phosphoric acids, much more rapidly than gas and low temperature cokes. Further investigation showed that graphite and highly graphitised forms of carbon are oxidised by this mixture approximately 20–25 times more rapidly than sugar charcoal.

The following figures give the weights of carbon dioxide (the amount of carbon monoxide was negligibly small) evolved from 1·0 gm. of graded samples in 2½ hours at 100°.

Electrode carbon	1,043 mgm.
Graphite (natural)	823 ,,
Wood charcoal	328 ,,
Metallurgical cokes	100–200 ,,
Gas cokes	87–135 ,,
Low temperature coke	75–100 ,,
Sugar charcoal	42 ,,

The anomalous position of wood charcoal in the above series is readily accounted for by its porous nature. The effect of this can be reduced by fine grinding; and it was found that when more finely powdered specimens were employed the order of the above series remained the same, except in the case of wood charcoal, which fell to the position of sugar charcoal.

These results indicate that, when it is possible to eliminate the effect of pore structure by employing a finely graded sample, the above reaction offers a simple method of estimating the amount of graphitised carbon in the various forms of 'amorphous' carbon.

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[1] Debye and Scherrer, *Phys. Z.*, **18**, 291; 1917.
[2] *J. Fac. Eng. Tokyo Imp. Univ.*, **18**, 125; 1929.

Points from Foregoing Letters

IN 1932, Dr. Leakey claimed that he had discovered remains of *Homo sapiens* type *in situ* in ancient geological deposits in Kenya. The deposits were older than those containing the more primitive types of man elsewhere in the world. After a recent visit to the area where the remains were found, Prof. P. G. H. Boswell records that the exact sites could not be found, that errors had arisen in connexion with the photographs of the beds and that the deposits in the area had frequently been disturbed by slipping. Consequently Prof. Boswell regards the geological age of the remains as non-proven.

Prof. Kolhörster observed an increase of 1–2 per cent in cosmic ray activity during last December, and he has suggested that it may be connected with the appearance of Nova Herculis. Prof. W. H. McCrea calculates the energy available when a nova is formed, that is, when (according to Prof. Milne) a star collapses from a state of large volume and low temperature to one of small volume and high temperature. He concludes that this energy might be sufficient to account for the cosmic rays detected, if the star is entirely gaseous previous to the collapse, as assumed by Eddington's theory, but not if the mass of the star is already concentrated towards the centre.

The nuclei of ordinary and heavy hydrogen differ in several physical and chemical properties. Drs. L. and A. Farkas calculate the magnetic moment of the proton and deuteron from the rate of chemical reaction of their *para* and *ortho* varieties. The value calculated agrees with that obtained by means of the more direct but less accurate method of magnetic deflection.

The nuclear field of attraction of the proton extends farther than that of the deuteron, according to Mr. E. Pollard and Prof. H. Margenau. They arrive at this conclusion from the scattering effect produced by the two nuclei upon the α-particles of radium, from which the distance of closest approach may be calculated.

The range of velocity in the electrons (β-rays) emitted by chlorine, bromine and iodine, after neutron bombardment, has been determined by Messrs. A. I. Alichanow, A. I. Alichanian and B. S. Dželepow. From mass-energy considerations, the authors are led to expect that hard γ-rays are also emitted during the nuclear reactions involved.

Experiments on the reflection of radio 'pulses', made by Messrs. J. P. Schafer and W. M. Goodall during the solar eclipse of February 3, showed a decrease in the electrical conductivity of various layers or regions of the upper atmosphere. The results, though not conclusive, support the view that ultra-violet light is an important factor in producing ionisation in those regions.

E. Brandenberg, in Holland, has found that the crown rot of sugar beet is due to boron deficiency, and not to a fungus disease. Mr. W. Hughes and Prof. P. A. Murphy submit further experimental proof and state that the addition of 12–20 lb. of borax per acre improves considerably the yield of beet in areas affected by crown rot.

Dr. B. C. Guha suggests that the term vitamin B_2 be used for the whole complex found by biological assay to be necessary to promote good growth in rats grown upon a special diet. He advocates that the specific terms, anti-dermatitis factor, anti-cataract factor, etc., be used when special tests are applied involving the appearance of those diseases.

Experiments with the sex hormone (œstrin) have led to the opinion that its presence in certain circumstances may produce cancerous tissue. Mr. J. Argyll Campbell brings forward observations suggesting that under normal conditions œstrin may be responsible for providing immunity from cancer.

Dr. H. J. Emeléus and Mr. K. Stewart find that chloroform and ethyl iodide inhibit the ignition of a mixture of silane (SiH_4) and oxygen. The authors have determined the pressure at which silane becomes oxidised and find it approximately directly proportional to the diameter of the vessel used; they state that in general the oxidisation of silane resembles that of phosphine rather than that of methane.

Many instances are known in which charcoal appears to be chemically more reactive than graphite, especially when absorption is involved. Prof. H. L. Riley and Mr. H. E. Blayden now find that graphite oxidises 20–25 times more rapidly with a chromic-phosphoric acid mixture, at 100°, than sugar charcoal. The reaction offers a means of estimating the amount of graphite in 'amorphous' carbon.