

distinguished occupants for the chairs of physics in universities all over the world, a world which was just awakening to the vast and imminent importance of the subject. These men, when confronted with the gigantic engineering teamwork of modern high-voltage plants, may well look back, sometimes with regret, to those simpler days of gold leaves, tobacco tins and sealing-wax. His was a splendid life covering as it did that most prolific period of scientific renaissance inaugurated by argon, X-rays, and his own discovery of the electron. His passing marks the passing of an era.

F. W. ASTON.

It is not easy even to recapture any adequate sense of the influence which J. J. Thomson exerted on science in schools in the earlier days of this century. Electrons and J. J. Thomson were spoken of mysteriously by physics masters with the same bated breath. He came into my life, as into those of so many others, long before I came up to Trinity, when as a schoolboy I got hold of a copy of the "Discharge of Electricity through Gases", devoured it, found it much too hard to understand, resented especially its use of integral signs (which I had not yet "got to"), but gained such thrills from the parts I could understand that I even read it on Sundays, and found it worth the rebuke I received at home for violating the Sabbath. It sent me to his early *Phil. Mag.* papers of 1880 or so, on the stability of rings of charged corpuscles inside a sphere of the opposite sign of charge. One may be allowed to recall that "J. J." was a mathematician before he was a physicist. Afterwards, when one had come up to Trinity, one heard it rumoured that "J. J." liked doing his mathematics for himself, but that when in difficulties he had recourse to "J. L." next door.

As an undergraduate reading not physics but mathematics, one's contacts with him were indirect; one envied those who brought tales of his lectures at the Cavendish on "Properties of Matter", or the research students who brought tales of the laboratory teas there. One set of pictures, however, remains: those of "J. J." regularly attending Sunday evening chapel in Trinity, coming in at the very last moment, with surplice and M.A. hood, standing at the right moments with these articles of dress peculiarly crooked, and looking as if his soul were far away—a notable contrast to his saintly looking predecessor in the Master's pew. Later, one got to know and be thankful for his kindly courtesy to junior fellows, for the avoidance of whose awkwardness he so readily provided conversational opportunities, covering up one's more unusually fatuous remarks with the characteristic resonant half-

grunt, half-laugh that concluded his own sallies. He had withal a somewhat disconcerting directness of suddenly asking a question pertinent and penetrating, amidst the vagueness of introductory conversations; and his face, previously turned aside as though interested (as in Chapel) in things miles away, would gleam with enjoyment as he thought of some teasing but kindly remark to make about the common acquaintance he had inquired after. His best story about physicists can scarcely yet be re-told, for the protagonists are still living; but the pungency of his description of the final interview between those heroic figures of Trinity: "both were speechless, the one silent from rage and the other for the usual reason". On one of the occasions on which I heard him tell this story he slyly added: "And when one of them later wrote a book about physics, and NATURE asked me to review it, instead of doing so I filled in the little empty space at the bottom with the name of the other". History does not record whether NATURE took that advice, whether if so the review was written, and if so again whether it was printable. Thus did "J. J." make his open study on late Sunday evenings a place of scientific gaiety.

E. A. MILNE.

It was Prof. J. J. Thomson's name which took me to Cambridge in 1906. His lectures on electrons and the structure of matter introduced me to a domain of observation and thought new to me, and deflected my interest from more abstract mathematics to the atomic and sub-atomic world. It is not easy to describe the nature of the fascinating influence of Thomson's teaching. There was nothing sensational about it; but the apparent simplicity of the experiments and the straightforwardness of the explanation carried a striking power of conviction. When I left Cambridge I was converted to physics.

More than fifteen years later, on a visit to Cambridge, I met Thomson's son, who took me to the Cavendish and into the basement room where "J. J." was working, surrounded by the usual complicated structures of apparatus, glass tubes and wires. I was introduced: "Father, here is an old pupil of yours who studied with you years ago. . . ." The grey head, bent over a glowing vacuum tube, was lifted for a minute: "How do you do. Now, look here, this is the spectrum of . . .", and we were in the midst of the realm of research, forgetting the chasm of years, war and after-war, which lay between this rencontre and the days of our first acquaintance. This was Thomson in the Cavendish: science personified. But this fanatical objectivity did not

conceal the human side of his nature, that of a man of the highest culture, of sound practical wisdom, of great kindness of heart.

Again, many years later when, expelled from my own country, I was invited to Cambridge, I found in Thomson's home, the venerable 'Lodge of Trinity', the kindest hospitality and friendship. It is to express my deepest gratitude for all he has done for me, in science and life, that I write these lines.

MAX BORN.

DANS l'autre lutte, celle que l'homme livre contre l'inconnu, un combattant vient de disparaître, qui lui avait consacré toute sa vie. En d'autres temps, les figures les plus illustres de la science contemporaine seraient venues s'incliner devant sa dépouille, et auraient rappelé en termes appropriés l'influence de Sir J. J. Thomson sur tant de domaines de la physique et de la chimie modernes, dans tous les pays. La France en particulier, dont les savants doivent tant à l'œuvre de J. J. Thomson, aurait apporté, par la voix de ses maîtres, son hommage au grand savant qui vient de mourir. Hélas, parmi les savants français qui auraient pu le mieux prendre la parole en ces circonstances, les uns, tels que Marie Curie et Georges Urbain, sont morts prématurément ; les autres malheureusement, ne sont plus à même de nous communiquer leurs sentiments.

C'est donc à moi, leur humble élève, exilé sur la terre libre, que revient l'honneur de venir dire aujourd'hui ce que J. J. Thomson représentait pour la science française. Si j'ose l'entreprendre, c'est que j'ai la certitude de pouvoir le faire au nom des maîtres que j'ai cités, car ce sont eux qui m'ont appris à connaître et à respecter le grand savant anglais.

J. J. Thomson était Docteur ès Sciences de la Sorbonne ; il était membre de l'Académie des

Sciences de l'Institut de France et Lauréat du Prix Mascart. Mais son influence sur la science française a été bien plus grande que ne peuvent l'indiquer ces trois symboles.

Né en 1856, J. J. Thomson a été l'un des artisans de la prodigieuse évolution de la physique qui a commencé à la fin du siècle dernier. Ses travaux sur la décharge électrique à travers les gaz (1897), contemporains de la découverte de la radioactivité en France, ont permis avec elle le développement de la physique atomique puis, plus tard, de la physique nucléaire. Son œuvre, en ce qui concerne la structure corpusculaire de la matière, est étroitement associée à celle de Jean Perrin, de Paul Langevin, et l'on sait quels fruits a porté cette influence, dans le domaine de la connaissance humaine.

Au nom des travailleurs scientifiques français qui ont pu venir en Angleterre reprendre leur place au combat, au nom de mes maîtres empêchés, au nom de la science française, je m'incline devant la mémoire de J. J. Thomson, l'un des plus grands physiciens du monde. Je prie sa famille, en particulier son fils et continuateur, George Paget Thomson, F.R.S., et sa fille et collaboratrice, Miss Joan Thomson, de recevoir ici, en même temps que Lady Thomson, l'expression des condoléances françaises unanimes, sinon unanimement exprimées.

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PROPOSING a vote of thanks at a meeting of the British Association a few years ago, Sir Oliver Lodge described Sir J. J. Thomson as "a man whom posterity will envy us for having known". It is not often that one great man of science finds a perfect phrase in which to express his admiration of another, and the moment is doubly appropriate for putting on record this tribute.

E. H. NEVILLE.

## MISCEGENATION IN SOUTH AFRICA\*

IT is a matter of general experience that racial questions are rarely debated on their merits. In the discussion of the effects of inter-racial breeding among the different varieties of the human stock, the issue is commonly determined by prejudice masquerading as pride of race or political and economic considerations more or less

veiled in arguments brought forward in support of a policy of segregation. No appeal is made to what should be the crucial factor, the verdict of science ; and the existence of 'superior' and 'inferior' races which when crossed produce an offspring inferior in character to the superior parent is tacitly assumed. Such indeed was the experience of the Commission on Mixed Marriages in South Africa appointed by the Governor-General of the Union of South Africa to examine whether such

\* Report of the Commission on Mixed Marriages in South Africa. Pp. 56. (Pretoria : Government Printer, Union of South Africa, 1939.) 3s.