

minor details of the process still require elucidation. The synthesis is presumably of an enzymic nature, and we are now commencing experiments designed to separate the enzyme concerned from the nervous tissue.

We hope later to give a more detailed account of our work and also to discuss some of the implications of our findings.

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¹ *Biochem. J.*, **31**, 817 (1937).

A Clay Adjunct to Potato Dietary

IN the course of an expedition to Lake Titicaca, South America, financed by the Percy Slade Trustees in which one of us (H. P. M.) took part, an interesting observation was made in regard to the diet of the Quetchua Indians on the Capachica Peninsula near Puno. These people are almost certainly descendants of the Incas and at the present time live very primi-

tively. They exist largely on a vegetable diet of which potatoes form an important part. Immediately before being eaten, the potatoes are dipped into an aqueous suspension of clay, a procedure which is said to prevent 'souring of the stomach'.

We have examined this clay and found it to consist of kaolin containing a trace of organic material, possibly coumarin, and presumably a decomposition product of the grass from underneath which the clay is dug. The local name for the clay is Chacco, and the Indians distinguish between good and bad qualities. This dietetic procedure is universal among the Indians of the Puno district, and is probably of very ancient origin.

Such a practice by a primitive people would appear rather remarkable in view of the comparatively recent introduction¹ of kaolin into modern medicine as a protective agent for the gastric and intestinal mucosa and as a remedy for bacterial infections of the gut.

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¹ "British Pharmaceutical Codex", 1923.

Points from Foregoing Letters

A description and diagrams submitted by Prof. A. H. R. Buller show the thread-like flexuous hyphae of *Puccinia graminis* (which causes the black stem rust in wheat) in the process of fusion with the gelatinous spores of opposite sex (produced in the pycnidia).

Prof. F. J. Lewis finds that the outer surfaces of the mesophyll cells in the leaf, which are unwettable by water but wettable by hydrocarbons, show strong adsorption of protein sensitizing dyes such as janus green. Within certain pH limits, protein dispersing fatty acids such as sodium taurocholate render the surfaces readily wettable with water. The author suggests that they are protein in nature and of molecular thickness.

Photographs showing the effect of small amounts of the 'growth-hormone', 1-naphthylacetic acid on 'nasturtiums' are submitted by N. H. Grace. Optimum results were obtained with a solution containing one part in ten millions. Green tops of lettuce plants increased threefold on addition of 150 mgm. per acre.

Experiments made by Prof. K. Wodzicki and his collaborators on the homing of storks have shown that these birds can return to their nests from distances of no less than 2,260 km. in a straight line. It is concluded that there exists a special sense of orientation in some species of birds.

The term 'gynaecogenic' is suggested by Dr. A. S. Parkes as of more general application than 'oestrogenic' in connexion with substances which induce female characteristics, for example, in the plumage of birds. He also recommends 'ambisexual' in place of 'bisexual' and 'gonadotrophic' instead of 'gonadotropic'.

The curious diffraction effects due to supersonic waves in glasses, as observed by Hiedemann and Hoesch, are explained by N. S. Nagendra Nath and Prof. Hans Mueller on the basis of the Raman-Nath theory by taking into account the phase relations of

the index variations. New results are predicted concerning the polarization of the light diffracted by the longitudinal sound waves and the existence of new diffraction lines.

In order to explain the magnetic moment of the proton and of the neutron, Dr. H. Fröhlich and Dr. W. Heitler postulate the existence of a hitherto unknown particle with a mass somewhere between that of the electron and the proton. From theoretical considerations they calculate for the new particle a mass about eighty times that of the electron. Such particles, the authors state, may constitute the hard component of cosmic radiation.

A. B. Greninger and A. R. Troiano find that in quenched plain high-carbon steels the hardening constituent, martensite, is not oriented parallel to the octahedral planes of the austenite lattice but more nearly parallel to the direction of the mean cementite-plate orientation.

A formula for determining the viscosity of surface films (monolayers) flowing through a narrow slit, developed by J. C. Kirkwood, is submitted by Prof. W. D. Harkins and Prof. J. G. Kirkwood, who indicate the conditions which have to be satisfied.

Solid chlorophyll (crystalline ethyl chlorophyllide) is found by Dr. E. Rabinowitch to have a maximum sorption for carbon dioxide of 1.1 mols/mol at $-80^{\circ}\text{C}.$, under a pressure of 600 mm. At $0^{\circ}\text{C}.$ and usual concentration of carbon dioxide in the air ($\frac{1}{4}$ mm. partial pressure) the author found about one molecule of carbon dioxide to 15,000 molecules of ethyl chlorophyllide.

Dr. and Mrs. Stedman find that the formation of acetylcholine occurs mainly in the grey matter and the basal ganglia of the brain. They consider that this substance is formed biologically from acetoacetic acid and choline, since the addition of sodium acetoacetate to the basal ganglia doubles the yield of acetylcholine, while a further, although smaller, increase results from the addition of choline.