curate method of making a prompt diagnosis in respiratory infections. Although it is well recognized that a high proportion of acute illnesses accompanied by cough and fever are of viral origin, therefore not requiring the administration of antimicrobial agents, the physician is usually forced to decide on specific treatment before results of bacteriological and virological examinations are available. Therefore, antibiotic therapy in acute respiratory infections is commonly instituted empirically. The results of our investigation suggest that cytological examination of sputum may be helpful in prompt diagnosis of acute pulmonary infections. In addition to the clinical pattern and other laboratory features of illness, the presence or absence of CCP in sputum from a satisfactory deep cough specimen provides a diagnostic aid which may serve to distinguish between infections of viral and bacterial etiology.

Summary. 1) Sputum specimens from patients with acute and chronic pulmonary diseases were examined cytologically by the Papanicolaou technic. Certain abnormalities in exfoliated ciliated epithelial cells (ciliocytophthoria) were observed in specimens from a high proportion of individuals with viral respiratory infections; in contrast, ciliocytophthoria was seen only rarely in sputum preparations from patients with acute or chronic pulmonary disease of non-viral etiology. 2) Sputum cytology may prove valuable for prompt differential diagnosis between viral and bacterial respiratory infections.

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Superior Olive in the Alligator.* (24085)

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Rasmussen(3) described for the cat peduncular fibers which leave the central nervous system between the 2 divisions of vestibular nerve and dorsal to rootlets of the pars intermedia. These fibers then course in the inferior division of the vestibular nerve as far as the ganglion associated with the main saccular ramus to the cochlear nerve. His findings were based on experimental material studied by the Marchi method(4) and by chromatolytic methods. Rasmussen(3) states that it was "extremely difficult, if not impossible, to determine the exact cells of origin of the peduncle by the Marchi method" but that it was "possible to delimit a definite area of origin with the aid of small lesions variously placed. The possibility of peduncular fibers passing through the olive from elsewhere was ruled out by circumscribing it with lesions." After section of the eighth nerve he found, in cresyl violet stained sections, no significant alterations or cell loss in the superior olivary complex proper, but on the contralateral side many retro-olivary cells appeared shrunken.

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Because of inconsistencies of the method and few cases studied, his results by the chromatolytic method could be considered valuable only to the extent of indicating an agreement with conclusions reached by the Marchi method. This olivocochlear tract of Rasmussen is apparently also present in the alligator (*Alligator mississippiensis*).

Methods. In work reported separately (1, 2) various branches of the facial nerve were cut in 25 alligators; the entire facial nerve was sectioned intracranially in 4, and both facial and auditory nerves were sectioned in one alligator. Forty-three days after operation, the animals were sacrificed. The brains were exposed and placed immediately in 95% alcohol. Several hours later the medullae were removed from cranial cavities and placed in fresh 95% solution of alcohol for 48 hours. The tissue was then dehydrated, embedded, and sectioned. Serial sections, 10 μ thick, were cut and stained with 0.5% toluidine blue in aqueous solution overnight. The sections were then differentiated in 95% alcohol and counter-stained with erythrosin. Serial sections of 2 normal alligator brains were cut; one was stained with toluidine blue and counterstained with erythrosin; the other was stained with Mallory's phosphotungstic haematoxylin.

Results. In the alligator which had both VIIth and VIIIth nerves sectioned, there were chromatolytic changes in most of cells of the superior olive contralateral to sectioned VIIIth nerve.† These altered cells were similar to those evident in the motor nucleus of VIIth nerve homolateral to the section. The former were larger than normal and stained a homogeneous pink. No chromatolytic changes contralateral to site of section were seen in any animal in which the VIIIth nerve was intact.

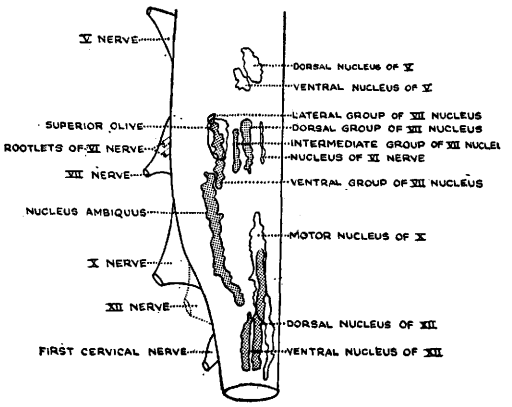

FIG. 1. A graphic reconstruction of lateral half of medulla oblongata showing superior olive and its relation to motor nuclei in alligator. It is based on serial sections reconstructed by projection on the horizontal plane.

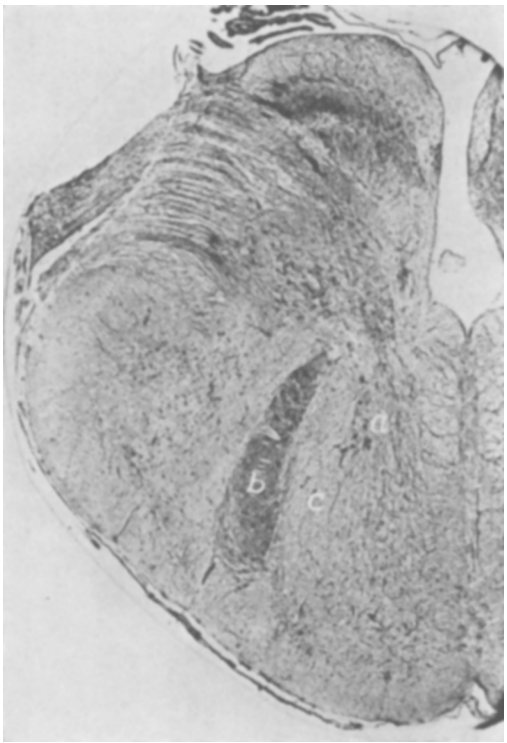

FIG. 2. Cross section of brain of alligator 43 days after motor part of seventh nerve was cut. This section shows superior olive lateral to the dorsal and intermediate parts of the nucleus of seventh nerve (× 20). a. Dorsal part of the nucleus of nerve VII. b. Superior olive. c. Intermediate part of the nucleus of nerve VII.

When the superior olive was projected on a horizontal plane from stained cross sections, it was roughly oblong in shape and closely related to the several parts of the facial nucleus (Fig. 1 and 2). The lateral group of the facial nucleus is adjacent to the ventrolateral

† (a) The undamaged ones might be related to the bundle connecting to the reticular formation and medial longitudinal fasciculus. (b) A detailed study of Nissl changes due to axone reaction in the alligator is now in progress.

part of the superior olive; the ventral group lies adjacent to the ventromedial part of the superior olive; the intermediate cell group lies between the dorsal and ventral cell groups and medial to the superior olive; while the dorsal cell group lies between the nucleus of VIth nerve medially and the superior olive laterally.

In normal material stained with Mallory's phosphotungstic haematoxylin, fibers can be seen coursing dorsally along the medial and lateral sides of the superior olive and then medially toward the mid-line. In all probability these represent fibers from the cells of the superior olive. It was impossible to trace these fibers with certainty to the vestibular nerve by this method. However, chromatolytic changes could be demonstrated in the superior olive of the opposite side following the auditory nerve section; therefore, it seems plausible to assume that fibers of the superior olive course with fibers of the vestibular nerve in the alligator exactly as Rasmussen has described in the cat.

Summary. 1. When the entire facial nerve of the alligator was transected intracranially, there were chromatolytic changes in the facial nucleus, but none in either superior olive. 2. When both the facial and auditory nerves were sectioned, chromatolytic changes were particularly noticeable in the contralateral superior olive. This indicates that the olivocochlear bundle which Rasmussen has described in the cat is also present in the alligator.

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A Factor in Serum of Human Beings and Animals that Destroys *T. vaginalis.* (24086)

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When a pure culture of *Trichomonas vaginalis* (Donne 1836) was injected into the anterior chamber of eyes of rabbits, the parasites disappeared rapidly and cultures of the aqueous humor became negative for parasites after 5 to 30 minutes(1). Since aqueous humor itself has been shown not to be trichomonicidal (unpublished), it was thought that the parasites were probably cleared from the anterior chamber through canals of Schlemm and eventually reached the blood stream. To learn more about the fate of the parasites in the blood stream, pure cultures of *T. vaginalis* (8-10 million motile organisms) were injected into the veins of 2 rabbits and cultures of the blood and various organs taken. Cultures for *T. vaginalis* taken within 10 to 15 minutes after inoculation showed that the bloods were sterile and that virtually all organs were sterile. Although the reticulo-endothelial system probably was active in ridding blood of many organisms, the possibility was considered that a large number of parasites were killed by the blood itself. Experiments demonstrated that human and animal serums have a remarkable ability to destroy *T. vaginalis* and that this lethal activity is lost when serum is heated at 56° C for 30 minutes.

Materials and methods. Organisms. Two strains of *T. vaginalis* isolated from 2 patients with vaginal trichomoniasis were employed; they reacted similarly in all studies. At first, 2-day cultures grown on thioglycolate horse serum medium with antibiotics (T.H.A.)(2) and containing about 2 million organisms/ml were used. In later experiments, cultures were