

is readily removed by the broach. In cases where we know or even suspect that the pulp is not completely removed owing to the fineness, the flatness, or the crookedness of the canal, preventing the ready insertion of the broach, or owing to the mass and strength of the pulp at its apical end where it should break, causing it to be shredded or torn instead of being removed whole, in such cases I resort to the alternate exhibition of sodium-dioxide and sulphuric acid for the purpose of breaking down, dissolving and, by the effervescence, expelling the fragments of pulp tissue that the broach has failed to remove. The only instrumental assistance I resort to in these cases are a Gates-Gliddon drill and a Donaldson pulp-canal cleanser. The former I use to open or enlarge the mouths of fine or obscure canals, not, however, to drill or ream the canal in its length. For this purpose I use the latter instrument, a Donaldson pulp-canal cleanser, not necessarily a new one. I depend on this following the curved canal, scraping its sides, enlarging and straightening it, at the same time carrying the acid and alkaline agents into the fragments of pulp tissue to loosen and remove them. With this chemical and mechanical procedure most canals that seem to forbid entrance may be opened and prepared to a considerable depth. If after preparing the canal or canals in this way I have reason to suspect fragments still remaining at the apical extremity of the root, I dry the canal, fill with a 25 per cent. solution of hydronaphthol in alcohol and with unvulcanized rubber exert enough pressure to saturate the remaining tissue with hydronaphthol. I then dry the canals, moisten with eucalyptus as before and proceed with the filling. In some cases of recently devitalized pulps we find that, instead of having a vital pink or red color, and its removal causing hemorrhage from the apical foramen, the pulp has a yellow or yellowish white color with no bleeding, showing that putrefactive changes have been going on, and that infection may exist at the apex. In such cases, after treating with the sulphuric acid and soda, I leave, sealed in the tooth for a few days, oil of cloves containing 1 per cent. of formaldehyde. If at the next sitting, there is no soreness in the tooth, nor any effusion into the canals, I assume that they are ready for filling.

TREATMENT OF PUTRESCENT PULP CANALS.*

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I will not enter into the etiology or pathology of this lesion, as it is outside my subject as limited by the programme, which confines me to its treatment. The course of treatment I follow was

* Read at Ontario Dental Society.