

observations of ammonia formation in muscle; he also recognised that the adenylic acid of muscle is different from the adenylic acid of Jones and Kennedy, occurring in yeast nucleic acid. The discoveries of the vasomotor and cardiac action of adenylic acid by Szent Györgyi and Drury, and of adenosinetriphosphoric acid and its rôle as co-enzyme of muscle glycolysis and yeast fermentation, are consequences of Embden's discovery. In addition, the work on muscle permeability and its alleged change during activity, the results of which are still matters of controversy, was started by Embden.

Embden's later work was abundantly referred to in Sir Frederick Gowland Hopkins's presidential address before the British Association meeting at Leicester on September 6 (*NATURE*, 132, 381, Sept. 9, 1933) and in Dr. Otto Meyerhof's lecture delivered last July at Cambridge (*NATURE*, 133, 337, Sept. 2 and 373, Sept. 9, 1933). Although others (Neuberg, Nielson) had nearly obtained these results, and although Meyerhof had reached them almost at the same time, the discovery by Embden of phosphoglyceric acid and of its changes in muscle pulp, the realisation of the mechanism of glycolysis, of the rôle of glyceryl phosphate and of pyruvic acid, of the mechanism of lactic acid formation, of its inhibition by fluoride and by iodoacetic acid, will probably be regarded as among the most inspired accomplishments of biochemical thought.

Embden was, to use the phrase employed by Ostwald and Smoluchowski, a romantic explorer: very bold ideas, arising sometimes before, sometimes after his observations, gave him a picture of the process, sometimes down to minute particulars, and this picture was then tested by ample experimental work, not always careful and critical enough but always very fertile and leading to further experiments and consequences. Much of this work and many of his results have been swept away by the further development of research: others, however, have become outstanding facts and ideas in biochemistry. Not only his friends—and they were many—but also those who, like the present writer, have had frequent and even bitter controversy with him, will consider Gustav Embden as a very great biologist, whose keen temperament and uncommon power of grasping the ultimate facts, and whose strenuous work have been stimulating and enlightening factors in the recent development of biochemistry.

He died too soon and at an unhappy time in the history of science in Germany; he had not, however, himself to submit to the hardships and difficulties which were experienced by many of his colleagues.

J. K. PARNAS.

M. EMILE MEYERSON

WE regret to record the death, which occurred on December 4, of M. Emile Meyerson. Many British philosophers knew the hospitable apartment of the Rue Clément Marot, in Paris, where he used to receive his intimate friends. There was

an air of sadness about him, for he suffered much ill-health and physical pain. Emile Meyerson seemed to know everything and everybody. It could scarcely be otherwise, when one remembers that he was born at Lublin in Poland in 1859, studied chemistry in Germany before going to France, where he worked at first as a journalist with the *Agence Havas* and as a director of Jewish charities. From his vast experience of men and things, he drew the material with which he built up his philosophy, for he owned no master and created a method suited to his purpose.

During the past twenty years, Emile Meyerson has given us a series of brilliant books in which he expounds his views with a conviction backed by an amazing wealth of historical and scientific knowledge. His first work, "Identité et Réalité", which has been translated into English, then "L'Explication dans les Sciences" (Payot, Paris, 1921) and "La Déduction Relativiste" (Payot, Paris, 1922), and finally "Du Cheminement de la Pensée" (3 vols., Alcan, Paris, 1931), develop the same theme, that the object of science is not to formulate new laws only, but also to attempt an explanation of Nature. So that his purpose was less to create a new system than to trace and examine the processes of the mind in his search for truth through the sciences. To discover that a certain effect has a certain cause is to identify them ultimately. That is why physics, for example, is dominated by the principle of inertia and the principle of conservation of energy, which eliminate the heterogeneous in favour of the homogeneous. There are many obstacles in the way, however, like Carnot's principle. Yet these irrationals should not stop the forward movement of the mind: it is only in the constant attempt of the mind to reduce the irrational to the rational that science finds its justification.

Emile Meyerson did not wish to go any further. The wider issues of metaphysics are beyond the compass of his philosophy, though he was distinctly a realist as he believed in the existence of the 'thing' which supports the whole structure of science. Nevertheless, no future interpretation of science will be able to avoid negotiating the arguments produced and elaborated by Meyerson. In this respect his philosophical work has a universal importance and will prove to be an everlasting shrine to his memory.

T. GREENWOOD.

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We regret to announce the following deaths:

Dr. F. L. Chase, assistant astronomer at the Yale Observatory from 1890 until 1910 and acting director from 1910 until 1913, known for his work on stellar parallax and proper motion, on November 8, aged sixty-eight years.

Mr. J. Humphrey, formerly editor of the *Pharmaceutical Journal*, president of the British Pharmaceutical Conference in 1910, who had a large share in the compilation of the British Pharmaceutical Codex, on December 8, aged seventy-one years.