

is usually soaked in the subject, but the same cannot be said of all his readers. My own subject was not that in which "J. J." was specially interested, but the great depth and breadth of his knowledge of classical physics led him often to suggest for my use most illuminating analogies of experimental and mathematical treatment.

As an undergraduate, working for the Tripos, I had the privilege of listening to those stimulating lectures he gave under the title "The Electrical Theory of Matter". These were far removed in style and structure from the usual formal lecture. The subject of his discussion might be that specially engaging his interest at the time or it might be the subject-matter of some paper, published here or abroad, which he felt was important. His lecture notes, I remember, were usually set out on a scrap of paper or on the back of an envelope. The theoretical treatment was rarely other than original, and was usually worked out as a miniature research starting from first principles. I treasure my own notes of those lectures to this day.

At Cambridge dinners "J. J." usually astonished his colleagues by his wide knowledge of men and affairs. Whether the topic were the cricket history of the northern (English) counties, or athletic records or Victorian novels, he was an amazingly accurate authority. Like most other Masters of Trinity his name will, I imagine, be associated with some *bon mot*. Personally I heard many such fall from his lips; but I think the one which posterity will perhaps choose is his remark on the occasion of the meeting of the electors to some fellowship or research scholarship. Someone had been stressing the claims of a particular candidate, and after a longish eulogium sought to clinch matters by saying that when this particular candidate had written on a subject the last word had been said. "But", interposed the Master "perhaps we're looking for someone who says the first word".

In his speeches at Cavendish dinners "J. J." always stressed the value he set on friendships made in the Laboratory. Certainly there is something unique about the relationship between the professor and the student who sets out on his research career under him. For "J. J." the affairs of his own research students, both during and after their working period with him, were always matters of intimate concern. For the student, respect soon became blended with affection, which ripened as the years went on.

J. J. Thomson made the Cavendish Laboratory the world's focus of experimental physics in his time. Workers from all over the world came to listen to and learn from him. His personal contributions to his subject are unsurpassed, but he would, I imagine, wish his monument to be the loyal affection he inspired in the hearts of that

happy band of workers who called him "the Professor" and who were called by him "my research students".
E. V. APPLETON.

IN trying to assess the influence of J. J. Thomson upon the development of physics in Great Britain, two things stand out. The first of these was the completeness with which the important physics posts in the universities of this country and the dominions (and many abroad as well) in Government service, and in industry were filled by men whom he had trained. The record of research students working in the Cavendish Laboratory illustrates this in a striking way. The group of seven students in 1897 includes C. T. R. Wilson, J. S. Townsend and E. Rutherford. To select some names from the years which follow, there are McClelland, Langevin, Zeleny, R. S. Willows, H. A. Wilson, McLennan, R. J. Strutt (Lord Rayleigh), Barkla, O. W. Richardson, Horton, N. R. Campbell, Duane, Bumpstead, Laby, Kaye, Crowther, Vegard, G. I. Taylor, Thirkill, Whiddington, C. S. Wright, Aston, W. Wilson, E. A. Owen, T. L. Eckersley, Andrade, Norman Shaw, James, Appleton. The last pre-War group in 1914 includes his son, G. P. Thomson. The number of well-known names in this list is a witness to his achievement of making the Cavendish the most famous physics laboratory in the world.

The other feature of the Cavendish tradition which he created was the simplicity and almost crudeness of the apparatus with which his great experiments were carried out. Simplicity always characterizes pioneer research; it is only in the later stages when a fuller development takes place that elaborate and costly apparatus becomes necessary. In J. J. Thomson's work the simplicity was carried to extremes. "String and sealing-wax" was no exaggeration, it was the Cavendish tradition as long as he reigned over it. Occasionally students coming from other centres smuggled into the Cavendish equipment on a more lavish scale, and I well remember as a young research student with what awe and envy we looked upon the possessors of pieces of apparatus which must have cost sums expressed in pounds and not in shillings. The theory of atomic structure was born in a tin can. This was characteristic of his genius. There can seldom have been a great pioneer who was so completely independent of the outside world of scientific thought and the conceptions current in his time. J. J. Thomson's school drew its inspiration from his mind alone, and in a few brilliant years started a new era in physics.

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