(2) In the majority of the groups of cases the height-weight indices of the males were above those of the females. However, the differences were so small that their significance is questionable.

(3) When the cases are arranged in groups according to centimeter intervals of body length the coefficients of variability in weight of these groups are found to range from 9.5 to 12.0. There is no regular change in the coefficients with increasing body length and no constant sex difference in the coefficient is noted.

The above conclusions were drawn from a study of the ponderal index as determined from the average weight for a given length. The difference between this figure and the average of the *individual indices* for a given length was tested by determining these two values separately for the 50 to 51 cm. group which included 996 cases. In this group the height-weight index of the average height and weight was 25.99 per cent. (metric) for the males and 25.60 per cent. (metric) for the females. The average height-weight index was 26.01 per cent (metric) for the males and 25.60 per cent. (metric) for the females. The average ponderal index of the males showed a standard deviation of 2.41 and a coefficient of variability of 9.27 while that of the females showed a standard deviation of 2.26 and a coefficient of variability of 8.85.

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Experimental demonstration of the entire course of four descending tracts[1] by a single alcoholic injection in the mid-brain of the cat.

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By trephining a hole 2 cm. in diameter, 1 cm. anterior to the occipital crest and 2 cm. from the median line, and retracting the occipital pole of the cerebral hemisphere of the cat, the superior colliculus was exposed and about two drops of 95 per

[1] Fasciculus longitudinalis medialis, fasciculus tectospinalis, fasciculus rubrospinalis, radix mesencephalica trigemini.

cent. alcohol injected into the nucleus ruber with a fine hypodermic syringe. The needle should enter the surface at about the middle of the colliculus and be directed slightly medially and at right angles to the long axis of the brain stem to a depth of 1 cm. After the usual two weeks, the animal was killed and the brain carried through the regular Marchi method.

As the accompanying illustrations show, it is possible in this manner to cause degeneration of the entire extent of four descending tracts, two of which are not easily recognizable on normal material and yet are functionally of great importance. These fiber bundles in the cat are situated in the same relative position as in man.

Although the exact course (especially peripherally) of the mesencephalic root of the trigeminal nerve has been much debated[2], it is clearly evident that its exit through the pons is closely associated with the motor root of the trigeminal nerve.

The fibers from the nucleus of the medial longitudinal fasciculus (degenerated only on one side) and those from the tectum mesencephali (degenerated mostly on the contralateral side) occupy distinct regions throughout their entire course in the cat. Numerous other experiments in which we have limited the lesion to the tectum of the mid-brain have failed to show that any fibers from this region enter what is strictly the medial longitudinal fasciculus. The lower termination of the tectospinal fasciculus has been variously given[3]. In this and the other experiments referred to above, fibers of this fasciculus cannot be followed farther than the upper part of the 7th cervical segment. It is very probable that the fibers followed below this level by others belong to some other tract such as the medial longitudinal fasciculus, which extends throughout most of the spinal cord. It is the large number of ascending and descending fibers from the vestibular nuclei that make it appear that the medial longitudinal fasciculus is partly mixed with the tectospinal. A clearer designation of the various fiber tracts now generally considered as part of the medial longitudinal fasciculus is highly desirable.

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[2] Allen, W. F., *Jour. Comp. Neur.*, 1919, xxx, 169.

[3] Collier, J. and Buzzard, F., *Brain*, 1901, xxiv, 177.

The rubrospinal fasciculus, from its origin, size and extent, as well as from clinical studies[4], should be regarded as an important motor pathway by which both the corpus striatum and cerebellum may exert its influence on lower motor centers. While widely separated from the pyramidal tract above the pyramidal decussation, below this point it is more and more closely associated with the lateral (crossed) pyramidal tract. As was to be

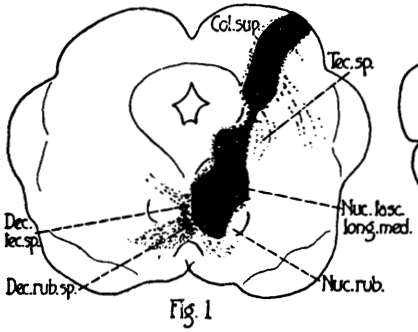

Fig. 1

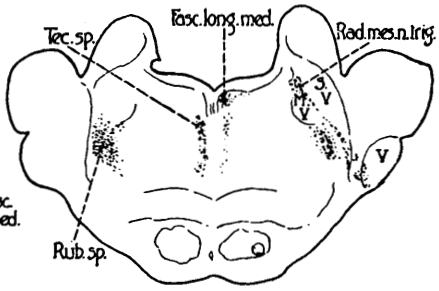

Fig. 4

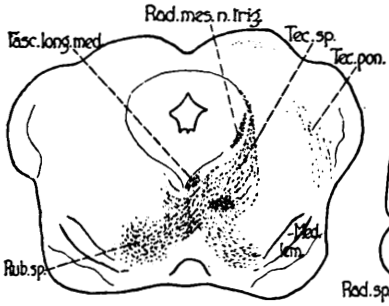

Fig. 2

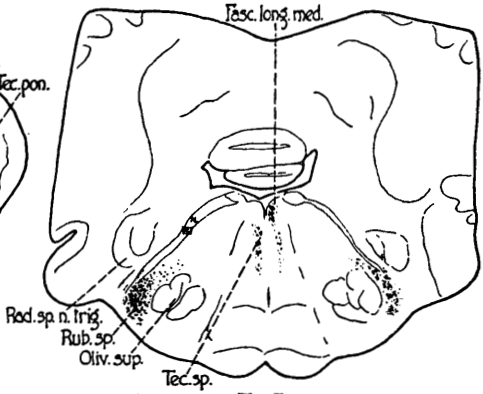

Fig. 5

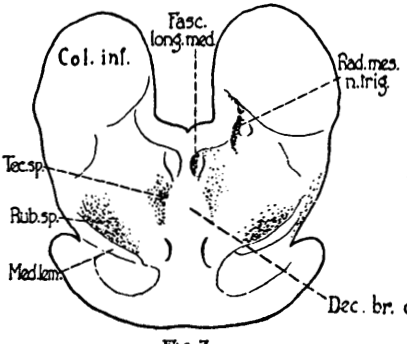

Fig. 3

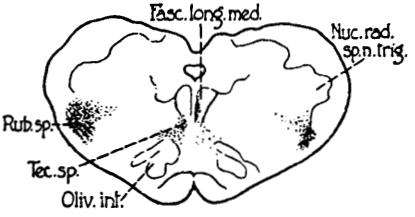

Fig. 6

[4] Hunt, J. R., *Jour. Nerv. and Ment. Dis.*, 1916, xliv, 437; 1917, xlvi, 211; *Brain*, 1918, xli, 302.

expected, the physiological effects of the injection of one nucleus ruber was much the same as a large lesion in the opposite cerebellar hemisphere.

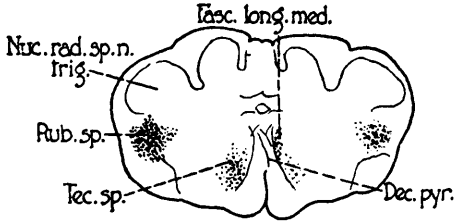

Fig. 7

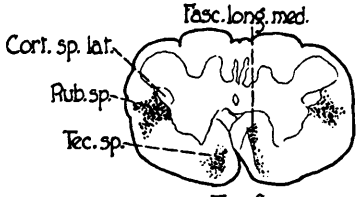

Fig. 8

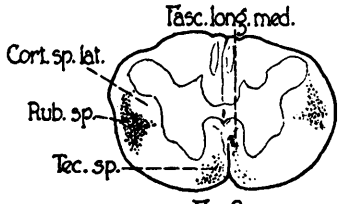

Fig. 9

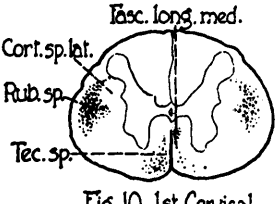

Fig. 10, 1st. Cervical

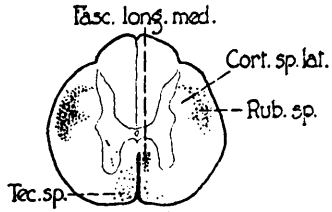

Fig. 11, 2nd. Cervical

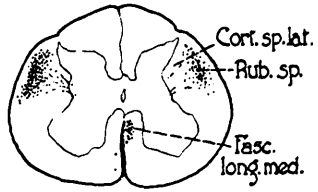

Fig. 12, 7th. Cervical

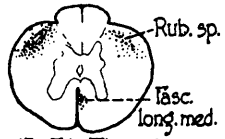

Fig. 13, 7th. Thoracic

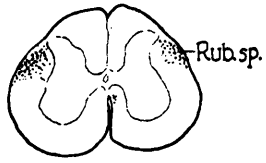

Fig. 14. 6th. Lumbar

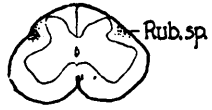

Fig. 15, Sacral