tion rate increase 10 or 25 or 50 per cent. throughout the body, depending upon the degree of the temperature influence, the circulation rate *through the extremities* increases several hundred per cent., thus conveying heat to surfaces where it may be dissipated.[30] Under the majority of circumstances, and in Java, this is a provision for cooling the organism which is far more effective than that of which Mayer conceived.

There was in Mayer's day a physiological teaching which, had it been true, would have overthrown his reasoning still more thoroughly. This was the idea, which originated with Lavoisier,[31] that all or most of the body's oxidations occur in the lungs. It is probable that Mayer as a medical student had been taught this; whether he promptly forgot it or whether he was too wise to accept it, we can not discern. It is clear that if oxidations really occur in the lungs, then the color of the venous blood could tell nothing about the rate of combustion in the body as a whole. The view taken by Mayer, that combustion occurs chiefly or solely within the blood itself while in the capillaries, is no more correct in theory, and much less sanctioned by tradition.

To infer from the color of the blood in the skin the condition of the blood over the whole body was perhaps Mayer's biggest fallacy. But who does not reason just as "superficially" in the present year of enlightenment? Fallacies are not created by laziness, even in Mayer's case. In later life Mayer's mind gave way before the stupendous and intricate conceptions of the universe to which he was led. He was taken to an insane asylum, but later recovered equilibrium, and spent the rest of his days in the simpler occupation of cultivating the vine.

It must have been beyond Mayer's conception actually to measure the rate of blood flow through a vein, or the rate of oxygen consumption in a living arm, or even the oxygen saturation of venous blood. Yet to-day the solution of such a minor problem as the effect of temperature conditions upon the utilization of oxygen in the tissues drained by a given vein has just been begun; indeed, it is only now that the physiological value of a given atmospheric temperature can be accurately known in terms of physical measurements.[32] Scientists and non-scientists talk more about climate than about any other one topic; and the circulatory system is the portion of us whose relation to the weather ultimately matters most.

Mayer's contribution to the recognition of the principle of the conservation of energy was purely qualitative; he came to deal with energy in a cosmical way, a useful way which a thorough physicist like Joule could not permit himself to take. Shall we suppose that if Mayer had known the truth about the red color of febrile venous blood he would never have discovered the equivalence between chemical energy and heat?

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[30] Goldschmidt, S., and Light, A. B., 1925: "A Comparison of the Gaseous Content of Blood from Veins of the Forearm and the Dorsal Surface of the Hand as Indicative of Blood Flow and Metabolic Differences in These Parts." *Amer. Jour. Physiol., 73,* 127–145.

[31] *Loc. cit.*

[32] Houghton, F. C., and Yagloglou, C. P., 1924: "Cooling Effect on Human Beings produced by Various Air Velocities." *Jour. Amer. Soc. Heat-Vent. Engin., 30,* 169–184.

JOHN J. FLATHER

THE death of Professor John J. Flather of the University of Minnesota which occurred on Friday, May 14, 1926, at his home in Minneapolis, came as a surprise and a shock to his many friends. Although he had not been in the best of health for several years, his usual energy enabled him to perform his full duty as a teacher and as the administrative head of the department of mechanical engineering. Quite recently he has had trouble with his heart and just a day or two before his death his physician ordered a complete rest and cessation of all active work. Professor Flather was at the university up to the day before his death.

Professor Flather was born at Philadelphia, June 9, 1862. His father was English and his mother a native of Virginia. He was educated in private schools in Scotland, and the high school at Bridgeport, Conn., later attending Yale University where he graduated in 1883. He did graduate study at Cornell University and received the degree of Master of Mechanical Engineering in 1890. He also studied at the University of Edinburgh.

The early professional experience of Professor Flather includes a full apprenticeship in various machine shops in New England, journeyman experience as a toolmaker for the Yale & Towne Mfg. Co., designer and foreman for the Ansonia Electric Co., and superintendent of the Buffalo Steam Pump Co., and afterwards of the Hotchkiss Mfg. Co. of Bridgeport, Conn.

In 1888, he began his teaching work as instructor in mechanical engineering at Lehigh University, where he remained three years. From 1891 to 1898, he was professor of mechanical engineering at Purdue University. He came to the University of Minnesota in 1898 as professor of mechanical engineering and head of the department, which position he held until his death. He has taught practically all the subjects in the mechanical engineering curriculum at some time

during his career. His department has developed under his leadership and guidance from a small unit to a group of nearly 200 students and a faculty and staff of twenty-five. Many prominent mechanical engineers and engineering teachers are the product of this department.

Professor Flather has taken an active part as consulting engineer in many important engineering projects in the Northwest. Among these are municipal water works, electric light plants, factories and power plants. He designed the heating plants for the University of Minnesota on the main campus and the farm campus. He also conducted many researches and investigations, especially along lines of mechanical power development, transmission and measurement, and the design of tall chimneys.

His articles in the technical journals have been numerous and cover a broad field. He is the author of books on rope driving, dynamometers and the measurement of power, and kinematics, and joint author of books on steam boilers and engineering thermodynamics. At the time of his death he had partially completed a work on the history of engineering.

He was a member of various societies, principally scientific and technical, including the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, Society of Industrial Engineers, Minneapolis Engineers' Club, American Association for the Advancement of Science (secretary and vice-president of Section D), Society for the Promotion of Engineering Education (treasurer and later vice-president), American Association of University Professors and the honorary societies Sigma Xi, Tau Beta Pi, and Pi Tau Sigma. He was also a member of the Authors' Club and the Newcomen Society of London.

Professor Flather was a cultured gentleman of broad vision. Outside of his professional and scientific interests, his tastes ran to literature. He enjoyed a wide acquaintanceship throughout the United States and in various foreign countries. He was a delightful conversationalist, versed in many subjects.

Professor Flather is survived by his widow, a daughter, Elizabeth, who is a senior at the University of Minnesota, and a brother, Herbert Flather, of Meriden, Conn.

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SCIENTIFIC EVENTS

THE COMMONWEALTH INSTITUTE OF SCIENCE AND INDUSTRY[1]

THE scheme proposed by Sir Frank Heath for the reorganization of the Commonwealth Institute of Science and Industry has been tabled in the Australian House of Representatives. The outstanding aim in the scheme is to obtain the utmost cooperation of all the states with the commonwealth in the formulation of advice through carefully selected men of responsible position and wide outlook, it being recognized that the vast distances of Australia and the wide range of its climates demand a degree of decentralization much greater than is necessary or desirable in a smaller and more populous country. It is recommended that the purposes of the institute be defined under three heads: (1) To provide for the training of young men and women in scientific research and for the encouragement of research workers who have already shown capacity for original work; (2) To take responsibility for conducting scientific investigations into problems of importance either (*a*) to the whole industrial activities of the commonwealth, whether primary or secondary, or (*b*) to the interests of Australian consumers as a whole; (3) To encourage and assist under suitable conditions the solution of scientific problems of importance to particular states or groups of states, which, though urgent in themselves, do not affect the whole dominion.

Three derivative functions for the Commonwealth Institute of Science and Industry are added to the main purposes set out in Sir Frank Heath's scheme for reorganization: (*a*) To act as a clearing-house for information on scientific matters affecting the industries of the country; (*b*) To act as the principal and official means of *liaison* in scientific matters between the governments of the commonwealth and those of Great Britain and other parts of the British Empire; (*c*) To become, as it wins the confidence of the world of industry and science, the adviser of the government on the scientific aspects of policy. It is proposed that the institute be constituted a body corporate consisting of the prime minister for the time being and an advisory council of a chairman and eight members, under the title of the Department of Research in Science and Industry. The chairman and two members are to be appointed by the governor-general and are to form an executive committee with very extensive powers. The other six members are to be the chairmen of state advisory committees. Each of the latter is to include two members nominated by the state government from its scientific staff, two members of the state university nominated by the Australian National Research Council, and two representatives of the principal industries of the state.

[1] *Nature.*

FEDERAL LEGISLATION

UNDER a bill (S. 41) to encourage and regulate the use of aircraft in commerce, which has been reported by the Senate Committee on Interstate and Foreign Commerce, the Secretary of Commerce would make