less than normal in the females. This case again suggests some difference in the calcium metabolism of the two sexes.

It remains to point out that the data here reported may be unduly influenced by the inclusion of females actively producing eggs, and thus with specially active calcium glands in the oviducts of some of the females. Data since obtained, and to be reported later by Riddle and Reinhart, indicate that this is the case. We here report no data on juvenile birds, nor on virgin females. In the present data, and on the type of adult pigeons used by us, a difference in the calcium metabolism of the sexes is found; the various groups of females show notably higher amounts of calcium in the blood.

106 (2629)

A spasm-inciting substance in the sputum during asthmatic attacks.

By JOSEPH HARKAVY. (Introduced by R. Ottenberg).

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Studies were carried out on eight cases of bronchial asthma whose ages varied between 25 and 56. Six of these cases had been found to be sensitive to one or more foreign proteins. Special care was taken to collect the sputa of every patient at the height of the attack, for it was thought that that would be the most favorable time to obtain the spasm-producing substance, if any such was present. The sputa thus obtained were extracted in alcohol, with the exception of two instances in which studies were made in the fresh state after being dissolved in Tyrode solution. The precipitate obtained with alcohol was also dissolved in Tyrode solution before using. The material obtained in this manner was tested on isolated strips of smooth muscle from cat's intestine, suspended in Tyrode solution. Prior to the actual experiment the constant contractility of the muscle to pilocarpine was first established.

As a result of these investigations it was found that the sputum of the asthmatics studied contained a substance which stimulated smooth muscle to contract. In most of our cases the contraction

was prompt, spasmodic and sustained in character. In others it was slower but equally sustained for periods of five to seven minutes. In four cases where the sputum was studied in the interval of attacks, *i. e.,* before and after the attacks, no contraction of smooth muscle was obtained—the kymographic registration showing a flat curve.

Control sputa prepared in a similar manner to the above from five cases of pulmonary tuberculosis, three of bronchiectasis, and five normal individuals gave absolutely negative results.

Further investigations are in progress to ascertain the nature of the substance and its significance.

107 (2630)

Proteins of the cotton seed.

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By extracting finely ground cottonseed kernels (hull-free) with benzene (C_6H_6) nearly all of the fatty and resinous substances and much of the coloring material is eliminated. For this purpose benzene is far superior to ether. Such a thorough removal of the above substances from the flour greatly facilitates a satisfactory subsequent extraction of the proteins by different solvents. The high percentage of nitrogen extracted by sodium chloride solution (Table I) is doubtless due to the method of preparation of the flour.

TABLE I.

	Percent of total N.
Salt soluble protein N	76.6
Alkali soluble protein N	8.2
Extractable non-protein N	10.1
Residual N (by difference)	5.1

We were able to separate from the salt extract two globulins. Of these one can be precipitated directly at 0.4 to 0.5 of satura-