THE EGGS AND EARLY LARVAL STAGES OF
THE AUSTRALIAN PILCHARD—SARDINIA
NEOPILCHARDUS (STEIND.).

By

Professor WILLIAM J. DAKIN, D.Sc., F.Z.S.,
and

ALLEN N. COLEFAX, B.Sc.

(Zoology Department, The University of Sydney.)

(Plate xvi, and Figures 1–4.)

One of the most important of the scientific fishery problems to be undertaken in
Australian waters is the recognition of the pelagic fish eggs and larvæ (more especially
those of commercially important fish) and their seasonal and geographical
distribution. It has taken many years to achieve a working knowledge of the
fish eggs and larvæ of the North Sea, yet that is a well-defined and almost closed
area, which is inhabited by large numbers of a reasonably small list of fish species.
In comparison the work to be carried out in the coastal waters of New South
Wales alone may prove much more difficult. With a fish hatchery in working order
it would be possible to make certain of the characters of the eggs and early larvæ
of at least some of our important fish species. Unfortunately, so far as this is
concerned, fish hatcheries for marine fish species are not particularly favoured by
experts to-day, but marine laboratories would make it worth while to attempt
the hatching and rearing on a small scale. Eggs can also be pressed from ripe fish
on board a trawler and sperm obtained in the same way. That fertilization can be
achieved with the simplest apparatus in this manner in Australian waters has already
been proved by the authors.

Another method of determining the species of fish eggs and one of wide
application, although necessitating time and patience, is that of collecting both
eggs and larvæ by the utilization of coarse meshed plankton nets at sea. These
eggs and larvæ are sorted out and the different stages fitted together until examples
are obtained possessing characters sufficiently marked to indicate the identity
of the mother fish. The present paper is concerned with the discovery of the eggs
of the pilchard by this means.

Plankton nets suitable for the capture of fish eggs have been used regularly
during the past two years at a spot about four-six miles east of Sydney Heads. Many
different kinds of eggs have been captured during this period. Amongst these
the type of egg figured (Figures 1–3) was found to be particularly abundant in three
successive years during the months of June, July and August. The egg averages
1·4 millimetres in diameter and is marked by a segmented yolk and a wide
perivitelline space. The general appearance of the egg at once suggested that it was
one belonging to some species of the herring group (family Clupeidae). But although
we were struck at the outset by a resemblance to the egg of the European pilchard,
we hesitated to accept it as a pilchard egg in view of the presence of several clupeid
species, to which it might have belonged, in our waters.