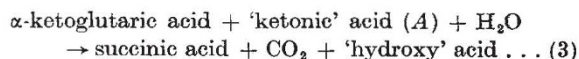


KREBS¹ stated recently that vitamin B₁ is a co-enzyme for two anaerobic reactions, of which one is the following:



where the reaction is common to carbohydrate metabolizing animal tissues, and where *A* can be pyruvic acid; the aerobic oxidation of pyruvic acid is considered to be preceded by an anaerobic stage.

These conclusions would not seem to be general for the following reasons. We happen to have tested Krebs's reaction 3 already among others, using avitaminous pigeon's brain tissue in presence and absence of vitamin B₁. Our tests were aerobic, but they cover the point because any succinic acid formed should be detectable by an increased oxygen uptake in the presence of the abundant succinoxidase present.

No increased (or decreased) vitamin B₁ effect was observed by adding α -ketoglutaric to pyruvic acid. Hence in our brain systems, the extra oxygen uptake catalyzed by vitamin B₁ in presence of pyruvic acid does not follow the lines of the above equation.

We are not yet in a position to make a statement about Krebs's reaction (1) as regards our system; but we can say that we have definite evidence against the view that the oxidation of pyruvic acid proceeds through the stage of succinic acid, which has been suggested for muscle² and for kidney³.

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Sept. 7.

¹ Krebs, NATURE, 133, 238 (1936).

² Toenissen and Brinkman, Z. physiol. Chem., 187, 137 (1930).

³ Elliott and Schroeder, Biochem J., 28, 1930 (1934).

Points from Foregoing Letters

THE content of oxygen by volume at high altitudes, obtained by means of registering balloons with a new device for air sampling, is found by Prof. E. Regener to decrease from 20.9 per cent at 14 km. to 20.4 per cent at 28 km. At heights above 20 km. there are relatively great variations in composition, due probably to weather conditions.

No increase in the normal amount of cosmic rays that could be attributed to the appearance of Nova Lacertæ was observed by Drs. J. Barnothy and M. Forró between June 19 and July 17 on pointing their 'counters' towards the new star at its highest position in the sky.

The ionization current due to slow neutrons produced in a boron-coated chamber has been measured by J. Rotblat in absence and in presence of absorbers of cadmium, silver, gold and iodine. The diminution of the ionization current for each element is proportional to the number of neutrons selectively absorbed in this element, and to their coefficient of absorption in boron. Assuming that this coefficient is inversely proportional to the velocity of neutrons, and that the 'cadmium' neutrons possess thermal energies, that is 0.025 e.v., Mr. Rotblat finds that the 'silver' neutrons have an energy of about 3 e.v., the 'gold' neutrons about 4.5 e.v., and that the energy of 'iodine' neutrons is essentially higher.

By plotting the strength of the current induced in a supraconducting ring of tin against the field intensity, L. Shubnikov deduces, as a necessary condition of supraconductivity, that the magnetic field should be zero in the whole of the volume and its effective tangential component should not exceed a critical value at any point of the surface of the supraconductor.

Small quantities of nitric oxide reduce the rate of thermal decomposition of dimethyl ether, but larger quantities increase it. P. F. Gay and Prof. M. W. Travers find that the end products in the two cases are different, and they consider that the effect observed with nitric oxide cannot be attributed to catalysis. They postulate the formation of short-lived intermediates.

Mandelic acid loses its optical activity (becomes 'racemized') when heated at 140° in heavy water.

Prof. H. Erlenmeyer, H. Schenkel and A. Epprecht find that the number of heavy hydrogen atoms which replace ordinary hydrogens in the mandelic acid molecule during this transformation supports the Werner-Hund conception of the mechanism of racemization. They also report the influence of the heavy hydrogen on the optical activity of the mandelic acid.

The properties and reactions of two sulphur-containing camphor derivatives (*l*- and *dl*-bis-thio-camphor), synthesized by D. C. Sen, are reported by Sir P. C. Ray.

An example of the effects of slow erosive shift of surface soil material on the zoning of soil types around high points in a region of peneplain topography is adduced by G. Milne from the central plateau of Tanganyika Territory. Comment is made on the use to which the word *profile* has been put in soil terminology.

Dr. M. Schlesinger describes the use of hollow cylinders coated with a thin gel layer, and rotating with the axis vertical, for the study of systems of high dispersity. The distance which the particles have to travel being reduced to a few tenths of a millimetre, the effect of a given centrifugal force is increased many hundredfold if compared with usual conditions. The use of the gel provides satisfactory separation of 'supernatant' and 'sediment', and the possibility of estimating sedimentation rates and equilibria on substances not subject to direct optical observation. The method is proving particularly useful for the study of biological agents (viruses, bacteriophages, antibodies).

Photomicrographs of pollen mother cells of *Eucalyptus Johnstoni* and *E. globulus* are submitted by Prof. A. L. McAulay, F. D. Cruickshank and R. G. Brett; they show that the haploid number of chromosomes for both those species is eleven.

Dr. H. Weil-Malherbe reports the formation of succinic acid from pyruvic, acetic and α -ketoglutaric acids by brain tissue, both under anaerobic and aerobic conditions. It is claimed that decarboxylation is an oxidative process, with ketene as possible intermediate. The reversible oxidation-reduction systems in these reactions are held to function as reserve hydrogen acceptors, which may replace oxygen.