

ranges of vital temperatures than in the lower. This indicates by the method of the chemist that which the cytologist has long held, namely, that the mitotic complex is something more than a sum total of continuous and independent physiological actions; it is an interrelated system of forces, vastly complex and which system varies in its complex at each stage of mitotic progress.

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**Diet and roughage in relation to the experimental scurvy of guinea pigs.**

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It has been repeatedly demonstrated that exclusive diets of cereals produce scurvy in the guinea pig. We have fed filter paper, sawdust and hay respectively, as supplements to an oat diet without averting the appearance of scurvy. Duration of the disease and decline were not appreciably different when these supplements were fed. The addition of 7, 10, or 18 per cent. of paper pulp to a special soy bean diet<sup>1</sup> failed to supply an anti-scorbutic property.

Feeding raw milk in addition to oats induces marked constipation with impaction of feces in the cecum. Animals fed 40 c.c. milk daily showed definite symptoms of scurvy in about a month. As the daily allowance of milk was increased, the symptoms seemed to recede in severity. Yet even when 80 c.c. milk were consumed daily, the animals became very constipated and died; but there were scarcely any signs of scurvy. Autopsy of such a case revealed absence of the typical macroscopic hemorrhages or of fragility of the bones. These observations appear to confirm the findings of Chick, Hume and Skelton,<sup>2</sup> which indicate that a sufficient *amount* of milk fed to guinea pigs will prevent scurvy. Such observations render debatable the hypothesis that

<sup>1</sup> Barnett Cohen, *PROC. SOC. EXP. BIOL. AND MED.*, April 17, 1918, p. 102.

<sup>2</sup> Chick, Hume, and Skelton, *The Lancet*, Jan. 5, 1918.

the experimental scurvy of guinea pigs is attributable to failure of normal intestinal movement.

Preliminary experiments on the nutritive qualities of desiccated vegetables indicate that the *drying* of fresh cabbage does not entirely remove its antiscorbutic property.<sup>1</sup>

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**The effect of the respiration of putrid gases upon the growth of guinea pigs.**

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Three years ago Mr. G. T. Palmer and the senior author reported here a series of experiments on human subjects conducted by the New York State Commission on Ventilation which indicated that "there are substances present in the air of an unventilated occupied room (even when its temperature and humidity are controlled) which in some way, and without producing conscious discomfort or detectable physiological symptoms, diminish the appetite for food."<sup>2</sup>

A natural assumption would be that odoriferous materials contributed to the stale air by the bodies and clothing of the occupants might produce such an effect upon appetite; and the present study is an attempt to detect a possibly analogous effect of putrid odors of a more intense kind upon the growth of guinea pigs.

A galvanized iron box 4 feet wide, 2 feet deep and 3 feet high was constructed and divided into two equal vertical compartments, each holding two standard animal cages and each provided with a separate glass door. Fresh air to the amount of 1.5 cubic feet per minute for each compartment (amounting to 4 liters per minute per animal) was supplied to the box by a small centrifugal fan, the supply to each section of the box being carefully regulated by dampers. On the course of the branch duct leading from the fan to one section was inserted a chamber in which was placed a pan of fresh moist human or dog feces, so as to produce a strong fecal odor in that section of the box.

<sup>1</sup> See succeeding abstract.

<sup>2</sup> Proc. Soc. Exp. Biol., Vol. XII, p. 141.