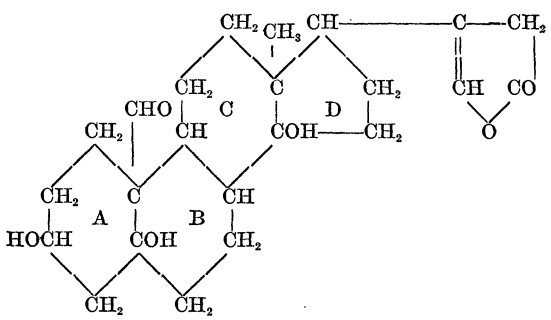
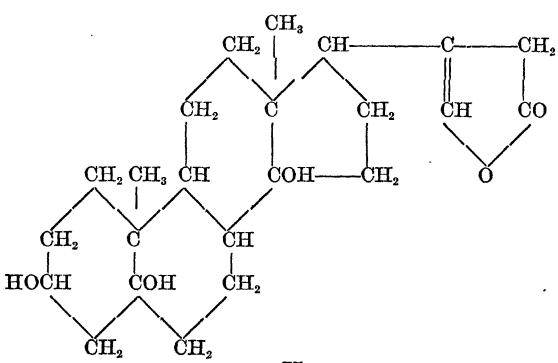
taneously secured in both laboratories thus complement each other and bring confirmation in regard to the identities of the degradation acids obtained from digitoxigenin and uzarigenin. These observations furnish for the first time conclusive evidence that the cardiac aglucones possess the sterol ring system, a fact already strongly indicated by the production of methyl cyclopentanophenanthrene by selenium dehydrogenation. At the same time it is conclusively shown that the unsaturated side chain of these aglucones is a fragment of the sterol side chain on carbon atom 17.

According to the structure of the sterols now generally accepted, this will require a revision of the partial formulas of strophanthidin and related aglucones which we had tentatively adopted. This structure now requires that the aldehyde group of strophanthidin is situated on a quaternary carbon atom. If this be accepted, the only satisfactory arrangement of the hydroxyl groups in accordance with the interrelationships established by the long investigations of our laboratory requires a formula as given in I for strophanthidin.[4] The formulas of periplogenin, digitoxigenin and gitoxigenin in consequence must be as in II, III and IV. Certain unpublished results add support to this view. Such formulas are now also proposed by Tschesche in the above-mentioned article.

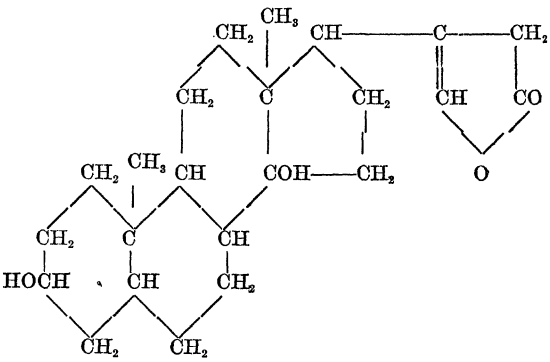


I

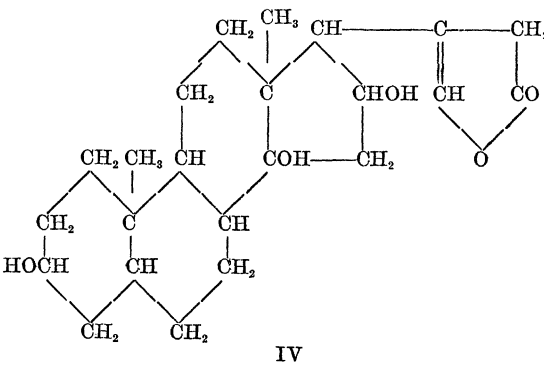


II

[4] Such a formula has already been mentioned among other formulas by Kon in a general theoretical discussion (*Jour. Soc. Chem. Indust.*, 53: 593, 1934).



III



IV

However, there are a number of observations which we have made, both published and unpublished, which appeared to be best explained by the arrangement of the aldehyde group of strophanthidin given in our original formula in which this group is not attached directly to a quaternary carbon atom but to a CH group. Some means of conciliating these observations with the requirements of the new formula will now have to be found.

A complete discussion of these points as well as the presentation of still unpublished work will be left to forthcoming papers in the *Journal of Biological Chemistry*.

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BOOKS RECEIVED

HITCHCOCK, DAVID I. *Physical Chemistry for Students of Biology and Medicine.* Second edition. Pp. xi + 214. 28 figures. Charles C Thomas. $2.75.

SMILEY, DEAN F. and ADRIAN G. GOULD. *A College Textbook of Hygiene.* Revised edition. Pp. xvii + 383. 90 figures. Macmillan. $2.00.

VERDOORN, FR. *Annales Bryologici.* Pp. viii + 231. 31 figures. Martinus Nijhoff, The Hague. Gld. 6.