factors in their constitution. The constitution of the three varieties, *S. Caldasii* var. 1, E.P.C. 143, and *S. chaceoense* var. 07 in respect of the sterility factors is, therefore, represented by S^6S^7, S^8S^9 *and* $S^{10}S^{11}$ respectively and the 12 intra-sterile groups of plants have the following factorial constitution:—

$Al = S^2 S^6$	$B_1 = S^2 S^7$	$C_1 = S^4 S^6$
$D_1 = S^4 S^7$	$El = S^1 S^8$	$F_1 = S^1 S^9$
$G_1 = S^5 S^8$	$H_1 = S^5 S^9$	$Il = S^1 S^{10}$
$J_1 = S^1 S^{11}$	$K_1 = S^3 S^{10}$	$L_1 = S^3 S^{11}$

Apart from the above eleven factors it is very likely that there are also other '*S*' factors in this allelomorphic series in the diploid *Solanums*. We have already found indications of the presence of some new factors in a sample of potatoes, E.P.C. 142, from the collection made by the Empire Potato Expedition. An exhaustive study is bound to increase their number still further.

The presence of the '*S*' series of allelomorphs has been also discovered in two other species, *S. aracc-papa* and *S. Rybinii*. The behaviour of both these species in crossing tests, however, does not follow the simple mode of inheritance, as outlined in the oppositional factor hypothesis.

S. Rybinii under normal conditions is highly self-incompatible. Twenty-two plants obtained from a natural berry showed irregular behaviour in the crossing tests. The findings of Carson and Howard[3] in this connection are interesting. Crosses of this species have been obtained with S^1S^3 plants of *S. subtilius* and the progenies are under study.

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June 29, 1944

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EFFECT OF MERCURY ON MICRO-ORGANISMS

OF all the preventive measures,[1,2] suggested in the storage of grains against insects, the easiest and the most striking is the lethal effect of mercury on the eggs of insects commonly found in places where grains are stored. Besides insects, however, fungi and bacteria also infest these storage places, more particularly under wet conditions.

The effect of mercury on some common types of fungi and bacteria has been investigated.

Pure cultures of a few representative fungi (glucose agar media) and bacteria (beef extract media) were taken and mercury was mixed in some tubes, while in others it was kept at one end of the test tube. These tubes of pure cultures of the organisms were kept under mercury vapour for about two weeks at a temperature between 25° to 30° C. The growth of these were in no way affected as compared with the untreated controls. Re-inoculations were then made from the mercury-treated cultures; the growth of the organisms occurred as usual.

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FERTILISATION IN *ISOACHLYA ANISOSPORA* (de BARY) COKER VAR. *INDICA* SAK. et BHAR.

THE question of fertilisation in the family Saprolegniaceæ had been the subject of much controversy for a considerably long time. Earlier workers in the field like de Bary,[1] Humphrey[2] and Hartog[3,4,5] held the view that antheridia, though present, were functionless. Trow[6,7] was the first cytological investigator to demonstrate that fertilisation took place in the family Saprolegniaceæ. Since then fertilisation has been shown to occur in various genera, *viz.*, *Achlya, Saprolegnia, Aphanomyces, Brevilegnia, Leptolegnia* and *Thraustotheca* Wolf, p. 464).[8] In the genus *Isoachlya* also (Coker),[9] it has been observed that antheridia and oogonia are present, but no cytological evidence as to the fertilisation has yet been reported.

The material for the present study was obtained from a local pond (Saksena and Bhargava)[10] and was fixed in Raper's chromoacetic acid solution. Serial sections were cut 4 μ thick and were then stained with Gram's stain in the usual manner.

Along with the differentiation and maturation of the oospheres the formation of a multinucleate fertilisation tube from each antheridium takes place. Later on the fertilisation tube penetrates the oogonial wall and grows in between the oospheres (Fig. 1, F). When it reaches an oosphere its membrane gets ruptured and a single male nucleus is released into the oosphere. The male nucleus proceeds towards the female nucleus, which is usually located near the centre of the oosphere and the two nuclei come in contact (Fig. 2). The intervening nuclear membranes finally disappear and a fusion nucleus is thus formed. In Fig. 1, the two nucleoli are seen lying side by side in the fusion nucleus. Later on, these nucleoli also fuse.

The present investigation shows that fertilisation takes place in *Isoachlya anisospora* de Bary) Coker var. *indica* Sak. et Bhar. by the discharge of a single male nucleus from the fertilisation tube into the oosphere, the male nucleus subsequently fusing with the female

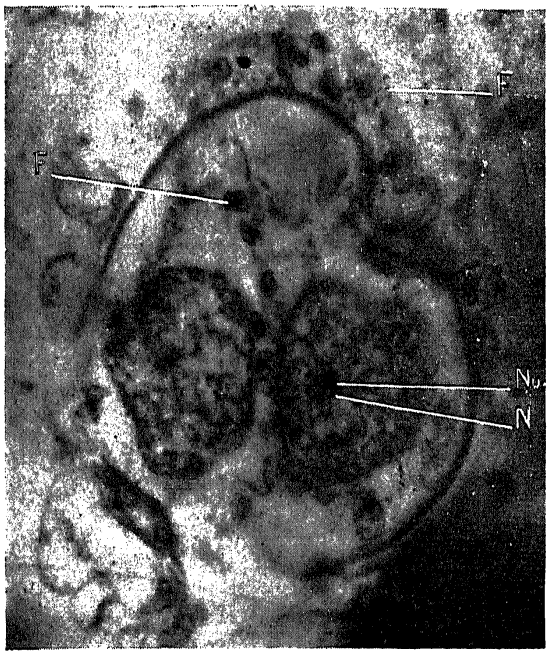

FIG. 1. Photomicrograph of a section of an oogonium of *Isoachlya anisospora* var. *indica* showing a multinucleate antheridium (A) attached to the oogonium. A multinucleate fertilisation tube (F) and an oospore containing a fusion nucleus (N) with two nucleoli (Nu) are also seen. × 1433.

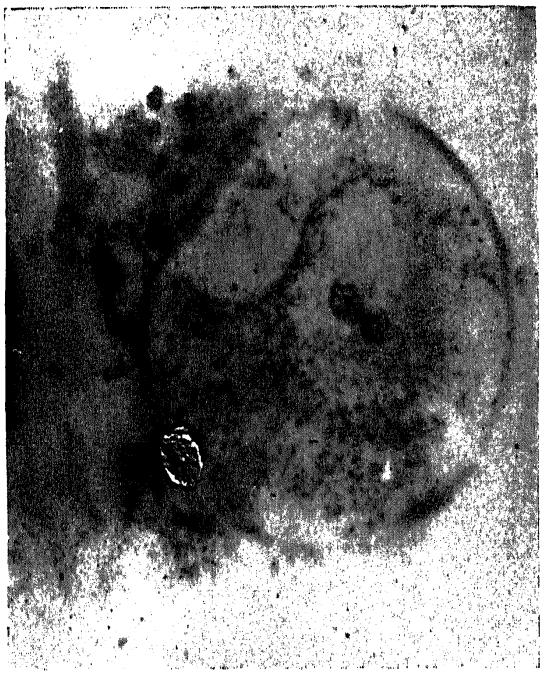

FIG. 2. Photomicrograph of a section of an oosphere containing male and female nuclei lying side by side. × 1433.

one. Belonging to the family Saprolegniaceæ, this is, therefore, another genus and another species in which fertilisation has been demonstrated for the first time.

A fuller account of the process will appear elsewhere.

The work was carried out in the Botany Department of the Allahabad University under the guidance of Dr. R. K. Saksena to whom the author wishes to express his sincere gratitude.

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FINAL PELAGIC LARVA OF *SQUILLA HIEROGLYPHICA* KEMP.

A NUMBER of species of stomatopod larvæ from the Madras plankton have been recently correlated with their specific adults by rearing the final pelagic stage through metamorphosis and subsequent growth in the laboratory.[1,2] The larval stages of several species that have not hitherto been recorded from the Madras coast are also occasionally caught in the tow-net, showing that all the species of adult stomatopods occurring in any particular locality are not yet known to us.

A single larva in the final pelagic stage was obtained from the tow-net collection on March 5, 1943, and this on metamorphosis was found to belong to the rare Indo-Pacific species *Squilla hieroglyphica* Kemp. The following is a brief account of this larva.

Total length including rostrum = 30 mm.; length of rostrum = 4 mm.; median length of carapace, excluding rostrum = 11·5 mm.; breadth of carapace immediately behind antero-lateral spines = 3·0 mm.; breadth of carapace at base of postero-lateral spines = 5·0 mm.; length of antero-lateral spine = 0·8 mm.; length of zoea spine = 0·6 mm.; length of postero-lateral spine = 3·4 mm.; length of raptorial propodus = 3·9 mm.; length of telson = 3·2 mm.; breadth of telson = 3·0 mm.

The carapace is long and broad, posteriorly covering the proximal half of the seventh thoracic segment. In the mid-dorsal line there is an incomplete longitudinal carina which does not extend upto the conical prominence on which the zoea spine is situated (Fig. 1 *a*). Along the lateral margin there are 8 + 3 spinules, of which the first is situated near the base of the antero-lateral spine. The distance between the first and second spinules is about three times that between the second and third. The eighth spinule is directed outwards and the distance between it and the ninth is only slightly over that between ninth and tenth. The rostrum is long and slender and without ventral spinules. The postero-lateral spine has a ventral spinule at about one-fourth its length from base, and has its tip reaching the level of the hind margin of the second abdominal segment. The tip of rostrum is superior to the tip of antennular peduncle. The eye stalk is a trifle shorter than the eye proper. The