

lecithin gained, in some cases, as much as 7 per cent. over the control animals.

*Series 3.* Lecithin was fed daily in amounts of from 0.01 to 0.32 gram. With very few exceptions, these kittens weighed from 2 per cent. to 12 per cent. more than the controls.

The best results were obtained in the feeding experiments, with doses of from 0.04 to 0.16 gram daily; yet under these conditions the actual difference in weight between the kittens fed with lecithin and those not so fed was small, amounting on an average to about 7 per cent. Whether the same quantity of any other fatty or simple nutrient compound would result in an equal increment has not yet been determined, but will be investigated with other matters bearing upon the interpretation of the results recorded above.

## 112 (255)

**Comparative data for the elementary composition and the heat of combustion of collagen and gelatin.**

By **CHARLOTTE R. MANNING** and **WILLIAM J. GIES**.

*[From the Chemical Laboratory of Wesleyan University, Middletown, Conn., and from the Laboratory of Biological Chemistry, of Columbia University, at the College of Physicians and Surgeons.]*

Comparative elementary analyses, as well as determinations of the heat of combustion, of many samples of connective tissue collagen and gelatin, have indicated that there is a closer agreement between the mother substance and its derivative, on these two planes of comparison, than the prevalent idea of their chemical relationship would indicate. The following sample data show this quite clearly:

	C	H	N	Heat of combustion
	Per cent.	Per cent.	Per cent.	calories.
Tendocollagen <sup>1</sup>	48.85	8.01	18.02	5,387
Tendogelatin	48.28	7.84	17.56	5,350

These data were obtained before the experiments by Emmett

<sup>1</sup> Each of these products was desiccated (before analysis) to constant weight by the Benedict-Manning process in vacuo. See the *American Journal of Physiology*, 1905, xiii, p. 309.

and Gies<sup>1</sup> were begun. The differences between the above figures for nitrogen and hydrogen contents harmonize with the observation by Emmett and Gies that nitrogen is eliminated as ammonia when collagen is converted into gelatin by treatment with hot water, and also strengthen their conclusion that gelatin is not a simple hydrate of collagen.

## 113 (256)

**On the fate of elastose after its subcutaneous or intraperitoneal injection : a preliminary inquiry into the origin and nature of Bence Jones's protein.**

By **REUBEN OTTENBERG** and **WILLIAM J. GIES.**

[*From the Laboratory of Biological Chemistry, of Columbia University, at the College of Physicians and Surgeons.*]

Bence Jones's protein and crude elastose not only have several proteose properties in common, but, unlike the ordinary proteoses, each is precipitated from its aqueous solution when the latter is gently warmed. Bence Jones's protein occurs in the urine of patients suffering from sarcoma of bone marrow or from osteomalacia.<sup>2</sup> Bone contains considerable elastin-like material. The senior author's study of ligament elastin and its digestion products<sup>3</sup> and his isolation and analysis of osseoalbumoid,<sup>4</sup> an elastin-like constituent of bone, led him to think that Bence Jones's protein might be a transformation product of osseoalbumoid, although there are a number of important objections to such a view. At all events, the possibility that Bence Jones's protein may be a derivative of osseoalbumoid, and the great desirability of making our knowledge of this elusive protein more definite, led us to begin a study of a preliminary phase of the work that will be necessary to determine the points at issue.

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<sup>1</sup> Emmett and Gies : *Proceedings of the American Society of Biological Chemists*, Washington, 1907 ; *Journal of Biological Chemistry*, 1907, iii, p. xxxiii. Also *Proceedings of the American Physiological Society*, Washington, 1907 ; *American Journal of Physiology*, 1907, xix, p. xi.

<sup>2</sup> When such urines are warmed, Bence Jones's protein, if present, is precipitated.

<sup>3</sup> Richards and Gies : *American Journal of Physiology*, 1902, vii, p. 93 ; also, Gies and collaborators : *Biochemical Researches*, 1903, i, Reprint No. 4.

<sup>4</sup> Hawk and Gies : *American Journal of Physiology*, 1902, vii, p. 340 ; also Gies and collaborators : *Biochemical Researches*, 1903, i, Reprint No. 6.