

Félix, R. National Institute of Nuclear Energy, Mexico City, Mexico. A motorized waterflow device designed for continuous hard work and rapid washing of countless vials and culture containers.

During two years of hard work it has expedited the washing of half-pint bottles and vials. The installation and design of the device are illustrated by the photo and diagram. In several hours the automatic washer thoroughly cleans hundreds of bottles and vials, an accomplishment that cannot be equalled by manual labor.

An apparatus based on the same principle is described in DIS 45:180-181 (1970). Its constant hard use has prompted several modifications for improving its durability and resistance. The modifications are described in the following. This system functions effectively for 6 hours a day, requiring only a replacement of the washer at the motor base every 6-8 months. The entire assembly is driven by an a.c. motor (1/10 HP, 110-220V, 0.09 KW, and with 1,340 r.p.m. Mez Mohelnke, Chez). The rotation of the motor shaft (fm) is transmitted to the washing shaft (fd), which turns inside the water chamber (c). This shaft has four perforations which carry pressurized hot water from the water chamber to four openings (s) at the base of the shaft. In this way the water flows directly into the vials or through the hollow cleaning additive (at the right of the figure) into the half-pint milk bottles. The water temperature is regulated by mixing hot and cold water which enters the water chamber through water inlets connected by a rubber tubing.

At the base of the motor a hard rubber washer (r) enveloped by steel is tightly fitted to the motor shaft to prevent water leakage. The washing shaft rotates upon two inoxidizable steel ball bearings (b). The apparatus is screwed to the motor, the lower aluminum plate (pa) being attached to the upper steel plate (pc) with four screws.

An acrylic plastic container (p), available commercially for refrigeration storage, protects

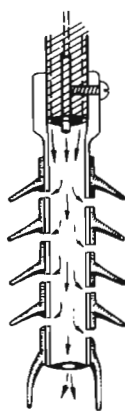
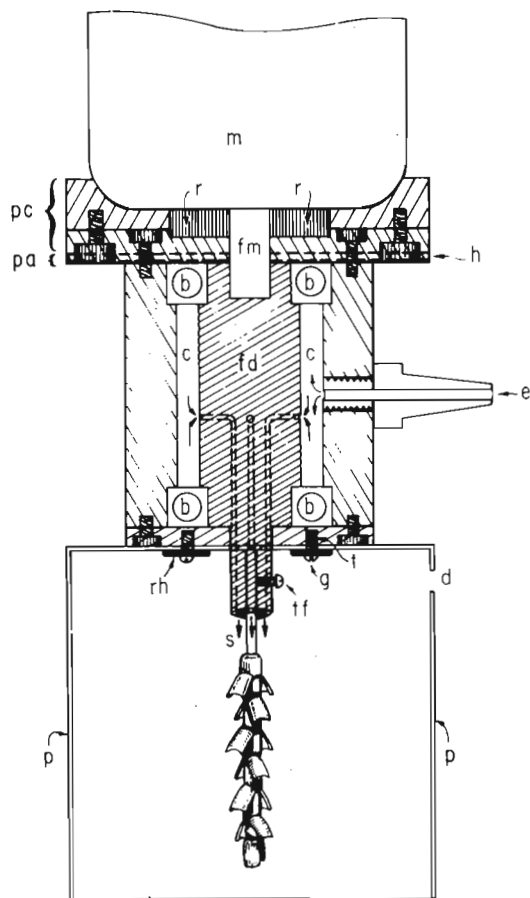
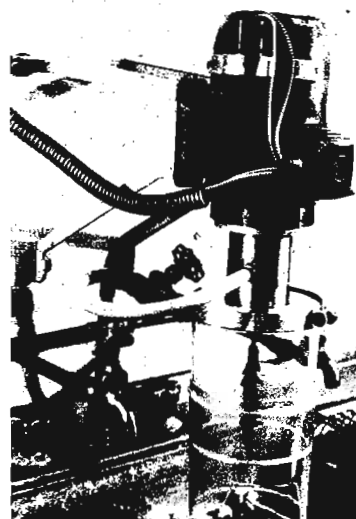


Diagram of the motorized water flow device.



View of the water flow device with the shielding of acrylic plastic.

the operator from being splashed. The container is attached to a circular aluminum plate at the base of the apparatus with screws (g). The washing shaft passes through a circular hole located in the bottom of the plastic container. The cleaning additive for vials, made with strips of latex or rubber tubing, as illustrated, is attached to the distal end of the washing shaft with a screw (tf). Through an orifice (d) a screw-driver is inserted to adjust the cleaning additives. The centrifugal force of the washing shaft lifts up the lateral strips thoroughly cleaning the vials. The interchangeable hollow washing shaft with strips of tubing cut out to the appropriate length is used when half-pint bottles are washed. Water flows from the distal end, as well as through the lateral holes of the hollow shaft, thereby expelling food medium and wastes from the bottles.

The whole waterflow device is mounted on the wall above the sink; the water containing expelled food medium is immediately disposed of in a cesspool. Rubber gloves may be used to protect the operator's hands; however, the few defective vials that break during washing rarely inflict injury because of the softness of the rotating latex strips and the protection afforded by the acrylic plastic container.

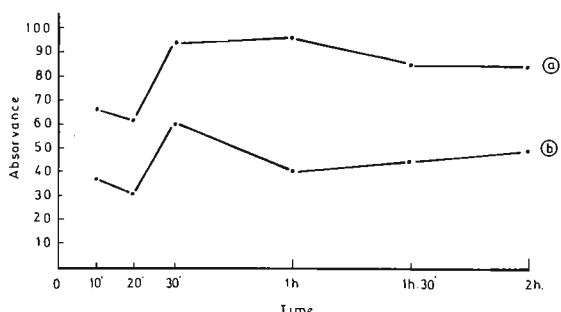
This apparatus was designed and constructed at the Nuclear Center General Workshop of the National Institute of Nuclear Energy, thanks to the assistance of Ing. Luis de la Torre.

Kirschbaum, W.F. Comisión Nacional de Energía Atómica, Buenos Aires, Argentina. Feulgen stain with hydrolysis at room temperature of *Drosophila melanogaster* salivary gland chromosomes.

Considering that better results have been obtained with the Feulgen stain using room temperature during hydrolysis with 5N HCl, than with the traditional one of 1N HCl at 60°C (Deitch, A.D. et al., Conditions influencing the intensity of the Feulgen reaction, J. Histochem. Cytochem. 16:371-379, 1968), this new technique

has been tried with *Drosophila melanogaster* salivary gland chromosomes.

With this technique, better images of polytene chromosomes have been obtained specially because no shrinkage of the cells material is produced. This is caused by the high temperature treatment during hydrolysis, with the conventional system.



As the shape of the 5N HCl hydrolysis curve is dependent on the fixative and preparative procedure used and it varies from the material stained, the curve of room temperature hydrolysis with 5N HCl for Feulgen staining has been obtained for *Drosophila melanogaster* salivary gland chromosomes. The different values were obtained by microphotometric measurements, using the following equipment consisting of a: Zeiss Photomicroscope I, Zeiss Photometerhead, Zeiss case with R.C.A. Photomultiplier model 1P28 and a Zeiss monochromator m4GII.

The data were obtained under the following conditions of the microphotometer:

1. Optical conditions of the microscope - Objective 100x immersion 1.3 ap. Planapo. Field

diaphragm. 0.1 mm diameter opening. Optovar 2x magnification. As condenser a 10x magnification objective with 0.22 aperture.

2. Photohead - eyepiece of 10x magnification; measuring diaphragm 2 mm diameter. A total magnification of 2000 was used with a band width of 180 Å.

3. Monochromator - Slit with 1 mm opening; monochromated light of 560 mμ.

For comparative reasons one strong band B₂ was measured, and a soft B 12 one of the X-chromosome. One can see that they have the same optimum time of hydrolysis and follow almost parallel lines. The soft band logically loses staining intensity before the strong one (see Figure).

Method used for staining the chromosomes: 1) Squash salivary gland chromosomes in lacto acetic (1:1) solution; 2) Separate cover slip with liquid N; 3) Alcohol 96%, formol 40% solution (9:1) 10'; 4) Hydrolysis in 5N HCl room temperature; 5) Wash in distilled water; 6) Shift reactive during 2 hours; 7) Wash in distilled water; 8) 3 passages in sulphurous water 2' each; 9) Wash in distilled water; 10) Alcohol 96%; 11) Alcohol 100%; 12) Mount in Euparal.