

Table 1

Family	Genus	Subgenus	Species	Author	Chromosome number	
					Present work	Counts by Perrot and Perrot
Testacellidae	<i>Testacella</i>		<i>haliotidea</i>	Draparnaud	$n = 32$	—
Arionidae	<i>Arion</i>	<i>Micrarion</i>	<i>intermedius</i>	Normand	$n = 28$	—
		<i>Carinarion</i>	<i>circumscriplus</i>	Johnston	$n = 29$	—
		<i>Kobeltia</i>	<i>hortensis</i>	Ferussac	$n = 28$	—
		<i>Mesarion</i>	<i>subfuscus</i>	(Draparnaud)	$n = 25$	—
		<i>Arion</i> s.s.	<i>ater</i>	(L.)	$n = 26$	—
			<i>rufus</i> *	(L.)	$n = 26$	—
Limacidae	<i>Milax</i>		<i>gagates</i>	(Draparnaud)	$n = 33$ or $34$	—
			<i>sowerbii</i>	(Ferussac)	$n = 34$	—
			<i>gracilis</i>	(Leydig)	$n = 33$	—
	<i>Limax</i>	<i>Malacolimax</i>	<i>tenellus</i>	Nilsson	—	$n = 24$
		<i>Limax</i> s.s.	<i>cinereoniger</i>	Wolf	$n = 31$	$n = 31$
		<i>Limacus</i>	<i>maximus</i>	(L.)	$n = 31$	$n = 31$
	<i>Lehmannia</i>	<i>Agriolimax</i>	<i>flavus</i>	(L.)	$n = 31$	$n = 31$
			<i>marginata</i>	Muller	$n = 24$	$n = 24$
			s.s. <i>agrestis</i>	(L.)	$n = 30$	—
			<i>reticulatus</i>	(Muller)	$n = 30$	†
		<i>laevis</i>	(Muller)	$n = 30$	—	
		<i>caruanae</i>	Pollonera	$n = 30$	—	

\* Collected in France.

† Perrot, J. L., quotes  $n = 30$  for *A. agrestis*, but probably refers to animals now included in *A. reticulatus*.

be used to distinguish between morphologically rather similar species of, for example, *Agriolimax*. *Testacella maugei* Ferussac, *T. scutulum* Sowerby, and *Geomalacus maculosus* Allman, on the British list, are not included in Table 1, as no cytological analysis has been carried out.

I wish to thank Dr. M. Fischberg, especially, for his advice on this work, and E. A. Ellis and L. M. Cook for collections of animals.

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<sup>1</sup> Perrot, M., *Rev. Suisse Zool.*, **45**, 530 (1938).

<sup>2</sup> Perrot, J. L., *Rev. Suisse Zool.*, **37**, 397 (1930).

<sup>3</sup> Perrot, J. L., and Perrot, M., *Rev. Suisse Zool.*, **44**, 203 (1937).

<sup>4</sup> Ford, C. E., Hamerton, J. L., and Sharman, G. B., *Nature*, **180**, 392 (1957).

<sup>5</sup> Quick, H. E., "Synopsis of British Fauna", **8** (Linn. Soc., London, 1949).

<sup>6</sup> Cain, A. J., and Williamson, M. H., *Proc. Malac. Soc. Lond.*, **33**, 73 (1958).

### An Apparatus for Panning in Cine Micrography

IN ciné micrography it has not been possible to vary the viewpoint or introduce variety by devices equivalent to 'panning' or 'tracking' in ordinary photography. This limitation makes it difficult to show some aspects of a microscopical field which demand the use of a moving stage.

The movement of the usual rack and pinion of the mechanical stage of a microscope, when enlarged 300–400 times on the film before projection, is so irregular owing to the backlash and the tremor of the operator's hand and the need for changing the grip that it is quite unacceptable.

After a number of attempts, a successful apparatus has been made which combines the principles used in the De Fonbrune and the Singer micromanipulators. This gives smooth control of movement in both directions separately or combined.

The arrangement consists of two pieces of aluminium plate, the bottom one bolted by two easily

detachable brass brackets to the microscope stage, the upper one stuck to it with petroleum jelly.

The lower plate has a central hole over the condenser lens, and the upper plate has an eccentric opening which overlaps the condenser hole by about 2 cm. When arranged ready for use, the upper plate projects for about 2 cm. beyond the lower, both to the left and forward.

Two small syringes with metal plungers are mounted horizontally and at right angles to each other beside the stage. Slots cut in the heads of the plungers rest against the upper, moving plate. This gives both a certain grip and at the same time permits automatic re-arrangement of one syringe as the other is in use. Both syringes are carried at the correct height by metal rods on top of which are spring clips. The rod which provides anterior-posterior movement is placed off-centre to clear the beam of light from the lamp. A plastic or wooden base with stops for the foot of the stand is also required. The supporting rods are screwed to this.

Each of the syringes is connected to another syringe by narrow rubber pressure tubing. Plastic tubing is too rigid in the wall and too springy to be a satisfactory alternative. The syringes on the free end of the rubber tubes are pressed to drive the stage. They need not be the same size as the others, but no advantage appeared to be derived from using smaller syringes as no gearing ratio was necessary in practice.

In use, the slide to be filmed is placed on the upper sliding plate. The pair of syringes on the free ends of the tubing are held between the fingers of the left hand and their plungers compressed with the thumb; one alone, or both, may be used to give movements in two directions at right angles or diagonal movement. The right hand is available for the normal controls of the microscope.

No special return mechanism is provided. At the end of the run, the sliding plate is simply pushed back to the starting position.

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