A SIMPLE CHRONIC CORTICAL ELECTRODE FOR THE MONKEY

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A technique has been developed for recording cerebral cortical activity in semi-restrained monkeys using permanently implanted, extradural, Nu-Way snap studs as the recording electrodes. Implantation is quite easy and requires no special tools. The snap lead is used to connect the animal to the electroencephalograph, thus eliminating bulky animal mounted connectors.

The animal is anesthetized, placed in a stereotaxic instrument, and prepared for electrode implantation in the usual manner. Holes are then drilled at the selected points (3/32-in. drill), tapped (No. 6-32), and the studs screwed into the skull to the level of the dura. The studs are then fixed to the skull with dental acrylic. The scalp is joined and a small incision made over each stud. The scalp is then pushed down around the studs allowing them to protrude above the scalp. The incision is sutured and antibiotic administered. The entire operation takes about 60 min. (see Fig. 1).

Fig. 1. Cut-away view of the snap stud attached to skull.

The procedure has been carried out on 10 monkeys, with six electrodes implanted in each animal. No complications had arisen six months after surgery. Histological observation of the cortex of a sacrificed animal has shown no toxicity from the nickel-plated studs. The EEG's obtained are excellent (see Fig. 2) with no electrode contact noise generated at the snap stud junction. If prevented from reaching the snap leads or wedging them against the restraining chair, the monkey cannot loosen or unsnap the connections.

Fig. 2. EEG obtained on a Grass-8 channel electroencephalograph from a rhesus monkey using the method described in the text.