Sir Archibald's statements are accepted as authoritative, and so long as the Trustees think along the lines of Mr. Lowther's letter, it is clear that reform from within is impossible, and that an inquiry by impartial outsiders is a necessity.

As Sir Archibald Geikie says that he has made a "careful investigation of the facts of the case," we may presume that all his statements, particularly those which can be tested without any inquiry, will be accurate. Let us submit his letter to that test. His first statement is that the "agitation has been carried on fitfully but persistently in the public Press for many years, and has been supported by *some well-known men of science*" (the italics are mine). That Sir Archibald should have made this statement shows that his investigation has been, to say the least of it, superficial. The recent (during the last half-century) history of the agitation is as follows. In the year 1866 there was a memorial to the Chancellor of the Exchequer, signed by all the most famous biologists of the time (I will enumerate them when I deal with the word *some*), stating that they were "of opinion that it is of fundamental importance to the progress of Natural Sciences in this country that the administration of the national Natural History Collections should be separated from that of the Library and Art Collections, and placed under one officer, who should be immediately responsible to one of the Queen's Ministers." In the year 1874 the Royal Commission on Scientific Instruction and the Advancement of Science, having fully considered the state of the Natural History Departments in the British Museum and taken evidence thereon from the principal scientific authorities of the country, came to the same conclusion. In 1879 the Council of the British Association for the Advancement of Science prepared a memorial to the Prime Minister pointing out that the views of scientific men on this subject, as embodied in the recommendations of the Royal Commissioners, had been entirely overlooked, and that "the question of the administration of the Natural History Collections is one of the utmost importance as regards the future progress of Natural History in this country," and urging upon the Government to take the opportunity afforded by the removal to South Kensington "of effecting the alterations in the mode of administration of the Collections recommended by the Royal Commission." Now ensued a lull in the agitation for twenty years. The cause of this lull is highly instructive, and must be mentioned here. Hitherto the head of the Natural History Collections had been entitled Superintendent, and had been subordinate to the Principal Librarian. In 1885, on the recommendation of the Principal Librarian, Sir E. Bond, the office of Superintendent was replaced by a new office, that of Director, with new duties, new responsibili-