Tobacco.

DER TABAK, by C. J. Koning,³ treats of the commerce, manuring, culture, anatomy, diseases, and fermentation of tobacco. Well-known facts are here presented in a popular manner to those interested in the culture and trade of tobacco. Only the contents of the chapter on the so-called fermentation of tobacco are essentially new. This process the author ascribes to the action of bacteria, in accordance with the hypothesis of Suchsland. "The aroma of the tobacco is caused by facultative anaerobes in so far as we can speak of aroma in our Dutch tobacco." In this remark, from page 23, the bacteria are called "facultative anaerobes," while on page 53 we find the statement that the supposed principal generator of the aroma is an obligate aerobe. The reviewer is sorry to differ from the views of Koning, yet he has examined very carefully, with very high magnifying powers, wrapper leaves withdrawn directly from the interior of the fermenting heaps in Florida, without discovering any colonies or any coating of bacteria. The few isolated rods and cocci found on some square centimeters of leaf cannot possibly have any significance. The water content (18-25 per cent.) of fermenting wrapper leaves prevents not only the development of fungi, but still more, that of bacteria. Filler leaves are more heavily moistened, and may contain 35 per cent. of water, but even these do not show bacterial colonies when heated in closed vessels to 55° C., a temperature reached often by the heaps of fermenting tobacco leaves. Even 60° C. is often reached, and nevertheless the heaps will heat up again when taken apart and rebuilt afresh. This would be impossible if the *Bac. Tabaci* really generated the aroma, since this dies at 50° in thirty minutes, and at 60° in five minutes, according to Koning's own statement. At the same temperature also the *Diplococcus Tobaci Hollandicus*, which Koning claims improves the combustibility of tobacco, also succumbs.

In not a single instance has the author stated the water content of the tobacco when he started his bacteriological investigations. Tobacco with 50 to 60 per cent. water will no doubt readily develop bacteria, especially of the *Proteus* group which Koning found; cocci also will thrive in great numbers. Should this rotting be interrupted at the right time, a change of the odor might have occurred, which may be very desirable with Dutch tobacco. But such rotting is carefully avoided by the progressive American tobacco manufacturers, by keeping the water content so low as to avoid the action of bacteria. Under these conditions alone the oxydizing enzymes of the tobacco leaf will develop their activity, and to this the changes of odor and aroma characteristic of superior tobacco have to be ascribed.⁴—OSCAR LOEW.

³ KONING, C. J.: Der Tabak, Studien über seine Kultur und Biologie. Small 4to, pp. 86. Amsterdam: J. H. & G. Van Heteren. Leipzig: Wilhelm Engelmann, 1900. M 4 (unbound).

⁴ Compare Reports No. 59 and 65 of the U. S. Dept. of Agriculture.