We would suggest that these experiments, in connexion with the results of Potter, *show definitely that true magnetisation diminishes the electrical resistance proportionately to the true magnetic energy.*

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June 26.

[1] W. Gerlach u. K. Schneiderhan, *Ann. d. Phys.*, **6** (V), 772; 1930. W. Gerlach, *Ann. d. Phys.*, **8** (V), 649; 1931.
[2] H. H. Potter, NATURE, April 11, 1931, p. 555.

Wires drawn through Rotating Dies.

A CHANCE observation by one of us (H. G.) that if the die through which a wire was being drawn was simultaneously rotated the tension required was appreciably reduced, has led to results of considerable interest. The following series of values refer to an 80:20 cupro-nickel wire reduced from 0·073 in. to 0·0635 in. in diameter, that is, 24 per cent. A sintered tungsten carbide die of 6° taper was used, with 'Oil-dag', a suspension of colloidal graphite in oil, as a lubricant.

Speed of Rotation. r.p.m.	Tension required. lb.	Decrease. Per cent.	Power to rotate Die. ft. lb./min.
0	82	0	..
50	61	26	200
80	58	29	450
160	51	38	700
1920	26	68	1000
2660	23	72	1300
3300	21	75	1400

Since the speed at which the wire was drawn in these tests was only 3 in. per min., it will be appreciated from the values given in the last column that the observations are at the moment of theoretical interest only, and have no industrial significance. Whether this still holds at higher rates of drawing we have not yet determined, but work in this direction will be undertaken.

Up to the present we have been unable to detect with certainty any change in the structure of the wire drawn through fixed and rotating dies, nor have we found any alteration in the recrystallisation on annealing. The very few mechanical tests so far carried out reveal no modification in the tensile properties of the wire, though the number of twists withstood—on a length of 100 times the diameter of the wire—appears to be less with the rotating die than for wire drawn through a stationary one. Typical results, which refer to a 70:30 brass wire again reduced 24 per cent from an initial diameter of 0·073 in., are given below.

Die.	Maximum Stress, Tons/sq. in.	Elongation Per cent on 2 in.	Reduction of Area. Per cent.	Torsions. 1	2	3	Mean.
Fixed	34·5	25	55	115	106	111	111
Rotating	34·3	25	55	87	65	72	75

The Brinell hardnesses of the wires were again almost identical. Using a 1 mm. ball and a load of 30 kgm. the Brinell number was 125 for the fixed die and 123 for the rotating one.

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Diamagnetism of Liquid Mixtures.

MR. S. P. RANGANADHAM states, in NATURE of June 27, that he has obtained values for the specific susceptibility of mixtures of organic liquids which differ markedly from those obtained by us.[1] It is impossible to answer Mr. Ranganadham's assertion without a full knowledge of his data, consequently we must await the publication of his results before we can reach an opinion as to the comparative value and accuracy of the two sets of values. In the meantime, however, we must justify our continued belief in the accuracy of our work. In the first place, as pointed out in our paper, the specific susceptibilities of the pure liquids used in our experiments were found, with a single exception, to be closer to Pascal's calculated values than any values hitherto published. We attribute this fact to the carefully checked purity of the material used. The susceptibility values used in plotting our curves were, in every case, obtained several times with fresh portions of the mixtures; the symmetry of the curves and the fact that they exhibit maxima in the same positions as other property-composition curves is confirmatory of the accuracy of our results.

It is well known that acetone-chloroform mixtures show greater deviations from the mixture law than almost any other pair of organic liquids; it would, therefore, not appear to be extraordinary that the specific susceptibility should also show a very marked deviation such as we find. Furthermore, as pointed out in our paper, we found it possible to calculate a mass action constant for the reaction between the constituent liquids and an equimolecular compound from the specific-susceptibility-composition curve for acetone and chloroform.

Mr. Ranganadham sees with astonishment that this curve passes from the diamagnetic to the paramagnetic region. Whilst this fact is remarkable, it is of experimental origin and, in our opinion, not open to doubt. In our view, the astonishing fact is that although we have no evidence that acetone and chloroform combine under our conditions to give dimethyltrichloromethyl carbinol, this substance, originally made by Willgerodt, is considerably more paramagnetic ($\chi = +2{\cdot}564 \times 10^{-6}$) than any of our mixtures of acetone and chloroform. Further work on the physical properties of acetone-trichloroethylene and bromoform-acetone mixtures is about to be published, and this fully supports our published curves for the specific susceptibility of mixtures of these substances.

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[1] Trew and Spencer, *Proc. Roy. Soc.*, **131**, A, 209; 1931.

Excretion of Uric Acid.

DR. WIGGLESWORTH'S communication in NATURE of July 18 raises some very interesting points regarding the physiology of animals which possess uricotelic metabolism. Evidence in favour of his suggestion that a circulation of base takes place, as well as of water, in the excretion of uric acid, can, it seems to me, be found in the facts already known about the development of the chick embryo.

The use of the term 'urates' for the solid masses present in the allantoic liquid during the last week of incubation rests on nothing more than an assumption. For (1) the inorganic cations of the allantoic liquid are completely accounted for by the inorganic anions, as is shown by the recent work of Iseki.[1] Moreover, (2)