PCB's in Sand Crabs

I read with great interest the report by Robin Burnett (5 Nov. 1971, p. 606) on DDT residues in sand crabs along the coast of California. I analyzed samples of different organisms collected 4 months earlier from locations that were very close to Burnett's stations 16 and 18. Burnett reported that polychlorinated biphenyls (PCB's) were not present in the processed extracts, but he did not specify whether the PCB's were intentionally removed during cleanup of the extracts or whether the sand crabs were thought to contain no PCB's. The sand crabs probably contained relatively high levels of PCB's. In the organisms I sampled, I found that the average ratio of total DDT to PCB's was 1.0 at station 18 and 0.35 at station 16 (*1*).

T. O. MUNSON
Ocean Research Laboratory, Westinghouse Electric Corporation, Annapolis, Maryland 21404

Reference

1. T. O. Munson, *Bull. Environ. Contam. Toxicol.* **7**, 223 (1972).

I did not remove PCB's during cleanup. While no assemblage of peaks characteristic of any commercial PCB mixture is seen, several peaks with retention times identical to those for Arochlor 1254 peaks were indeed present. If I use peak A in Fig. 1 to quantify PCB's in the manner used by Munson, I obtain a total DDT to PCB ratio of 0.9 for station 16 and 1.4 for station 18. Although conclusions using this method of quantification can only be tentative, perhaps one reason for Munson's lower values is that he collected his samples much closer to large sewer outfalls, a possible local input of PCB's.

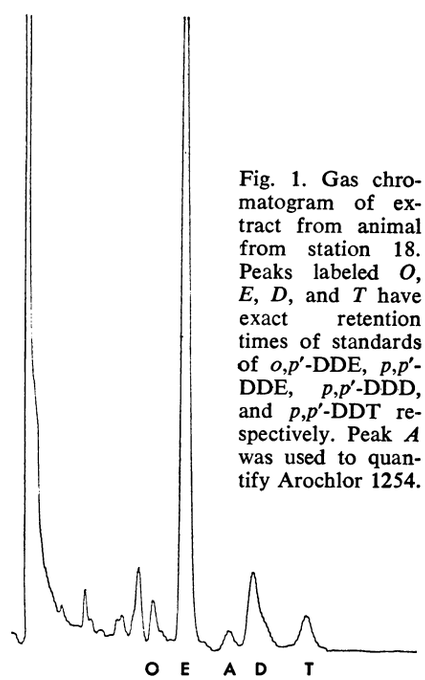

Fig. 1. Gas chromatogram of extract from animal from station 18. Peaks labeled *O*, *E*, *D*, and *T* have exact retention times of standards of *o,p'*-DDE, *p,p'*-DDE, *p,p'*-DDD, and *p,p'*-DDT respectively. Peak *A* was used to quantify Arochlor 1254.

ROBIN BURNETT
Hopkins Marine Station, Pacific Grove, California 93950

Uses of Research

In response to the report "Defense research: The names are changed to protect the innocent" by Deborah Shapley (News and Comment, 25 Feb., p. 866), I would like to add to the perspective on the problem of Department of Defense (DOD) funding of fundamental research. Much of the philosophy of the National Science Foundation (NSF) was forged in the 1940's within the Office of Naval Research (ONR) with James H. Wakelin and Alan Waterman (later the first head of NSF) as leaders. The spirit of ONR has diffused to the Air Force Office of Scientific Research (AFOSR), the Army Research Office (ARO), and beyond. The personnel in these branches of DOD are, by and large, in tune with the basic approach of the university researchers, but they are often caught in the collision between Congress and DOD on research funding and by the short-range refocusing of DOD research that comes with every period of financial austerity. From experience they know that cycles come and go; by means of heavy emphasis on potential military applicability in the contract descriptions they are trying to ride out this particular stormy cycle. Most of them understand the main features of each program, but they may falter in trying to link the detailed techniques with the potential applications. Understandably, the word "potential" is generally dropped.

An important aspect, not touched upon in Shapley's report, is that we are talking about unclassified research. In fact, the researchers are urged not to publish just institutional reports, which may have a total circulation of 100–200 copies, but to process their results for the earliest and widest scientific publication. This is in the original ONR-NSF spirit and also constitutes quality control for the contract monitors. As I understand it, the researchers with publications in the top-notch scientific journals are assigned