

E. LANGE AND A. C. FREAMAN. Previous investigators had shown that the amount of nicotine in the smoke from a cigar or a cigarette or from smoking pipe tobacco bears no relation to the nicotine in the tobacco itself. "Light" tobacco may give smoke rich in nicotine, "strong" tobacco may give smoke poor in nicotine. Storm van Leuven in Holland showed that smoke from the so-called nicotine-free cigars gives a smoke that contains a good deal of nicotine. Since nicotine is not the only poisonous constituent of smoke, Hirschfelder and his collaborators studied the poisonous action of the smoke itself, or rather the poisonous action of extracts made from passing the smoke through salt solution and through ether. The amount necessary to kill a frog was determined. Using several popular-priced brands of cigar, cigarette and pipe tobacco, it was found that the smoke coming from a given weight of tobacco varied somewhat, but not very greatly in its poisonous action on frogs. When the same weight of the same sample of tobacco was smoked in the form of a cigarette and in a pipe and as a cigar there was sometimes very little difference in the poisonous quality of the smoke, but usually that which was smoked as a cigarette was somewhat less poisonous. Nevertheless, cigars and pipes seem much stronger than cigarettes. This is because since the burning occurs chiefly along the surface of the tobacco, so much more tobacco is being converted into smoke at each instant in these than in the cigarettes. It is largely a question of cross section. Cigars have about four times the cross section of cigarettes, pipes nine or ten times. If all three were smoked equally fast, the smoker would get an overwhelming dose of nicotine from cigar and pipe. Therefore, these must be smoked more slowly than the cigarette and can not be inhaled. If the smoker did not inhale the smoke, the cigarette would be the lightest form of tobacco.

Some applications of protein chemistry to medicine and pharmacy: I. F. HARRIS.

Action of trichlorotertiary butyl alcohol (chloretone) on animal tissue: T. B. ALDRICH AND H. C. WARD. The action of chloretone on animal tissue has not been studied, although glands of various kinds have been preserved in a sterile condition in chloretone water for a number of years, without any apparent injury to the active principles they contain. In order to test the action of a saturated aqueous solution of chloretone on animal tissue pieces of various organs were removed from the animal (dog) as quickly as possible after death,

cut into small pieces and distributed among several sets of bottles containing water saturated with chloretone. One set was kept at 37°, one at 15°, while others at summer room temperature. One set at room temperature was inoculated with *B. Proteus*. Control tissue with only distilled water showed a high degree of putrefaction in two days. Every few days the tissues were examined and the general appearance, color, odor, etc., noted. In general the tissues became soft and spongy and lost much of their normal color. There was at no time a suggestion of putrefaction. In fact, cultures made every few days from all the bottles showed their contents to be sterile. Histological studies show that while there is no evidence of bacteria, there is evidence of autolytic changes, since some normal cell constituents are entirely lacking. It would seem that chloretone is one of the few substances (in weak dilution) that will allow autolysis to proceed under sterile conditions.

Conclusions. (1) Chloretone in saturated aqueous solution exerts a definite bactericidal action at all temperatures. (2) Chloretone in saturated aqueous solution prevents the development of the common molds. (3) Chloretone solution is not suitable as a fixative for histological materials. (4) Chloretone solution while acting as a bactericide, does not inhibit autolytic action as evidenced by our histological findings. (5) Chloretone solution is a desirable agent for preserving glands and gland extracts from which the active principles are to be obtained.

The outlook for chemotherapy in the chemical industry of America: C. L. ALSBERG. (By title.)
Blue eyes: W. D. BANCROFT.

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Secretary

(To be continued)

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