mary glands of mice probably result from the inciting influence of the mammary tumor milk agent and the estrogenic hormones.

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AEROSOL, A NEW METHOD OF APPLYING GROWTH REGULATORS TO PLANTS[1]

L. D. GOODHUE[2] found the aerosol method to be an excellent and efficient one for dispersing certain insecticides. One method of producing aerosol involves the use of a highly volatile liquid carrier in which the insecticide is dissolved either directly or after it has been dissolved in some other solvent. The solution of carrier, solvent and insecticide is contained under pressure in a suitable receptacle from which it can be released as a mist. The carrier immediately volatilizes, leaving the insecticide suspended in the air in an exceedingly finely divided liquid or solid state. This method of applying insecticides suggests a new means of applying growth substances to plants for the purpose of modifying development, such as delaying opening of buds, preventing abscission of flowers and fruit and aiding fruit setting. Preliminary results indicate that the method may prove of much value for such applications.

An experiment was designed to determine the effectiveness of a growth substance in setting seedless fruit on tomatoes, when dispersed as an aerosol form. For this purpose three grams of naphthoxyacetic acid were dissolved in 27 grams of cyclohexanone. This solution was placed in a steel cylinder into which 270 grams of di-methyl ether was then forced under pressure.

Ninety-six Pan America tomato plants were grown under greenhouse conditions until the first blossoms of the first cluster had opened. One half of the plants were kept in the greenhouse as controls and the remainder were held for 16 hours in an air-tight room into which aerosol containing naphthoxyacetic acid was released. The naphthoxyacetic acid was dispersed at 240 mg per 1,000 cubic feet. The plants were then taken back to the greenhouse and allowed to grow under the same conditions as the control plants. Three days later fruit enlargement was observed upon the treated plants and none upon the controls. Nine days after treatment the average number of fruit set per plant for the first cluster was 3 for the treated plants and 0.5 for the controls. The average diameter of fruits after 36 days was 2.9 inches for the treated plants and 2.1 for the controls. Ten fruits collected at random from the treated plants were all seedless.

Thirty-two additional tomato plants treated in the open air have also set fruit. In this experiment the cylinder was held at a distance of one foot from the plant and the valve was opened for about one second. The mist covered the flower cluster but was quickly carried away from it by air currents. The plants were then returned to the greenhouse. The number of fruits set per plant in the treated lot was comparable to that obtained in the first experiment. The controls in this instance failed to set fruit.

Further studies are under way to test field applicability of this method and to test various other growth substances. Tests will also be made to determine quality of the fruit developed.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SPRING-PRESSURE-CONTACT ELECTRODE FOR USE IN ELECTRO-ENCEPHALOGRAPHIC RECORDING[1]

WITH the widespread use of the electroencephalograph to survey large populations in both military and civilian medicine and with an increased difficulty in obtaining technicians for this work, it has seemed necessary to devise a fast, simple technique of electrode application.

Since Berger reported the recording of electrical potentials from the human brain by means of silver wires inserted into the anesthetized scalp, electroencephalographers have sought more efficient ways of electrode application.[2, 3, 4, 5, 6, 7, 8] Concerning the

[1] C. L. Hamner, assistant physiologist, and H. A. Schomer, associate physiologist, Bureau of Plant Industry, Soils and Agricultural Engineering, and L. D. Goodhue, senior chemist, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, U. S. Department of Agriculture, Beltsville, Md.

[2] L. D. Goodhue, *Ind. and Eng. Chem.*, 34: 1456–1459, December, 1942.

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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

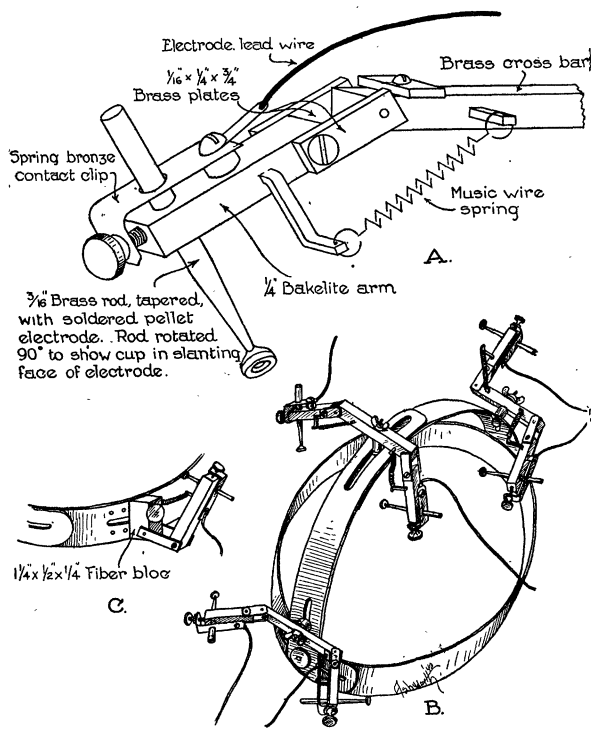

FIG. 1

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.

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