animals. The number of cells in the cartilage columns was increased, and long tongues of cartilage and osteoid extended into the bony shafts. These changes were equally pronounced in the ribs (Fig. 1). In the older animals arrest of growth occurred and histological signs of rickets were thus not observed in the bones.

The teeth exhibited an extreme degree of enamel hypoplasia (Fig. 2). Areas of complete failure of enamel deposition occurred. In other areas, irregular masses of enamel matrix were found which appeared to be Ca-free since, in undecalcified sections, they did not stain with $AgNO_3$ or alizarin red S. The dentin also showed irregular calcification and a dentinoid margin 2 to 5 times normal in width. The rate of dentin deposition, as measured by intravital injections of alizarin red S,[7] was approximately half normal. Distortion of the shape of the tooth often occurred. These rachitic changes in the teeth were not affected by the arrest of skeletal growth as were the changes in the bones.

Summary. Typical rachitic changes in bones and teeth have been produced in young guinea pigs by a diet low in calcium and in vitamin D. In older animals the changes in the bones were obscured by arrested skeletal growth, but those in the teeth were constant.

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Convenient Electroencephalographic Electrode.

CHESTER W. DARROW. (Introduced by E. Gellhorn.)

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To make contact with the scalp for electroencephalographic recording the practice has frequently been to cut the hair in small areas and fasten electrodes in place with collodion. The collodion and the electrodes were subsequently removed with ether. The attaching of a dozen or more such electrodes for an electroencephalographic exploration is laborious, the cosmetic effect is not too favorable, and the patient may not be enthusiastic.

A more expeditious procedure for placing of electrodes on hair covered areas is possible with an electrode which makes use of the hair itself to hold the electrode. Two simple electrodes are here described. The first, illustrated in Fig. 1, consists of a ring of metal ½″ in diameter, 3/16″ high, with a wire lead attached, and a

[7] Boyle, P. E., Bessey, O. A., and Howe, P. R., *Arch. Pathol.*, 1940, **30**, 90.

* Series C, No. 313.

slot 3/32" deep in the top into which fits a wire "hairpin" of No. 20 spring wire bent double like a cotter pin or a "bobby pin". After massage of an area of scalp with electrode paste a wisp of hair from the area is passed through the metal ring and inserted in the slot of the wire hairpin. The wisp of hair is wound up, windlass fashion, on the hairpin until definite tension holds the pin against the top of the electrode ring and pushes the electrode ring against the scalp. The doubled wire pin is then permitted to slip edgewise into the slots in the top of the electrode ring. This prevents the pin from turning or the hair from unwinding, and the electrode ring is held snugly in place. The ring may be filled with electrode paste, insuring contact and providing assurance against drying of the electrode. Corrugations or comblike teeth may be milled on the lower edge of the electrode ring so that stray hairs beneath the ring may not prevent contact with the scalp.

A still more expeditious though not more efficient method of attachment is provided by the electrode in Fig. 2 where a "jackknife" arrangement is soldered in the top of the electrode ring. A wisp of hair is laid across the slot or scabbard portion of the jackknife and the blade closed on top of it. If the distal end of the wisp of hair is held during the closure of the blade, tension will be developed at the scalp end of the wisp of hair and hold the electrode tightly in place. As in the previously described arrangement electrode jelly is placed in the electrode ring.

Little or no discomfort is occasioned by a very considerable pull on the wisp of hair holding the electrodes. There is apparently no disturbance of the encephalogram by local stimulation. Removal of the electrodes requires only a moment. They may be suitably plated to prevent corrosion by the electrode paste or jelly.

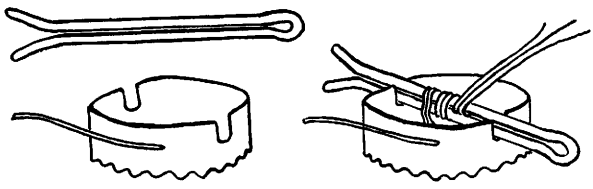

FIG. 1.

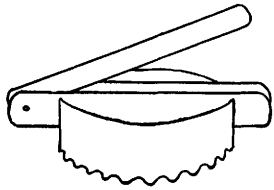

FIG. 2.