

watched, and it was found that a small school of small grey mullet (*Mugil chelo*) in the tank came rapidly towards the clouds of larvæ and greedily ate them up. These mullet soon became accustomed to being fed on larval oysters, and quickly appeared from remote portions of the tank when larvæ were thrown in.

The manner in which the mullet obtained the larval oysters from the water is remarkable for a fish. The fishes entered the cloud of oysters and while remaining poised or practically still, very rapidly drew water in at the O-shaped mouth and expelled it out through the gill-slits, by using the walls of the oral cavity as a pump. The action is an accentuation of the ordinary breathing mechanism. Obviously also the water passing into the mouth was sieved, as the cloud of larvæ in the water soon cleared on the advent of a number of the little fishes.

Cunningham ("Marketable Marine Fishes," p. 335) records the presence of minute molluscs in the stomachs of mullet, and Day ("British Fishes," i. 229 and 234) points out that there is "a filtering apparatus in the pharynx which prevents large and hard substances from passing into the stomach, or sand from obtaining access to the gills."

The mechanism which prevents sand from passing the gills is not unlikely used for filtering off plankton organisms, such as oyster larvæ, as food. It is the more probable that young mullet and to some extent older fishes are partially general plankton feeders, since Day also records the occurrence of minute Crustacea in the stomachs of mullet.

Since mullet abound in some of our estuaries where oyster beds occur, it is practically certain that those and also other small fishes take a toll on oyster larvæ, as Lebour (*J.M.B.A.*, 12, 3, p. 464) has shown that young sprats may do. In a recent publication ("The Story of the Oyster," *Australian Museum Magazine*, ii., 1925) T. C. Roughley states, without, however, giving any details, that Australian mullet destroy oyster larvæ; thus it would appear that the mullet family in different parts of the world feed in a similar way.

Although there can remain little doubt that young mullet are enemies of oyster larvæ, the critical test would be derived from the examination of stomachs of fishes taken over or near an oyster bed in summer, and especially in the period preceding new moon. Such material will, however, not be easy to obtain.

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December 24.

Absorption and Resonance Radiation of Excited Helium.

PASCHEN in 1914 published results of experiments on absorption and resonance radiation in weakly excited helium. A more extensive investigation is being made of absorption in excited helium, and results have been obtained indicating absorption of the following lines:

5875	3889	5016	6676
4471	3187	3964	4921
4026		3614	

It was observed that 3889 was very strongly absorbed, and it was decided to attempt to detect resonance radiation. Light from an intense capillary was focussed by means of a cylindrical lens along the axis of the resonance tube. This served as a strong source of monochromatic radiation of wave-length 3889 Å.U. The resonance tube was focussed, end on, on the slit of a quartz spectrograph adjusted with a

wide slit. A series of three photographs was then taken, namely:

1. With the weakly excited resonance tube alone and the light from the capillary screened off.
2. With the resonance tube as in the first exposure and the light from the capillary incident on the resonance tube.
3. With the resonance tube off but the light from the capillary still focussed as in the second exposure.

Examination of the plate showed a barely detectable trace of scattered light. Under the influence of the monochromatic radiation from the capillary, a great increase of the intensity of the radiation of wave-length 3889 Å.U. from the central portion of the resonance tube, on which the light from the capillary was focussed, was observed. Since this was not due to scattered light, as was proved by the third exposure, it must have been due to resonance radiation from the weakly excited helium.

This result appears to prove beyond doubt the possibility of obtaining resonance of the 3889 line in weakly excited helium. A more detailed account of the work will appear shortly. W. H. McCURDY.

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December 12.

Allotropy of Chromium.

CHROMIUM prepared by a special method was found to have certain peculiar properties. This fact has led us to make an X-ray examination of the structure of this material, which has revealed the fact that this specimen of chromium was a mixture of two allotropes. Besides a much smaller quantity of the normal body-centred cubic modification, the predominating structure consisted of a form not previously described.

The atoms are arranged on two hexagonal lattices, and form a structure which is almost hexagonal close-packed, the axial ratio *c/a* being 1.625 instead of 1.633, the ideal ratio for the close-packing of spheres. The distance between neighbouring atomic centres is 2.714 and 2.705 Å.U. Below are tabulated the readings obtained from the film and those calculated for a structure of the above type:

Radiation.	Interplanar Spacings in Angstroms.		Reflecting Planes.	Intensity of Lines.
	Observed.	Calc.		
β	2.204	...	0002	Very weak.
α	2.346	2.331	1010	Weak.
β	2.064	...	1011	Weak.
α	2.202	2.203	0002	Medium.
α	2.068	2.074	1011	Very strong.
α	2.034	...	(110) ¹	Medium.
α	1.608	1.608	1012	Very weak.
α	1.358	1.357	1120	Weak.
α	1.248	1.246	1013	Medium.
α	1.177	1.175	2020	Strong.

¹ This corresponds with the (110) spacing of the body-centred variety of chromium.

Further work on this subject is in hand to determine the conditions under which the two allotropes are formed.

The X-ray examination was undertaken by us at the Physical Laboratories of the University of Manchester, by the kindness of Prof. W. L. Bragg.

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Research Department,
Metropolitan-Vickers Electrical Co., Ltd.,
Trafford Park, Manchester, December 18.