

**Giant Oysters.**

DR. ORTON<sup>1</sup> has given the dimensions and weight of two exceptionally large specimens of *O. edulis*, which have led to interesting comparisons. The closely allied southern Australian species, *O. sinuata* (*angasi*), normally grows to a large size, specimens 1 lb. in weight being quite common. The largest specimen of this species which I have seen weighed when wet, but without meat, 2 lb. 3 oz.; the dry shells weigh 1 lb. 4½ oz. This oyster is 6½ inches long, 7 inches broad, and 3 inches deep. It was gathered in George's Bay, Tasmania, and local residents informed me that they have seen considerably larger samples.

The largest oyster we have here in our collection is a specimen of *O. crista-galli* from the Great Barrier Reef, North Queensland (Fig. 1). It weighs (dry shells)

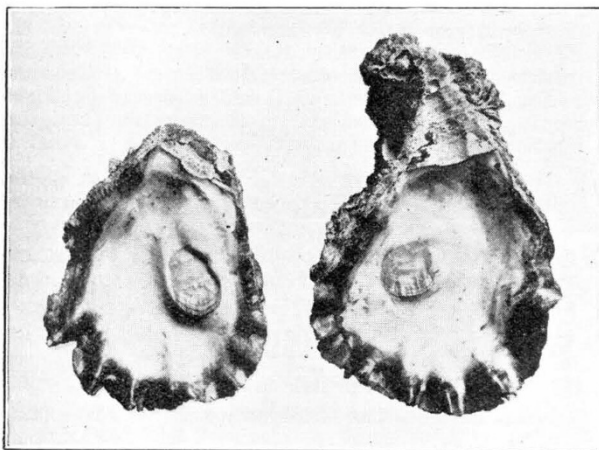


FIG. 1.—*Ostrea crista-galli* from the Great Barrier Reef, North Queensland.

4 lb. 2½ oz. When alive it probably weighed in the vicinity of 5 lb. Its dimensions are: length 9¾ inches, breadth 6½ inches, depth 4½ inches. This oyster had attained a great age, as indicated by the extraordinary development of the umbo of the right shell, which is 3½ inches long. Saville-Kent, in his "Great Barrier Reef of Australia", p. 244, states that oysters of this species "not unfrequently weigh as much as from 5 to 7 lb., and have a diameter of from eight to twelve inches".

It will be interesting to learn which species of the world-wide genus *Ostrea* attains the largest size.

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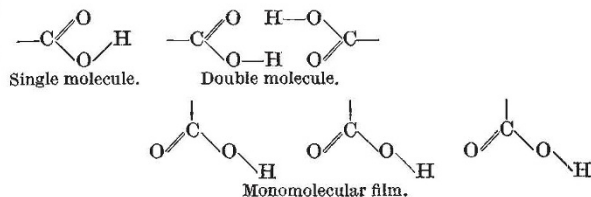
<sup>1</sup> NATURE, Aug. 30, 1930, p. 309.

**Adhesive Forces in Surface Films.**

DR. N. K. ADAM's contention (NATURE, Dec. 20, 1930), that the molecules of a fatty acid on the surface of water may be held together by the mutual attraction of the 'heads', even when the hydrocarbon chains are in such violent agitation as to have lost all adhesive force, may be thrown into a more precise form by making use of the conception of the co-ordination of hydrogen,<sup>1</sup> which has also been described more picturesquely as "Bigamous Hydrogen".<sup>2</sup> This conception serves to account for the formation of the acid fluoride ion [FHF]<sup>-</sup>, but was first applied by Pfeiffer,<sup>3</sup> so long ago as 1913, in order to account for the lack of acidic properties in *o*-hydroxy-anthraquinone.

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The interaction between contiguous -OH and >C=O groups, which Pfeiffer postulated, has already been used to account for the peculiar properties of the two radicals when united to form a carboxyl-group,<sup>4</sup> and for the formation of double-molecules both in the vapour and in crystals of carboxylic acids. It is, therefore, an obvious step to make use of it also to account for the adhesion between contiguous molecules in a monomolecular film of a fatty acid on the surface of water. The three methods in which carboxyl-groups may be affected by this co-ordination may be indicated by the following formulæ, where the hydrogen is supposed to be under the influence of both of the oxygen atoms to which it is adjacent :



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<sup>1</sup> Lowry and Burgess, *Trans. Chem. Soc.*, **123**, 1866; 1923.  
<sup>2</sup> Armstrong, NATURE, April 17, 1926.  
<sup>3</sup> *Ann.*, **398**, 152.  
<sup>4</sup> G. N. Lewis, "Valence", pp. 154-155.

**Spectrum of Doubly Ionised Iodine.**

THIS spectrum has been under investigation for some time past in the visible and ultra-violet regions, and it has been found that a good many of the strong lines owe their origin to the terms of  $2O_2P_1$ ,  $2O_2P_2$ , and  $2O_2P_3$  electronic configurations. All the quartet terms for these have been recognised, the lines originating from them having been obtained by a consideration of the spectra of doubly ionised indium, tin, and antimony which have been elucidated by various investigators. In spite of the difficulties of correctly estimating the intensities of lines for highly ionised elements, the multiplets in the present case follow the usual intensity rules fairly well. The  $2O_2(P_1 \leftarrow P_2)$  and  $2O_2(P_2 \leftarrow P_3)$  lines are grouped about the region  $\lambda\lambda$  3900 Å. and 3100 Å. respectively. The following table gives the separations which occur between the components of a few of the principal multiple terms. For the purpose of comparison, the corresponding separations in the analogous spectra of doubly ionised fluorine, chlorine, and bromine (already determined by previous investigators) have also been included in the table.

Elements.	F <sup>++</sup> .	Cl <sup>++</sup> .	Br <sup>++</sup> .	I <sup>++</sup> .
Atomic No.	9	17	35	53
$P$ in $X_1$ ( $P_1 - P_2$ ) level ( $P_2 - P_3$ )	211 319	358 520	518 838	576 1090
$D$ in $X_2$ ( $D_1 - D_2$ ) level ( $D_2 - D_3$ ) ( $D_3 - D_4$ )	115 190 259	260 430 600	332 576 748	320 625 830

Full details will be published elsewhere.

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