Records of the dorsal-ventral root reflexes allow differentiation of the proprioceptive or myotatic reflexes (the 2 neuron reflex of Renshaw,[3] and Lloyd,[4]) and the flexor or cutaneous reflex. Fig. 1*a* illustrates the normal record from the 7th lumbar ventral root, following stimulation of the corresponding dorsal root, of these reflexes on the control side of a cat in which the peroneal, tibial and hamstring nerves had been unilaterally sectioned 12 days previously. The high initial spike represents the proprioceptive reflex, the slower later activity the flexor response. Fig. 1*b* illustrates the alteration found on the degenerated side. Note the small proprioceptive component which must be ascribed to the activity of the undegenerated nuclei of the gluteal and other hip muscles. Fig. 2*a* shows the response in the 7th lumbar ventral root of the same preparation following stimulation of the normal sciatic nerve at the level of the greater trochanter. The separation of the proprioceptive and the flexor reflexes is well marked. On the degenerated side, when the sciatic nerve was stimulated at a comparable level, the proprioceptive reflex was absent, though the flexor response was essentially unaltered. Histological check revealed extensive chromatolysis of ventral horn cells had followed the nerve section.

This effect has been found in all cats allowed to degenerate after section of the sciatic nerve over a period of from 10 to 27 days. Records were made on the 10th, 11th, 12th, 14th, 18th, 20th and 27th postoperative days. Further studies are in progress to determine the early time course of the phenomenon and to resolve the mechanism by which the deficiency is related to chromatolysis.

Summary. Section of peripheral nerves in cats leads to the loss of the ventral root potentials homologous with the proprioceptive reflex during the period of retrograde degeneration. The corresponding potentials of the flexor reflex are essentially unchanged.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED INSTRUMENT FOR MEASURING CAPILLARY FRAGILITY

IN a study of the effects of substances on the resistance of the capillary wall, Dalldorf's modification[1] of the Da Silva-Mello technique was used. Considerable difficulty, however, was experienced in visualizing the field and recognizing the appearance of petechia. The modification to be described here largely overcomes this difficulty.

The fragility of the vessels of the skin is determined by estimating their resistance to negative pressure. The apparatus as used by Dalldorf consists of a mercury manometer connected to a small cylinder approximately one centimeter in diameter and one and a half centimeters in length. One end is sealed with a glass window, while the open end is placed over the skin area. In order to obtain airtight contact with the skin and at the same time not exert undue pressure, a flat rim is attached to the open end. By means of rubber tubing the manometer and cylinder is attached to a vacuum pump. With the cylinder placed on the skin, the minimum decompression at which petechia are formed in one minute is taken as the end point.

Our modification (Fig. 1) consists in changing the small end of one speculum of an electric pneumatic otoscope into the shape of the lower end of the above described cylinder and using the otoscope with its lens system in place of the cylinder and the plain glass window. In order to convert the standard otoscope for use in this work, it is only necessary to modify one of the specula. This is cut off at a

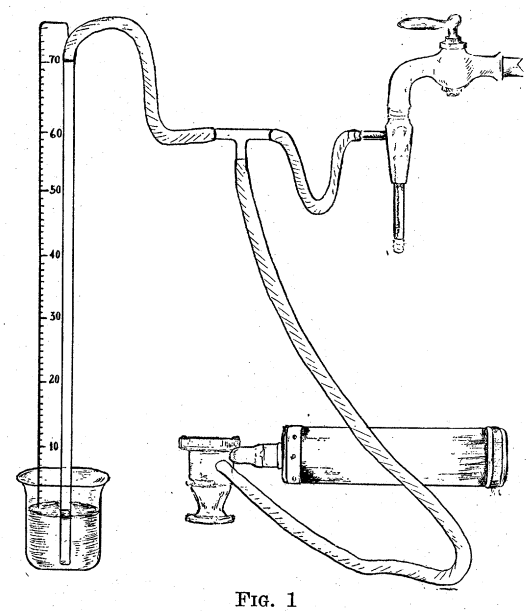

FIG. 1

point at which its diameter is approximately one cm and the small end replaced with a washer one and one half cm in diameter. When made smooth, this washer forms the surface to be applied to the skin. The tube branching from the side of the head of the otoscope is connected to the manometer and the vacuum pump by means of a piece of rubber tubing. The convex lens and small bright light make the petechia easily recognized. If a small portable

[3] B. Renshaw, *Jour. Neurophysiol.*, 3: 373, 1940.
[4] D. C. P. Lloyd, *Jour. Neurophysiol.*, 6: 111, 1943.
[1] *Jour. Exp. Med.*, 53: 289, 1931.

vacuum pump powered with an electric motor is available to produce the decompression the apparatus can be used on the hospital wards for clinical investigation. If used in the laboratory for animal experimentation a filter pump, as shown in the figure, connected to the water line will be found quite satisfactory. A small vacuum tank may be included in the system to take care of any changes in pressure due to pressure changes in the water line.

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A SIMPLIFIED ALL-PURPOSE GRAVITY WRITING LEVER

SINCE describing an inexpensive gravity writing lever for respiratory tambours[1] we have simplified and extended the usefulness of the apparatus. The principle of a carrier holding a writing arm in such a manner that gravity will cause this arm to contact the drum is the same as previously described. The difference is that the carrier has been made smaller and lighter in weight and thus applicable to heart and muscle levers. The simplified carrier is made from the ordinary aluminum writing arm wire. It is illustrated in the figure and is easily made as follows:

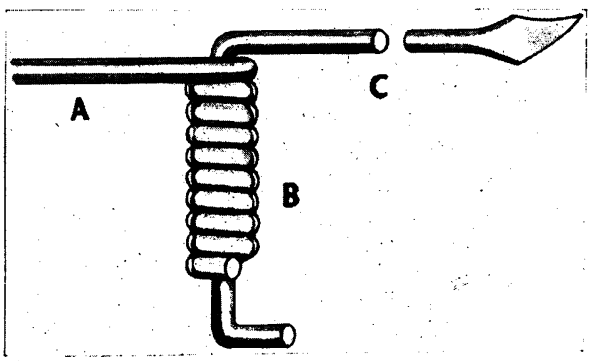

FIG. 1.

A close spiral about one-half inch in length is wound at one end of a four- or five-inch piece of the wire. The spiral is then bent at a right angle to the rest of the wire (A). About three-fourths inch of a second wire (C) is bent to nearly a right angle. The short arm of this right angle is inserted longitudinally through the spiral and its protruding end bent to hold it in place. Joined in this fashion the spiral and the short arm of the second wire make a hinge (B) which permits the long arm of the wire (C) to act with gravity and fall against the drum. The straight arm of the first wire (A) is inserted in the spindle in the usual manner. The sensitivity of the lever may be varied by the amount of tilt given the hinge (B) and by changes in the weight and length of the second wire (C). This lever is as satisfactory as many complicated models now on the market and can be made by students in a few minutes from their old levers.

[1] SCIENCE, 96: 590, 1942.

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A SIMPLE TIMING DEVICE FOR SPEAKERS

EVERY one attending conventions, such as those of our scientific associations, has been impressed by the necessity of controlling the time used by the speakers on crowded programs. One speaker running much over the 12, 15 or 30 minutes of time allotted to him may considerably disrupt a morning or afternoon program. The chairman naturally hesitates out of courtesy to the speaker brusquely to interrupt him and may merely announce "Time" or sharply tap with a pencil when his time is up. This introduces a personal element which may be irritating to some.

While presiding over the recent meetings of the North Dakota Academy of Science I used a photographic interval timer clock which several speakers afterwards commended. The speakers were allotted 15 minutes and I announced several times that the clock would be set to "tinkle" at 13 minutes, allowing two minutes to finish. When the speaker commenced to talk the clock was set and was thereafter ignored. No further personal element was interjected and the alarm went off impersonally for all. The "tinkle" was subdued by placing the clock under a hat.

NEAL A. WEBER

UNIVERSITY OF NORTH DAKOTA

BOOKS RECEIVED

FALES, HAROLD A. and FREDERIC KENNY. *Inorganic Qualitative Analysis.* Illustrated. Pp. ix + 237. D. Appleton-Century. $2.65.

HAYS, F. A. and G. T. KLEIN. *Poultry Breeding Applied.* Illustrated. Pp. 192. Poultry-Dairy Publishing Co.

HEALD, FREDERICK D. *Introduction to Plant Pathology.* Illustrated. Pp. xii + 603. McGraw-Hill Book Co. $4.00.

JEAN, FRANK CONVERT and OTHERS. *Man and His Physical Universe.* Illustrated. Pp. viii + 607. Ginn and Company. $3.25.

LINDSAY, ROBERT BRUCE. *Handbook of Elementary Physics.* Illustrated. Pp. xv + 382. The Dryden Press. $2.25.

RUPPERT, KARL and JOHN H. DENISON, JR. *Archaeological Reconnaissance in Campeche, Quintana Roo, and Peten.* Illustrated. Pp. vii + 156. Carnegie Institution of Washington. $4.25, paper cover; $4.75, cloth binding.

SCHMIDT, CARL L. A. *Addendum to the Chemistry of the Amino Acids and Proteins.* Illustrated. Pp. xii + 1290. Charles C Thomas. $5.00.

SHERMAN, HENRY C. *The Science of Nutrition.* Pp. x + 253. Columbia University Press. $2.75.

STILES, KARL A. *Laboratory Explorations in General Zoology.* Illustrated. Pp. x + 265. Macmillan. $2.50.

WINSLOW, CHARLES-EDWARD A. *The Conquest of Epidemic Disease.* Pp. xii + 411. Princeton University. $4.50.