



Fig. 3. Meiosis in *Pyura microcosmus*

can only be learned by personal experience, ensures that the 'Cellophane' floats off, while the squashed material adheres to the slide. (7) Dehydrate and mount in the ordinary manner.

Employing this procedure, we made permanent acetocarmine squash preparations of whole abdomens of *Aplidium proliferum* (Milne Edwards), *Sidnyum elegans* (Giard) and *Sidnyum turbinatum* (Savigny) and of pieces of gonads of *Pyura microcosmus* (Savigny). These were examined in Amsterdam with the aid of a fluorite oil-immersion objective.

We found suitable stages of meiosis in preparations of *Aplidium proliferum* (Fig. 1), *Sidnyum elegans* (Fig. 2) and *Pyura microcosmus* (Fig. 3). Our count for *Aplidium proliferum* was $n = 14$, for *Sidnyum elegans* $n = 9$ and for *Pyura microcosmus* $n = 8$.

So far as is known to us this is the first instance in which chromosomes have been observed in tunicates. Although the tunicates are far from ideal for cytogenetical work, on account of the small size of the chromosomes, such cytogenetical work does not seem impossible.

Our modified method for making permanent squash preparations has also been tried with fair results on botanical material (anthers). Botanical material may require a different staining procedure.

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¹ Makino, S., and Nishimura, I., *Stain Tech.*, **27**, 1 (1952).

Distribution and Chromosome Number of *Allium paradoxum* in Gloucestershire

THERE is only one record of *Allium paradoxum* (M. Bieb.) G. Don. in the "Flora of Gloucestershire" (p. 465; 1948). During a study of the ecology of this population at Bartonbury, other centres have been located near Chesterton and on the Bath Road. The chromosome number of the species has been investigated in Feulgen squashes¹ of root tips treated with mono-bromo naphthalene², and in aceto-carmine¹ and Feulgen squashes¹ of anthers. The chromosome number found in the Bartonbury populations is $2n = 16$. Pollen grain mitosis has been observed in detail and records are as follows:

Plants	Pollen grains at metaphase	Haploid chromosome number	
		8	7
15	107	106	1

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Feb. 26.

¹ Darlington, C. D., and LaCour, L. F., "Handling of Chromosomes" (Allen and Unwin, 1947).

² O'Mara, J. C., *Stain Tech.*, **23**, 201 (1948).

Hatchability of Hen Eggs and Lymphomatosis

It is widely accepted that poor hatchability is one of the main causes of financial loss to poultry breeders. Judging from the results regularly reported by many large hatcheries, the national hatching-rate of all eggs set in Great Britain seems to be between 65 and 70 per cent.

The failure of an egg to hatch may be due—apart from defects in the incubator—to infertility or to some factor, often a nutritional deficiency, which causes the developing embryos to die at varying stages during the full term of twenty-one days. Fertility is now accepted as a heritable factor¹ and has no obvious relationship with embryonic mortality, although by many poultry breeders the two conditions are regarded under the one heading of 'hatchability'. There are some grounds for this in that attention to one factor, for example, fertility, usually leads to greater attention to the other and, as a consequence, improved fertility is often accompanied by lower embryonic mortality. Moreover, it is impossible merely by candling to distinguish between infertile eggs and fertile eggs in which very early embryonic death has supervened.

Lymphomatosis is a further cause of reduced profits in the poultry industry, and in its several manifestations is probably responsible for approximately 25 per cent of the adult mortality among domesticated fowl in Britain². In endeavouring to breed lines resistant to this disease, it was observed that those dams which appeared most satisfactory on grounds of high egg numbers and high hatching-rate of all eggs set most frequently proved to be those having progeny among which the incidence of lymphomatosis was greatest. In consequence, these families were discarded. Inspection of the records over the several years revealed the fact that a remarkably close correlation between high hatchability and the incidence of lymphomatosis in the