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SCIENCE IN THE U.S.S.R.

SOVIET BIOLOGY[1]

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AT the time of the tenth anniversary of the October Revolution in 1927, I was in Moscow; I awakened each morning in the little glass-sided cupola on top of the palatial and elegant mansion which had now become the Institute of Experimental Biology. My first impression was one of familiarity, of at-homeness, for this was a genetics laboratory, filled with the sights and smells associated with the little fly, Drosophila, which breeds in its thousands in the milk bottles of fermenting food which line all the genetics laboratories in the world. But in the farther distance, through the windows, were the spires of Moscow, and these and the physical world they represented were utterly strange and new to me.

This alternation of strangeness and familiarity must have struck many American visitors to Russia, and it persists when we try to examine the scientific achievements of the Soviet Union or indeed of any country not our own. For any modern science is in some sense the same wherever we find it, a part of one interconnected whole resting on common basic principles, with a common past and a common future, and it is artificial and deceptive to try to break it into separate national entities. And yet, just as the history of science consists in part of the achievements of individuals, so also it rests on the contributions of groups of persons with common purposes and common methods, and oftentimes the character of these groups is determined by the physical, economic and social milieu. It was unquestionable that the society behind Soviet biology was very different from that found in Europe and America, and this, together with the temperament, traditions and outlook of the Soviet scien-

[1] Address at the Science Panel of the Congress Celebrating the Tenth Anniversary of American-Soviet Friendship, New York, November 7, 1943. The complete proceedings of the Science Congress including the Medical Session will be published at a later date by the National Council of American-Soviet Friendship.

method at present most commonly used, namely, the application of small solder pellets to the scalp with collodion, it has been stated that "No one should consider himself trained in this procedure, until he has applied at least three hundred electrodes."[5] It has been our experience that this is a conservative estimate and that the training of new technicians, together with the length of time required for electrode application and the artifacts caused by the loosening

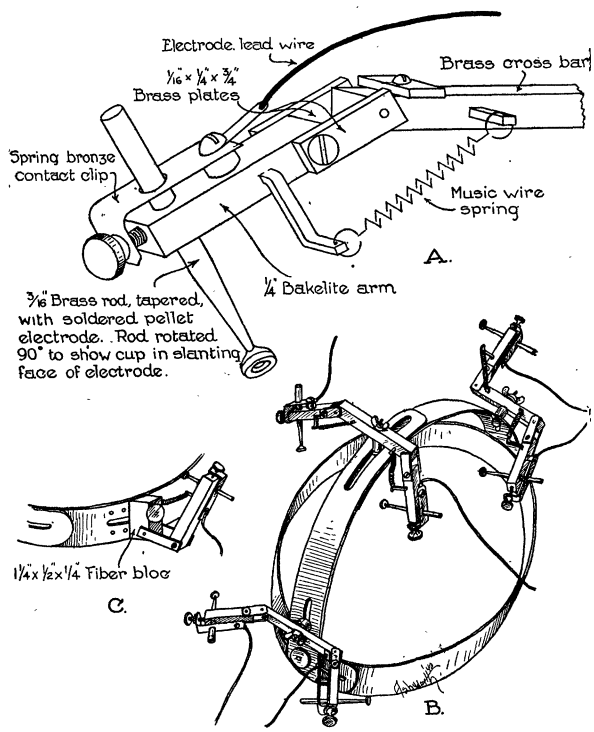

FIG. 1

of such electrodes when improperly applied, make this method quite unsatisfactory.

Hence a method of spring-pressure-contact electrode placement was developed which has, in our hands: (1) substantially lessened the time required for electrode application; (2) obviated the necessity for long practice in electrode application; (3) dispensed with the collodion so often objectionable to the patient, and (4) aided in the comparison of EEG records from patient to patient by permitting a more uniform electrode placement.

Fig. 1a shows one of the electrode assemblies. The electrodes are short sections of brass rod tipped by shallow solder cups. They are freely adjustable, yet held firmly in place by a set-screw as they pass through holes in the bakelite arm and spring bronze contact clip. The continuity of the electrical circuit is maintained by pressure of the spring bronze clip against the set screw. The bakelite arm is hinged to the cross bar (Fig. 1a) or other holder (Fig. 1c), by means of a pin through two small brass plates. The tension of a 0.013-inch piano-wire spring holds the electrode in the "up" position when not in use (Fig. 1b) and furnishes tension for keeping it against the scalp when recording is in progress. Thick electrode paste is placed on the tip of the electrode and rubbed into the scalp prior to making contact.

A fiber headband with adjustable members can be cut from a 1/16-inch fiber sheet or obtained from an electric arc welder's supply house in the form used for supporting a welder's hood. Bolts fastened through slits cut in the top and side of the band allow for free movement of the electrodes in an antero-posterior direction. In the routine 6 electrode holder (Fig. 1b) three cross bars of convenient lengths hold pairs of symmetrically placed electrodes which are movable over the frontal, parietal and occipital regions of the scalp. In a 16 electrode holder (useful for localization of intracranial lesions), five of these movable cross bars on the center band are supplemented by six individually mounted single electrodes, which, as shown (Fig. 1c), are movable along the sides of the headband and permit recording from lateral regions of the head.

Records are most conveniently taken with the patient in a sitting position. Recording in the supine position is possible with the use of a block pillow placed beneath the neck and base of the occiput.[9]

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[9] The authors wish to express their thanks for helpful criticism and suggestions from Dr. Robert S. Dow and Dr. Knox Finley, of the University of Oregon Medical School.

[2] H. L. Andrews, *Am. Heart Jour.*, 17: 599–601, 1939.
[3] A. Baudouin, H. Fischgold and J. Lerique, *Compt. rend. Soc. de biol.*, 127: 1221–1222, 1938.
[4] C. W. Darrow, *Proc. Soc. Exp. Biol. and Med.*, 45: 301–302, 1940.
[5] F. A. Gibbs and E. L. Gibbs, "Atlas of Electroencephalography." Cambridge, Mass.: Lew A. Cummings Co. 1941.
[6] H. H. Jasper and H. L. Andrews, *Jour. Gen. Psychol.*, 14: 98–126, 1936.
[7] A. E. Kornmüller and R. Janzen, *Zeit. ges. Neurol. Psychiat.*, 166: 287–308, 1939.
[8] W. G. Walter, *Lancet*, 2: 305–308, 1936.

BOOKS RECEIVED

ACKERMAN, LLOYD. *Health and Hygiene.* Illustrated. Pp. xii + 895. The Jaques Cattell Press. $5.00.
DEMING, H. G. *General Chemistry.* Fifth edition. Illustrated. Pp. x + 706. John Wiley and Sons. $3.75.
PARKER, CHARLES M. *Steel in Action.* Illustrated. Pp. vi + 221. The Jaques Cattell Press. $2.50.
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