DEPARTMENT OF PHYSIOLOGY
BIOLOGICAL BUILDING
Babkin

Sept. 10, 1935

McGILL UNIVERSITY
MONTREAL

Professor W. G. Penfield,
Department of Neurology and Neurosurgery,
Neurological Institute,
McGill University.

Dear Dr. Penfield,

In connection with our conversation this morning on the feasibility of sectioning the secretory nerves in cases of Sialorrhoea, I may communicate the following to you.

In animals, (e.g. the dog or cat) section of the chorda tympani in the tympanic cavity or at the periphery permanently abolishes the reflex secretion of saliva. Stimulation of the mouth cavity is ineffective. Conditioned salivary reflexes also disappear. Therefore the reflex secretory impulses are transferred to the submaxillary and sublingual glands almost exclusively through the parasympathetic nervous system. The sympathetic nerve plays a subsidiary rôle. After section of the chorda tympani there is a very scanty so-called "paralytic secretion" (about one drop of saliva every 20 minutes in a dog). In dogs and cats the chorda tympani secretory fibres can be sectioned very easily at the periphery without interference with the taste fibres, as may be seen from the drawing.

Section of the parasympathetic secretory supply to the parotid gland in a dog at the periphery (auriculo-temporal nerve) or in the tympanic cavity (the so-called Jacobson nerve or the tympanic branch of the glossopharyngeal nerve) only temporarily abolishes the reflex secretion of saliva. In our experiments, for example, one dog during 15 minutes' feeding with bread and meat powder gave on the average 25.0 c.c. of parotid saliva. Ten days after the section of the auriculo-temporal nerve the same procedure provoked a secretion of only half this amount of saliva (12-13 c.c.). A month after section of the nerve the volume of secretion obtained was 17 c.c.; three months after section it was 20 c.c. Unfortunately this work was not finished. We are now continuing the investigation of this problem, because in one of our dogs section of the parasympathetic and sympathetic nerves to the parotid gland did not prevent the gradual restoration of the property of the gland to secrete in response to stimulation of the mouth cavity with food or some rejectable substances such as 5 per cent NaCl

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solution. Therefore we have to find another pathway for the secretory nerves.

When I spoke to you I did not remember a contribution on section of the salivary secretory nerves in man. It is the following:- F. L. Reichert and E. J. Poth: "Pathways for the secretory fibres of the salivary glands in man"(Proc. Soc. Exp. Biol. and Medicine, vol. 30, p. 973, 1933). These authors came to the conclusion that both parasympathetic nerves, i.e. the 7th and the 9th, contribute to the secretory innervation of each salivary gland (submaxillary, sublingual and parotid). No section of the sympathetic nerve was performed in any of their cases.

I hope these few remarks will be of use to you, although the problem of the parasympathetic innervation of the salivary glands is in rather a confused state.

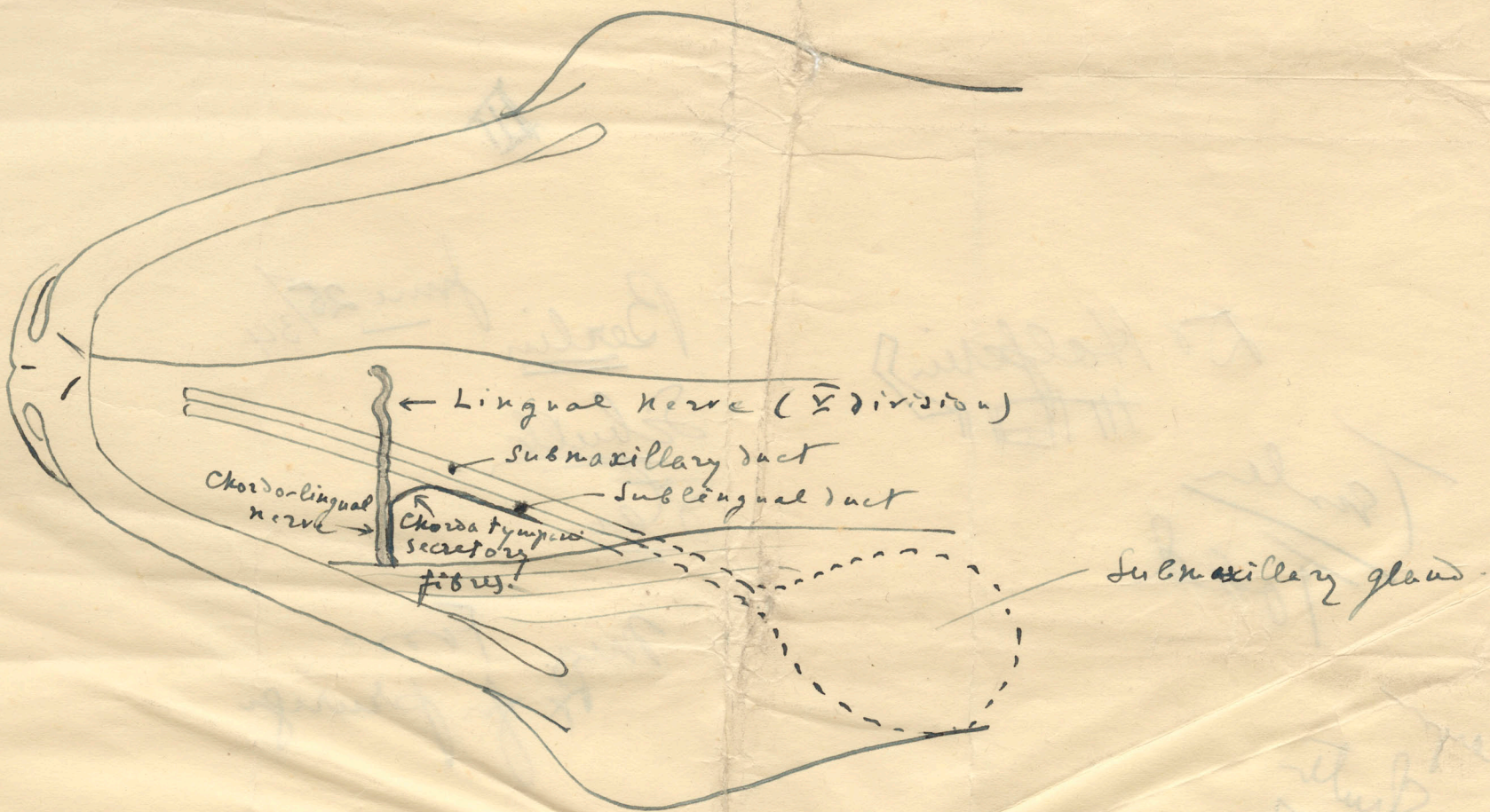
Sincerely yours,

B. P. Babkin.

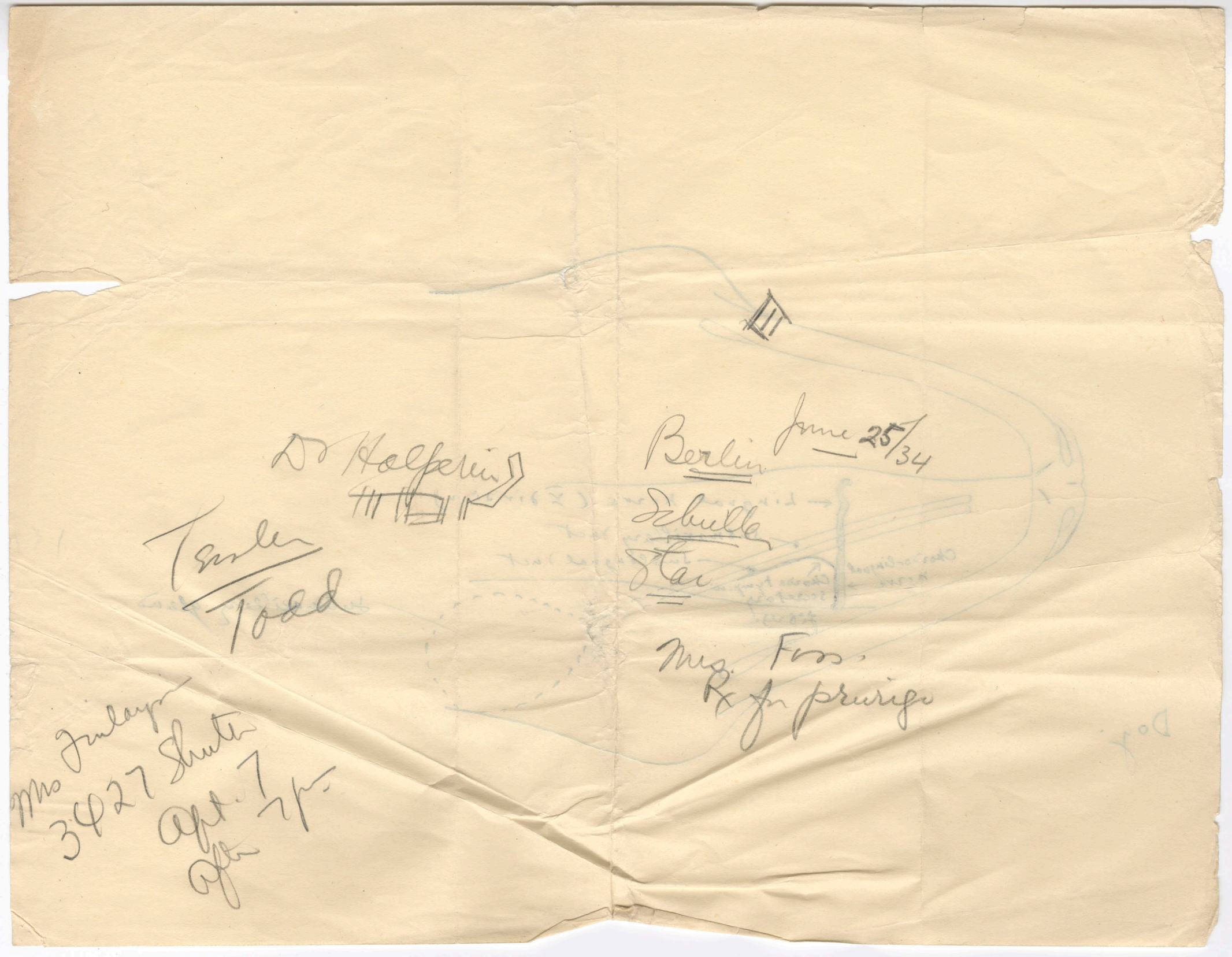
B. P. Babkin.

Professor W. G. Penfield.

Encl.


← Lingual nerve (V division)
Submaxillary duct
Sublingual duct
Chorda-lingual nerve
Chorda tympani secretory fibres
Submaxillary gland

Dog.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