ductivity of the wet portion is much higher than that of the dry material, so that all layers below the surface of the water are at practically the same temperature, both when the wet-bulb and when the pseudo wet-bulb temperatures are attained by the free surface. Finally, when the free surface of the liquid disappears, the stabilizing effect of evaporation disappears and the whole body behaves as a dry solid under a temperature gradient. This happens at E, when, it will be observed, there is a simultaneous kink in all temperature curves except that of the surface of the bobbin.

It is hoped to publish a more detailed account of this work elsewhere.

A. H. Nissan
W. G. Kaye

Department of Textile Industries,
University,
Leeds 2.
March 15.

Para-Localization Energy (Free-Electron Molecular-Orbital) and Polarographic Half-Wave Potential of some Polynuclear Hydrocarbons

In a recent communication, Fernandez-Alonso and Domingo[1] have reported some numerical disagreements in their *para*-localization energy calculation with those of Basu[2]. In Fernandez-Alonso and Domingo's calculation the box dimension for ethylene was taken as equal to one bond-length (as well as half bond-length) more at each end. In Basu's calculation the box dimension was taken to be equal to the length of C—C double bond.

In the conventional free-electron approximation, the length of the box is extended half a bond-length at each end for aliphatic conjugated compounds in order to get agreement with their absorption spectra. This assumption, however, is not valid for ethylene, since this gives a resonance energy of benzene which is six times too high. This point has been discussed by Basu[3,4] in two subsequent papers. There is no physical reason for extending the box dimension more than half a bond-length in the case of ethylene alone. Because of this uncertainty the box dimension was not adjusted in Basu's calculation. The conclusion arrived at by Basu is necessarily limited by the basic assumptions made, and is not expected to be valid if the initial conditions are changed.

The *para*-localization energy of naphthalene recorded as 4·00 is due to a typographical error (the value refers to benzene)[5]. A fairly linear plot is obtained with *para*-localization energy values uncorrected for overlap. It is only an average linear plot that is expected in this type of calculation. In the calculation of *para*-localization energy with two electrons fixed on two carbon atoms, it is not known what changes are introduced in the bond-lengths of the rest of the molecule. So the introduction of overlap correction alone in this type of calculation is not very well justified. This is the reason why $E_{1/2}$ was not plotted against overlap corrected *para*-localization energy, although the values are given in the same table of Brown[4] from which Basu and Bhattacharya's data were collected, and although in the first free-electron calculation Basu[2] compared his values with the overlap corrected values of Brown.

Sadhan Basu*
Rama Bhattacharya

Department of Chemistry,
University College of Science,
Calcutta 9.

* Present address: Mathematical Institute, Oxford.

[1] Fernandez-Alonso and Domingo, *Nature*, **179**, 829 (1957).
[2] Basu, *J. Chem. Phys.*, **23**, 1548 (1955).
[3] Basu, *Trans. Farad. Soc.*, **52**, 6, 1175 (1956).
[4] Brown, *J. Chem. Soc.*, 691 (1950).
[5] Basu and Bhattacharya, *J. Chem. Phys.*, **25**, 596 (1956).

Inactivation of Antihæmophilic Globulin by Thrombin

Normal plasma defibrinated by addition of 'Thrombin Topical' (Parke Davis), 5 units per ml., loses its antihæmophilic activity[1]. In the experiments described here, each of the reagents in the thromboplastin generation test[2] (platelets, serum, plasma adsorbed with barium sulphate and $M/40$ calcium chloride) in turn was incubated at 37° C., for periods of three minutes and longer, in the presence of thrombin, and then used in the thromboplastin-generating mixture. Initially 'Thrombin Topical' was used, generally in concentrations of the order of 0·15 unit per ml. In every case, the expected acceleration of thromboplastin generation was observed[2]. However, while this treatment of the platelets, serum and calcium had no effect on the potency of the thromboplastin eventually generated, the 'thrombinized' and pre-incubated adsorbed plasma consistently yielded a much weaker thromboplastin than the control. Thus, pretreatment of the adsorbed plasma with 'Thrombin Topical' converted a normal thromboplastin generation curve into one resembling that found in hæmophilia. This effect was found to be irreversible and unaffected by dilution.

Since adsorbed plasma contributes two essential constituents of blood thromboplastin, factor V (Ac-globulin, pro-accelerin) and antihæmophilic globulin, further experiments were carried out using mixtures of normal, hæmophilic and factor V-deficient adsorbed plasma, untreated or pretreated with thrombin, in various combinations. The results showed clearly that the factor inactivated was antihæmophilic globulin and not factor V.

The experiment was repeated using very fresh serum (at most five minutes old) as the source both of thrombin and of the serum thromboplastin constituents; that is, the fresh serum was diluted and incubated with normal adsorbed plasma for three minutes before platelets and calcium were added. The resulting thromboplastin generation was greatly impaired (Fig. 1). As the thrombin activity of the serum declined, so did its ability to inactivate the adsorbed plasma.

When heparin in a concentration of 0·075 unit per ml. was included in the incubated mixture of adsorbed plasma and thrombin (or very fresh serum), the inactivation of antihæmophilic globulin was prevented. In this case, evidently, heparin was acting as a true antithrombic agent in a concentration too low to prevent thromboplastin formation (0·025 unit per ml. in the final mixture).

These findings support Alexander's suggestion that the disappearance of antihæmophilic globulin during