

ferent familiarization procedures (4). Three-month-old infants were exposed for 4½ minutes to a cross or a circle, whichever form was preferred in initial exposure periods when both forms were presented simultaneously. During subsequent periods of exposure to both forms, the infants showed a decrease in fixation of the familiarized form. A greater effect of the familiarization period was shown when the two stimuli differed in color as well as form. No significant effect was shown as a result of exposure to the initially non-preferred stimulus.

Evidently, incidental visual experiences can be retained by infants over 2 months of age, at least for a short period of time. This satisfies the third prerequisite given above for a possible developmental influence of early visual explorations. To what extent and under what conditions this influence actually occurs are questions for further study. The determination of changes in visual preferences following various types of experience will be useful in such studies, since the technique can be used at an age when other response measures are not available.

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References and Notes

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5. The study was made possible by support from grant M-5284 from the National Institute of Mental Health, USPHS, and by the cooperation of DePaul Infant and Maternity Home. The testing was carried out by Isabel Fredericson and Jean Dreifort.

2 September 1964

Crown Gall and Tomatine

I object strenuously to the presumption tacit in the title of the report "Isolation of an antihistaminic principle resembling tomatine from crown gall tumors," by B. A. Kovacs, J. A. Wakkary, L. Goodfriend, and B. Rose (17 April, p. 295), that the principle isolated was intrinsically related to crown gall.

My objection was communicated to Kovacs and in reply he cited, among other facts, the isolation of a presum-

ably similar principle from a variety of oak galls. These are not crown gall and in my opinion weaken rather than strengthen the assumption to which I objected.

In the report only one type of crown gall was cited, that on tomato; the substance isolated, which was not purified, was said to "resemble tomatine," an alkaloid known to be synthesized by healthy tomato plants. Crown gall tissue is an exuberant growth of whichever of the hundreds of possible hosts is involved, and as such may be expected to produce quantities of host-specific metabolites which are not necessarily disease-specific. Identification of the isolated substance with "tomatine" rests on reasonable presumptive grounds. Analogy with similar alkaloids produced in other galls such as those on oak leaves has some basis. The presumption, however, that the principle is intrinsic in crown galls appears to have no basis other than coincidence.

Unless the substance in question can be isolated in identifiable form from tissues of taxonomically unrelated hosts affected by the same disease, in this case crown gall, its demonstration carries no evidence of relation to the disease. The critical experiment by which Stanley established the crystalline nature of tobacco mosaic virus was the isolation of physically identical and biologically active crystals from tobacco and spinach.

This sort of report can only serve to becloud our understanding of the processes of tumefaction exemplified by crown gall.

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17 July 1964

White objects to what he thinks is a tacit presumption that the principle isolated from crown gall tumors, stimulated by infecting tomato stalks with *Agrobacterium tumefaciens*, is a characteristic of crown gall tumors per se. We should like to point out that although no such assumption was made, the fact that the principle is found in large quantities in crown gall indicates that the two must be related but does not necessarily indicate that the principle may not be found elsewhere. Furthermore, we do not think, as does White, that any issue has been beclouded.

It should be noted, as was already pointed out in a personal letter to him,

that a similar principle has been found in crown gall tumors of the roots of apple trees, as well as in different forms of oak galls.

We stated in the paper, and would like to reiterate now, that whereas the principle resembled tomatine, it was not identical with it. Consequently, his contention that the principle has nothing to do with crown gall tumors hangs in mid-air.

Finally, since in all the experiments the starting materials used for the isolation of active principle were crown galls of tomato, we do not see how the wording could be changed unless White thinks that crown galls should be called something else.

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16 September 1964

Intrauterine Ring

In his letter concerning the uses of the intrauterine ring for contraceptive purposes (7 Aug., p. 536), Josef Novak presents no facts to support his claim that it produces "adverse effects" in what he calls a "considerable" percentage of cases. Furthermore, it is difficult to believe that there are any figures to support his contention that it is more likely that a couple will conceive while using the intrauterine ring than while using other forms of contraception; yet that is what he is claiming when he says, "There are other more reliable" forms of contraception available. The comparison of reliability need not even include the many pregnancies that occur when couples who have adopted other forms of contraception fail to use them consistently; it need present only the rate of conception of couples using the ring, compared with that for each of the other contraceptive methods. If Novak has figures to support his statement, he should present them to the scientific community.

I question also his claim that this method is not cheap. It does not entail the frequently repeated cost incurred for every other form of contraception except the highly unreliable rhythm method. The total cost for contraception is the cost of the insertion of the ring. In private practice, this fee is not much higher than the fee charged