The dissipation of energy occurring when the two layers A and B are sliding over each other (as in laminar flow) results from their interaction. In other words, the internal friction must be some function of z. Dolezalek[1] assumed $z=\eta$, but his assumption does not give results in agreement with the experimental data. For reasons which will be stated elsewhere, we have to put $z=\log \eta$, and thus, from (1)

$$\log \eta = N_1^2 . \log \frac{\eta_1 \eta_2}{\eta_{12}^2} + 2N_1 . \log \frac{\eta_{12}}{\eta_2} + \log \eta_2 \qquad (2)$$

On the other hand, Guzman has pointed out, and Sheppard[2] recently emphasized, that $\log \eta$ represents a work-function, and thus (2) represents an energy relationship.

This relationship contains only one constant, namely η_{12}: the coefficient of internal friction for molecules of two different kinds. This coefficient should be used in the calculation of diffusion.

Equation 2 fits the data, determined by Kendall and Monroe[3], with fair accuracy; especially the system benzylbenzoate–toluene, in which case the interpolation formulæ hitherto employed gave very unsatisfactory results (see accompanying table). The same holds for the system hexane–carbontetrachloride.

We obtained by equation 2, again from the data of Kendall and Monroe, for the viscosity of naphthalene dissolved in benzene or in toluene, at 25° C. 2·19 and 2·24 centipoises respectively. The values calculated by Kendall and Monroe differed by more than 20 per cent in the two solvents, as in the case of diphenyl, while we obtain, from the same data, 3,740 centipoises in each case.

N_1	η observed (K. and M.)	η calcul. (K. and M.)	η calcul. (equat. 2)	Difference (K. and M.)	Difference (equat. 2)
				Per cent	Per cent
0·000	0·552	—	0·552	—	0
0·2367	1·183	1·362	1·15	+ 15·1	− 2·6
0·4261	2·015	2·399	2·01	+ 19·1	− 0·4
0·6502	3·614	4·182	3·64	+ 15·7	+ 0·7
0·7890	5·080	5·645	5·15	+ 11·1	+ 1·5
0·9002	6·660	7·024	6·67	+ 5·5	+ 0·6
1·000	8·450	—	8·45	—	0
η_{12} = 2·75 centipoises					

N_1 = mole fraction of benzylbenzoate, in toluene.

The same line of reasoning is being applied to a number of related problems. It seemed, however, worth while to publish these first results.

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[1] Dolezalek, *Z. phys. Chem.*, **83**, 73 (1913).
[2] Sheppard, NATURE, **125**, 489 (1930).
[3] Kendall and Monroe, *J. Amer. Chem. Soc.*, **39**, 1785 (1917).

Points from Foregoing Letters

PROF. H. MUNRO FOX shows that the rates of cleavage of sea urchin eggs are adapted to the temperature of the seas in which they live. For a given rate of cleavage, a higher temperature is necessary in a certain Mediterranean species than in an English species of the same genus; and the same phenomenon occurs within another single species in different latitudes.

Support for Helmholtz's theory that the elements responsible for the initiation of electrical ('action') potentials in the inner ear are 'resonant structures', is adduced by C. S. Hallpike, Prof. H. Hartridge and Dr. A. F. Rawdon-Smith. They find by means of oscillograph records that a 180° phase change in a stimulating tone produces a 'silent period' in the auditory tract potential. No such silent period is observed in the cochlear response, though the phase change is recorded.

Mathematical considerations of the problem of phase transitions between liquids and crystals lead Dr. L. Landau to the view that a Curie point line (with jumps of specific heat, on melting) is not possible, but that there is a possibility of a continuous transition, without a jump in the energy, at a single point in the pressure-temperature plane.

The emission of beta-rays (electrons) from metals during bombardment with fast deuterons is reported by S. Kikuchi, H. Aoki and K. Husimi. There is no residual activity after the bombardment, and the authors consider that the observed effect is due to new types of interaction of the neutron with atoms.

A curve showing the scattering of X-rays ($K\alpha$ rays of molybdenum) by orthophosphoric acid (containing 1 per cent of water) is submitted by J. T. Randall. The author states that this is almost identical with that for sulphuric acid and, in view of the known rigid tetrahedral nature of the SO_4 and PO_4 groups, he intends, by means of a Fourier analysis of the curves, to deduce the distribution of matter in those liquids.

The specific heats of water and of heavy water at various temperatures between 15° and 45° C. have been calculated by Prof. A. Ferguson and A. H. Cockett by determining the electrical power needed to hold the temperature of a calorimeter and its contents stationary at different temperatures above the surrounding medium.

If glucose is administered to rats from which the adrenal glands have been removed, sodium and water diffuse into the intestine producing diarrhœa. The effect may be lethal, but it can be inhibited by giving simultaneously sodium salts. Prof. F. Verzár and L. Laszt, reporting these results, state that they may be related to the previously observed effect of vitamin B_2 on adrenalectomized rats.

Further experiments by Prof. B. C. Guha and B. Ghosh confirm their previous findings, that rat tissue incubated with mannose, in the presence of a limited amount of air, leads to an increase in the amount of ascorbic acid. This increase, however, does not take place when nitrogen is substituted for air, which explains the negative results obtained by Euler, Gartz and Malmberg.

A. R. Ubbelohde reports that X-ray measurements show the expansion pressures of hydrogen and deuterium dissolved in palladium to differ by about 7 per cent. He concludes that in certain hydrides the hydrogen is probably present in the metallic state, and exerts a considerable expansion pressure on the metal with which it is alloyed.