such as Q-switched lasers. The observed bleaching occurs because the intense laser beam depopulates the ground state of the pthalocyanine molecule and populates an excited state to the extent that the absorption nearly disappears. Armstrong observes increases in the transmission by several factors of ten and obtains maximum transmission approaching 100 percent as the intensity of the transmitted beam increases.

Another important development that may eventually find application was described by S. K. Kurtz and co-workers (Bell Telephone Laboratories). They have found that a comparatively large change in the refractive index of the perovskite paraelectric, potassium niobate-tantalate can be produced by the lattice polarization induced by an applied electric field. The index change can be as large as 0.007. In principle one should be able to construct from this material a prism in which an applied electric field could deflect a transmitted beam of light such that a projected spot would be moved by 160 times its diameter at a frequency as high as the microwave range.

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Water Supply and Pollution Control

Among the environmental health problems considered at the American Medical Association Congress (Chicago, Illinois, 1–2 May 1964) was that of water supply and pollution control. Four physicians and a sanitary engineer participated in the discussion.

Harold M. Erickson (deputy director, California Department of Public Health) optimistically indicated that our water pollution problems can be solved by current knowledge and techniques, but simultaneously warned that maintaining the status quo is not sufficient for the future. In tracing the history of water pollution control he noted that early efforts were directed primarily toward preventing such diseases as cholera, typhoid fever, and the dysenteries. The problem became more complex with the development of industry and the appearance of organic wastes which differ markedly from domestic sewage. Today, with population growth and accelerating demands for water, the great need is to provide for the reuse of water on an increasing scale. Erickson defined water pollution as "water quality impairment." He discussed ground and surface water pollution and considered organics, natural and artificial, radiation, and biological agents of various kinds. The consequences of pollution from the health, recreational and economic points of view were included.

In discussing the relation of water pollution to health, Charles L. Wilbar (Secretary of Health, Pennsylvania) pointed out that the United States has, for the most part, been free of waterborne epidemics. He singled out infectious hepatitis as a current problem and cited, as causes of the disease, a defective public water supply in one case and some of the clams of Raritan Bay in another case. Wilbar spoke of the work being done by the U.S. Public Health Service at the Taft Sanitary Engineering Center (Cincinnati, Ohio) on enteric viruses in primary and secondary sewage treatment. Gastrointestinal illnesses and their relationship to the sanitary quality of the water supplies in six Rocky Mountain communities were discussed as a good effect-versus-cause case. Sewage, pesticides, organics, and radioactive materials were mentioned as unsolved problems. A specific example is goiter in India which occurs at a higher rate in downstream villages than in upstream ones. Methemoglobinemia in infants who are given water from shallow contaminated wells is a possible hazard. Detergents and phosphates were also mentioned as possible problems. Wilbar recognized the fact that, although health is the most important item, water pollution control is justified because of its effect on recreation, industry, and agriculture. He concluded with a series of suggestions for practicing physicians to follow in order to ensure proper water supplies.

Russell E. Teague (Commissioner of Health, Kentucky State Department of Health) discussed local and multistate water pollution control programs. He reviewed a typhoid fever outbreak, and indicated that there were many cases of infectious hepatitis from water, and contamination of water by enteroviruses. With respect to such diseases and contamination, Teague said that they can be engineered out of the environment; this remark was a direct answer to the challenge of the entire congress. Disciplines and the costs to the people of an area and to its industry and government were presented. He pointed out that although government provided funds for reducing pollution, it commonly failed to provide funds to secure supplementary and necessary water supply of good quality. The functions of cities, states, interstate agencies, and the federal government were reviewed.

Regional water pollution control resources were discussed by the sanitary engineer member Curtis M. Everts (director, Pacific Northwest Water Laboratory, U.S. Public Health Service, Corvallis, Oregon). Everts indicated that staff, facilities, collection of data, provision of a comprehensive plan to prevent and control pollution, a good information program, research, and enforcement all are necessary to solve water pollution problems. Activities of the Public Health Service water pollution control surveillance system, the functions of the Corps of Engineers, the Bureau of Reclamation, and the Department of Health, Education, and Welfare were described. Gap areas of knowledge involving synthetic organic pesticides and other synthetic organics were mentioned. Also noted was the advanced waste treatment projects of the Public Health Service in which newer methods of waste treatment are being explored in cooperation with industry. The new and proposed field laboratories of the Department of Health, Education, and Welfare and the Taft Sanitary Engineering Center were cited as facilities that are making or are about to make important contributions to the solution of water supply problems. Everts felt that the art of presenting a case for clean streams to the public has improved tremendously during the last few years. This is shown by the high degree of collaboration secured from cities and industries faced with possible enforcement actions.

Present and future technical problems were discussed by Gaylord W. Anderson (director, School of Public Health, University of Minnesota). He traced the change in responsibility from the personal to the collective effort that is needed to assure good water supplies. More than this he emphasized the current situation as requiring the adaption of the environment to man. Quantity and quality of water are inseparable; reuse is mandatory; cleanup after each use is essential. We must continue to work on three fronts: (i) the effect on man of chemical and biologic contaminants in water, (ii) the prevention of undesirable or potential-

ly dangerous contamination, and (iii) the development of measures to remove contaminants whose introduction we have been unable to prevent.

Biologic and toxicologic research, chemical and physical methodology, engineering for prevention of pollution, the use of substitute and less toxic materials where contamination is inevitable, and eventually further development of methods to restore polluted water insofar as possible are all essential. Anderson also cautioned about the creation of other hazards in solving a problem. The elimination of enteric infections ranked high on Anderson's list of accomplishments but he cautioned again on our lack of knowledge concerning viruses and chemicals.

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Forthcoming Events

August

27–29. Pacific Slope **Biochemical** Conf., San Francisco, Calif. (M. P. Gordon, Dept. of Biochemistry, Univ. of Washington, Seattle 98105)

27–29. **Reactive Intermediates in Organic Chemistry**, symp., Quebec City, P.Q., Canada. (C. R. Engel, Faculté des Sciences, Université Laval, Quebec City)

28–3. **Neurology**, 8th intern. congr., Vienna, Austria. (H. Hoff, Medizinische Fakultät, Neurologische und Psychiatrische Abteilung, Vienna 9)

29. **Gravity Research Foundation**, annual, New Boston, N.H. (The Foundation, Gravity Village, New Boston)

29–5. International **Epidemiological** Assoc., 4th intern. meeting, Princeton, N.J. (L. Breslow, Div. of Preventive Medical Services, California Dept. of Public Health, 2151 Berkeley Way, Berkeley 95704)

30–2. Electronic Properties and Applications of **Solid-Solid Interfaces**, Boston, Mass. (F. S. Gardner, Office of Naval Research, 495 Summer St., Boston, Mass.)

30–3. **Illuminating Engineering** Soc., Miami Beach, Fla. (A. D. Hinckley, IES, 345 E. 47 St., New York 10017)

30–4. American **Chemical** Soc., fall natl. meeting, Chicago, Ill. (A. H. Emery, 1155 16th St., NW, Washington, D.C.)

30–4. Institute of **Mathematical Statistics**, annual, Amherst, Mass. (D. M. Gilford, Mathematical Sciences Division, Office of Naval Research, Washington, D.C.)

30–4. American **Ornithologists'** Union, Lawrence, Kan. (L. H. Walkinshaw, 1703 Wolverine Tower, Battle Creek, Mich.)

30–5. **Applied Mechanics**, 11th intern. congr., Munich, Germany. (Organisations-Sekretariat des Mechanik-Kongresses, Inst. für Mechanik, Arcisstr. 21, Munich 2)