Enoyl-hydrase (or *Enoyl-Hydratase* in German) is recommended as the systematic and trivial name for this group of enzymes; examples are *crotonyl-hydrase* (*but-2-enoyl-hydrase*), *hex-2-enoyl-hydrase, oct-2-enoyl-hydrase,* and so forth.

Since crotonyl-hydrase has been obtained in crystalline form (*13*) and, although of broad specificity, is most active on crotonyl-CoA (*14*), it has been agreed that the term *crotonase* be retained as the trivial name for this enzyme.

Transferring enzymes. Three reactions are known in this group:

$$\text{Propionate (or butyrate)} + \text{acetyl-CoA} \rightleftarrows \text{propionyl (or butyryl)-CoA} + \text{acetate} \quad (3)$$

$$\text{Acetoacetate} + \text{succinyl-CoA} \rightleftharpoons \text{acetoacetyl-CoA} + \text{succinate} \quad (4)$$

$$\text{Butyrate} + \text{succinyl-CoA} \rightleftharpoons \text{butyryl-CoA} + \text{succinate} \quad (5)$$

The first of these reactions (reaction 3) was discovered by Stadtman in extracts of *Clostridium kluyveri* (*15*). Since the reaction involved the transfer of CoA from acetyl-CoA to an acceptor fatty acid, the name "CoA-transphorase" was proposed for the enzyme(s) responsible (*16*). Stern, Coon, and del Campillo (*17,* see also *11*) have described enzyme preparations that catalyze reaction 4, and Green's group (*4*) has reported on preparations responsible for both reactions 4 and 5.

These enzymes may be considered coenzyme A-transferring enzymes, and accordingly *thiophorase* is recommended as a systematic and trivial name for them. The systematic names for the enzymes that catalyze the three reactions (reactions 3, 4, and 5) listed in this group are: (i) *propionyl-acetic-thiophorase* (or generically, *fatty acyl-acetic-thiophorase*), (ii) *acetoacetyl-succinic thiophorase,* and (iii) *butyryl-succinic-thiophorase.*

The differentiation in denoting the acid substrates with the suffix *-yl* or *-ic* in this instance has been dictated by the equilibrium of the reactions.

We believe that these suggestions represent the beginning of an effort to introduce uniformity into the present, somewhat confused, terminology of enzymes of fatty acid metabolism and hope that this subject will be reconsidered in due course by the Commission on Enzymes of the International Union of Biochemistry.

References and Notes

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2. The following abbreviations are used: ATP, adenosine triphosphate; ADP, adenosine diphosphate; AMP, adenosine-5′-monophosphate; CoA, coenzyme A; PP, inorganic pyrophosphate; DPN and DPNH, oxidized and reduced diphosphopyridine nucleotide; FAD and $FADH_2$, oxidized and reduced flavine-adenine dinucleotide.
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André Mayer, Scientist, Soldier, Statesman

André Mayer, who died in Paris on 27 May 1956, was born in that city on 9 November 1875, the son of one of the many Alsatians who had left their native province in 1871 after the German annexation. After distinguished studies at the Lycée Condorcet, he entered the Medical School of the University of Paris at the age of 16, then interned with Charcot. After a few years spent as the senior assistant of Dastre, himself the closest assistant and successor of Claude Bernard, Mayer undertook to equip and staff at his own expense a laboratory in an old house next to the Collège de France, which he maintained until World War I as an active research center.

His first major contribution consisted of several classic papers (1901–05) on thirst. He demonstrated that this sensation arises when osmotic pressure increases, affecting both the mucous membranes of the throat and, more importantly, central structures, or "osmoreceptive centers." This first correlation between a sensation and a physical measurement elicited vivid interest, not only among physiologists and psychologists, but also among philosophers.

In collaboration with Victor Henri, André Mayer established many of the now classic colloidal properties of living matter, including the concept that the structure of protoplasm is that of a gel. With Schaeffer and Terroine, he established the concept of "cellular constants," characterizing the interrelation between various components of each tissue. For example, he demonstrated the relationship between the "lipocytic ratio" (cholesterol: fatty acids) and the degree of hydration of cells. He demonstrated that "physical" properties—for example, osmosis, capillarity, and diffusion—are not adequate to interpret urinary excretion but that tubular reabsorption must involve specific chemical transport and active secretion. His personal friendship with Pierre Curie led Mayer to the first observations of the effects of radioactivity on biological materials. Curie had come to consult him on a skin sore just above the waist, which Mayer correctly surmised to be due to Curie's habit of carrying a small radioactive sample in his right vest pocket. This led him to the first demonstration of the destructive effect of radiation on colloids, cells, and small mammalians. With Armand Delile, Mayer devised in 1913 the first "synthetic" medium for the culture of microorganisms. His field of investigation during that period extended to many other topics, in particular to the study of diabetes: for example, he was the first to examine the effect of superimposing the removal of other endocrines, in particular the adrenals, on pancreatectomy.

Came World War I. André Mayer volunteered immediately and served as regimental surgeon on the Verdun front.

After the German "chlorine wave" at Ypres, he was called back to Paris and appointed by Clemenceau chief of the scientific department of the Allied Chemical Services then being hastily improvised in an atmosphere of gloom. One illustrious chemist expostulated that "no nation could fight a chemical war with Germany." Mayer and his British associate, Joseph Barcroft, rallied their colleagues, fashioned in a few days the first Allied gas masks, and organized the first Allied reprisals. The discovery of the hyperthermic effects of dinitrophenol and of the cellular effects of mustard gas are interesting scientific by-products of his wartime activity. In 1917, Mayer's group was enlarged by the arrival of United States personnel; many of his American collaborators, Walter Cannon, L. J. Henderson, A. M. Pappenheimer, and others, remained his lifelong friends.

In 1919, André Mayer became the first professor appointed by the French Government at the University of Strasbourg. There he planned and initiated the rebuilding of the Medical School and its research institutes. In 1923, he was elected to the Collège de France, in the chair of Cuvier and Marey. Between the two wars he directed there an extremely active laboratory, devoted, among other topics, to the characteristics of the regulation of food intake and of water intake, the relationship between temperature maintenance and oxygen consumption, the relationship of lipogenesis to hydration in plants, and so on.

During the period between the two world wars, André Mayer was also active in strengthening French scientific organizations, a task made all the more urgent by the decimation of educated young men during World War I. He served as president of many of the French scientific societies, varying in object from physical chemistry to psychology, as chairman of the board of the Biological Institute and of the Cancer Institute (Hoover Foundation) at Lille, as secretary general of the French National Research Council, as vice president of the Collège de France, and as head of the Scientific Military High Committee. He was a member of the Académie de Médecine and the Académie des Sciences. Yet he did not seek or enjoy the administrative duties which took him away from his laboratory. He repeatedly declined cabinet appointments as well as the rectorship of the University of Paris. On the other hand, he never refused to undertake any task which could lead to greater international understanding and peace. He served as delegate to the Disarmament Conference, as chairman of the Expert Committee of the International Red Cross, as adviser to the International Labor Office and to the Health Section of the League of Nations. With all this, he found time to write some of the best contemporary French prose. His introduction to volume IV (*Life*) of the French Encyclopedia, which he directed, is considered a literary classic.

World War II found him back in service, with the equivalent rank of lieutenant general, at the head of the Chemical Warfare Services of the Allied command, and later as head of the Fighting French military and medical missions to the United States. In Washington in 1943–44 he worked on the landing plans, was chairman of the Social Council of UNRRA, was one of the chief architects of the Food and Agriculture Organization of the United Nations, serving as chairman of its first executive committee (he later declined to succeed Lord Orr as director general, preferring to remain in a more independent position as chairman of the coordinating committee). He also found time to give the Lowell lectures in Boston.

Back in France at the end of 1944 he took a leading part in the creation of other international organizations, including the International Scientific Unions, on the council of which he later represented physiology. His last years were as busy as his life had always been; at 80 he was still working 12 hours a day as head of public health, agricultural, and military institutions, and as plenipotentiary ambassador to the technical agencies of the United Nations. One month before his death—and 1 month after the death of his cherished wife—he was in Central Africa, inspecting nutrition and technical assistance work.

André Mayer received the highest distinctions from his colleagues, from universities on both sides of the Atlantic, from his own and many allied governments, and from international organizations. But the real measure of his greatness is that all who have had the privilege to know him retain the example of his appetite for knowledge, his disciplined imagination, his care in the execution of any task worth undertaking, his courage and fierce love for freedom, and his utter selflessness—the traits held throughout the ages to be the attributes of the scholar and the humanist.

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Seymour Korkes, Biochemist

With the accidental death of Seymour Korkes at the age of 33, on 10 December 1955, American biochemistry lost one of its most promising young men.

Korkes, a native of New York City, received most of his undergraduate training at Brooklyn College from which he was graduated in 1942. Harry Albaum invited Korkes to become his research assistant when Korkes was under 20. While studying the metabolism of oat seedlings—the subject of the first of Korkes' published scientific papers—with Albaum, Korkes initiated his acquaintance with the biochemical methods used in the study of cell respiration and metabolism. During his senior year in college, Korkes worked with I. N. Korr in the department of physiology, New York University College of Medicine, on the difference in the responses of resting and stimulated tissues to inhibitors of the cytochrome oxidase system.

On graduating from the New York University College of Medicine, Korkes received an Army Medical Corps commission. After serving an internship at Queens General Hospital, he was selected for a position on the teaching and research staff of the division of biochemistry of the School of Aviation Medicine at Randolph Field, Texas. A year and a half later, he joined the staff of New York University College of Medicine as instructor in pharmacology. He was awarded a Markle scholarship in the medical sciences and became assistant professor of pharmacology in 1951.