Haskell Laboratory
Newark, Delaware
August 3, 1965

Dr. Sven G. Eliasson
Department of Neurology
Washington University
School of Medicine
660 South Kingshighway
Saint Louis, Missouri

Dear Dr. Eliasson:

First, and foremost, we want to thank you for your help and interest in the problems we are having measuring nerve conduction velocities. Our first experiments on treated rats were done the week before last and I wanted to analyse our results before answering your letter of July 20 so that we would have a clearer picture of what we had been able to accomplish.

Briefly, we tested 47 nerves - 16 from control and 31 from rats treated for three months. Our measurements indicate that we still need to improve our techniques but our average conduction velocities for all the nerves approach those reported by you for normal rats in your article "Nerve Conduction Changes in Experimental Diabetes." However our standard deviations are, we think, much too large. Omitting measurements obtained when the conduction distance was 0.94 cm, our results are:

	Conduction Distance	
	1.45 cm (21 nerves)	1.94 cm (15 nerves)
Inflection Velocity	69.92 ± 6.37 MPS	70.52 ± 7.27 MPS
Peak Velocity	41.22 ± 3.32	46.93 ± 4.31

I have not distinguished between nerves from control and treated animals because we did not observe any effect attributable to treatment, which did not surprise us. A fairly exhaustive analysis of the results indicate that conduction distance was a highly significant factor in conduction velocity; this is why I omitted the lower velocities (ave. 63.8 MPS) obtained when the conduction distance was 0.94 cm. We suspect the influence of the shock artifact in this effect of conduction distance and our physicist, Paul E. Smith, Jr., has obtained Haapanen's articles and is working on the problem. Interestingly enough, neither the time taken to chloroform the rats nor that needed by the

pathologists before presenting us with the hindquarter, appeared to have a definite effect on conduction velocities. Probably more important was the time I took to dissect the nerve and photograph its response!

We do have two further questions.

1. In your letter you advise a different type of stimulus isolator. Since our Grass S5 stimulator has a built-in isolation unit, should we insert an additional unit between stimulator and nerve or should we short-out the unit in the Grass?

2. Would you advise placing the stimulating electrodes closer than 2 mm, the distance between those used in the presently reported experiments?

In the meantime we are planning changes in the handling of the nerves which we now know we may have time for; these changes I hope will further reduce our discrepancies.

Thanking you again for your interest,

Sincerely yours,

Mary E. Maxfield, Ph.D.
Physiologist

MEM/dyb

JVC