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Amylase and protease action of some pancreas preparations.By **H. C. SHERMAN** and **DORA E. NEUN.***[From the Laboratory of Food Chemistry, Columbia University.]*

It was shown that the purified preparations of pancreatic amylase always exhibit a marked proteolytic activity whether tested by determination of total nitrogen of digestion products, by determination of amino nitrogen, by the Van Slyke method, by determination of acidity of digestion, or by the increase of electrical conduction.

While fractional precipitation by alcohol yields a first precipitate of increased proteolytic activity, the other (more soluble) fraction shows no increase in amylolytic power over the usual purified amylase preparation, and only a slight decrease of proteolytic power. The problem of the relationship of the amylolytic and proteolytic activities of these preparations was discussed.

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The rôle of afferent impulses in the control of respiratory movements.By **HELEN C. COOMBS** and **F. H. PIKE.***[From the Department of Physiology of Columbia University.]*

As the result of further experimentation, we wish to add to a previous statement (*American Journal of Physiology*, 1917, XLII, p. 395) the following facts:

1. The movements of the ribs, which cease after division of the dorsal roots of the spinal nerves in the thoracic and cervical regions, are resumed when the phrenics are divided.

2. The respiratory movements become labored when the vagi are divided in the neck after these procedures, and soon cease. The effects of vagotomy are more severe if the dorsal roots of the

cervical nerves have been included in the section than if the thoracic nerves alone are affected.

3. The results of combined section of the dorsal roots of the spinal nerves and the vagi are similar to the effects of combined section of the brain stem below the corpora quadrigemina and the vagi. Transection below the corpora quadrigemina adds little or not at all to the severity of the effects following section of the dorsal roots.

4. Costal respiratory movements are resumed after section of dorsal roots, brain stem below the corpora quadrigemina and phrenics if the vagi are intact.

We believe that these experiments bring the intercostal muscles into line with the other skeletal muscles so far as the functional relations of afferent to efferent spinal nerve roots are concerned.¹

We believe also that the experiments show that it is necessary that afferent impulses shall not merely have access to the central system, but that they shall go to a particular part of the central system in order to fulfill their function. In the case of the respiratory movements, afferent impulses from the intercostal muscles must go as far up as the corpora quadrigemina. The medulla oblongata seems sufficient for the establishment of any necessary connection of the vagi with efferent paths to the respiratory muscles.

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A case of hereditary ataxia (?) in pigeons.

By **OSCAR RIDDLE.**

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From an egg produced under the weakening influences of "reproductive overwork" a female pigeon was hatched (in 1914) which showed a marked lack of power over the voluntary movements of the head and body. This lack of coördination was

¹ Sherrington, Schafer's "Text Book of Physiology," London, 1900, vol. ii, p. 797.