ratio appears to exist between either the apparent minimum weights of mercuty or the actual minimum weights of mercury with reference to increases in volumes of space. This is probably partly because the increases in volumes of space so far employed in these experiments are so small that the corresponding effective minimum weights differ very little from one another or remain practically the same.

VI. Effect of actual minimum weight of mercury in the form of amalgam on Corcyra cephalonica *eggs in a given volume of grainfilled space*

A series of confirmatory tests were made with the actual minimum weights of mercury (as shown in Table C) for given volumes of grainfilled space. Being very small quantities, mercury was spread on copper foils and were kept at the top surface of the grains, the eggs being placed at the bottom. Table D gives the results.

TABLE C

Volume	Empty space			Grainfilled space		
	Apparent effective weight of mercury	Actual effective weight of mercury	Percentage of kill	Apparent effective weight of mercury	Actual effective weight of mercury	Percentage of kill
3300 c.c.	0·0306 gm.	0·0006 gm.	100	0·0600 gm.	0·0006 gm.	100
4000 ,,	0·0508 ,,	0·0007 ,,	100	0·1012 ,,	0·0008 ,,	100
6600 ,,	0·0600 ,,	0·0014 ,,	100	0·1203 ,,	0·0014 ,,	100
8000 ,,	0·1010 ,,	0·0016 ,,	100	0·2008 ,,	0·0016 ,,	100
10800 ,,	0·1800 ,,	0·0024 ,,	100	0·3650 ,,	0·0024 ,,	100

TABLE D

Volume	Actual weight of mercury in amalgam	Percentage of kill
3300 c.c.	0·0006 gms.	100
4000 ,,	0·0009 gms.	100
6600 ,,	0·0014 gms.	100
8000 ,,	0·0016 gms.	100
10800 ,,	0·0026 gms.	100

It could be seen from Table D that the actual minimum weight of mercury for a given volume of enclosed grainfilled space, when used as an amalgam, proved to be effective against the eggs. In all the trials the mercury volatilised completely with slight traces at the sides of the copper foils where mercury was invariably thicker than in the centre. Such residual deposits in majority of the cases weighed not more than 0·0001 gm. each.

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CONCLUSION

From the foregoing observations it may be concluded that:—

1. Mercury vapour penetrating the egg of *Corcyra cephalonica* prevents normal embryonic development by causing a destructive disorganisation and disintegration of the cytoplasmic and nuclear structures of the cells.

2. A simple ratio of 1 : 2 is noted to exist between the minimum effective weights of mercury in certain similar volumes of empty and grainfilled spaces used.

3. No definite ratio is evident between increases in the volumes of empty and grainfilled spaces and the corresponding increases in the minimum effective weights of mercury.

4. The actual minimum effective weight of mercury for any volume of empty or grainfilled space, is only a fraction of the apparent minimum effective weight for that volume.

5. The actual minimum effective weight of mercury for any volume of grainfilled space, if used in the form of an amalgam, is also found to be effective against the eggs.

GEOPHYSICAL PROSPECTING

GEOPHYSICAL methods of prospecting mineral ores and oil resources have assumed great practical importance in U.K. and U.S.A., particularly in the latter country, and spectacular results have been obtained through the application of these methods. Instances of large-scale mapping of ore beds in India, by the application of geophysical methods are few, and for this reason, the results obtained by a party of the Survey of India on the manganese beds in Parsoda area (C.P.) by the use of the gradiometer, reported in the latest issue of the *Journal of Scientific and Industrial Research*, are of more than usual interest. In the area surveyed, a manganese reef has been successfully located. The pattern of the profiles, and the magnitude and depth of the subsurface bodies, have been determined. In alluvial areas of the type surveyed, where no outcrops are available to indicate what is below, geophysical methods are of particular value. They provide valuable preliminary indications and save the expense of sinking random pits. Definite information regarding configuration and depth of the sub-surface body can be obtained by one or two borings.