gen, is very closely associated with development of male sex characteristics. In fact, in seven cases they examined where people had two X chromosomes but also had at least partially developed male sex organs, these people also had the gene for H-Y antigen. A sample of seven is too small to determine whether other factors also influence sexual development, the scientists say. However, they believe the most likely explanation for the association is that the gene or genes that control male sexual development and the one for H-Y antigen formation form a very small unit on the Y chromosome and may even be contained in a single gene.

H-Y antigen is a cell surface component whose presence was first detected in skin graft experiments with highly inbred mice strains in 1955. Skin grafts from male mice would not be accepted by females who were genetically identical to the male except in sex. Such selectivity indicates that the antigen responsible is sex linked. That the gene responsible is contained on the Y chromosome in man was confirmed by Wachtel and associates last year by showing that males with two Y chromosomes produce twice as much of the antigen as normal males with only one Y chromosome.

The new work suggests that an immunological test for H-Y antigen is a more sensitive indicator of the presence of the male sex genes than is examination of the chromosomes. In five of the seven patients in the study, chromosome examination did not detect the presence of any portion of the Y chromosome. Such an immunological test might find application in studying primitive animals to understand the evolution of sexual differentiation. □

Monsanto to quit PCB business next year

Monsanto has made it definite. It will shut down its polychlorinated biphenyls unit, complete distribution of all inventories, and withdraw completely from the market by no later than Oct. 31, 1977.

Monsanto, the only U.S. supplier of PCB dielectric insulating fluids to the electrical power supply industry, had said last January that it would cease production voluntarily as soon as the electrical industry could find viable alternate fluids and convert its equipment and components to their use. In announcing the firm withdrawal date, Earle H. Harbison Jr., general manager of Monsanto's specialty chemicals division, said last week that the company would have targeted an even earlier shutdown date had transformer and capacitor manufacturers' conversion timetables permitted.

PCB's have been of concern since the early 1970's, when they were found to persist and accumulate in the environment. PCB's, even at low part-per-million levels, were found to cause adverse effects in fish and aquatic life. And laboratory tests have shown them to cause reproductive failures, gastric disorders, skin lesions, and tumors in mammals. For these reasons, the Environmental Protection Agency has considered PCB's to be a significant hazard to human health as well as the environment.

Train: already in environment



Commending Monsanto's decision as "a significant step in dealing with the total problem of PCB contamination, EPA administrator Russell E. Train notes, however, that the problem will continue. Millions of pounds of PCB's, he points out, are already in the environment.

PCB's have been in use for well over 40 years. When their environmental persistence first became evident in the early 1970's, Monsanto began a voluntary program of ending sales for all nonelectrical applications. PCB's had been used, for example, in carbonless copy paper, fire-resistant hydraulic fluids, heat transfer fluids, and plasticizers. Electrical equipment was a knottier problem. Harbison notes, for instance, that PCB's, because of their fire resistance, were in many cases the only fluids approved for dielectric applications.

This July, electrical equipment manufacturer Westinghouse set a definite timetable for phasing out the use of PCB's (C&EN, July 26, page 7). It would, the company said, cease using PCB's as fire-resistant transformer insulating fluids at the end of this year. And it would make no quotations for new PCB-filled units for shipment occurring after Dec. 31. Oil and silicone fluid are, at present, the alternatives available. □

Congress passes hefty NSF funding bill

After weeks of hassling over program provisions of the National Science Foundation's fiscal 1977 budget authorization bill, House-Senate conferees finally reached agreement in the closing days of the 94th Congress. As it turns out, NSF gets a budget authorization of $810.7 million, $14.7 million more than sought by the Ford Administration. And the bill requires reports to Congress on a host of NSF activities.

For example, the authorization bill directs the agency to arrange for the dissemination of all substantive technical reports through the Commerce Department's National Technical Information Service. NSF is to set up procedures for reporting on the utilization of research projects funded under its Research Applied to National Needs (RANN) program. And the agency is to conduct a feasibility study of operating its peer review system such that the identity of the proposer is not known to the reviewers of the proposal.

The bill continues NSF's Congressionally imposed and controversial Science for Citizens program (including the augmented public understanding of science program) and increases the program's funding level to $1.2 million. However, the bill carefully spells out conditions for conducting and participating in the program. For example, no grants or contracts are to be made to groups required to be registered under federal lobbying laws. Review panels are to be set up to evaluate grant applications under the program. And no grant, contract, or other arrangement is to be made without the prior approval of the National Science Board.

In fiscal terms, the authorization bill, which sets a ceiling on NSF spending, would have NSF's major basic research programs funded at a level of $606.8 million, about $4 million less than the Administration requested. On the other hand, Congress provided more funds for science education, $79.4 million, than the $55 million requested by the Administration. As usual, the bill lists "recommended" amounts to be spent on specific science education programs. And the conferees agreed on an amount of $69 million—$4.1 million more than the Administration requested—for NSF's RANN program. Of that sum 10% is to be allocated for efforts by small R&D outfits. And NSF is directed to set up an Office of Small Business Research & Development to expand small business participation in NSF programs. □

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