

NOTE ON THE ACTION UPON THE CIRCULATION
OF CERTAIN VOLATILE OILS. By Drs H. C. WOOD
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OUR knowledge of the action of the volatile oils after absorption is so slight that it seems worth while to put on record the results of twelve experiments performed in the Laboratory of the University of Pennsylvania. The oils employed were those of cloves, peppermint and nutmeg. When injected into the circulation the oils, both of cloves and peppermint, kill by paralysing the heart. Even after the use of very small quantities the reduction of the arterial pressure is immediate, marked, and lasting. In several cases fatal syncope was produced by the injection of from four to six drops of the oil of cloves into the jugular vein of a cat. When the oils were administered in this way, no rise of pressure could be obtained from any dose. In several cases, however, in which the air coming from an artificial respiration apparatus was passed through oil of cloves before entering the lungs of the animal, there was a decided and progressive rise of arterial pressure. In a single experiment performed upon an animal with cut vagi this rise of pressure failed to occur, and it is therefore possible that it may be caused by an action on the peripheral pulmonic or cardiac vagi. The fall of pressure produced by these oils is at least in part due to a direct action upon the heart, for it occurs after section of the vagi, and the heart after death is found insensitive to galvanic currents; further, the cut-out heart of the frog is paralysed by direct application of the oil. In our experiments the oil of cloves appeared at least twice as strong as oil of peppermint in its power over the heart. The oil of nutmeg differs essentially in its action on the organism from the other oils experimented with in that, even when injected into the jugular vein, it produces death by asphyxia, and not by syncope. The death is preceded by a somewhat protracted stage of unconsciousness, with profound anæsthesia, even the ocular reflexes being abolished. Although its cardiac action is dominated by its influence upon the upper nerve-centres, the oil of nutmeg shares in some degree the power of oil of cloves upon the heart. We were never able to obtain other than a fall of arterial pressure from its use. How far these volatile oils impress the vaso-motor system was not determined. Both pulse and respiration were reduced in frequency by all of the oils, the action of the nutmeg upon the respiration being especially marked.