13623 P

Magnesium Requirement of the Chick.

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During studies on simplified rations for chicks it became evident that one deficiency in the rations was of a mineral nature. The deficient inorganic growth-promoting substance was subsequently identified as magnesium. As a result of these studies it has been shown that the magnesium requirement of the chick is comparatively high, sufficiently so as to constitute a very influential factor in experimental chick diets. The purified diet used in this work has been described elsewhere.[1] Without a magnesium supplement, the diet contained approximately 40 p.p.m. of magnesium.

Four quantitative experiments have been conducted. Magnesium was added to the diet as the sulphate (Mg content determined by analysis) to provide various levels of magnesium up to 600 p.p.m. The growth rates of chicks fed diets containing added magnesium at 120, 240, and 250 p.p.m. were in every case lower than the growth rates at 350, 450, 480, and 600 p.p.m. 350 p.p.m. may have been a barely adequate supplementary level. The growth rates at 350 or more p.p.m. were equivalent to those of chicks fed a practical rearing ration. Representative data from one experiment started with 7-day-old chicks are cited in Table I.

On the basal diet chicks grew slowly for approximately 1 week, then ceased growing and became lethargic. When disturbed, these chicks frequently passed into a brief convulsive, gasping, and finally a

TABLE I.
Comparative Weights of Chicks Reared on Diets Supplemented with Magnesium Sulphate.

No. of chicks started	Avg wt at start, g	Mortality No.	Avg wt after 17 days on diet, g	Mg added to diet, p.p.m.
10	56.4	7	80	0
10	56.2	0	136	250
10	56.2	0	157	350
10	56.4	0	158	450
10*	56.1	0	161	—

*Reared on a practical diet throughout.

[1] Almquist, H. J., and Meechi, E., Proc. Soc. Exp. Biol. and Med., 1941, **48**, 526.

comatose state which sometimes terminated fatally, but usually ceased in a few minutes. Such tetanic symptoms are well known for other species in magnesium deficiency.

The minimum magnesium requirement of the normal rat is approximately 50 p.p.m. in the diet.[2] The requirement of the chick appears to be much higher, approximately 400 p.p.m. during the first weeks of life. The response of the chick to magnesium deficiency is also much more rapid than that of the rat. In view of these results, it seems appropriate to advise adequate provision for the magnesium requirement in experimental chick diets.

13624 P

Relationship of Agents of Trachoma and Inclusion Conjunctivitis to Those of Lymphogranuloma-Psittacosis Group.

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While the nature of the etiologic agents of trachoma and inclusion blennorrhea is still not indisputably established, they appear to belong to the group of agents generally known as viruses and the great preponderance of evidence points to a causal relationship for the elementary and initial bodies which are characteristically present in the lesions.[1]

That these elementary and initial bodies, and other related structures are similar in morphology and dimension to those found in psittacosis and lymphogranuloma venereum has been pointed out.[2, 3] Moreover, with the exception of the glycogen reaction, which is positive for the large plaques in trachoma and inclusion blennorrhea,[4] but negative for those in psittacosis and lymphogranuloma venereum,[3] the tinctorial characteristics of the morphological units in all 4 diseases are similar.

A further bond between the two groups lies in the fact that of all

2 Tufts, E. V., and Greenberg, D. M., *J. Biol. Chem.*, 1938, **122**, 715.

1 Julianelle, L. A., *The Etiology of Trachoma*, The Commonwealth Fund, N.Y., 1938.

2 Thygeson, P., *Am. J. Path.*, 1938, **14**, 455.

3 Rake, G., and Jones, H. P., *J. Exp. Med.*, 1942, **75**, 323.

4 Rice, C. E., *Am. J. Ophth.*, 1936, **19**, 1.