in Rossman's fluid. Sections were cut at 2-, 5-, and 10-μ thickness.[4]

Early experiments indicated that stripping film would give us the intimate contact necessary for high resolution, but the stripping film available commercially was too slow to enable us to work with our tissue sections. Burt H. Carroll, of the Eastman Kodak Company, was kind enough to supply us with stripping film coated with Eastman Type M X-ray emulsion. Of the emulsions tried, Type M gave the highest resolution compatible with the high sensitivity that was needed. Agfa Reprolith stripping film, a commercial product, is very satisfactory when tissue containing large amounts of radioactivity is used. Details of experiments with other emulsions and elements, along with a full description of our technique, will be described in a later publication.

The method is as follows: Paraffin is removed from the section with xylol, the section then being washed in absolute alcohol and allowed to dry. Sufficient 1% celloidin to cover the section is added with a Wright pipette.[5] The stripping film is removed from its base and applied, emulsion side uppermost, over the liquid celloidin-covered tissue section. The film is then pressed over the section until the celloidin is dry. A piece of fine, hard filter paper protects the emulsion from direct contact with the fingers, and great care is taken that the displaced celloidin does not run over onto the emulsion. The filter paper is removed, the emulsion is covered with a guard slide, and the sandwich wrapped round with Scotch tape and exposed under 12.5 lbs/in^2 of pressure. All the operations of development, fixing, and washing are done in a test tube 1″ in diameter. The film is never removed from the test tube; the solutions alone are changed. Distilled water is used in all operations, including washing, and all precautions necessary for fine development are observed. After the final washing, if the film with its firmly attached section is not detached from the glass slide, gentle traction will make the removal complete. The film, now emulsion side down, is attached to another glass slide with Kodalith stripping cement, allowed to dry, and treated like an ordinary section. The thin film base and the cement protect the emulsion from stain.

Figs. 1, 2, and 3 show examples of radioautographs taken with this technique.

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[4] We are grateful to F. M. Sinex and Miss Frances Nesbett, of the Department of Biological Chemistry, for preparing the liver slices and carrying out the incubation, and to E. W. Dempsey, of the Department of Anatomy, who has occasionally assisted in preparing the tissue sections.

[5] Since this article was submitted, we have observed some sections in which the celloidin apparently caused a uniform dense fog. Experiments are under way to determine the exact cause of this fog.

A Method for Making Small Rubber Articles for Laboratory Use

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By the simple method described here one can make reliable, elastic, thin-walled rubber balloons, of various shapes, for sensitive kymograph recording of gastric and doudenal movements, etc., as well as thin-walled rubber tubing of short lengths and various shapes.

The apparatus and chemicals required are: 60% Latex,[1] molds, wide-mouthed bottles, glass cylinders, rack to hold molds, sulfur chloride solution (SCL Merck), and a drying oven.

The molds are made of glass blown to the shape and size desired, with a stem for holding them. For making the balloons, a sufficient amount of Latex solution is poured from the stock can into a suitable short, cork-stoppered, wide-mouthed bottle. For the rubber tubing, a tall glass cylinder fitted with a cork stopper is required. The clean glass mold is dipped three times into the Latex solution, care being taken to avoid the creation of air bubbles. The mold should not be allowed to touch the container or any object after dipping. The surplus solution is then drained off for a moment or two, after which the mold is revolved slowly by hand until an even layer of the Latex is attained. It is then placed in a drying oven maintained at 60–80° C. The oven can be improvised by utilizing a wooden or tin box, about 18″ square, containing a 150-watt electric lamp. When first dipped, the Latex solution is an opaque milky white. When dry the color fades and the Latex becomes transparent. At this stage, it is ready for vulcanizing. A few drops of sulfur chloride are poured into a wide-mouthed bottle (for the balloons) or a cylinder (for the tubing) which is immediately corked to contain the vapor until one is ready to insert the mold. The stem of the mold is securely inserted into the hole of a second cork which fits the bottle or cylinder, and thus the mold may be suspended in the bottle or cylinder containing the vulcanizing fluid (SCL). The mold must be so suspended that it is exposed only to the vapor. One minute or more will suffice to vulcanize a mold coated as described above. If a heavier coating of Latex is applied to the mold, by repeated dipping after the first coat has dried, a slightly longer time is required for vulcanization. As soon as the mold is removed, the vulcanizing bottle, or cylinder should be firmly stoppered again to preserve its contents. The vulcanized article is now dipped in talc and gently rolled off the mold. It should be soft and elastic so that, when stretched, it returns to its original shape. If the mold is left too long in the vulcanizing vapor, it will stiffen and become brittle. A little practice in timing will bring good results.

[1] Obtainable from General Latex & Chemical Corporation, 600 Main Street, Cambridge, Massachusetts.