

This result is further support for the co-ordinate triple link structure ascribed to the other divalent carbon compounds, the *iso*-cyanides.

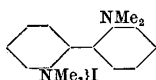
L. E. SUTTON.  
J. BREEZE BENTLEY.

Dyson Perrins Laboratory,  
Oxford, Aug. 1.

- <sup>1</sup> Mond and Nasini, *Z. Phys. Chem.*, **8**, 150; 1891.  
<sup>2</sup> Sugden, "The Parachor and Valency", London, 1930, p. 189.  
<sup>3</sup> Ebert, Eisenschitz, and v. Hartel, *Z. Phys. Chem.*, B, **1**, 94; 1928.  
<sup>4</sup> Hammick, New, Sidgwick, and Sutton, *J.C.S.*, 1876; 1930.  
<sup>5</sup> "International Critical Tables", vol. 6, p. 358.  
<sup>6</sup> Pauling, *J. Amer. Chem. Soc.*, **53**, 1367; 1931.  
<sup>7</sup> Bergmann and Tschudnowsky, *Z. Phys. Chem.*, B, **17**, 116; 1932.  
<sup>8</sup> Hedfeld and Mecke, *Z. Physik*, **64**, 151; 1930. Mecke, *ibid.*, 173; 1930.  
<sup>9</sup> Badger and Binder, *Phys. Rev.*, **37**, 800; 1931.

### Stereochemistry of Diphenyl

THE stereochemistry of diphenyl, as was shown in the "Research Items" in NATURE for April 2, p. 512, in reference to a paper by Prof. R. Kuhn, continues to produce problems of great interest. At a meeting of the Chemical Society held on May 5, a new 'dynamic' effect of groups in the 2:2' positions was described.<sup>1</sup> We have now effected the optical resolution of the monomethiodide of 2:2'-bisdimethylaminodiphenyl:



The *d*- and *l*-methiodides have  $[\alpha]_{D}^{20} \pm 48^\circ$  in aqueous solution, in which ionisation is complete, and cold solutions retain their activity for indefinite periods. In aqueous solution at 100°, half-racemisation occurs in just over two hours.

The dissymmetry of the methiodide molecule can only be due to the dynamic effect of the three methyl radicals attached to the nitrogen atom, which, it should be noted, is the smallest atom possessing a tetrahedral configuration. The various implications of our results are being investigated.

F. R. SHAW.  
E. E. TURNER.

Department of Organic Chemistry,  
Bedford College for Women,  
University of London,  
Aug. 5.

<sup>1</sup> Lesslie and Turner, *J.C.S.*, 2021; 1932.

### The Ring System of Sterols and Bile Acids

THE constitutional formula tentatively suggested by Butenandt<sup>1</sup> for the hydrocarbon  $C_{28}H_{44}$  obtained by him from ketohydroxy-œstrin (follicular hormone) is closely related to the new constitutional formula of sterols and bile acids previously advanced by Rosenheim and King.<sup>2</sup> The applicability of this formula to the basic ring system of ketohydroxy-œstrin and pregnandiol (see Bernal<sup>3</sup>) was, indeed, expressed in our preliminary note, and the work of Marrian and Haslewood<sup>4</sup> and that of Butenandt (see above) supplies welcome experimental evidence in its favour.

It may be recalled that the essential principle of the formula proposed by ourselves consists in the grouping of three six-membered rings (I., II., and III.) as in phenanthrene, an arrangement which at once permits of a straightforward formulation of those experimental facts, for which the hitherto accepted formula (Windaus-Wieland) afforded no adequate explanation. Chrysene formation from such a ring system can

obviously take place whether the attached ring IV. is six- or five-membered (in the latter case by means of the adjoining  $CH_3$  group).

In the circumstances it is surely unnecessary for Dr. Butenandt to refer, for "similarities" to the proposed ring system, to papers by Wieland and Windaus which are still "in the press". It may be that these authors will be found to prefer the modification of our formula with a five-membered ring IV., but in the latest available publication from Windaus's laboratory<sup>5</sup> our formula with a six-membered ring IV. is adopted.

O. ROSENHEIM.  
H. KING.

National Institute for Medical Research,  
London, N.W.3, Aug. 15.

- <sup>1</sup> NATURE, **130**, 238, Aug. 13, 1932.  
<sup>2</sup> *Chem. and Ind.*, **51**, 464; 1932.  
<sup>3</sup> *Chem. and Ind.*, **51**, 466; 1932.  
<sup>4</sup> *Lancet*, II., 282; 1932.  
<sup>5</sup> *Lieb. Ann.*, **497**, 130; 1932.

### Hall Effect in Beryllium

I HAVE recently carried out work on the Hall effect in beryllium, by using a plate measuring 1.5 cm.  $\times$  1.5 cm.  $\times$  0.045 cm., which was prepared, for this purpose, by Siemens and Halske of Berlin, from a sample of pure beryllium (99.5 per cent). I made use of Hall's classical experimental arrangement, and measured the e.m.f. by means of a potentiometric method with the use of a very sensitive Siemens and Halske's "Pancergalvanometer".

A large Weiss-type water-cooled magnet (made by Max Hohl of Chemnitz) capable of producing field strengths up to 27,500 gauss in a 4 mm. gap, the pole faces being 15 mm. in diameter, was used.

Many measurements were taken by varying the intensity of the current, and that of the magnetic field up to a maximum of 500 milliamperes and 27,500 gauss respectively.

The effect was very small and positive; the value of the Hall coefficient was found to be  $+0.0024 \pm 0.0001$ .

A detailed account of the experiments will be published shortly.

A. CICCONE.

Physical Institute of the University,  
Pisa, Italy, July 23.

### Absorption of Boron Neutrons by Lead

WHILE examining the absorption of neutrons emitted from boron bombarded by  $\alpha$ -rays from an ampoule of radium emanation, we have been able to establish a phenomenon which seems worthy of attention.

The absorption of beryllium neutrons by lead is greater than by an equal thickness of copper or paraffin. Boron neutrons appear to possess less energy than beryllium neutrons, and are more absorbed by copper and paraffin wax than by lead. To the neutrons from boron, lead is very transparent, a screen 5 cm. thick showing scarcely any appreciable absorption, as shown by the number of recoil nuclei.

During a discussion at the International Electrical Congress recently held at Paris, Prof. Fermi put forward the suggestion that this phenomenon can be approached along the lines of the Ramsauer effect, the wave-length,  $h/mv$ , of the neutrons possibly being of the same order as that of the effective radius of a nucleus.

M. DE BROGLIE.  
L. LEPRINCE-RINGUET.

Aug. 13.