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369. *Combined cortical and cerebellar stimulation.*[1] F. MORIN, G. LAMARCHE* and S. OVSHINSKY*, Department of Anatomy, Wayne State University College of Medicine.

Motor cortex and opposite cerebellar areas, anterior and paramedian lobes, of slightly anesthetized cats were stimulated with coupled single shocks of different strength, delay and sequence. Efferent discharges in motor lumbosacral roots or in arm muscles were recorded oscillographically. Subthreshold cerebellar shocks produce ventral root discharges when delivered simultaneously with, or 7–10 msec. after, subthreshold cortical shocks. Ventral root discharges following suprathreshold cortical shocks are greatly potentiated by simultaneous or delayed, up to 20 msec., cerebellar shocks. If the cerebellar precedes the cortical shock the ventral root response to the latter is attenuated. Recording from arm muscles gave similar results. These effects are obtained when the appropriate cerebellar areas are stimulated and do not depend on the integrity of brachium conjunctivum. Thus cerebellar volleys greatly influence timing and size of motor neuron discharges and it appears that either inhibitory or facilitatory effects of cerebellar stimulation depend largely on their time relations to cortical firing.

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