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Pacific conference

The Pacific Conference on Chemistry and Spectroscopy will be held Oct. 6–9 at the Jack Tar Hotel, San Francisco. Cosponsors are ACS California Section and the Society for Applied Spectroscopy, Northern California Section. The conference will include the SAS 9th Pacific Meeting and the ACS 6th Western Regional Meeting.

Papers are called for in the following areas: analytical and separation techniques, biophysical chemistry, chemical education, chemical kinetics, chemistry of natural products, computer applications in spectroscopy, environmental and space chemistry, LASER-Raman spectroscopy, mass spectroscopy, nuclear magnetic resonance spectroscopy, organic chemistry, physical chemistry, spectroscopic studies of catalysts, x-ray spectroscopy, and polymer, plastics, and coatings chemistry.

Closing date for abstracts is May 15. Submit 150-word abstract or questions to one of the following program chairmen: Dr. Rollie Myers (ACS), Dept. of Chemistry, University of California, Berkeley, Calif. 94720; Dr. William Morris (SAS), Lawrence Radiation Lab, P.O. Box 808, Livermore, Calif. 94550; or Dr. Louis Lindeman (SAS), Chevron Research Co., 576 Standard Ave., Richmond, Calif. 94802.

1971 Pesticide Congress

International Union of Pure and Applied Chemistry will sponsor two events in Tel Aviv, Israel, in February 1971. The International Symposium on Pesticide Terminal Residues will be held Feb. 17–19 and will cover chemistry and metabolism of terminal residues of organochlorine insecticides, organophosphorus insecticides, carbamate insecticides, fungicides, and herbicides.

The 2nd International Congress of Pesticide Chemistry will be held Feb. 21–26 and will have as main topics: (1) relations of chemical structure to biological activity; (2) pesticide residues analysis; (3) biochemistry of pesticides in relation to mammalian toxicology and pharmacology; (4) interpretation of basic chemical and toxicological data; (5) potential pest control agents; (6) formulation chemistry; (7) biochemistry of resistance; (8) enzyme induction; (9) insecticide synergists; (10) systemic activity and plant chemotherapy; (11) development of new pesticides.

For further information write The Organizing Committee, 2nd International Congress of Pesticide Chemistry, P.O. Box 16271, Tel Aviv, Israel.

Southeast-Southwest ACS Regional Meeting

The combined Southeast-Southwest Regional Meeting of ACS will be held in New Orleans, Dec. 2–4. General papers are invited in the following fields: analytical, biological, chemical education, geochemistry, industrial and engineering, inorganic, marine, medicinal, organic, physical, polymer, radio and nuclear, and textile chemistry.

Two copies of a 200-word abstract should be submitted on standard ACS Regional Abstract Forms to Dr. Mary L. Good, Chemistry Dept., LSU, New Orleans, La. 70122, or to the respective divisional chairman. Deadline is Aug. 15. The forms are obtainable from ACS headquarters of Dr. Good.

Special events at the meeting include exhibits, a mixer, an awards luncheon, and a ladies' program. The technical program will include a number of symposiums.

MEETINGS

March 18–19. ***Conference on Technology and Society for Delaware Teachers.*** University of Delaware, Newark, Del. *Write* James W. Haskins, Jr., PR Dept., D-8111, Du Pont Co., Wilmington, Del. 19898.

March 23–24. ***Helium Society.*** Symposium. Statler Hilton Hotel, Washington, D.C. *Write* Helium Society 1735 K St., N.W., Washington, D.C. 20006.

April 5–7. ***National Petroleum Refiners Association.*** 68th Annual Meeting. San Antonio, Tex. *Write* NPRA, Suite 802, 1725 DeSales St., N.W., Washington, D.C. 20036.

April 8–10. ***Zinc Institute and Lead Industries Association.*** Consecutive annual meetings. Chase Park Plaza Hotel, St. Louis, Mo. *Write* ZI or LIA, 292 Madison Ave., New York, N.Y. 10017.

April 20–21. ***Symposium on Current Status of Thermal Analysis.*** ASTM and NBS, sponsors. Washington, D.C. *Write* Oscar Menis, National Bureau of Standards, Washington, D.C. 20234.

April 27–30. ***Plant Engineering & Maintenance Conference and Show.*** International Amphitheatre and Palmer House, Chicago, Ill. *Write* Clapp & Poliak, Inc., 245 Park Ave., New York, N.Y. 10017.

Continued on page 89

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ent, but downward, thereby giving ch section less than the original iendment called for. More discussions resulted in the defeat of this attempt to adjust the original amendent. Finally the original amendient, proposed and endorsed by several ACS committees, was passed by a wo-thirds show of hands vote.

More amendments. An amendment o the Constitution to have nominees for regional directors selected by councilors from the regions served instead of by the Council as a whole was quickly approved with no discussion, but another battle came with the introduction of another amendment entitled "Creation of a Category of National Affiliates of the American Chemical Society." Some of the pros and cons of this issue were covered in the Dec. 15, C&EN, page 74.

Many opponents of the Technician Affiliation amendment voiced their interest in having ACS help technicians, and others with an interest in ACS, but not by establishing an additional category of membership. As the meeting drew on and time grew short, the call for the question led to a vote of 144 against and 63 for that defeated the amendment.

One of ACS's important new committees is the Committee on Program Review. In its *ad hoc* existence, the committee first met in July 1969 and became a standing committee of the Council on Jan. 1, 1970.

The Committee on Program Review was formed to study and make recommendations to the Council concerning Society policy and staff operations in programs supported by membership dues, including costs, effectiveness, and termination of programs. Its functions are to study and recommend; it does not have authority to add, modify, or eliminate programs.

Patterns of operation have not yet clearly evolved, but will likely take the form of meeting with ACS staff and with appropriate Board and Council committees to determine relevance and priorities of each program element against its apparent cost.

Joint Board-Council, standing, and other committee reports brought the meeting to a close. One of the last committees to report was the joint Board-Council Committee on Profession-Wide Pension Plan. Speaking on behalf of the committee, Joseph Stewart outlined the state of affairs to the Council and asked for the approval of a resolution recommending to the Board of Directors the establishment of an entity independent from ACS that would implement setting up the proposed pension plan. The controversy associated with this issue is described on page 18. The resolution passed, 169 to 11.

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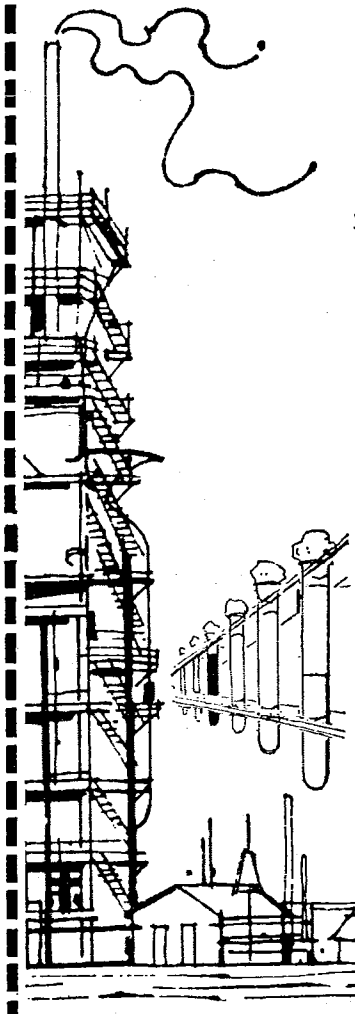

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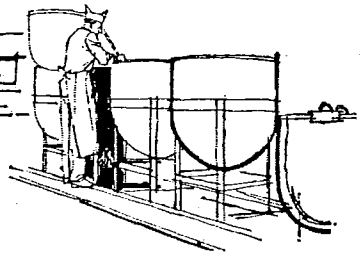

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REGIONS

Chesapeake Bay fights for its life

Pollution threatens to strangle the history-rich estuary

When the English explorer John Smith sailed up Chesapeake Bay in 1606, he cast his eyes on the surrounding "hills, plaines, valleys, rivers, and brookes" and pronounced the region "fruitful and delightsome." Even then he may have held his nose. So teeming with life was the bay, Smith wrote, that the fish were crowding themselves out.

Nowadays the bay's annual kill of menhaden, bass, shad, perch, and catfish no longer inspires much optimism. While overcrowding is still partly to blame, fishermen and scientists say that pollution is threatening to strangle life in the bay. They talk glumly of the bay losing its soul and slowly giving up entirely in the manner of now "dead" Lake Erie. The villain, they say, is heavy industry.

Chesapeake Bay is more than the fishbasket of the Eastern seaboard. Its tributaries drain an area of about 12-million people. It is the biggest of the U. S.'s 500-odd estuaries and probably the richest. And it is threatened by every environmental problem.

Threats. Everyone agrees that no plan to save the bay will succeed unless it is part of an over-all regional design to maintain the area as the "land of pleasant living," a tag heavily advertised by Baltimore's National Brewing Co. Such a systems approach may now be in the making, with the Army Corps of Engineers and Maryland both advancing plans for a study of all management problems that affect the history-rich basin. Thus, Chesapeake Bay could well be the first estuary in the world to be so managed, and become a model for the rest of the nation.

"If you look at the bay region from the business point of view, it's one hell of a way to run a business," says Joseph Mihursky, a biologist at the University of Maryland's Chesapeake Biological Laboratory. "All the interactions—soil, land development, fisheries—are looked at in a piecemeal way. How many look at it from the fish's point of view? Damn few. Yet this is the only way to really understand it if you aim to preserve the bay."

Public health officials insist that the bay is not going to die, that antipollution laws on the books of Maryland and Virginia can halt further deterioration. But many scientists feel that the two states are so heavily committed to industry that the long-run prognosis is bleak. The worries are well founded, for bearing down on the bay area are such diverse pressures as:

- The daily discharge of 400-million gal. of untreated sewage, which is not only toxic to fish life but also encourages the growth of an ugly type of algae that causes eutrophication, or the gradual oxygen depletion.
- The planned construction of additional coal-fired or nuclear power plants in Virginia and Maryland, which would raise the total of such plants to 17. Water used to cool the plants' condensers creates a "thermal effect" which biologists say spells doom for the bay's balance of fish species.
- The discharge of human waste from the 6,000 merchant ships that steam in and out of Baltimore each year, which is equivalent to the sewage of a city of 25,000.
- The dredging operations by the Army Corps of Engineers to deepen Baltimore harbor and the Chesapeake & Delaware Canal. These operations stir up mud. But perhaps more deleterious, dredging in the C&D Canal diverts water from the Susquehanna River at the top of Chesapeake Bay into Delaware Bay. The loss of fresh water is almost sure to raise the salinity in the rest of the bay and upset the life cycles and food chains of its fish.

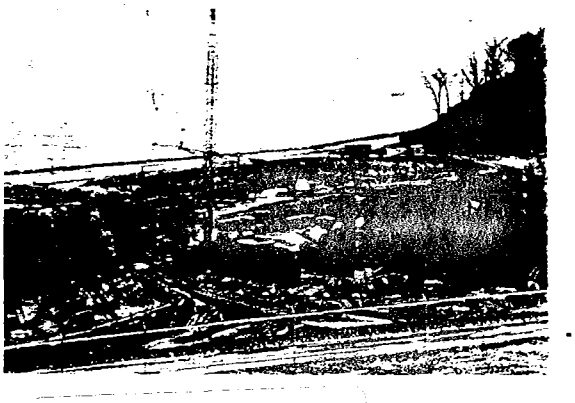
There are other pressures. The Susquehanna may be further diverted as a source of drinking water for several Eastern cities; the Army conducts chemical warfare tests at the Edgewood Arsenal, 30 mi. north of Baltimore; the Navy tests underwater explosives in the Patuxent River; and there is the constant runoff of pesticides, fertilizers, and soil from surrounding farmland.

Efforts to clean up the bay may serve as a national model

Pinning the blame. The people who make their living off the bay's $31-million annual haul of sumptuous aquatic life blame the problems on industrial polluters. They cite such companies as American Smelting & Refining, Glidden-Durkee, Kennecott Refining, and American Sugar for using the bay's resources for decades while doing little to maintain or improve its quality. Criti-



An oysterman tongs for his catch. If pollution goes unchecked, it could doom the bay's $31-million fishing industry.



A new threat to marine life is thermal pollution from nuclear power plants, such as this one rising at Calvert Cliffs.

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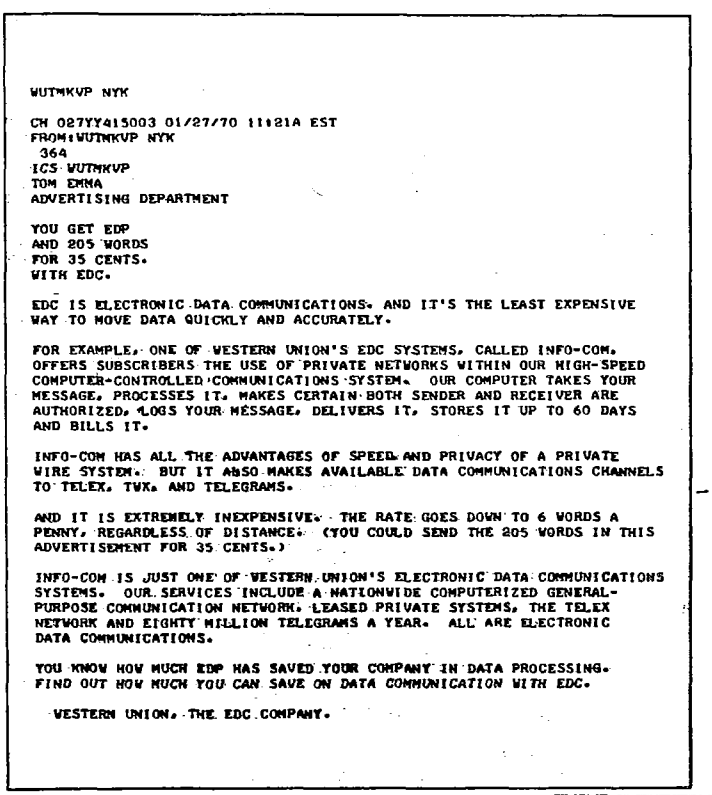

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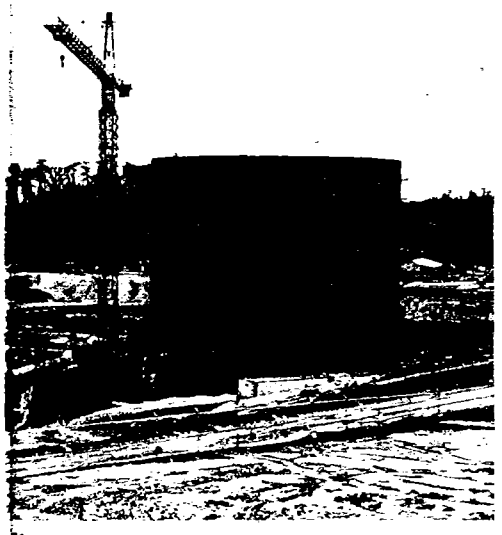
cism is also leveled at the Maryland Port Authority, whose rules over the dumping of sewage and oil by ships are considered too lax. But the fiercest criticism is saved for Bethlehem Steel, whose 35,000-man Sparrow's Point plant is said to be the largest steel mill in the world.

Like many other companies, Bethlehem spent little on pollution abatement before Congress passed the Water Quality Act in 1965. Now the company plans to have spent $30-million to clean up its wastes by 1971.

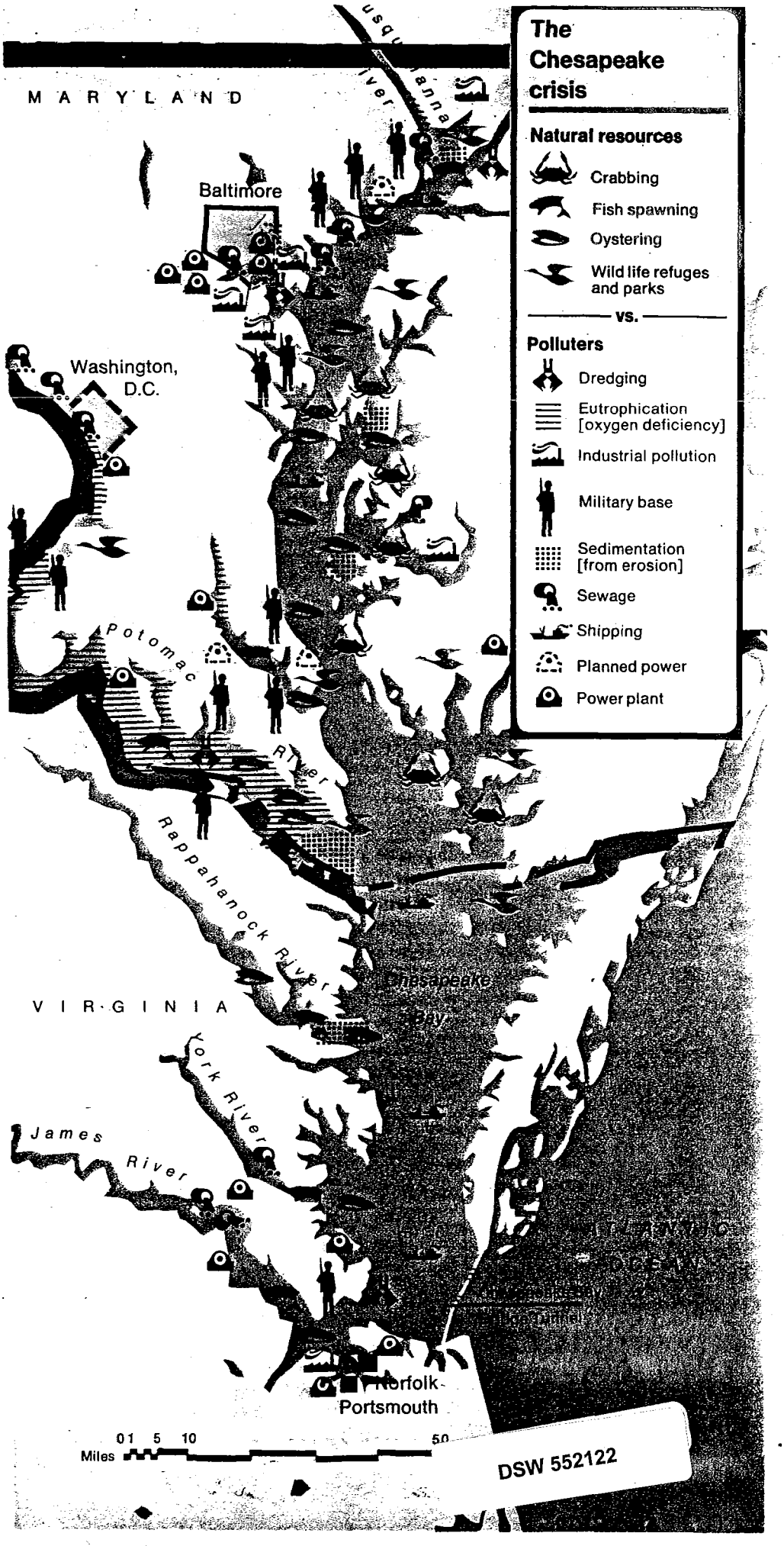
Dr. Alan D. Brandt, Bethlehem's manager of environmental quality control, says, "This will take care of our problems—unless standards change." Nationally, Bethlehem has spent $104-million for pollution controls in the past five years, or 6½% of capital investment. This will rise to 11% over the next five years, an official estimates, adding that "you get no return" on this type of capital investment.

What troubles the seafood industry is that the return on its investment is diminishing. Earl Conrad, vice-president of Haynie Products, Inc., says the menhaden fish catch has fallen 60% in the past six years. Conrad attributes the decline to pollution. He, too, fears that the bay may be doomed. Most fishermen and biologists share Conrad's pessimism. For even though the oyster catch has risen, experts say the reason is not that the quality of the water has improved but that oystermen have upgraded conservation practices. Indeed, human sewage has forced the closing of 28,000 acres of oyster beds at various sections along the bay.

Amends. One person who believes that a corner has been turned in improving the bay is James B. Coulter, Maryland's affable, cigar-smoking director of natural resources. His optimism is based on the state's ambitious plan to end the eutrophication problem within the decade, to put all agencies that



REGIONS



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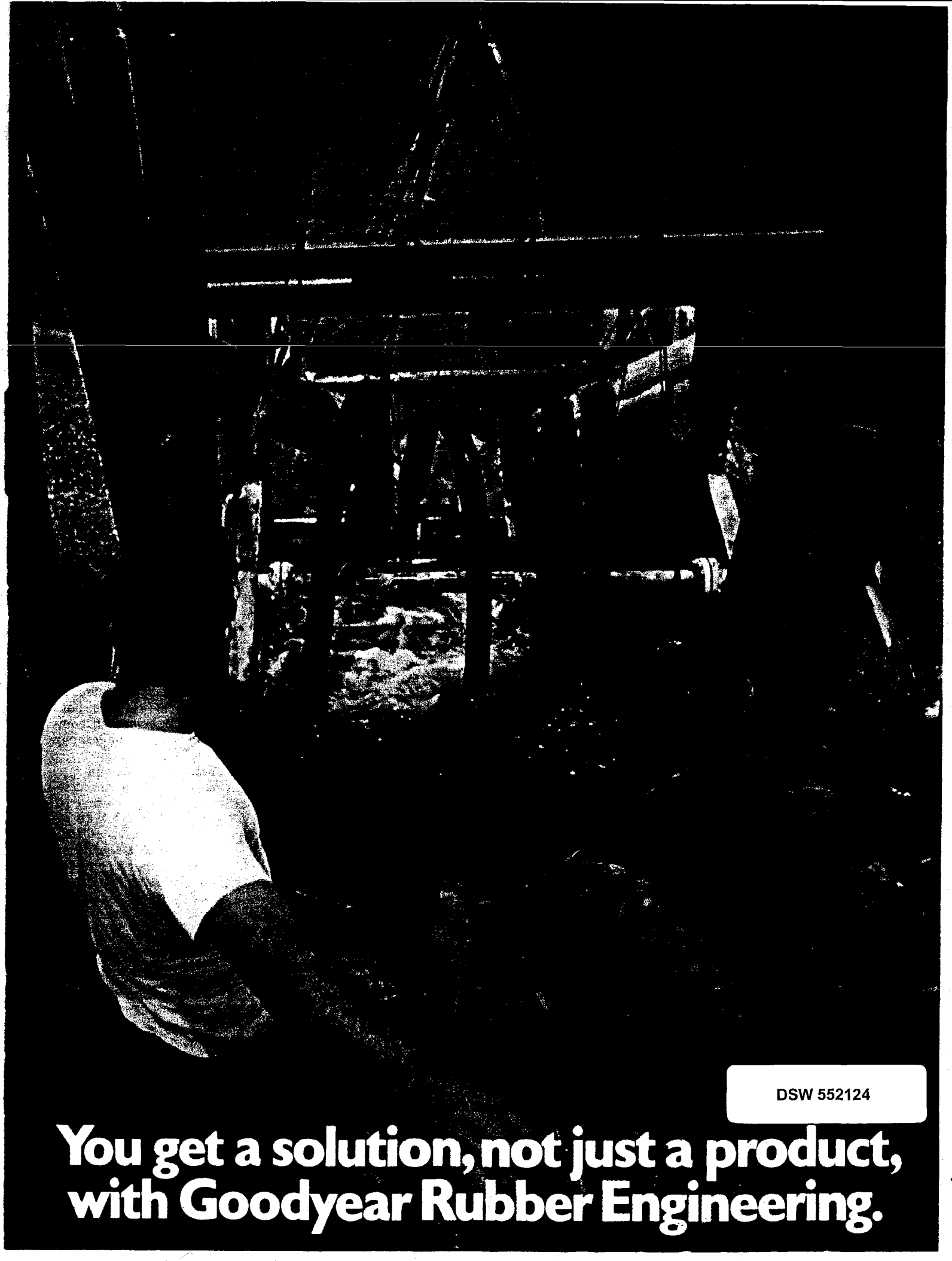

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Everyone agrees that only a regional plan can turn the tide

regulate natural resources under one department, and to convert the dingy and putrid inner harbor of Baltimore into an urban park fit for water sports.

"The bay is unique now in health and productivity," Coulter says, "but that doesn't mean there isn't a real threat. The waters coming into it are polluted and could change the bay in a short time." Under Coulter, Maryland's water quality standards were among the first to be approved by the federal government.

Ironically, rapport between the state and Washington is declining. The government has delivered only a small fraction of the water pollution control funds promised in 1966, Coulter says, adding: "Moreover, we don't get the kind of technical help we need."

Gadfly. Coulter and other state environmental officials have in common the delicate problem of balancing economic growth against ecological harm while fending off the barbs of such "professional citizens" as Jess Malcolm, head of the Chesapeake Bay Foundation. Malcolm spurts around the Middle Atlantic states stirring the public with sordid tales of pollution in the bay.

But his chief concern is not so much the esthetic appearance of the region and unswimmable conditions in the upper bay as the construction of nuclear reactors. Claiming that there is as yet no safe way to dispose of radioactive wastes, he says, "If it gets out, it's curtains, you know."

Malcolm holds that the only cure-all for the bay's problems is zero population growth. "Babies—that's the problem," he says. But a static population, almost everybody agrees, is at best a long way off. What is needed, says biologist Mihursky, is a well-financed effort to understand life cycles and food chains and the way changes in water chemistry affect these ecological relationships.

Mihursky and his colleagues are now assembling the tools to study the bay from every ecological angle. Once funding is approved, his group will go to work on the heavily polluted Patuxent River, where a Potomac Electric Power Co. coal-fired plant is heating the waters around Chalk Point. They hope to study the thermal effects on the life cycles of such organisms as the blue crab and striped bass. "The trouble," Mihursky says, "is that you can make all the gut appeals you want, but you're not going to solve these problems with nickel and dime support. We should have 10 times the number of people we have working on these problems."

Inadequate financial support is not the only thing that plagues Mihursky. He and his fellow scientists are also sharply divided on the extent of the threat to the bay's ecology. The hottest debate is over Baltimore Gas & Electric's proposed nuclear power plant at Calvert Cliffs. The question is what effect the heated water discharged by the BG&E plant will have on the plankton and other tiny swimming and crawling creatures that form the food chain for Chesapeake Bay's commercial, sport, and aesthetic wildlife. No one disputes that without this melange of microscopic life the bay can be written off.

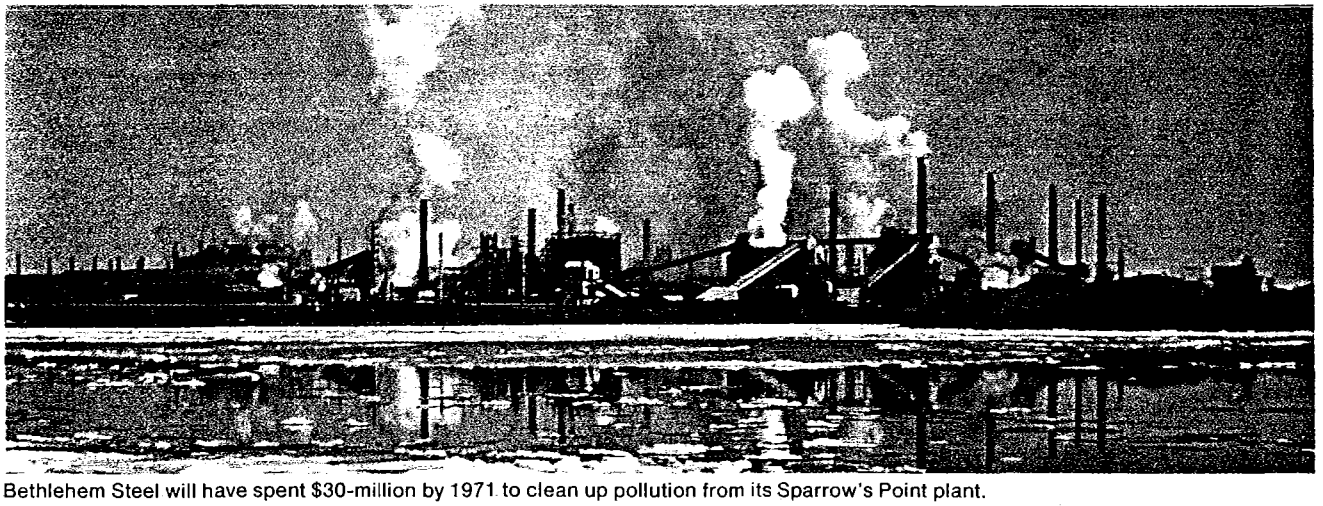
'You're not going to solve the problems with nickels and dimes'

Scientists at Johns Hopkins University's Chesapeake Bay Institute and others who have studied the thermal influence for BG&E say the added heat will be slight and do little to alter the waters of the bay. But other biologists—some of whom point out that the scientific proponents of the plant are also employed as consultants to the Atomic Energy Commission and BG&E—maintain that too little is known about the effect of even a small heat increment on marine organisms. The food chain is only as strong as its weakest link, say opponents of the plant. They believe that even a fraction of a degree of temperature change can break the chain. And they contend that billions of the microscopic organisms will be scalded to death in the plant's cooling coils.

Waking up. Conservationists say that the biggest need is a program of research aimed at giving lawmakers in Annapolis and Richmond the answers they need to formulate a unified attack on the bay's problems. A regional approach could be achieved, of course, by agreement between officials in both state capitals. But Marylanders complain that Virginia's water philosophy weaves around exploitation.

Taking all factors into account, Dr. William Hargis, director of the Virginia Institute of Marine Sciences at Gloucester Point, says: "I think an issue we haven't faced squarely is that there is a certain level of degradation that is inherent in population growth and industrial development. We'll have to reconcile ourselves to a certain degree of it. People have a great deal more faith that science and technology will bail us out of our problems than is warranted. We must understand that only a certain amount of human activity can be tolerated before conditions change in such a way that only degradation can result."

By the year 2000, the region's population will have soared to 20-million. If enough of these people come to consider the honking rise of Canada geese out of tidewater marshland as important as economic development, then Chesapeake Bay will remain fairly "fruitful and delightsome." And National Beer can keep on playing its jingle. ■



Bethlehem Steel will have spent $30-million by 1971 to clean up pollution from its Sparrow's Point plant.

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