

ANESTHESIA OF SENSITIVE DENTIN WITH
CATAPHORESIS.*

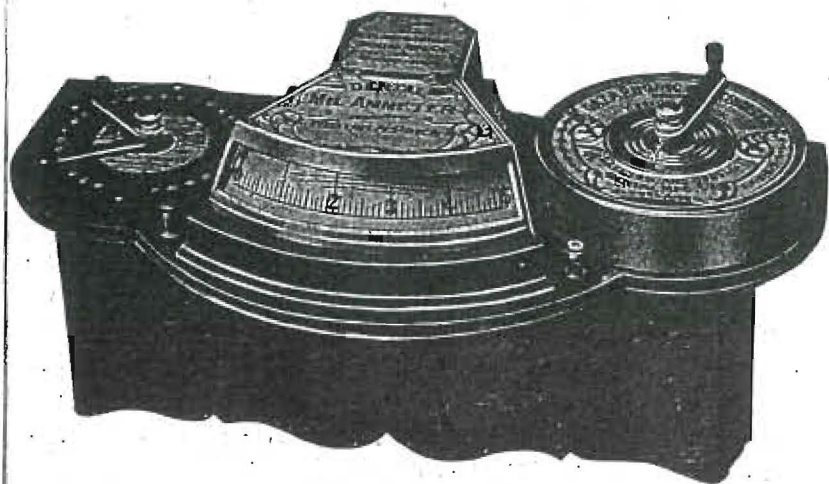
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Patient, Mr. A. E. Caron, a senior dental student, O. M. U. The teeth were all filled with cement or open cavities, because they were so extremely sensitive that they could not be excavated, though the patient had tried repeatedly to have it done.

The first cavity opened was a mesial in the first bicuspid, easily seen. It had been refilled with cement repeatedly, and while quite sensitive, was rejected and an open cavity was found on the mesial surface of the molar, that was so extremely sensitive that when touched lightly with an excavator, the patient nearly slid out of the chair, and the perspiration stood out on his forehead in beads. This was considered an ideal

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case. The rubber cloth was applied with great difficulty, because the molar and bicuspid were so much decayed on their proximal surfaces that they touched tightly at their cervical margins, and the passage of a silk floss gave considerable pain on the sensitive cervical margin of the cavity, and the patient could not allow of the passage of a thin separating saw or file, so the rubber was fixed on by crowding the teeth apart slightly. Since the insulation was difficult because of the impossibility of getting any liquid insulation like chloro-percha between the teeth, it became necessary to pack the entire cavity, after drying carefully, but thoroughly with gutta-percha, in order to be sure we had perfectly insulated the cavity at the cervical margin. Of course, this completely insulated the cavity walls also, and the gutta-percha was crowded away from the wall of the cavity toward the pulp, and the application was thus made to a small area as close to the pulp as possible.



The medicant used was hydrochlorate of cocaine, a saturated fresh solution in distilled water. The current was applied and at the commencement of the application the point of first sensation was three-one hundred thousandths of an ampere. The voltage was increased one cell at a time, but each time all the resistance was turned in before adding the next cell. In sixteen minutes the tooth tolerated forty-one hundred thou-

sandths of an ampere, or four-tenths of a milliampere, the limit we should use unless we expected to remove the pulp. At this time the application was removed and a disinterested party asked to prepare the cavity.

The gutta-percha was removed and the cavity prepared without any sensation whatever, except after a time at the cervical margin where it had been completely covered with the gutta-percha. A second application was made for two or three minutes and no trace of sensitiveness could be found. To test the efficiency, the cavity was extended backward into the central fissure, forming a seat. The bur was allowed to get as hot as possible, and no sensation could be felt.

Owing to a scarcity of dental engines, the one used had to be used in another clinic. The patient insisted that we open up the defective distal fissure before removing the rubber, and it was just thirty minutes after the current was removed, that we were able to secure the dental engine again to do so.

Usually the sensitiveness would return in that length of time, but in this case, as in many cases, it had not, and the fissure was excavated deep into the dentin without sensitiveness. The patient afterwards expressed the operation as being entirely free from pain from the time the current was applied, and the sensation from which he signified when there was sufficient current turned on, was not at any time pain, but like a mild warm or cold sensation in the tooth, and the current could be increased much beyond this point before he felt pain, and then never the least shock, but like a more intense heat or cold. He said he considered the application a perfect success, and would never have a sensitive cavity prepared again without it.

Many important questions were asked. Some were:

Why use fine platinum wire for the electrode? Because the chlorid would be formed if silver, copper or brass were used, which salt would carry the current and its metal would be carried into the tooth instead of the alkaloid of cocaine.

Why so much pains in insulating? Because without it the current would have gone to the gum instead through the tooth to the pulp.

Would a cavity be anesthetized more quickly if a large surface is exposed than a small one? That depends upon whether the entire cavity is to be anesthetized by anesthetizing the pulp and thus the whole tooth, or by local anesthesia in the cavity. In this case we used the former method and in such a case as this it would always be more rapid by anesthetizing the pulp through a small surface of the floor or wall of the cavity than to use the entire surface. This fact seems never to have been appreciated.
