

CHAMBER FOR OBTAINING AUTOGRAMS OF ORGANS

M. N. Nilovskii and Z. A. Ryabinina

Laboratory of Growth and Development of the Institute of Experimental
Biology AMN SSSR, Moscow

(Presented by Active Member AMN SSSR N. N. Zhukov-Berezhnikov)

Translated from *Byulleten' Éksperimental' noi Biologii i Meditsiny*, Vol. 51, No. 5,
pp. 118-120,

Original article submitted March 15, 1960

In 1954 N. N. Belavina [1, 2, 3] suggested the method of autography for obtaining the image of the surface of an organ or slice of organ on a film by direct contact with the emulsion layer of the latter. Images of organs by direct contact with a film have also been obtained by other research workers [4].

In the autographic procedure the organ under investigation is carefully laid on a glass plate. A film is then laid on top of the organ in the dark, and pressed down by another glass plate. The plates are then turned through 180° so that the film is underneath and the organ lies on its emulsion layer. The organ with the film and plates is then wrapped up in black paper and placed in a refrigerator for exposure.

One of the faults of this method is that when the film is laid on the organ and the glass plates are turned over the film becomes warped and the organ is often displaced, thus resulting in the obtaining of blurred autograms. Moreover, the organs are laid on the film in the darkness, and hence there is no guarantee that the organ is placed in the center of the film and that an autogram of the whole surface of the organ will be obtained. Finally, it is difficult to obtain in identical conditions autograms of organs of control and experimental animals.

In order to facilitate and improve the method of obtaining autograms, we constructed and tested a chamber which, in our view, is the answer to the problem (Fig. 1).

The main material for construction of the chamber is 3 mm thick textolite sheet. The chamber consists of a box with grooves in the top into which two 9 × 12 cm film holders from the "Fotokor" camera fit freely and closely. On the floor of the chamber there is mounted a post, which can be raised or lowered by means of a worm screw (setting mechanism), driven by a knob on the outside. Attached to the knob is a pointer, which indicates the extent of the vertical motion of the post.

Rigidly attached to the top of the post and parallel to the plane of the film holders is a stage carrying another two 9 × 12 cm stages mounted independently of one another on flexible flat springs directly below the film holders. To the top of these stages is cemented a layer of soft sponge rubber 1 cm thick. The independently adjustable mounting of the stages and the presence of the sponge rubber layer permits the simultaneous autography of organs of different size. The sponge rubber presses the organ or slice against the surface of the film and prevents the displacement or sliding of the organ on the film.

The organs or slices are laid on the movable stages through the openings in which the film holders are inserted. The whole system is lowered to the bottom of the chamber by means of the knob (dial), and then the loaded film holders are inserted. The covers of the holders are removed and the organs are raised to make full contact with the film by means of the dial. In this position the chamber is left in the refrigerator for exposure. At the end of exposure the stages carrying the organs are lowered. The film, which becomes tightly stuck to the

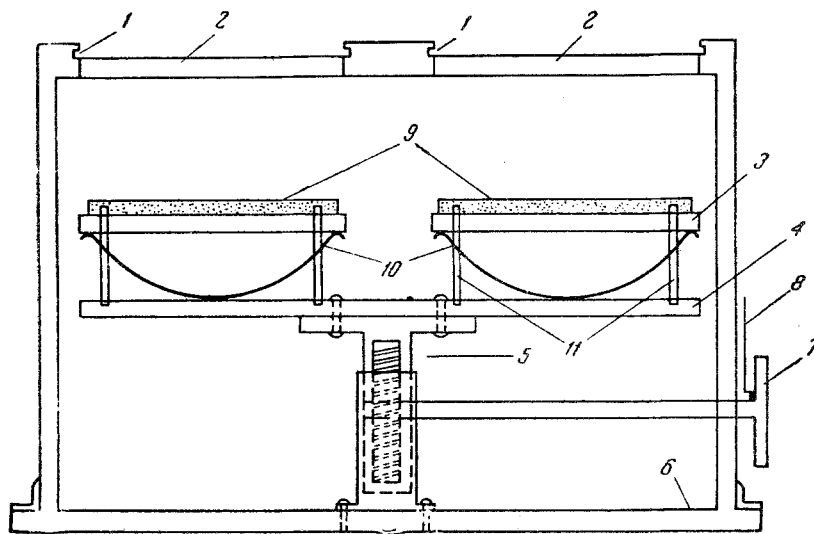
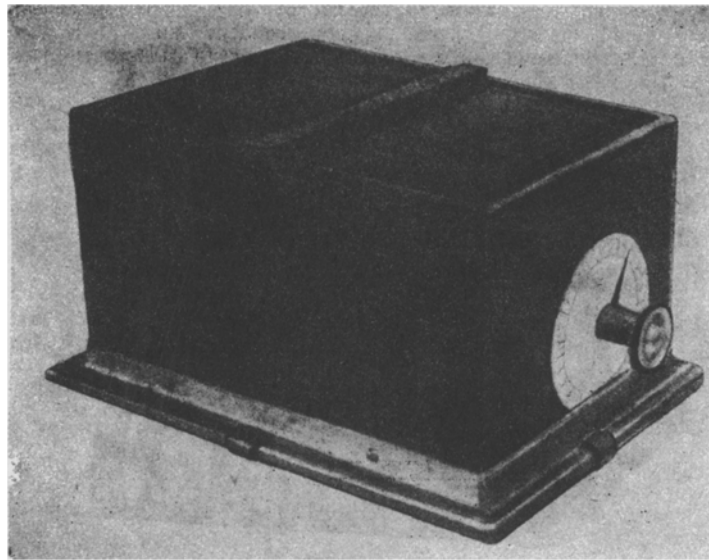


Fig. 1. General view and schematic diagram of chamber for obtaining autograms. 1) Grooves for film holders; 2) openings for film holders; 3) movable stage; 4) common movable stage; 5) adjustable post; 6) detachable bottom of chamber; 7) knob of setting mechanism; 8) pointer indicating height of lift; 9) rubber cushion for organs; 10) springs; 11) guide posts.

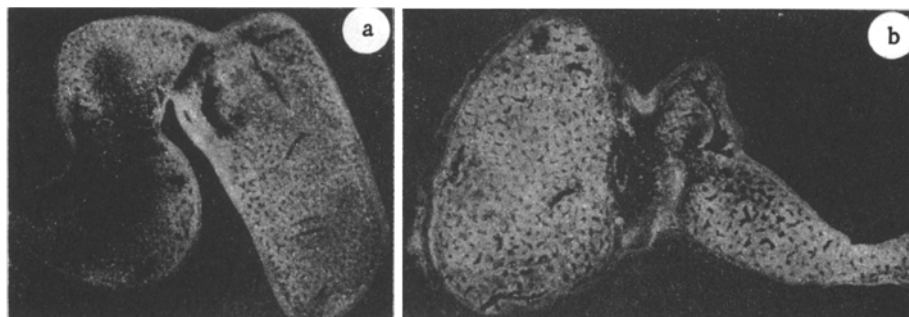


Fig. 2. Rat liver autograms obtained with chamber after 24 hr exposure: a) Surface of liver of normal rat (control); b) surface of regenerating liver four days after removal of two liver lobes by method of Higgins and Anderson.

organs during exposure, comes down at the same time. The holders are taken out in the dark room, and the film and organs are carefully removed from the stages and immersed in water for separation. The subsequent procedure for obtaining the autograms (development of film, etc.) is as usual.

The autograph chamber described enables the obtaining of clear autograms (Fig. 2) and allows most of the procedure to be conducted in the light under visual control. The chamber is of such simple construction that any research worker can make it.

SUMMARY

The author describes an original autographic chamber for obtaining imprints of the organs on a film. Autograms of rat liver obtained with the aid of this chamber are presented.

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4. V. P. Kachanov and A. A. Yarovoi, Arkh. Anat. Gistol. i Embriol. 31, 4 (1954) p. 63.

All abbreviations of periodicals in the above bibliography are letter-by-letter transliterations of the abbreviations as given in the original Russian journal. *Some or all of this periodical literature may well be available in English translation.* A complete list of the cover-to-cover English translations appears at the back of this issue.
