Interpretations of DNA

A letter from Van Rensselaer Potter (8 July) has criticized my statement ("The biological nature of man" 22 Apr., p. 472) that "nothing that has so far been learned about DNA has helped significantly to understand the nature of man or of any other whole organism." His objections are that, in general, molecular biology has contributed to such understanding and that, specifically, its contributions include knowledge of feedback in individuals and in evolution and explanation of teleological aspects of organisms.

On the first point, I referred solely to DNA, not to molecular biology in general, which under various names is older than evolutionary biology and centuries older than DNA studies. Potter does not refer to DNA and his remarks are therefore not relevant to the statement he criticizes. On the second point, although the term "feedback" is fairly recent jargon, the concept was quite well understood more than a century ago; for instance, by Claude Bernard with respect to individuals and by Charles Darwin in the study of populations. That was before DNA was known; and it is the involvement of DNA in those feedbacks which is not yet adequately comprehended.

I completely agree with Potter that molecular biology has already contributed to the understanding of organisms and that DNA studies will add greatly to that understanding. I am glad he has made that point.

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Calcium and Fluoride Absorption

Armeit (Letters, 30 Sept.) expressed some doubt about the validity of my proposal (Letters, 17 June) to investigate the influence of the fluoride content of fish flour on the teeth of children, by citing a sentence from my original paper on this subject [*J. Pediat.* **65**, 782 (1964)] regarding the influence of calcium on fluoride absorption. In that paper, I discussed in detail human studies showing that fluoride in bone meal becomes partially unavailable in the presence of increased amounts of calcium.

However, the important point is that fish flour is rich in fluoride (169 to 272 parts per million) and that despite its increased levels of calcium (5.2 to 6.5 percent), a substantial amount of fluoride could be absorbed to affect the teeth at the quantities of 10 to 20 grams of fish flour commonly consumed by young children daily. It was on this basis that I recommended undertaking studies regarding the effect of fluoride present in fish flour on dental caries and mottled enamel development in children. In this connection, it should be noted that the low prevalence of caries and the severity of mottled enamel development seen among children in a recent study [*Arch. Oral Biol.* **5**, 125 (1961)] were attributed to a large extent to the daily high consumption of small fish eaten with the bones which contain increased levels of both fluoride and calcium.

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Carrel: An Earlier Laureate

In a review of the many accomplishments of Charles Huggins, one of the 1966 Nobel laureates in medicine or physiology, it is incorrectly stated (News and Comment, 21 Oct., p. 362) that "only one other surgeon—Emil Theodor Kocher—has ever received a Nobel prize (1909)." In fact, the first Nobel prize in medicine that came to America was awarded to Alexis Carrel of the Rockefeller Institute in 1912 for "advances in suturing blood vessels and organ transplantation." Although Carrel made several contributions in other biological fields, particularly while applying tissue culture methods developed by R. G. Harrison in 1907, international acclaim followed his demonstration of the feasibility of suturing blood vessels, dramatically carried out in the successful treatment of melena neonatorum by blood transfusion in a premature infant, son of a New York physician, in whom Carrel anastomosed the father's radial artery to the popliteal vein of the infant. [H. O. Mosenthal, *J. Amer. Med. Ass.* **54**, 1613 (1910)].

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