

Points from Foregoing Letters

NEW experiments to find whether there is a correlation between the scattering of gamma radiation and electron recoil are described by Dr. J. C. Jacobsen. In agreement with Bothe and Maier-Leibnitz, and unlike Shankland, the author finds a number of coincidences which is well beyond the experimental error. Commenting on these results, Prof. N. Bohr considers that the grounds for serious doubts concerning the validity of conservation of energy and momentum in atomic phenomena are largely removed. The root of the still unsolved difficulties of quantum electrodynamics may be looked for, he states, in the atomistic nature of electricity, which is as foreign to the classical physical theories as the quantum of action itself.

With reference to the complex molecular nature of solid sulphur trioxide, Prof. H. E. Armstrong directs attention to its value as a sulphonating agent, and recalls incidents in connexion with its early preparation by Frankland.

To account for the similarity in the graphs representing the rate of thermal decomposition and the rate of oxidation of formaldehyde and of acetaldehyde, Prof. M. W. Travers suggests that short-lived intermediates are formed in both cases.

A new vitamin, 'P', which cures pathological permeability of the walls of capillaries to plasma protein, is reported by St. Ruzsnyák and Prof. A. Szent-Györgyi. The new vitamin, closely allied to vitamin C, is found in Hungarian red pepper and lemon juice, and is apparently flavon or flavonol glycoside, one of the vegetable dyes.

Adenylic acid and adenosine (obtained from muscle or yeast) are found by Dr. T. W. Birch and Dr. L. W. Mapson to accentuate considerably the slowing down of the heart-beat (bradycardia) produced in rats by deficiency of vitamin B₁. The authors find, further, that vitamin B₁ helps in the elimination of adenylic acid and suggest that, when the vitamin is absent, there is an accumulation of adenylic acid and that it and similar decomposition products of nuclein are the cause of the bradycardia, not lactic acid, as sometimes stated.

The concept of a pair of equivalent particle-observers, as employed by Milne and Page, is criticised by Prof. J. L. Synge, who deduces that any two particle-observers are equivalent, and their relative velocity is zero for suitably chosen equivalent clocks.

The variations of the magnetic induction with the field applied are found by K. Mendelssohn and R. B. Pontius to follow a smooth and nearly reversible curve in the case of a sphere of tin at very low temperature (in the supra-conducting state), while in a cylindrical specimen, the graph shows step-wise changes, with considerable hysteresis. This behaviour agrees with the assumption that the time effects observed indicate a slow expansion or contraction of macroscopic supra-conducting regions.

Examples showing how the exact value of physical constants (such as density and boiling point) of pure liquids can be estimated with a high degree of accuracy from the change in boiling point of the liquids as they become purer on distillation are given by Dr. M. Wojciechowski and Dr. E. R. Smith.

A greatly increased consumption of oxygen by cartilage tissue, upon addition of methylene blue, is reported by E. G. L. Bywaters. Under ordinary conditions, cartilage splits glucose into lactic acid without the use of oxygen.

Dr. S. Dobinski finds that the haloes obtained by diffraction of electrons on a copper surface polished in air are due to cuprous oxide. Polishing in absence of air gives rise to different haloes of such size as might be expected from degeneration of the usual copper pattern.

On placing living tissue cells in pure water or in a medium free from salts, Prof. H. Grossfeld finds that the cells take a globular shape, and that a vivid Brownian movement and increase in the number of granules takes place. The author ascribes these reversible changes to the loss of diffusible electrolytes, which produces a slow coagulation of the cytoplasm.

A group of symptoms observed when rats have suffered severe injuries from various agents (cold, surgical injuries, poisoning), which seems independent of the nature of the damaging agent, is described by Prof. H. Selye, who describes it as a "general adaptation syndrome". This syndrome, which develops in several stages, includes decrease in the size of thymus, spleen, lymph glands and liver, disappearance of fat tissue, formation of acute erosions in the digestive tract, increase in adrenals, etc.

Prof. J. Kaplan finds that when oxygen is introduced into the auroral afterglow in nitrogen, the spectrum of the resulting afterglow resembles very closely the spectrum of sunlit auroras as reported by Vegard and Tensberg. He believes that the effect is brought about by ozone as postulated by Vegard and Tensberg.

Evidence is submitted by Dr. Howell that the ground state vibrational frequency of a molecule AB is very nearly equal to the mean of the frequencies of the elementary molecules A_2 and B_2 , where A and B belong to the same group of the Periodic Table.

A new 'dark sheath', with a sharp boundary, near the cathode of an arc discharge between the Langmuir double space-charge sheath on the cathode and the light of the 'arc plasma', is described by N. Warmoltz.

According to theoretical considerations put forward by J. Müller, electromagnetic oscillations are to be expected from a parallel-plane diode magnetron, when the magnetic field is arranged parallel to the plane of the electrodes. D. M. Tombs observes oscillations of the order of 30 cm. confirming this.

A. Hunter and Dr. R. W. B. Pearse find that in the region $\lambda\lambda$ 2500–2100 Å., certain specially sensitised ultra-violet plates are actually less sensitive than ordinary plates when exposures are short or the radiation is weak. 'Sensitisation' in general increases contrast and maximum attainable density, but decreases threshold speed.

Spectra of the new star reported in last week's NATURE are briefly described by Drs. T. W. Wormell and J. C. Dobbie. The hydrogen absorptions indicate velocities which have risen from 1100 to 1900 km./sec. in two and a half days. Certain enhanced metallic lines are also present, in displaced positions, and the sharp lines of interstellar calcium are a prominent feature.