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# DECAY OF A REPLANTED TOOTH.

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HOWEVER solidly a house may be built, an extra nail or two may do good service when the winds blow and the rains beat upon it.

The chemico-parasitical theory of dental caries has every appearance of being built upon a solid foundation, and the various storms thus far encountered have produced not even a vibration in its framework. Nevertheless, having a nail at hand, we will drive it home, since a structure which must bear the test of ages and upon which the whole superstructure of a rational dental practice must be built cannot be too well supported. We can never learn too much about the chief source of all the many ills it is our province to deal with.

Decay of living teeth, of pulpless teeth, of dead teeth; decay of dogs' teeth, horses' teeth, etc., and artificial decay, have all been the subject of various contributions to dental literature; but the appearance of decay in a replanted tooth has, as far as I am aware, as yet received no attention.

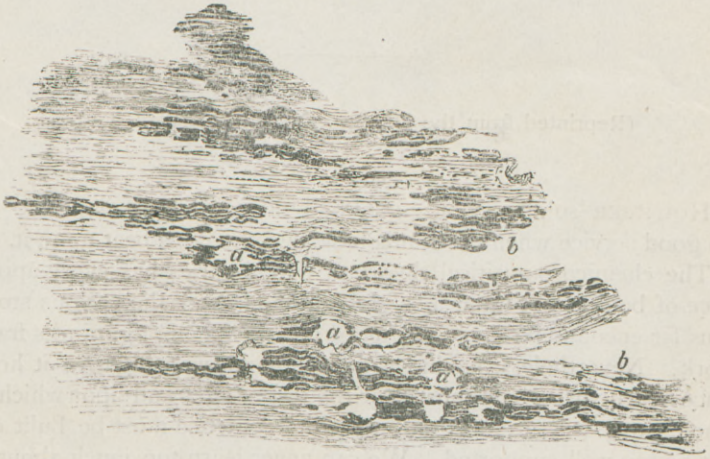
The tooth in question was extracted by mistake about the first of October, 1888. After it had been out of the mouth for a fortnight the point of the root was removed, the canal filled with oxychloride, and the tooth forced into place.

When I first observed the tooth, two years later, there was a chronic fistula at the point of the root; but notwithstanding this the tooth was quite firm. It had been filled with phosphate cement before replanting, but at the time of examination no trace of the filling was left. As the tooth was filled out of the mouth, this filling furnishes an interesting test of the durability or reliability of phosphate cement under the most

advantageous circumstances. We should really have expected the filling to last longer. Perhaps the particular preparation used was at fault. The cavity was lined with a thick layer of soft dentine, as we find it in acute caries, the removal of which reduced the tooth to a mere shell, and revealed at the same time the fact that the cavity on the distal surface communicated with a smaller one on the mesial.

Macroscopically and physically examined, the decay presented nothing to distinguish it from an ordinary case of acute decay. The decayed tissue had a brownish-yellow color, an acid reaction, and had lost about thirty-five per cent. of its lime-salts.

FIG. 1.




Longitudinal section of decayed dentine from a replanted tooth, showing the distended tubules; also, at *a*, liquefaction-foci, and at *b* rents due to the advanced stage of decomposition of the tissue. Low power.

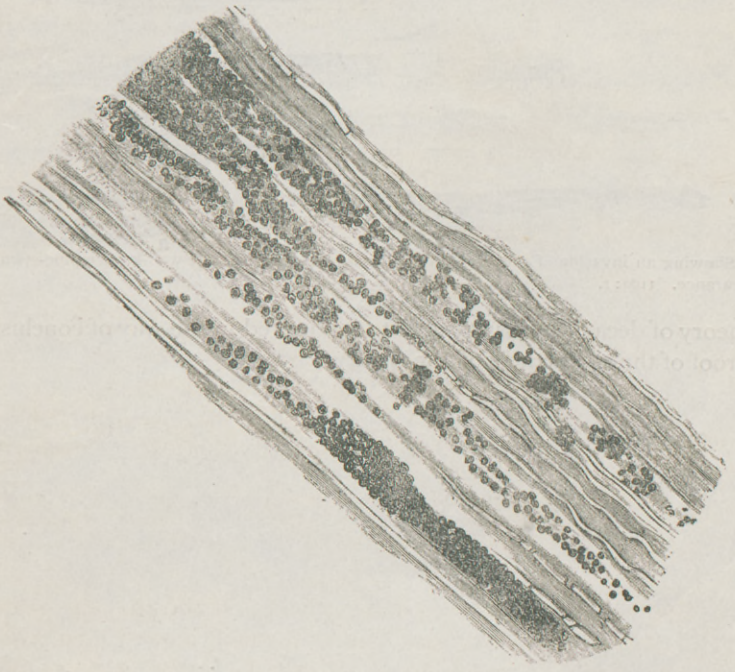
Sections of the decayed dentine made on the freezing microtome and stained by the Gram-Günther method showed that while the deeper parts had undergone no structural changes whatever the more superficial layers were permeated by enormous masses of bacteria, which had distended the tubules to several times their normal diameter, and in many places had destroyed the basis-substance, giving rise to caverns or liquefaction-foci, and finally to a complete destruction of the tissue (Fig. 1).

A higher power of the microscope (350–1200) showed that the decay was caused by a so-called mixed infection, not only micrococci, as in Fig. 2, but in some places bacilli and even very long, much twisted and contorted threads being present (Fig. 3). The contortion of these threads resulted simply from the contracted space in

which their development took place, and not from any natural tendency of the threads to take this shape.

The preparations also showed the fragmentation of the tubules or breaking up into short pieces, resembling pipe-stems. It is much to be hoped that some satisfactory explanation of the origin of this appearance will soon be furnished. As much as has been written about them, we are still absolutely unable to account for them. We have thus far only succeeded in showing that they are not the result of any vital action, since they occur in artificial caries also.

FIG. 2.



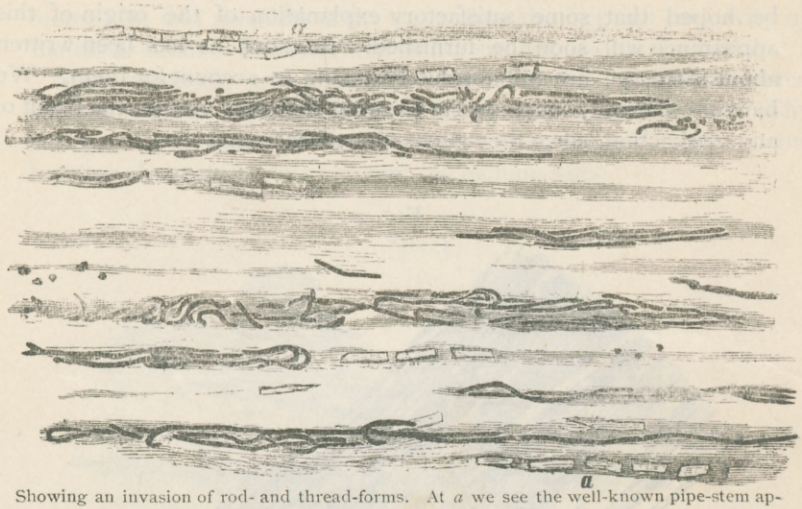
A small portion of the preparation shown in Fig. 1 highly magnified, showing the distention of the tubules by micrococci. 1100 : 1.

We find, consequently, by the examination of this case of decay of a replanted tooth, that the same chemical, physical, and structural changes have taken place as in the ordinary cases of decay met with every day.

We also find the same agents, viz, bacteria, at work in bringing about these changes. Wherever and under whatever conditions decay of dentine has been the object of exact study, the same pheno-

mena and the same etiological factors have been found, and the mass of evidence already heaped up in favor of the chemico-parasitical

FIG. 3.




Showing an invasion of rod- and thread-forms. At *a* we see the well-known pipe-stem appearance. 1100 : 1.

theory of decay leaves very little to be desired in the way of conclusive proof of the correctness of the theory.