carotid body was found to consist of a typical rounded glomus cell (type I), staining blue-grey, with a very granular cytoplasm. In addition, cells are present staining pinkish-red (type II), without cytoplasmic granulations, of irregular shape, lacking the compact rounded form of type I. They are characteristically interposed between the sinusoidal blood spaces and groups of type I cells, or are found closely applied to the latter. They usually occur singly, less commonly in small groups. The rich nervous plexus which supplies glomus cells of type I also innervates type II. In any section, several fine fibres are usually seen to pass from the one to the other (see diagram).

These findings appear consistent with the existence in the cat's carotid body of two separate sets of receptors, using the same afferent pathway; alternatively, the two types of cells present may be functionally dependent on one another.

These findings will be reported in detail in due course.

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Adsorption from Binary Mixtures of Non-electrolytes

It was suggested many years ago¹ that both components of a binary liquid mixture of non-electrolytes are adsorbed by solids such as charcoal and silica gel, though, with notable exceptions²⁻⁴, this concept has not always been considered in recent work. What has usually been called the 'adsorption isotherm' is thus the resultant of the addition of two individual isotherms, which cannot be determined directly. Bartell and Sloan³ have investigated the possibility (originally suggested by Ostwald and de Izaguirre²) that the individual isotherms follow Freundlich equations. By a process of successive approximations they obtained the constants for two such equations, and showed that the 'composite' equation thus derivable for the conventional adsorption isotherm gave a close fit with the experimental curves for a number of systems, including benzene-ethyl alcohol-charcoal.

In the study of adsorption from the gaseous state, the Freundlich equation has been superseded by the

'Individual' absorption isotherms plotted according to the Langmuir equation (full line) and the Freundlich equation (dotted line): (A) ethyl alcohol; (B) benzene

Langmuir equation. We have now found that a similar process of successive approximations gives a pair of Langmuir equations from which a composite equation can also be derived. The conventional adsorption isotherm has been obtained for the system benzene-ethyl alcohol with a sample of steam-activated nutshell charcoal. It can be represented equally well by the two composite equations:

$$\frac{H \cdot \Delta N}{m} = 10 \cdot 0 N^{0.68} (1 - N) - 6 \cdot 65 (1 - N)^{0.68} N$$

(Freundlich type)

$$\frac{H \cdot \Delta N}{m} = \frac{50 \cdot 0 N (1 - N)}{1 + 15 \cdot 6 N} - \frac{50 \cdot 0 (1 - N) N}{1 + 50 \cdot 0 (1 - N)}$$

(Langmuir type)

where N is the mole fraction of benzene at equilibrium, H is total number of moles of solution added to m gm. of charcoal. From the accompanying graph, however, it is seen that the two treatments give widely divergent results for the individual isotherms. Those from the Freundlich equations are of similar form to those which can be plotted from the results of Bartell and Sloan. The Freundlich equations for both sets of data, however, give maximum values for the amounts of benzene held by the charcoals, which seem very high unless multilayer adsorption is postulated.

This disagreement suggests that at least one of the treatments is invalid, and it seems likely, on theoretical grounds, that the mathematical forms of both equations render them inapplicable to liquid-phase results.

We hope to publish further details of this investigation elsewhere, together with a method for obtaining more satisfactory isotherms for the adsorption of the individual components in such systems.

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