analysis, and it was shown that there was no appreciable drop in potency by either assay technique. Certain other variations, however, are worthy of mention.

In the specifications drawn up by the F.D.A. the final assay solution for the turbidimetric assay contains 100 μg./ml. of streptomycin. The 100-μg./ml. solution of standard streptomycin was therefore assayed undiluted, and the 1,000-μg./ml. solution was diluted 1:10 with distilled water to bring it to the proper

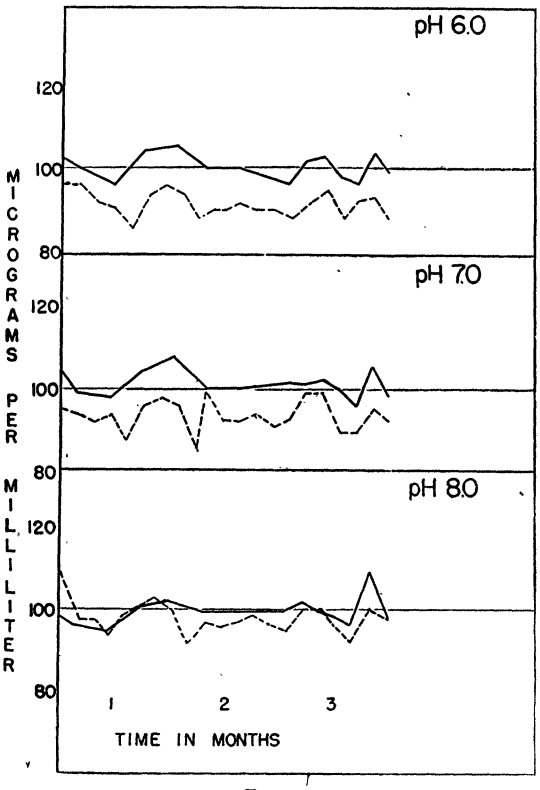

Fig. 1

assay dilution. This gave a 100-μg./ml. solution in 0.05M phosphate buffer and a 100-μg./ml. solution in 0.005M phosphate buffer at each pH level. The assay values obtained were as follows: At pH 6.0 the mean average of the 0.05M buffer concentration was 91.5 per cent activity and that of the 0.005M concentration, 100 per cent. At pH 7.0 the mean average of the 0.05M buffer concentration was 93.7 per cent activity and that of the 0.005M, 100 per cent. At pH 8.0 the 0.05M concentration showed 97.9 per cent activity, while the 0.005M buffer concentration showed 99.9 per cent activity. In other words, when the concentration of phosphate salts was increased, the activity of the streptomycin decreased, at least when that activity was measured by a turbidimetric method. The lowering of activity, however, was not the same at the three pH levels. At pH 6.0 the 100-μg. standard solution was 8.5 per cent lower than the 1,000-μg. standard; at pH 7.0, 6.3 per cent lower; and at pH 8.0, 2.0 per cent lower. The assay values are given in Fig. 1. The solid line represents the standard in .005M buffer (original, 1,000 μg./ml.), and the broken line represents the standard in .05M buffer (original, 100 μg./ml.). In three additional assays run turbidimetrically on these same solutions the 1,000-μg./ml. standard solution was diluted with 0.05M buffer instead of water. This had the expected effect of *lowering* the average assay figure for this solution closer to that of the 100-μg./ml. standard solution at all three pH levels. Apparently, a combined depressor effect is exerted on the activity of streptomycin by the increased concentration of buffer salts and the lowering of pH. Waksman (*1*) has demonstrated a similar restriction of the activity of streptothricin by buffer salts.

Summary. Streptomycin held in solution in concentrations of 100 and 1,000 μg./ml. at 10°C. is stable at pH 6.0, 7.0, and 8.0 for a period of three months. The depressor effect observed in the turbidimetric assay appears to be the result of two factors, buffer salt concentration and pH, and is most marked at pH 6.0. Almost normal activity reappears at pH 8.0 even in the presence of the greater concentration of phosphates.

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A New Type of Electroencephalographic Electrode Coordinator With Semipermanent Electrodes

Marvin A. Buffington and Andre A. Weil

The Neuropsychiatric Institute of Cleveland, Cleveland 6, Ohio

Gibbs (*1*) has made the statement that ideal electrodes for electroencephalographic purposes should not produce artifacts; should be easy to apply, keep on, and get off; and should be cheap and painless. Keeping these requirements in mind, most electroencephalographic laboratories employ enamel-insulated copper wires (usually 29- or 30-gauge), with the common solder-type pellets attached as electrodes. Unfortunately, this type of electrode can be used adequately only for 5–10 tracings and must then be replaced. In one way or another, a good deal of time on the part of the electroencephalographic laboratory personnel is therefore lost in the purely technical process of making and remaking electrodes. Furthermore, these commonly used electrodes frequently become tangled and bent because of their inherent mechanical characteristics, subsequently producing artifacts. Another point of difficulty is tracing the electrodes to their respective outlets at the terminal board.

Some workers (Ogilvie, *2*) have advised the use of "tinsel wire." In our experience, however, this carries too heavy a weight for the attachment on the scalp, and additional artifacts are produced by insufficient contact between the end of the "tinsel wire" and the silvered union which is commonly used.

It should be mentioned that a device for reducing the time to apply electrodes is the "headband electrode holder." This device, described by Ulett and Claussen (*3*), also avoids the use of collodion, depending entirely on pressure. However, an increased number of artifacts are unavoidable with this and similar time-saving devices, due to complication of the mechanical technique.

In order to overcome these difficulties, we have tried to perfect a new coordinator (Fig. 1) which would (a) guarantee a long life for the electrode; (b) produce as few artifacts as possible; (c) guarantee segregation of the electrodes; (d) provide a permanent and yet accessible place of storage when not in use; and (e) allow the electroencephalographer a free, unobstructed view of the patient's head during the recording.

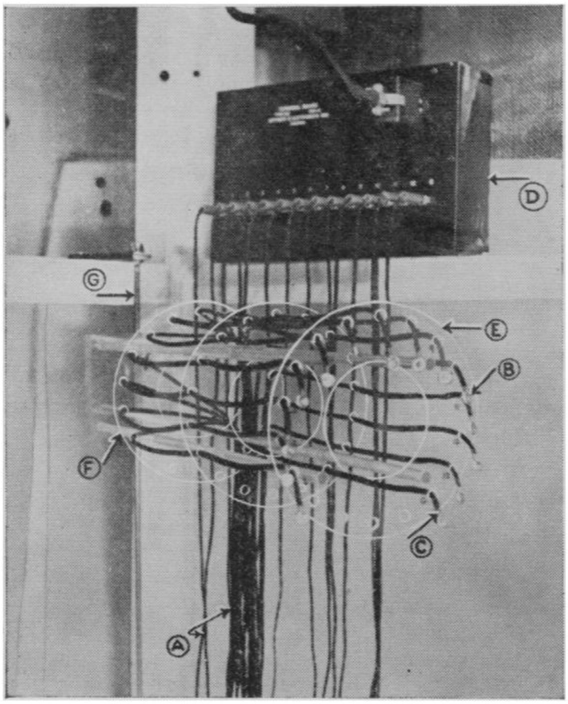

FIG. 1

The type of "wire" used for mechanical and electrical attachment to the electrode is that known as "tinsel wire" (A), consisting of a fabric sleeve-covered cord made up of strands of linen thread on which have been spun fine ribbons of copper. These strands are woven together to make a continuous, well-insulated cord of great strength and flexibility which has the same electrical characteristics as the type of solid wire generally used. The tinsel wire is bonded inside the soldered pellets (B) and sealed at the point of entry by an acetone-resisting tape (C), which insures the positive seal against corrosive elements, particularly acetone used in the technique commonly employed. The other ends of these wires are attached by "heat bonding" to plugs inserted in the terminal board (D) of the electroencephalograph. Since components of these plugs are removable without disturbing the bond to the wire, the wires may be removed or installed at will.

The heavy-weight factor of tinsel wire has been remedied by the use of a carrier or support, consisting of three circular flanges of $\frac{1}{8}$-inch flat lucite (E), supported in parallel, on vertical planes 6 inches apart, by a bridge of four lucite rods (F). The base is mounted on a vertical shaft (G) fastened to the frame of the cage. Thus, the whole contrivance is adjustable on a horizontal and vertical plane.

Each circular flange has 18 or more holes equidistant around its circumference so that the wires for the electrodes can be passed through the flange. These holes are large enough to permit free passage of the wires so that the ends to which the electrodes are attached may be extended through the vertical plane of the face flange to any desired length to fit the patient or adjust themselves to any sudden move of the patient. They can also be retracted easily, the electrodes then resting against the flange.

The other ends of the wires extend through the rear flange and are segregated to their various positions by means of the banana plugs attached. Approximately $4\frac{1}{2}$ feet of slack is left to insure free movement through the bridge.

The numbers on the face flange, which segregate the electrodes, have been inscribed with India ink so that they can easily be removed and changed to suit different techniques.

Our electrodes have given extremely satisfactory recordings for 100–120 tracings, and some have lasted for over 140 recordings; no electrode had to be replaced prior to 100 applications. Unaccountable time was saved by avoiding the entanglement of electrodes and replacing those broken during the electroencephalographic process.

The type of wire used by us was tested in the laboratory. Most of the strands parted near the center of the cord at an average pull of 13.5 kg. The cord had not changed characteristics of conduction up to that point because the mechanical construction of the cord prevents any longitudinal stresses on the metallic strands. In further tests the cord withstood a 90° bend for an average of 250 times. Comparing the commonly used #29 solid, copper-enameled wire with electrode attached, we found that the wire parted at a maximum weight of 1.7 kg. at the point of entry to the electrode. This wire withstood a 90° bend only 5 times before breaking. It was also noted that the wire had changed characteristics due to stretching long before the maximum weight was reached. The measurement of the electrical resistance from the tip of the electrode to the tip of the plug on the end of the wire revealed .25 ohm for both types of electrode wires. Other electrical attenuation factors were negligible.

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Briquettes With Labels

ERNEST E. FAIRBANKS

U. S. Bureau of Mines, Tuscaloosa, Alabama

Detailed directions for the preparation of methyl methacrylate (lucite, crystallite, plexiglas, acryloid) briquettes accompany the laboratory presses especially designed for their production. In order to prepare a briquet in which a label has been inclosed it is necessary to modify these directions. The advantage of inclosing the label along with the specimen should be obvious: a number scratched into the plastic is