

Groups of pregnant mice which received ten oral doses (0.5 c.c. daily) of a 24-hour living broth culture of an *L*-strain of *B. typhi murium* gave birth as normally as untreated controls. A similar group of mice treated at the same time with equal numbers of *N*-bacteria showed 100 per cent mortality.

Three months later, the mice which had been fed *L*-strains were given orally large numbers of *N*-bacteria; the resulting mortality was 15 per cent, whereas controls which had been immunized at the same time with large numbers of heat-killed *N*-bacteria showed a mortality of 80 per cent.

A certain degree of attenuation in virulence was also noticed after passage of *N*-bacteria on ordinary media. After four hundred passages of *B. typhi murium*, the lethal dose was fifty times that of the initial culture. However, in most such cases a few animal passages sufficed to bring the pathogenicity of the strain back to its original degree.

In animals inoculated with *L*-strains the bacteria disappeared from the blood stream and organs within a few weeks and sometimes within as short a time as 48 hours. Animals which had recovered from sub-lethal doses of *N*-strains generally remained carriers for many months.

All the *L*-strains also showed a diminished production of endotoxins. This effect is irreversible in the case of *B. typhi murium*, even after fifty passages on ordinary media; other members of the typhi-coli-dysenteriae group, however, recovered their endotoxicity.

BARUCH S. LEVIN.

LEO OLITZKI.

Department of Hygiene and Bacteriology,

Hebrew University,

Jerusalem.

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Points from Foregoing Letters

FROM an observed asymmetry in the spatial distribution of the explosion fragments from uranium bombarded by fast neutrons, N. Feather concludes that less than 5×10^{-13} sec. must elapse between the capture of a neutron by the nucleus and the break-up of the system into two heavy fragments. Previously, more direct methods of investigation had indicated that this time must be less than 0.003 sec.

J. A. Crowther and H. Liebmann show that the electrophoretic mobility of egg albumin alternately decreases and increases when exposed to increasing doses of gamma-radiation.

The occurrence in certain circumstances of a beam of positive ions in high vacuum cathode ray tubes of a commercial type is described by J. Forman. It appears to be a secondary effect due to residual gas and causes damage to the fluorescent screen.

Patterns of the emission from fine metal points under autelectronic conditions can be identified, according to M. Benjamin and R. O. Jenkins, as corresponding to the main planes in the crystal lattice. The patterns obtained are made up of twinkling spots which are of possibly atomic dimensions. The technique described lends itself to the study of surface structure and surface contamination.

S. S. Bhatnagar finds that in borax glasses of manganese, the manganese ions in the decolorized variety have an experimental value of magnetic susceptibility equal to 268.3×10^{-6} , which compares well with the theoretical value of 269.3×10^{-6} for divalent manganese. The coloured variety shows a value intermediate between the divalent and trivalent manganese.

On the basis of magnetic and other evidence, K. S. Krishnan concludes that the octahedra of water molecules surrounding the cation in many of the salts of the iron and the rare earth groups, are asymmetric, the degree of asymmetry being determined by the electronic state of the cation in the centre; this arrangement persists in water solutions.

W. F. Dunton argues that the "comprehensive fundamental electrical formula" proposed by C. V. Drysdale, when applied to the calculation of electro-

magnetic forces, will sometimes give results that are inconsistent with Newton's laws of motion, and are very different from the results given by Maxwells energy method of calculation. In reply, Drysdale points out that the force on a straight conductor depends upon the magnetic field induced by the whole of the remainder of the circuit, and that the proper application of the flux-cutting principle or of the Biot-Savart law gives the same value for the force as that given by the Maxwellian formula.

B. Lustig and H. K. Wachtel state that they have extracted with acetone a growth-stimulating hormone from the anterior lobe of the hypophysis and a growth-inhibiting hormone from the posterior lobe.

Measuring the ultra-violet absorption spectra of the cytoplasm in cells of the rye embryo, the *Allium* root-tip and the *Drosophila* imaginal disks, T. Caspersson and J. Schultz find the absorption band characteristic of the cyclic nitrogenous bases in the nucleic acids. These ultra-violet absorbing substances are present as pentose nucleotides in high concentrations in rapidly dividing tissues.

The enzyme effecting the reversible transfer of amino nitrogen from aspartic acid to different α -ketoacids has been prepared from animal and vegetable tissues by M. G. Kritzmann. The enzyme is associated with a thermostable co-enzyme.

C. G. Holmberg states that the very low iron content (0.02 per cent) in highly purified preparations of uricase makes it improbable that iron is a constituent of this enzyme.

Marrubiin, which is the bitter principle of *Marrubium vulgare*, is an unsaturated lactone of the diterpene series, according to A. Robertson and his co-workers, having the empirical formula $C_{20}H_{22}O_4$ and containing a tertiary hydroxyl group and an oxide linking. A number of derivatives have been obtained, including agathaline, which is formed by dehydrogenation with selenium.

B. S. Levin and L. Olitzki find that bacteria of the typhi-coli-dysenteriae group, which had been subjected to daily passages in lecithin bouillon, showed a markedly lower pathogenicity than controls grown in ordinary bouillon.