THE MAINTENANCE OF AMBYSTOMA MEXICANUM IN THE HUBRECHT LABORATORY, UTRECHT, THE NETHERLANDS

R. Verhoeff-de Fremery

Adult Axolotls are kept in asbestos cement containers (50x100x50cm), placed in an airconditioned room. Before use, the containers are rinsed continuously with tap water for 3-4 weeks in order to remove excess Calcium, after which the inner surface is coated completely with a waterproof, chemically inert varnish. Each container is fitted in the bottom with an outlet for complete drainage. Into this opening a tube is inserted to provide an overflow outlet (fig.1.).

Ten Axolotls are housed in one container. The water level is kept at about 35-40 cm. to keep the gills in good condition. The walls are high enough to prevent the animals from jumping out. Some algal growth on the bottom and side walls keeps the water clear; however, too abundant growth of algae must be prevented.

Each container has its own drain, so that the water from one container never enters another one. This prevents the spreading of contagious diseases throughout the colony.

The Axolotls are kept in very slowly running tap water of good quality; the pH is about 7.5 - 8.5 and the temperature 14 - 18 ^{o}C. The containers are illuminated 12 hours per day by fluorescent lamps (Philips TL 33), placed 1.50 m. above the water level, providing 40 W per 2m^{2} surface area. Half of the container is covered with a lid to provide shelter for the animals.
Gas exchange is promoted by a mechanical water aerator. This causes turbulence of the water and thus removes the greater part of the surface film, a thin bacterial layer interfering with gas exchange.

Beef heart, from which fat, tough fibres etc. have been carefully removed, is fed three times a week. The meat is cut into strips of 30 x 4 x 4 mm, rinsed with tap water to get rid of blood, and mixed with a multi-vitamin and mineral preparation (Carnicon, Trouw & Co., Putten , the Netherlands). Animals kept in groups seek the food spontaneously. Before feeding droppings are siphoned out. About 1.5 hours after feeding the container is again siphoned out to remove droppings and food remains. If no food is left at that time, this means that the animals do not get enough to eat; after some time they will start snapping at each other's limbs, which may cause severe wounds. Therefore it is important always to offer somewhat more food than they really need. If an animal falls ill and dies, the other animals remain in the container, but care is taken that it is the last to be siphoned out and that the siphon is afterwards carefully disinfected in a 1 per cent solution of Tego 51/15 DC (Goldschmidt , Amsterdam, the Netherlands). This precaution is taken for six weeks; if during that time no more animals die in the container, it is considered safe and special measures are no longer taken.

If necessary adult Axolotls can be anaesthisized in a 0.1% solution of MS222 (tricaine methane sulphonate). For euthanasia an overdose of MS222, 0.2-0.3% depending on the size of the animal, is used. The animal must be left in this solution for several hours to be sure that the treatment is lethal.

Every two or three years a new generation is reared. The parents are never siblings but belong to different generations. Each generation consists of five to seven groups of ten couples each. Males and females are kept separately, so that one group consists of two containers, one holding ten males and the other ten females. During the season each group is used twice for spawning at an interval of three months. Records are kept for each group of the quality of the batches (i.e. fertilization percentages, (ab-)normal development).

For data on the occurrence of diseases, see:

Diseases of Axolotls in the amphibian colony of the Hubrecht Laboratory, Utrecht, the Netherlands, in the period 1974-1980, Axolotl Newsletter (this issue).

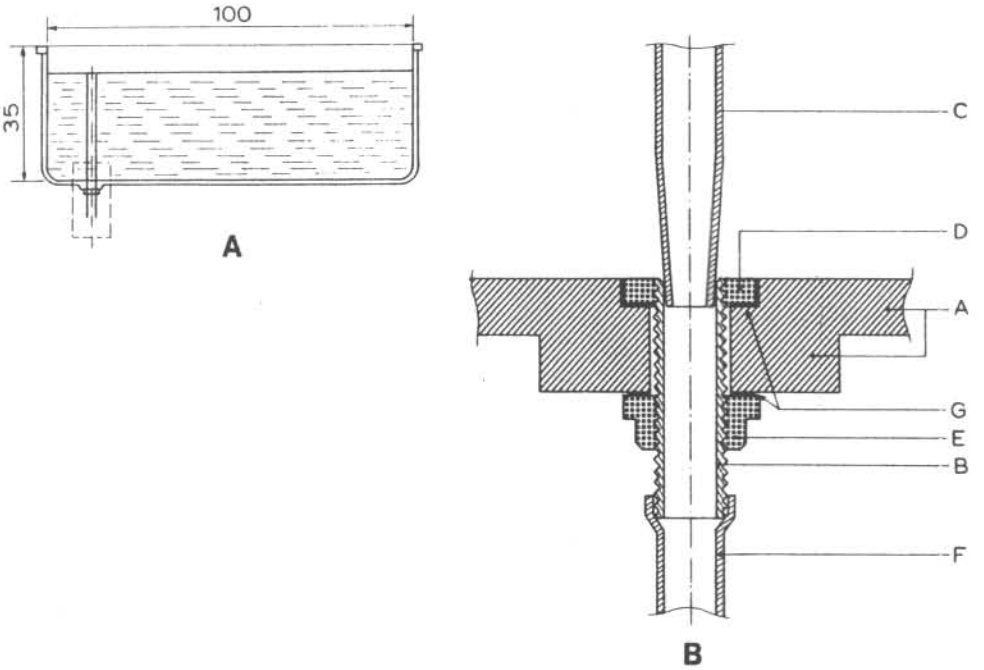

Fig. 1. (a) cross-section of asbestos cement container for groups of axolotls, etc. (b) enlargement of part of (a). A, bottom of container with local reinforcement. B, metal or polythene drain pipe screwed into outlet opening. C, polythene pipe for overflow outlet, fitting into B. D, and E, metal or polythene rings. F, rubber tube leading to drainage system. G, cementing compound.