growth of organisms freshly inoculated on plates, which were exposed to such fumes in partially closed chambers, for periods varying from ten to thirty minutes.

While the experiments above reported were of a crude character the results obtained were of so uniform a nature, that the authors are inclined to conclude that the fumes produced by the burning or destructive dry distillation of various gums, spices and other aromatic substances of a similar nature, certainly tend to exert an antiseptic action on the bacteria studied. This is of course of interest not only from the scientific point of view, but also to the historian, as offering a possible explanation for the extensive employment of incense in connection with sacrificial rites, etc.

32 (1614)

The vitamine content of honey and honeycomb.

By PHILIP B. HAWK, CLARENCE A. SMITH and OLAF BERGEIM.

[*From the Laboratory of Physiological Chemistry, Jefferson Medical College, Philadelphia.*]

Dutcher[1] concluded from experiments on pigeons that honey contained a small but negligible amount of antineuritic vitamine. Faber[2] did not find honey to protect against scurvy in guinea pigs.

The present authors carried out feeding experiments on albino rats, to determine whether the growth promoting accessories fat-soluble A and water-soluble B were present in white clover honey or in a mixed strained honey, and whether these honeys protected guinea pigs against scurvy.

Rats fed a diet lacking water-soluble B when compared with rats fed the same diet except that half of the carbohydrate was replaced by an isodynamic equivalent of either of these honeys, showed in five weeks an average gain in weight of only five grams in favor of the honey-fed rats.

Similar experiments on the addition of the strained honey to diets deficient in fat-soluble A showed almost similar failure of

[1] Dutcher, R. A., *J. Biol. Chem.*, 1918, xxxvi, 551.

[2] Faber, H. K., *J. Biol. Chem.*, 1920, xliii, 113.

growth. The addition of comb honey, however, brought about cessation of decline and distinct gains in weight.

The addition of twenty per cent. of honey to the diets of guinea pigs did not prevent, or appreciably delay, the development of scurvy in these animals.

33 (1615)

A study of the serum of complement-deficient guinea pigs.

By ARTHUR F. COCA.

[*From the Laboratory of the New York Hospital.*]

H. D. Moore[1] has described a race of guinea pigs that are naturally deficient in complement: the deficiency is inherited. A number of these animals were obtained from Dr. F. A. Rich of the Vermont State Agricultural Experiment Station and the sera of four were separately examined as to the presence of the components of complement. The findings were identical in all of the sera.

Both the mid-piece and the end-piece of complement are present. There is lacking only the so-called "third-piece," which is the thermostable element of complement that is destroyed by cobra-venom and absorbed by yeast cells and bacteria.

By itself, the complement-deficient serum produces no hemolysis when used in a quantity 40 times that of the minimal completely heomlytic quantity of normal serum. When mixed with a small quantity of inactivated normal serum (guinea pig or human) the complement-deficient serum hemolyses in about three times the minimal hemolytic quantity of normal guinea pig's serum.

The third piece of complement is not identical with the lipoid cytozyme (thrombokinase), since the blood of the complement-deficient guinea pigs clots normally. The third piece of complement is not absorbed out of normal serum by six volumes of ether.

[1] *Journal of Immunology*, 1919, iv, 425.