do not survive to reproduce, it is clear that the assumptions made would have to be deficient to an improbable degree to make survival probable, since for such a result the reproductivity figure may be placed at about 2.1 or 2.2. That is, the group as a whole would have to produce, to survive, about 1.5 times as many children after the age of 32 as it has produced before that age, or in all about half as many again as it seems likely to produce on the basis of reasonable assumptions.

Thus the investigation, in spite of imperfect data, has provided us with a fairly unambiguous conclusion: High-scoring college men produce substantially more offspring than low-scoring college men, and they are able to do this solely because they marry earlier and more frequently. One may speculate that they marry earlier because their superior intelligence enables them to establish themselves economically earlier—although it seems remarkable that differences as small as those between high and low scoring college men, and in a trait with such limited correlations with practical abilities, should be as effective as this. But in any case it makes little difference, for less than 40 per cent. of even the higher group can expect to be fully represented in the next generation.

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THE NON-TOXICITY OF GOSSYPOL TO CERTAIN INSECTS

THE 6,000,000 to 8,000,000 tons of cottonseed produced annually in this country represent a potential source of 40,000 to 80,000 tons of gossypol. Anticipating the ultimate availability of this interesting compound as an industrial raw material, various experimental approaches to determine its possible uses have been made. The chemical and physical properties of gossypol have recently been reviewed by Adams and co-workers.[1] Its anti-oxygenic action, as demonstrated in fats and oils,[2,3] indicated several possibilities which are being investigated. Its toxicity to mammals and birds[4] suggested that gossypol might be useful as an insecticide. Some negative results are published here for the information of those who might also have been interested in this possibility.

The standard laboratory technique for assaying insecticides was employed. Wooly aphids were sprayed with emulsions containing gossypol and dianiline gossypol in concentrations of 1 to 500. The compounds were dissolved in a small amount of dioxane, then diluted with an aqueous solution of a potassium soap (1:2000). At the end of 24 hours the aphids were as active as were the negative controls. Much lower concentrations of known insecticidal compounds showed 100 per cent. mortality.

Lima bean leaves were sprayed with emulsions containing gossypol and dianiline gossypol (1 to 1000), allowed to dry, and offered separately to groups of Mexican bean beetles. After 24 hours, the leaves were as skeletonized as those which had been sprayed only with the wetting agent, and the beetles were unharmed. Leaves which had been sprayed with dilute solutions of rotenone were unattacked.

These results indicate that, at least to the insects tried, gossypol and dianiline gossypol are ineffective either as contact or stomach poisons.[5]

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THE COMMON BLUE CRAB IN FRESH WATERS

HAY[1] has given several records of the occurrence of the blue crab, *Callinectes sapidus* Rathbun, in inland coastal waters. Nevertheless, there seems to be a rather general opinion that this crab does not migrate completely beyond the influence of the sea. Brues,[2] in recording the related *Callinectes ornatus* Ordway from fresh water in Cuba, states that he has found no record of any *Callinectes* away from salt water.

On August 4, 1937, a male blue crab was caught in a sunken bucket near the floating dock of the Simmesport Fish Company in the Atchafalaya River at Simmesport, La. It was not adult, measuring 4.5 inches across the carapace. Simmesport, near the origin of the Atchafalaya, is over 160 miles from the Gulf of Mexico as the river runs. Commercial fishermen commonly take crabs there during the summer, and this is an indubitable record of the crustacean in fresh water, beyond the influence of the sea.

Rathbun[3] records this crab from the Hudson River at West Point; the Coloosahatchie River, Fla.; Rio Cobre, Jamaica, and gives other records which might

[1] K. N. Campbell, R. C. Morris and R. Adams, *Jour. Am. Chem. Soc.*, 59: 1723, 1937.
[2] H. A. Mattill, *Jour. Biol. Chem.*, 90: 141, 1931.
[3] H. D. Royce and F. A. Lindsay, Jr., *Ind. Eng. Chem.*, 25: 1047, 1933.
[4] W. A. Withers and F. E. Carruth, *Jour. Agr. Res.*, 14: 425, 1918, and many others.

[5] After these experiments had been completed, we learned from Dr. E. P. Clark, of the Division of Insecticide Investigation, U. S. Dept. of Agriculture, Washington, that he had also obtained negative results in assays of gossypol for insecticidal activity. Moreover, one of us (H. S. O.) has shown that neither gossypol nor any one of several simple derivatives possesses germicidal activity toward *B. typhosis*.

[1] *Rep. Bur. Fish.*, 1904: 397–413, 1905.
[2] *Amer. Nat.*, 61: 566–569, 1927.
[3] *U. S. Nat. Mus. Bull.*, 152: 1–609, 1930.