and always indications may be seen, especially in stained sections, of their presence. In the case of this specimen of *Tenacia* sp., no such indication could be found and it may be safely assumed that pores and oscules, as well as flagellated chambers, were entirely absent.

The remaining specimens were then examined and in each case the result was the same. In one or two of the specimens there were groups of depressions at various points on the surface, resembling contracted oscules, but these proved on closer examination to be pits occupied, or formerly occupied, by commensals (or ectoparasites ?). The internal tissues in each case were composed of an exceedingly loose network of stellate cells, with occasional rounded or amœboid cells in their interstices, and nowhere could anything in the nature of an inhalant or exhalant canal be found.

Lipostomatous sponges are commonly found but no critical examination of them has so far been attempted. They are usually branched, with, as a rule, dense skeletons of siliceous spicules, making section-cutting extremely difficult. For all we know, therefore, lipostomy may be frequently correlated with the absence of pores and flagellated chambers, in which case the complete absence of flagellated chambers in the Tetraxonida will be found to be more common than is even now suspected. At all events, it is not unusual to find post-larval incrustations of moderately large size which are without pores, oscules or flagellated chambers, but in which a fair degree of growth must have taken place since the metamorphosis.

In this connexion, mention may be made of some sponges growing in the filter beds of the Aquarium in the Zoological Society's Gardens, London. Some of these were broken into pieces, each about 5 c.c. in volume, for experimental purposes. In a few days, the fragments had become rounded off, the injured surface having healed, and they remained in this condition for about a week without any sign of oscule or pore (no examination for flagellated chambers being made). During this period the fragments actually increased slightly in size. Other experiments were made which show fairly conclusively that in this species (of *Haliclona*), the sponge will not only survive without pores and oscules (and presumably therefore without flagellated chambers) but also will increase in size and show other signs of activity.

In the case of these sponges in the Aquarium, some observations were made on the exhalant currents which may be mentioned here. There were nearly a hundred specimens in various parts of the filter beds, each of which possessed from two to twenty oscules. The conditions for observing water currents were, in one part of the beds at least, practically ideal, owing to a suspension of fine sand which exposed immediately the slightest current in the water. Although watched again and again, only once were exhalant currents seen issuing from a sponge, and in this case feeble streams were being ejected from two oscules only, of the score or so present on the surface of the sponge, and these were on opposite sides. My repeated attempts at Plymouth to demonstrate exhalant and inhalant currents in siliceous sponges were in every case unsuccessful, and I understand that others have tried to demonstrate them with no more success. Most investigators tend to attribute their failure to faulty technique, but it appears probable that this is not the case, and that the flagellated chambers of siliceous sponges are frequently quiescent over long periods.

It seems therefore that the Tetraxonida are a group of turgid animals, often without any circulatory currents, and with a very low rate of metabolism. It must also be presumed that, in the case of the lipostomatous forms, nutrition, excretion and respiration take place through the general surface and that nutriment is derived from substances in solution.

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Strainless Monocyclic Rings

THE comparatively greater stability of cyclohexane over its immediately lower ring homologue with reference to strain has not been explained satisfactorily. Experiments now afford evidence in support of the multiplanar and consequently strain-free, stable character of the substituted cyclohexane ring[1]. So far, only one form of 1 : 1-dimethylcyclohexanone-3, was known[2]. Now it is found that by direct reduction of dimethyldihydroresorcinol by Clemmensen's method a ketone is obtained, which is different from the ketone described previously. 1 : 1-Dimethylcyclohexanone-3 obtained by Crossley and others gave a semicarbazone melting at 195°–203°, whereas the ketone now obtained gives a semicarbazone melting at 162° C. The existence of the ketone in two isomeric forms is in accordance with the expectation of a strain-free configuration of the substituted cyclohexane ring.

The details regarding this compound, as also some other observations in this connexion, are reserved for a future communication.

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[1] *J. Ind. Chem. Soc.*, **7**, 277 ; 1931.
[2] Léser, *Bull. Soc. Chim.*, (3), **21**, 547 ; 1899. Blanc, C. R., **144**, 143, 1357; 1907. Crossley and Renouf, *J. Chem. Soc.*, **91**, 81 ; 1907.

Stereochemistry of Platinum

BY acting with *iso*-butylenediamine upon a new compound, namely, the mixed β-diammine $Pt(NH_3)(NH_2Et)Cl_2$, we have obtained a mixture of two isomeric β-plato-tetrammines of formula $[Pt(NH_3)(NH_2Et)(NH_2.CH_2.CMe_2.NH_2)]Cl_2$, which have been separated. These substances, which are necessarily both of β-structure owing to the presence of the chelate group, do not become interchanged, and they give rise to plato-salts which are unmistakably different. A similar pair of isomeric β-plato-tetrammines, $[Pt(NH_2.CH_2.CMe_2.NH_2)_2]Cl_2$, has also been obtained in admixture, giving rise to a mixture of two different plato-salts which have been separated. The pairs of isomerides almost certainly represent *cis-* and *trans-* forms in each case, and their existence seems to us to afford the first authentic chemical evidence of planar structure among the plato-tetrammines, in agreement with Cox's evidence based on the X-ray crystal diagram of $[Pt(NH_3)_4]Cl_2$.

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