

Presidential Address

Delivered by DR. CHARLES SINGER *on 3rd May, 1949*

Our Society is now firmly on its feet. It has weathered its first two years of life. These have the highest mortality for human beings and they have also the highest mortality in the lives of learned societies. Some day, perhaps, someone will tell the history of Societies that have perished in their infancy and teach us something of their fatal diseases—

For some there be that have no memorial

Who, it is said, are perished as though they had never been. .

And yet their seed remaineth a good inheritance and standeth fast. .

I have myself peeped into the records of societies that have died prematurely, and have learned that there have been a number of abortive attempts to start societies for the History and Philosophy of Science. Some, more skilled than I in bibliography, would doubtless find more, nor would such a research be useless, for it would illustrate the long and painful process of trial and error by which a new subject comes to enter the academic orbit. But now we can at last see our own attempt on its way to becoming one of the great learned bodies of this country. I believe that it is destined to be an important intellectual and educational influence in the new world into which we are entering. This fair prospect we owe very largely to the vision and energy of our Honorary Secretary, our Honorary Treasurer and our Honorary Editor.

Next I must say, in the simplest words at my command, that I have felt it an honour and pleasure that you should have chosen me as your first President. Honour and pleasure have been increased by my association with my successor. No one in this country has rendered service to our subject as great as Professor Partington, nor can I think of any, either here or elsewhere, who has attained such distinction simultaneously as a teacher, as scientific investigator, and as a critical and learned student of historical and archaeological technique. I am indeed proud to be a member of a Society over which he will preside.

As I turned in my mind what I should say to you this afternoon,* I reflected that it is just 55 years since my old teacher of chemistry Sir William Ramsay—Professor Ramsay as he then was—first suggested to me, as a junior student, that I should take up the History of Science. The book-market in the classics of science in those days was not what it is now. I had bought half a dozen of the more famous works of Robert Boyle from the sixpenny shelf of a bookseller near my home. Ramsay used to make a point of exchanging a few words occasionally with each elementary student in his laboratory. When he came round to me I had some of these volumes of Boyle with me. He looked at them and asked me to let him take them home with him. Few investigators of Ramsay's calibre took then any interest in historical studies and fewer would, I think, pause to give thought, in the midst of their researches, to the career of a not very promising student in a field outside their own. You may remember that his historical interests had been aroused by certain observations of Cavendish, which in some details forestalled his own on the inert gases of the atmosphere. The existence of one of these gases, Argon, Ramsay had just revealed. On his next round he brought the books back and asked if I had ever thought of taking up the History of Science as a subject. He told me that he felt sure that it would one day gain academic recognition. In this he was a prophet of our movement, and he supported Sarton in 1913 in his first effort to float *Isis*.

I am one of the diminishing group that has been a near witness of this half century of the slow entry of our subject into the curriculum of the Universities. You may care to hear something of the hopes and fears that came with the first, and rather grudging acceptance of the subject, as an intellectual discipline.

The first and most obvious need was a Journal which would concentrate the scattered efforts of workers in an admittedly rather diffuse and indefinite field. The earliest serious attempt to effect this was made by a small group of German-speaking writers, Kahlbaum of Basel, Neuburger of Vienna and Sudhoff, soon to go to Leipzig. All were known to me. The youngest of them, Neuburger, alone survives. He has recently celebrated his 75th birthday, an exile in the United States. In 1902 these men started a Journal that was to cover the whole field of the History of Science and Medicine, and this continued till the outbreak of the war of 1939. A prominent and greatly valued feature of it was a current bibliography. It was the only attempt of the sort available until it began to be displaced by the more comprehensive effort of *Isis*. This feature began in *Isis* in 1921, but it was some years before it was equal to that of the German periodical or could be as safely used. By 1930, however, the bibliography of *Isis* had come to be much the better of the two. For the first quarter of the twentieth century, however, the German bibliography is still indispensable.

During this period there was considerable activity in the subject in Italy. The only effective survivor of this has been the journal started in 1919 by our venerable colleague Aldo Mieli who is happily still alive. Few have suffered more than he from political disturbances, but he has carried on his Journal under various titles and in various countries down to the present day. He is now living in semi-retirement in Buenos Aires. Several other Journals which appeared in this period have not proved viable. In 1920, however, there started, under the guidance of our very active member, Dr. H. W. Dickinson, the "Newcomen Society for the Study of the History of Engineering and Technology". The splendid publication of that Society has survived all dangers of infancy and childhood and is now the most valuable existing medium of its subject.

Every department of knowledge advances in two alternating phases. In one phase new fields are rapidly opened out by great new ideas, by new techniques, or by great critical experiments. In the other phase the new fields are slowly occupied by specially equipped or specially trained exponents of the technique or of the ideas. This alternation of phases is not peculiar to the physical and biological sciences. Almost all departments of mental activity exhibit it. History, in the limited academic sense, that is political history, has long been rather drearily busy with the second phase, which in her case, is the careful exploration, classification and publication of documents. This stage, so far as our own country is concerned, seems to me to be nearing the limit at which it can be regarded as humanly tolerable. Changes in narrative of the political history in our own country that can be effected solely by continued exploration of documents on the old lines seems to be now inconsiderable, except in the hands of the most brilliant exponents.

Since that point has been reached, we have been told, doubtless rightly, that history must constantly be re-written. But how can it be re-written except by the incursion of new ideas which alter the point of view of the narrator? Of the new ideas that have influenced political history the most evident are the economic which, during the last half century, have indeed greatly modified the historic narrative. This emphasis on the economic outlook in

history has been due to certain specific movements in academic policies. But obviously economics was a special choice among a dozen or so of the great manifestations of the human spirit. The choice might have fallen on art or literature, on religion or social life, on science or music or the drama. It might have fallen on the study of technology and industry which provide the backbone, the skeleton, of economics. Perhaps it is a pity that it did not, but it is a fact that it was on economics that it fell.

The point that the choice might have fallen on one of many manifestations is obvious now, but it was by no means obvious in the 19th century. Nevertheless, it was clearly grasped by that very original and industrious scholar, Henry Duff Traill (1842–1900). But Traill never held any academic position though he was an enthusiastic, learned, and accomplished historian with the widest possible outlook. It is of interest to us that, being the first man who attempted to integrate the manifold historic developments of the human spirit, he started with a good training in the physical sciences. It was Science that introduced him to the study of universal history.

Traill's great *Social History of England* appeared in six very large volumes between 1893 and 1898. It is still the only earnest full-scale attempt by an accepted scholar to introduce into continued historic narrative all the aspects of human life. Throughout he lays great stress on science. In this respect, and indeed in several others, his work seems to me to be superior to that of Lord Acton, despite that scholar's immense reputation. Compare the treatment of science in the Cambridge Modern History with that in Traill. You will find that Traill's is much the broader conception. Specifically Traill weaves science into his story. The *Cambridge Modern History* treats science not only inadequately but without any integration into the narrative as a whole. It is a standing reproach to our English University system that Traill remained outside it and had to earn his living in journalism. It is no less significant, and it is no less a reproach, that for the treatment of science he found himself forced to choose colleagues as much outside the academic world as he was himself. The three chief men whom he selected to deal with the History of Science were all highly competent, but all of wayward talent and with exceptional careers. Nevertheless, on looking back, it is difficult to see how he could have chosen more wisely.

One of his three assistants with the history of Science was R. R. Steele. He died at 85 during the war, and in the poverty of a Civil List pension. He had had some experience as a works' chemist and as a librarian, and he had learned something of technology from William Morris, but he was otherwise self-educated. He early took to medieval studies especially connected with the sciences. He became one of the most distinguished medievalists of his day, and is remembered as the editor of the works of Roger Bacon. It is probable that Steele never had an income greater than that of a junior lecturer, and on that he supported or failed to support a family of nine. I knew him well. He was a lovable eccentric and his life story could only be told in a novel, the plot of which many would regard as highly improbable. Perhaps no man has had a better grasp of medieval science, and perhaps no man has ever spent more hours in the library of the British Museum. It may interest you that he used to visit at the house of Karl Marx and knew him well, but he was not a communist.

The second member of Traill's scientific team was even more brilliant and perhaps even more eccentric, but it is not likely that many here have even heard his name. Nevertheless he made contributions to scientific literature which are of permanent value and some of his writings will always be read by

a few specialists. Charles Creighton who died at 80 in 1927 lived the same heroic life of poverty as Steele. He too died a Civil List pensioner. As with Steele there is a mystery attached to his life which might well provide material for another romance. Creighton contributed to Traill's volumes everything that is linked with or could bear on public health. The historic significance of this Traill was the first historian to appreciate adequately or to weave into his narrative. Creighton also contributed to Traill's work most of the sections that bear in any way on medicine. He is remembered as the author of the most learned work in the field of the history of medicine that has yet appeared in the English language, his great *History of Epidemics in Great Britain*. Anyone who has even turned the pages of that book will accord homage to its author. I had only a casual acquaintance with him but one of our members is giving attention to his biography.

The third and youngest member of Traill's team for the History of Science was another oddity, Thomas Whittaker, who died aged 80 in 1935. After a long and sound scientific training he turned first to psychology and then to philosophy. He was long an editor of the journal *Mind*. He never had any academic position but remained through life a free-lance philosopher with an interest on the one hand in the History of Science, and on the other in mystical thought and Christian origins. His work on the Neoplatonists is authoritative and still read. The sections on science in Traill's volumes contributed by Whittaker show an astonishingly comprehensive grasp. They are well adapted to and woven into the general narrative. They have the excellent fault of over-brevity.

Of late more has been said in non-technical circles of the need of relating the History of Science to History as a whole. Perhaps we historians of science have been too self-contained. None of us would wish to repeat the isolation of the old-fashioned political historians. To those of you who ever have to do with students of the History of Science, I would suggest that you advise them to glance at Traill's six volumes—to glance only. No young student can be expected to read this enormous work. But every student can find time to look through the tables of contents of the volumes, to turn some of the innumerable and entertaining pages of pictures, and to dip into those sections which deal specifically with the History of Science. To do even this is an education. In a very few hours the student may thus gain a sense of the orientation of his studies and of their relation to other academic disciplines which cannot be easily reached in any other way.

Since Traill several authors, H. G. Wells among them, have sought to integrate the History of Science into World History. Perhaps human knowledge has not yet reached the stage at which this can become effective. Traill wisely chose a scene smaller than the world. But the feeling of authoritative scholarship which he and his scientific colleagues create, and the sense they give that all their departments are closely related to each other, seems to me to be conveyed by no comparable work.

Now that our Society is firmly established, we can take counsel together as to what should best be done to integrate our subject into world history. I would therefore devote my concluding remarks to a glance at two themes, firstly imperfections and gaps in our own work, and secondly to a few suggestions and remedies.

The worst gap of all seems to me to be that between the History of Science and the History of Technology. I am convinced that historically modern science is as firmly rooted in practical needs, that is in technology, as in interest in theoretical relationships, that is in what some call "pure science".

It is thus a misfortune that the two kinds of history should have developed independently. Their separation is a main obstacle to the introduction of general ideas into the History of Technology. That subject has been most beautifully developed in detail but we have not had even an attempt at a general history of the subject, except that for remote antiquity by our new president. We cannot hope to get together even the materials for such a history until the records of science and of technology are in more intimate contact. We should greet any sort of link between the Journals of these two kinds of History for we have too many competing Journals of these subjects.

Another gap is the absence of any concrete scheme for the production of contributions on the lower level, that is the level of the thesis. The majority of these are produced without reference to any general plan of development. For this reason, among others, they contribute less than they might to the sum of useful knowledge and what they do contribute is liable to be lost. This is a great pity for the ability and trained labour put into them is enormous. The root trouble seems to be that our system of Degrees by theses or by research is unorganised and works largely at random. How can this be remedied? I think there is a way and propose to devote a few words to a suggestion in this direction.

Our subject is in a peculiarly happy position for theses. The field has been so little cultivated and is so new that subjects may very easily be found. The difficulty is to produce subjects in some sort of rational relation to each other. Young workers on the thesis level cannot see these relations for themselves, they must, of course, be provided at a higher level. But we don't provide them, at least not on a sufficiently systematic basis. Could not a small group of senior exponents of the History of Science and Technology get together and set forth a scheme showing the gaps in our knowledge that might be filled by thesis workers? Every experienced investigator knows of such gaps. Ought we not to tabulate them?

In my own case, for example, I find myself constantly delayed by lack of adequate reasoned bibliographies. The preparation of bibliographies, at least up to a certain level, should be well within the powers of thesis writers. Another type of easy subject is provided by the much needed collation of different editions of certain great works. For beginners such tasks are relatively easy and not unpleasant, though for older scholars they are a very weariness of the flesh. In the course of careful collation a student would learn much about early printing, publication, and typography, as well as about his subject, and incidentally might strengthen his probably slender Latin. Surely these things provide amply sufficient bases for a thesis. The thesis student should be conscious that he is genuinely adding a little bit to knowledge, and he should be discouraged from vapouring on higher themes the bearing of which he is not equipped to treat.

Please do not think that I am seeking to lower the standard of thesis work. On the contrary, to make a real addition to knowledge, even on a humble plane, is surely a far better introduction to real science than to write empty nothings on its philosophy. If we ourselves form clear pictures of the objectives of our study we shall be doing students an educational service by asking for their help in reaching our ends. Our real need is the formulation of clear aims and the abandonment of random methods. Once we have clarified our aims our subject will take its natural, rightful, and dignified place in the organon of learning.