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By early fall we succeeded in demonstrating with our source-sink maps that at least part of the inhibition between two dorsal roots was due to a presynaptic block of the primary fibers in the test root. Since the experiment was done under what most physiologists regard as somewhat unnatural conditions, that is, with heavy anesthesia, we checked the phenomenon in the unanesthetized preparation, using ascending dorsal column rami as index. We found much the same effect without narcosis, although barbiturates did increase and prolong the inhibition. Incidentally, two volleys to the same root gave the same picture that they would give if they were on adjacent roots.

We found an additional phenomenon of great interest: the block is for orthodromic impulses only. Antidromic volleys up the same fiber show no such effect. This is as true for the sensorimotor collaterals as for the dorsal column rami. These results were predicted on the basis of the decrease in diameter occurring with each bifurcation.

Our experiments will be presented in a Laboratory report prepared for the Office of Naval Research and in a journal paper.

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