Ohio River Valley Water Sanitation Commission

Illinois

Indiana

Kentucky

New York

Ohio River Valley

Water Sanitation Commission

---an interstate agency representing Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia, each of which is pledged by compact, approved by the Congress of the United States, faithfully to cooperate in the control of future pollution in and the abatement of existing pollution from the waters of the Ohio River valley.

THIRD ANNUAL REPORT · 1951

OHIO RIVER VALLEY WATER SANITATION COMMISSION

CLARENCE W. KLASSEN, *Chairman*
E. BLACKBURN MOORE, *Vice Chairman*
HENRY WARD, *Past Chairman*

F. H. WARING, *Secretary*
LEONARD A. WEAKLEY, *Counsel*
ROBERT K. HORTON, *Treasurer*

COMMISSION MEMBERS

ILLINOIS

CLARENCE W. KLASSEN
Chief Sanitary Engineer

ROLAND R. CROSS, M. D.
Director of Public Health

J. J. WOLTMANN
Consulting Engineer

OHIO

HUDSON BIERY
Terrace Park, Ohio

KENNETH M. LLOYD
Executive Secretary
Mahoning Valley Industrial Council

JOHN D. PORTERFIELD, M. D.
Director of Health

WEST VIRGINIA

N. H. DYER, M. D.
State Health Commissioner

W. W. JENNINGS
West Virginia Water Commission

ROBERT F. ROCHELEAU
Executive Secretary-Engineer
West Virginia Water Commission

INDIANA

BLUCHER A. POOLE
Technical Secretary
Stream Pollution Control Board

L. E. BURNEY, M. D.
State Health Commissioner

JOSEPH L. QUINN, JR.
The Hulman Company

PENNSYLVANIA

E. A. HOLBROOK
Pittsburgh, Penn.

HERBERT P. SORG
Speaker of the
House of Representatives

RUSSELL E. TEAGUE, M. D.
Secretary of Health

VIRGINIA

E. BLACKBURN MOORE
Chairman, Water Control Board

T. BRADY SAUNDERS
Commissioner, Water Control Board

ROSS H. WALKER
Commissioner, Water Control Board

KENTUCKY

HENRY WARD
Commissioner of Conservation

BRUCE UNDERWOOD, M. D.
State Health Commissioner

EARL WALLACE
Division of Game and Fish

NEW YORK

MARTIN F. HILFINGER
President, Associated Industries
of New York State, Inc.

HERMAN E. HILLEBOE, M. D.
State Health Commissioner

CHARLES B. MCCABE
Publisher, *New York Mirror*

UNITED STATES GOVERNMENT

O. LLOYD MEEHEAN
Fish & Wildlife Service

ROBERT G. WEST
Corps of Engineers

LEONARD A. SCHEELE, M. D.
Surgeon-General
Public Health Service

STAFF MEMBERS

EDWARD J. CLEARY, *Executive Director and Chief Engineer*
JOHN C. BUMSTEAD, *Assistant Director*
ROBERT K. HORTON, *Sanitary Engineer*
JOHN E. KINNEY, *Sanitary Engineer*
WILLIAM R. TAYLOR, *Chemical Engineer*
ELMER C. ROHMILLER, *Staff Assistant*
HAROLD W. STREETER, *Consultant*

Headquarters • Cincinnati 2, Ohio • 414 Walnut Street

Told in brief....

THIS IS THE THIRD-YEAR REPORT of an interstate pollution-control agency representing Illinois, Indiana, Ohio, Pennsylvania, New York, Virginia, West Virginia and Kentucky. In 1948 these eight states pledged by compact, approved by the Congress of the United States, to cooperate in the preservation of water resources in the Ohio River valley.

THERE WAS NO PREVIOUS PATTERN for pooling of resources, energies and police powers of eight sovereign states as envisioned by the compact agreement. During the past three years the representatives of the states, meeting as the Commission, have patterned a program. At the same time they have directed their staff in the execution of important elements in the program.

A BASIC CONSTITUTIONAL QUESTION—could a state withdraw from its obligations under the compact?—was resolved this year. The Supreme Court of the United States rejected the suggestion that an agreement between states could be unilaterally nullified or given final meaning by an organ of one of the states. This view was expressed in reversing a finding of West Virginia's highest court that the compact agreement violated a provision of the state constitution and also resulted in improper delegation of police powers.

ADOPTING THE PHILOSOPHY that persuasion with facts rather than compulsion by law was a speedier way to gain its objectives, the Commission has been actively engaged in pollution-abatement education among communities and industries. This local-action campaign is designed to tie-in with state control activities and includes exhibits, movie showings and literature, all of which supplements an existing newspaper, magazine, radio, television and speaker program.

INDUSTRY PARTICIPATION in the Ohio valley abatement program has been furthered through establishment of "action committees" on which top-management is represented. The

committees are made up of men chosen by the companies operating in one or more of the states represented on the Commission. Four industry groups — steel, metal-finishing, distillery and chemical salts—were activated a year ago and have made tangible progress in extending Commission efforts. A fifth industry committee, representing the bituminous coal producers, has just gone into action looking toward solution of the mine-acid drainage and allied problems.

STATE POLLUTION CONTROL AGENCIES, in accordance with compact agreement, continue to exercise direct responsibility for securing action by municipalities and industries in their areas to install waste-treatment works. For this purpose legislation in the several states is being strengthened. For example, Ohio passed a new pollution control law this year; Illinois passed twenty-three bills revising its pollution-abatement statutes. Last year Kentucky revised and greatly strengthened its pollution laws.

TECHNICAL STUDIES, on the basis of which the Commission can formulate policy decisions and requirements for waste treatment, were advanced by the completion of bacterial-quality determinations, research on phenol treatment methods, an analysis of pollution patterns in the Ohio River and of chloride contamination in the Muskingum River. Projects also were initiated at the Kettering Laboratory of Applied Physiology to determine toxicity potentials of substances discharged in public waters, and at Lehigh University to develop methods of analysis of plating wastes.

REPORTING ON THE STATUS of abatement work in their areas, the eight states reveal that in the area represented on the Commission (with an urban population of 8,500,000) 39 per cent of the sewage is now receiving some form of treatment prior to disposal. Municipalities whose population totals another 8 per cent have treatment works under construction. This satisfying trend of progress probably cannot be maintained, however, because of federal restrictions on public works construction resulting from the requirements of the national defense program.

BEHIND THIS DIGEST OF EVENTS lie the efforts and the hopes of many people who have joined together for a common purpose—the preservation of the water resources of the Ohio River valley through pollution abatement.

Where we stand today

Three years ago the Ohio River Valley Water Sanitation Commission embarked on an eight-state campaign of stream pollution control. Embracing many elements of endeavor, it is a complex undertaking that rests on securing the favorable response of millions of people and thousands of industries.

The undertaking is an experiment in American government for the solution of a regional problem through state and local action. It is also an educational campaign in the creation of public awareness and the acceptance of a common responsibility in arresting the degradation of water resources. And finally, it is an endeavor that calls for the application of scientific knowledge and engineering skills to secure maximum benefits with the least expenditure of money.

Within these boundaries solid progress has been made as outlined in this record of where we stand today.

Supreme Court Decision

Perhaps the greatest uncharted area in which this Commission found itself was that related to the obligations of signatory states. In a unanimous decision on April 10, 1951, the Supreme Court of the United States defined this boundary.

The question arose when the auditor of the State of West Virginia refused to issue a warrant in 1949 for the disbursement of funds to the Commission already voted by the legislature, stating his belief that such action was unconstitutional. The same auditor previously had approved payment of West Virginia's 1948 share of Commission's expenses. The West Virginia Court of Appeals, in a 3 to 2 decision, sustained the auditor. This court interpreted the compact as: (1) Requiring the state to incur a financial obligation in violation of debt limitations imposed by the West Virginia constitution; and (2) resulting in a delegation of police power that is contrary to general principles of constitutional law.

When this decision was taken to the Supreme Court of the United States for review, that body reversed the state court. It ruled that no obligations were created in conflict with the West Virginia constitution, and gave a complete stamp of approval to the pooling of police powers by the states for the regulation of waste discherges.

Broadly significant to all interstate agencies was the court's opinion that questions of interpretation of a compact document rested ultimately with the Supreme Court of the United States, thus rejecting the suggestion "that an agreement solemnly entered into between States by those who alone have political authority to speak for a State can be unilaterally nullified or given final meaning by an organ of one of the contracting States."

Program Advancing

During the year in which the West Virginia question was being resolved, the Commission was not retarded in advancing fundamental elements of its program. These included: Adoption of water-quality objectives; activation of industry groups for the promotion of waste-control measures; laying the groundwork for valley-wide education and local action programs; and the conduct of technical studies and stream surveys. Details are given beginning on page 11.

Fair progress could be reported on the status of municipal sewage-treatment installations as the Commission completed its third year. Data compiled for the eight states signatory to the compact shows that 39 per cent of the wastes from 8,500,000 people (representing the urban population in the valley) is now receiving some form of treatment. Construction has been initiated on works in municipalities whose population totals another 8 per cent.

A scoreboard on the status of municipal sewage treatment installations is shown on page 18.

CONSTRUCTION RETARDED

Whether this rate of construction of municipal treatment works—or anything approaching it—can be maintained under present national defense conditions is dubious. Federal government regulations on construction activities and restrictions on materials have virtually called a halt to the initiation of all public-works projects. In fact, cities with sewage-treatment works already under way are having difficulties in securing materials for their completion. The immediate outlook grows dimmer with the probability that there may be even more drastic curbs on construction.

FAVORABLE FACTORS

Should the situation change with regard to availability of materials—and in a more sympathetic recognition by the national government of the view held by this Commission that pollution-control projects form an essential element of defense mobilization in terms of health safeguards and water conservation – the Ohio valley stream clean-up program is geared for action. Supporting this claim is the fact that final plans have been completed and approved for new treatment plants serving 20 per cent of the population in the valley, and for another 17 per cent final plans are being prepared.

Meantime, public sentiment and consistently aggressive action on the part of the signatory state health and regulatory agencies are compelling communities in the valley to take a more realistic view of their responsibilities for pollution abatement.

Progressive industries are supporting the clean-stream campaign in the Ohio valley, and have been marshalling their forces to make it effective. A good demonstration of this is seen in their establishment of "action committees" under the guidance of the Commission. Supported and staffed by representatives of progressive industrial management, these committees are spearheading industry cooperation. Details of how this is being done are given beginning on page 23.

PHILOSOPHY OF APPROACH

Endowed as it is with legal powers for securing compliance with its orders, the Commission has not yet seen the necessity for employing compulsion. Instead, it has felt that the speediest progress in

attaining its goals can be made through the medium of public education and persuasion. Meantime, it is accumulating the evidence and building the factual record so that if legal prohibition must be invoked there can be little argument that the Commission has acted in a hasty, capricious or unreasonable manner.

Then there are communities in all of the eight states that have been tardy – for one reason or another – in tackling their sewage disposal problem. In these places the Commission is laying the groundwork for intensive education and persuasion to supplement efforts being made by the states. Where interstate waters are involved evidence is being analyzed on the basis of which public hearings will be called to define specific details of performance.

Additional elements of this philosophy and program are described in the section on special projects.

STRONGER STATE LEGISLATION

One of the cardinal principles of Commission operations is that execution of its objectives "will be accomplished whenever possible through the use of, or through cooperation with, the essential established regulatory agencies of the state." To that end it is essential that the legislation under which state agencies operate be equal in scope to the responsibilities assumed under the compact.

Further achievement in this direction can be cited. The Ohio General Assembly passed a new law setting up a five-man pollution-control board representing health, natural resources, commerce, industry and municipalities. Heretofore, pollution control was administered primarily by the state health department. Under the new law the state director of health is chairman of the board. Inadequacy to cope with offenders, particularly those discharging into the Ohio River itself, was a principal reason for abandoning former legislation, a 1949 amendment having failed to provide sufficient power. The law became effective September 27, 1951.

Ohio thus followed the lead taken by Kentucky last year in establishing a water control commission in which are consolidated the interests, duties and powers of various groups concerned with pollution. The initial task to which the Kentucky commission has devoted itself has been the issuance of permits for discharge of wastes. This action is bringing into focus an understanding of the size and nature of

Canton, Ohio, activated-sludge and garbage grinding plant, which is now two-thirds completed, will treat 20 million gallons a day of sewage from a population of 130,000. The plant was designed by Alvord, Burdick and Howson, consulting engineers, of Chicago.

More ground-breaking ceremonies of this kind must be scheduled to make the Ohio River cleanup a reality. At Cincinnati encouraging words are given by Cincinnati Councilman T. M. Berry, Arthur Caster, senior sewage disposal engineer, Robert G. Sarvis, director of public works, Hudson Biery, Ohio compact commissioner, A. B. Backherms, chief design engineer, and T. J. Montgomery, city engineer, to the men with the shovels—City Manager W. R. Kellogg and ORSANCO's executive director, Edward J. Cleary, on January 9, 1951.

pollution loads and at the same time has provided more intimate contact with those who must undertake remedial measures.

Pollution-control legislation was revamped in Illinois this year to: (1) consolidate all authority in one agency to avoid overlapping and duplication; (2) facilitate financing of sewerage works; and (3) provide a more effective program. Also included was the establishment of a council of consultants who would aid the state board in formulation of policies and the assembly of data on water uses.

In West Virginia, action was deferred on proposed legislation that would have broadened the base of the existing state water commission operations.

Administrative Functions

It was not until the end of this fiscal year that it could be said the Commission was approaching adequacy for the size of its tasks. Work associated with the operations of industry committees expanded tremendously as these groups grew in number and probed new elements of waste control. The assembly and interpretation of technical data on which Commission policies are established commanded special study. Consultations with other governmental agencies and with industries increased in number. An intensified public-education campaign was developed.

Four major publications in addition to the annual report were issued, and two others have been brought near to completion. A listing of all Commission publications is given on page 36.

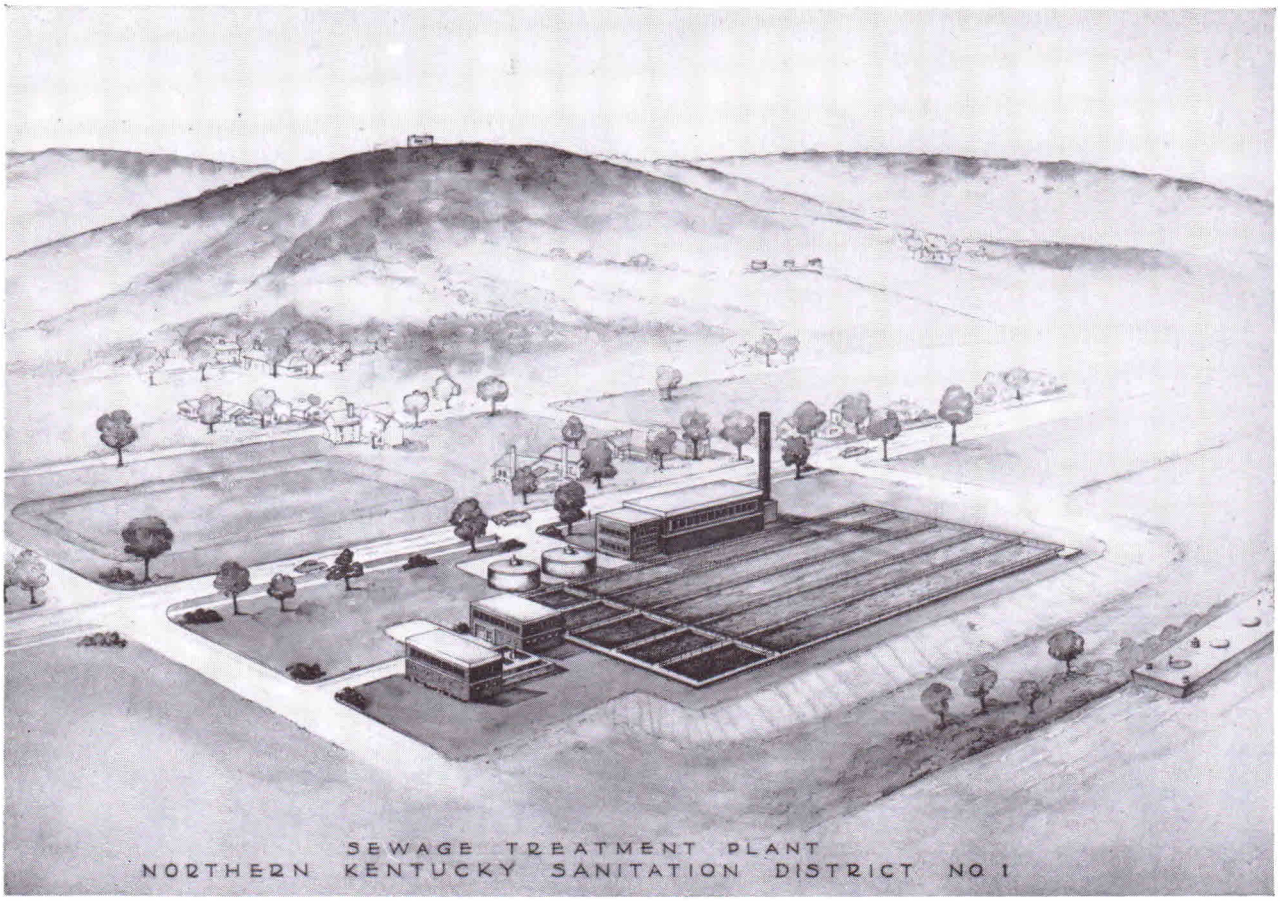
As of June 30, the staff numbered eleven; five of these are stenographers or clerical workers. In addition, the Commission retained the services of Harold W. Streeter on a one-day-a-week basis for special studies.

STAFF ADDITIONS

On January 2, 1951, John C. Bumstead reported for duty as assistant director. A former lieutenant-colonel in the Army Sanitary Corps, he has specialized in recent years as an engineering editor on water treatment and waste disposal practices. Mr. Bumstead, a registered professional engineer, is a graduate of Rensselaer Polytechnic Institute.

On April 26, 1951, Elmer C. Rohmiller joined the staff to aid in the conduct of exhibits, the preparation of educational material and the drafting of charts and drawings. Mr. Rohmiller was formerly an industrial specialist with the Ohio River Division, U. S. Army Engineers.

Robert K. Horton, staff sanitary engineer, who has been acting in a dual role as treasurer of the



Covington, Newport and fourteen other adjoining cities comprising the Northern Kentucky Sanitation District No. 1 will be jointly served by a sewage-treatment plant that incorporates sedimentation with chemical flocculation facilities, vacuum filtration and incineration of sludge. Plant capacity is 22.5 million gallons daily. Vogt-Ivers-Seaman Associates of Cincinnati are the engineers and J. Stephen Watkins of Lexington, Ky., is consultant. The financing is being arranged and construction work is scheduled for early 1952.

Commission, was re-elected to this latter post for the coming year.

LEGAL COUNSEL

All matters relating to the legal aspects of the Commission's business continue to be conducted by the firm of Taft, Stettinius and Hollister, under the direction of Leonard A. Weakley, one of the partners. Presentation of the West Virginia case before the Supreme Court of the United States was made by John B. Hollister, a senior member of the firm.

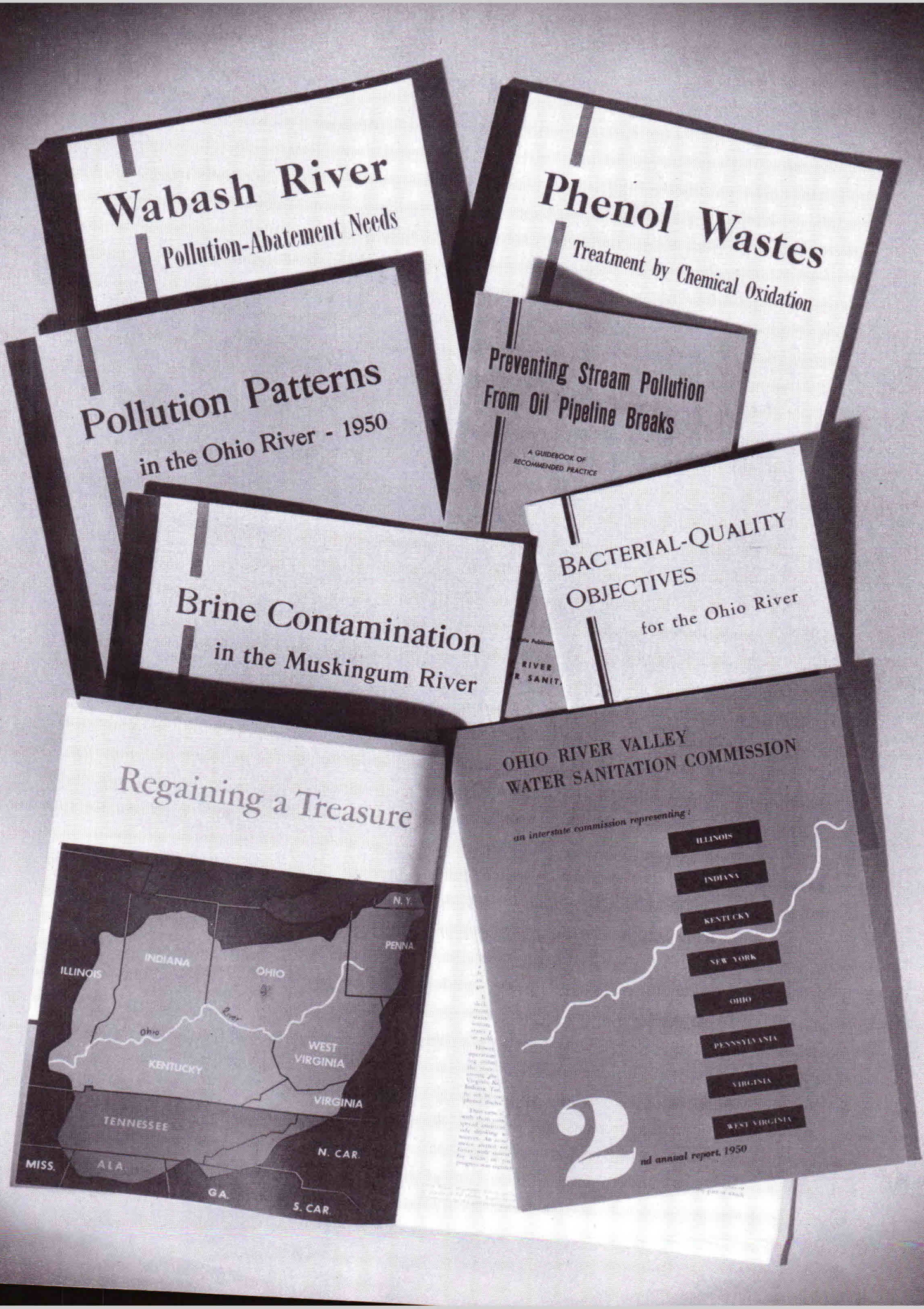
COMMISSION MEETINGS

Four quarterly meetings were held during the year, and there was one special meeting of the executive committee.

The Engineering Committee met at five all-day sessions to take action on technical recommendations that were later submitted to the Commission as a whole. Other committees were active, particularly the pension-plan group, which has virtually completed its assignment.

MEETING DATES AND PLACES

July	11 – Engineering Committee
"	12 – Commission–Cincinnati
October	3 – Engineering Committee
"	4 – Commission–Cincinnati
January	9 – Engineering Committee
"	10 – Commission–Cincinnati
March	22 – Engineering Committee–Cincinnati
April	4 – Commission–Hot Springs, Virginia
"	5 – Joint Conference with Industry-Action Committees–Hot Springs, Virginia
June	19 – Executive Committee and coal industry representatives–Cincinnati
"	19-20 – Engineering Committee–Cincinnati


Wabash River
Pollution-Abatement Needs
Phenol Wastes
Treatment by Chemical Oxidation
Pollution Patterns
in the Ohio River - 1950
Preventing Stream Pollution
From Oil Pipeline Breaks
A GUIDEBOOK OF
RECOMMENDED PRACTICE
Brine Contamination
in the Muskingum River
BACTERIAL-QUALITY
OBJECTIVES
for the Ohio River
Regaining a Treasure
N. Y.
PENNA.
ILLINOIS
INDIANA
OHIO
Ohio
River
WEST
VIRGINIA
KENTUCKY
VIRGINIA
TENNESSEE
N. CAR.
MISS.
ALA.
GA.
S. CAR.
OHIO RIVER VALLEY
WATER SANITATION COMMISSION
an interstate commission representing:
ILLINOIS
INDIANA
KENTUCKY
NEW YORK
OHIO
PENNSYLVANIA
VIRGINIA
WEST VIRGINIA
2
nd annual report, 1950

Facts and contacts

Activities of the Commission incorporate a wide variety of endeavors. These range from technical studies to educational efforts designed to create public support for enforcement of compact provisions, and they include intensive contact work among industry groups as well as municipalities and other pollution-control agencies. Major undertakings with which the Commission was concerned during the year included action on the following matters:

Facts for Action

Assembly and interpretation of scientific facts and engineering data as as basis for Commission policy with regard to treatment needs and their economic justification constitute a basic staff endeavor.

In this work the staff has the guidance of an engineering committee on which are represented the chief sanitary engineers of each of the signatory states, the U. S. Public Health Service, the U. S. Army Engineers and the Fish and Wildlife Service of the U. S. Department of the Interior.

BACTERIAL-QUALITY OBJECTIVES

Because of the wide divergence of viewpoints and standards throughout the nation on acceptable limits of bacterial contamination the Commission in March, 1950 authorized a study of the subject. The work has been completed under the direction of Harold W. Streeter, U. S. Public Health Service (retired), a specialist on this phase of water-quality, who has been studying Ohio River conditions since 1914.

Drawing upon his experience and supplementing it with new information gathered by the Commission and its signatory states, Mr. Streeter prepared certain recommendations. After consultations with the Engineering Committee and other authorities, agreement was reached leading to the adoption of bacterial-quality objectives by the Commission on April 4, 1951.

These objectives provide the basis on which the Commission will reach decisions on the establishment of treatment requirements for sewage and the evaluation of sanitary conditions in the Ohio River. Available is a complete report that sets forts the objectives for both water supply and recreational uses, the manner in which the objectives are to be interpreted, and the background for their validity.

TOXICITY POTENTIALS

Of even broader significance than bacteriological limits to a proper understanding of water-quality requirements is the project launched by the Commission this year in cooperation with the Kettering Laboratory of Applied Physiology in Cincinnati.

Probing into a field largely unexplored, the Commission is sponsoring, by contract with this laboratory, investigations to determine if unsuspected public-health hazards exist as a result of trace constituents from industrial and other wastes that may find their way into streams. Heretofore, principal attention to water quality has been focussed on the removal of disease-producing bacteria and the gross toxicity created by certain metals. Questions re-

Basic to formulation of Commission policy and development of public support and confidence are facts—carefully assembled, honestly interpreted and clearly presented. Pictured here are samples of recent reports.

BACTERIAL-QUALITY OBJECTIVES
Adopted by the Commission

Water Supply Uses – The monthly arithmetical average "most probable number" of coliform organisms in waters of the river at water intakes should not exceed 5,000 per 100 milliliter in any month, nor exceed this number in more than 20 per cent of the samples of such waters examined during any month, nor exceed 20,000 per 100 ml in more than 5 per cent of such samples.

Recreational Uses – For bathing or swimming waters, the monthly arithmetical average "most probable number" of coliform organisms should not exceed 1,000 per 100 ml during any month of the recreation season, nor exceed this number in more than 20 per cent of the samples examined during any such month, nor exceed 2,400 per 100 ml on any day. For non-bathing or non-swimming waters, the monthly arithmetical average "most probable number" of coliform organisms should not exceed 5,000 per 100 ml in any month of the recreational season, nor should exceed this number in more than 20 per cent of the samples examined during any such month.

lating to the possible subtle physiological effects of small quantities of metals, chemical compounds and certain natural-occurring substances in water have not been answered.

The Commission takes the view that it will need answers to such questions in order to establish, on a factual and proven basis, limitations to certain pollution discharges. The Commission also recognizes that industry needs such answers for the ultimate perfection of its waste treatment program. Although the project has just been initiated, the aid of the Kettering Laboratory was immediately enlisted on the problems of one industrial group—electro-plating shops, that are represented on the Commission by the Metal-Finishing Action Committee. All industries are invited to participate in this basic and pioneer work.

Kettering activities thus far have included:

The initiation of a search of published articles that has already yielded nearly a thousand references, which are being classified and evaluated. Continuing expansion of this file is being accomplished in collaboration with the industry-action committees of the Commission.

The preparation of a literature-abstract tabulation form to insure uniformity and thoroughness in making abstracts, as well as for the compilation of a standard summary table for each of the potentially toxic water pollutants. A punch-card system will be utilized to facilitate use of the file for reference and to provide proper cross-indexing.

The preparation of a list of water pollutants, based on presently known toxicities, with those most toxic at the top of the list followed in descending order by those of lesser toxicity.

The conduct of special reviews on exposure studies relating to the oral toxicity of phenols and the probable toxicity of saline waters to man and animals.

PHENOL-TREATMENT RESEARCH

Although the Commission itself does not propose to engage in research, it does accept the responsibility to inspire and coordinate investigations where that need becomes evident as a means of accelerating the installation of suitable waste-treatment measures.

Such was the case with regard to phenol-waste control. Many by-product coke plants in the Ohio valley – as indeed elsewhere in the nation – had not succeeded in modifying their discharge of waste to the point where certain water supplies could be freed of medicinal tastes and odors. This led the Commission to sponsor a cooperative research project.

With the generous support of four industrial organizations, together with aid made available by three public agencies, that project has been completed and its findings made public in the report *Phenol Wastes – Treatment by Chemical Oxidation.*

In terms of money expended, the combined contribution from industry representatives in this enterprise amounted to more than $55,000. In terms of accomplishment, the results offer three promising methods of phenol-waste control, each of which has application merits depending upon local conditions.

Participants with the Commission in the project included: Armco Steel Corporation, at whose Hamilton (Ohio) Works a laboratory and pilot-plant were built and operated; Wallace & Tiernan Company, Inc., which made investigations using chlorine; Ozone Processes Division (Welsbach Corporation), which studied ozone applications; and Mathieson Chemical Corporation, which made tests using chlorine dioxide; the Ohio State Health

Department; and the U. S. Public Health Service Environmental Health Center.

RIVER INVESTIGATIONS

Substantial attention during the past year has been given to the determination of actual stream pollution conditions, looking toward measures for their improvement.

The largest undertaking was an investigation that involved simultaneous sampling of a 963-mile stretch of the Ohio River from Pittsburgh to Cairo. Samples were taken at 36 points over a twelve-day period. Considering the length of the river sampled, the intensiveness of sampling and the skills required for analysis of samples, the operation was made possible only by the joint participation and intimate coordination of sixteen agencies.

Because of an unanticipated freshet condition that occurred during the course of the survey there was recorded an unusual pattern of pollution movement that heretofore had not been fully recognized. This finding, along with other data on water-quality variations provides a fund of information for current use and future policy decisions of the Commission. Details are contained in a separate report, which is entitled *Pollution Patterns in the Ohio River—1950.*

Also completed was a study of brine-wastes contamination in the Muskingum River originating from the processing of salt. Salt deposits represent one of the major natural resources of the valley on which is founded a vast chemical industry that promises to become even larger. However, the Commission concludes that if this economic destiny is to be achieved some method for brine-waste disposal other than indiscriminate discharge into streams must be developed.

Some of the harsh realities of water-quality degradation from brine contamination are revealed in the Muskingum report. These include the loss of potability in local sources of supply and an increase in hardness, which can affect consumers far beyond the origin of waste discharge. This investigation of conditions in the Muskingum River was intended to provide a case history of what could happen in other parts of the Ohio basin with uncontrolled brine discharge.

Findings from this report, coupled with other

ROLE OF KETTERING LABORATORY IN COMMISSION TOXICITY PROJECT

Under the terms of a contract with the Kettering Laboratory of Applied Physiology (Department of Preventive Medicine and Industrial Health, College of Medicine, University of Cincinnati) the Commission is sponsoring investigations relating to the potential toxicity to man and animals of substances in water. Initial funds for this work were derived from a Federal Security Agency grant received by the Commission under Public Law 845 for the study of industrial waste pollutants. Broadly outlined, this is the role of the Kettering project:

To compile and evaluate all existing information on toxicity to form the basis for recommendations to the Commission on tentative maximum allowable limits of potentially toxic substances.

To consult with and advise the Commission, its signatory states and its industry-action committees on matters relating to the toxicity of substances that may find their way into sewers and water courses.

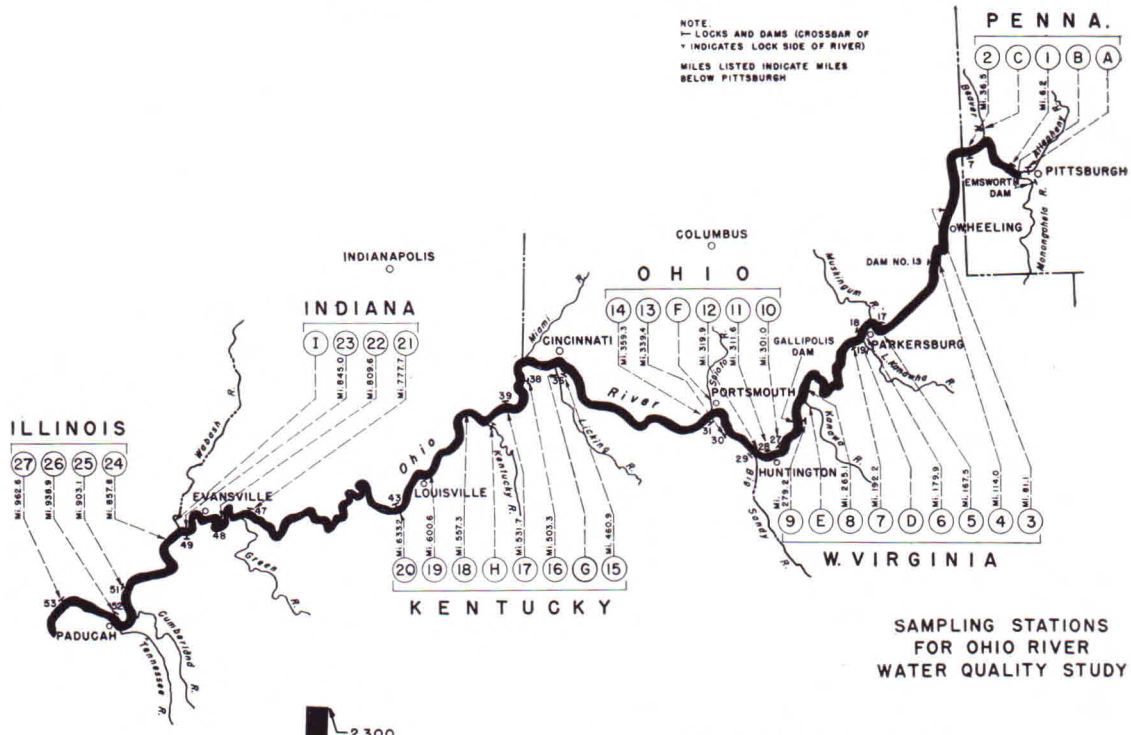
To prepare information that will reveal what industrial waste substances, in tentative order of importance, may create potentially toxic hazards.

To recommend additional toxicity studies on pollutants that should be undertaken and indicate the priority of attention.

To cooperate with industry committees of the Commission in summarizing all information pertinent to their toxicity problems.

To suggest new methods and aid in the improvement of existing analytical methods for pollutants that will serve the needs of those who are concerned with effluent discharges, stream-quality determinations or biological investigations.

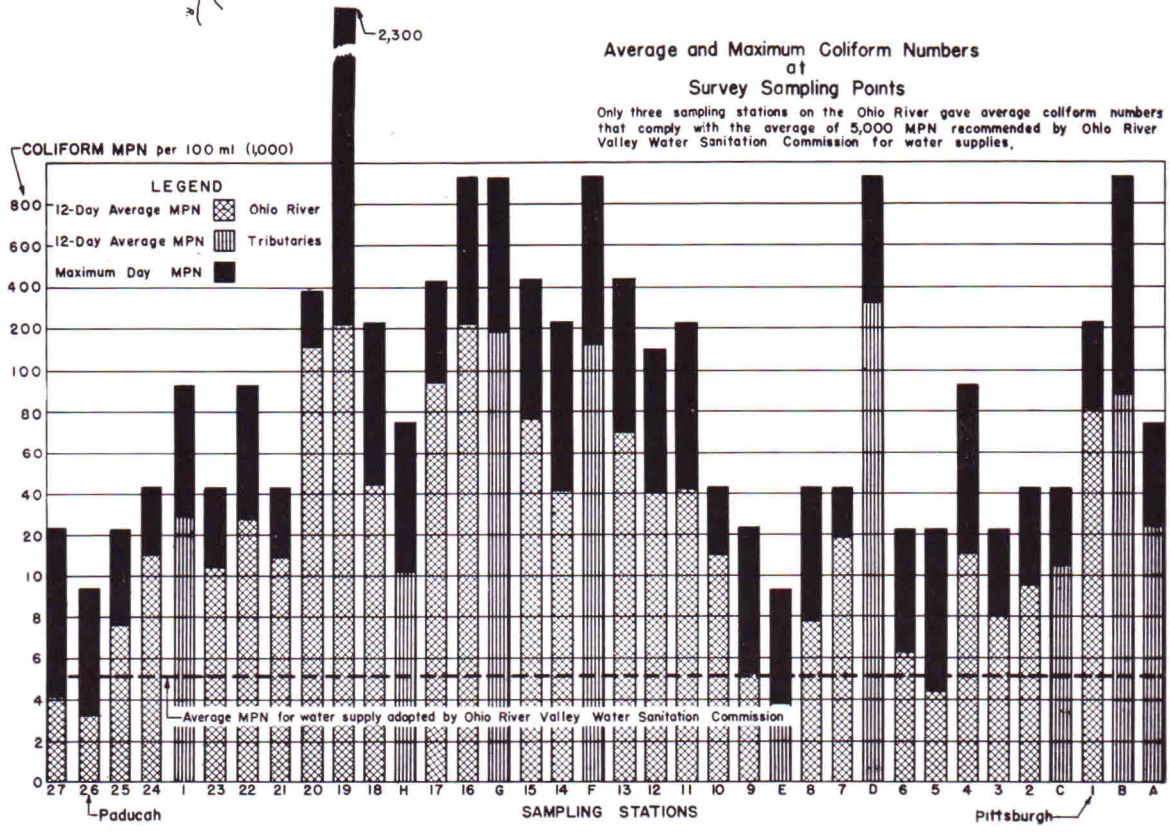
To propose the nature of further investigations on man and animals both in the laboratory and on an epidemiological basis. Suggest suitable laboratories or institutions wherein such work might be conducted. Consult with these organizations and invite collaboration with the Commission-Kettering project.



SAMPLING STATIONS FOR OHIO RIVER WATER QUALITY STUDY

Average and Maximum Coliform Numbers at Survey Sampling Points

Only three sampling stations on the Ohio River gave average coliform numbers that comply with the average of 5,000 MPN recommended by Ohio River Valley Water Sanitation Commission for water supplies.



Dramatic evidence of the fouled condition of the Ohio River caused by human wastes is shown in these findings. At only three of the twenty-seven stations in 963 miles of the river is the bacterial limit within the range recommended by the Commission as desirable for water suupply purposes.

studies, are providing the basis on which future policy decisions regarding chloride limits may be evaluated by the Commission. The report also addresses itself to questions regarding disposal methods. Copies of *Chloride Contamination in the Muskingum River* are available by addressing the Commission.

At the request of the Commonwealth of Virginia a report was prepared evaluating the effects of waste discharges from the Radford Arsenal on the New River. This stream is interstate in character, flowing from Virginia into West Virginia, where it serves as a source of water supply for several communities. The report dealt with low-flow probabilities and the consequent dilution factors to be considered in the discharge of nitrate-bearing and other wastes. This represents the style of study that must be made in order to justify – on a health, economic and legal basis – the necessity for treatment measures.

A similar problem relating to wastes discharges from the Charlestown (Ind.) Arsenal into the Ohio River, also claimed attention. Agreement was reached among the Indiana State Health Department, the Kentucky State Health Department, the Louisville Water Company, the Charlestown Arsenal operators and the Commission on conditions of discharge so as not to impair water quality.

Currently under way is an analysis of stream flow and pollution loadings in the Huntington-to-Cincinnati section of the Ohio River. This information will form the basis for determining treatment needs in the area, particularly with regard to the chlorination of municipal sewage effluents. The project forms part of a comprehensive stream-analysis program for the entire Ohio River, which is pre-requisite to establishment of treatment requirements in accordance with compact stipulations. Work in one section of the river – that known as the Cincinnati Pool – has been completed (see *First Annual Report* for recommendations and findings of the hearing board).

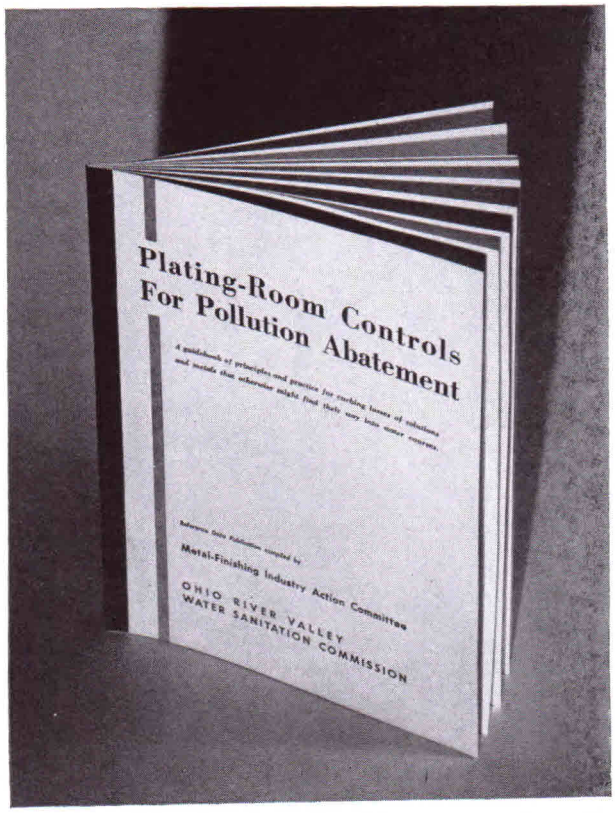
A taste-and-odor monitoring survey conducted by the U. S. Public Health Service with several municipal water treatment plants, and in which the Commission collaborated, was discontinued. The Public Health Service had obtained all the research information in which it was interested. Benefits to the Commission from the operation of monitoring stations were made apparent as a result of this experience. Accordingly, the Commission plans to undertake a monitoring program through the medium of a Water Users Committee made up of representatives from both municipal and industrial water-treatment plants throughout the length of the Ohio River.

PLATING-WASTES ANALYSIS

A contract was executed with the Institute of Research, Lehigh University, Bethlehem, Pa., to recommend methods of analysis for plating-waste constituents. This project is an example of the Commission's desire to speed-up the adoption of uniform yardsticks of measurement for industrial wastes. The project was recommended by the Metal-Finishing Industry Action Committee of the Commission.

To harmonize thinking and avoid duplication of effort, the Commission has coordinated its work at Lehigh with that previously started by the American Electroplaters' Society. In addition, information is being exchanged with committees representing the American Society for Testing Materials and the Federation of Sewage and Industrial Wastes Associations. There is also close collaboration with Kettering Laboratory and the U. S. Geological Survey to assure correlation of analytical methods

Helping industrial plants carry out effective and economical programs of waste control is one of the aims of the industry-action committees. They are working with the Commission in the preparation of manuals of practice such as that pictured below. Compiled by industry experts, these manuals are designed as practical guides to aid operating men in taking remedial steps.



employed in toxicological investigations and stream surveys. Finally, plating plants represented on the Metal-Finishing Action Committee will serve as the reviewers of all tests with regard to their practical application and usefulness in routine analytical work.

The goal is to devise methods of analysis that will offer reliability in duplication of analysis, that will be sufficiently sensitive for waste-discharge control purposes and that will be simple to apply. Analytical techniques for lead and cyanide have already been submitted by the Lehigh investigators. Funds for the work form part of a grant for industrial waste research made available to the Commission by the Federal Security Agency under Public Law 845, Water Pollution Control Act of 1948.

Educational Program

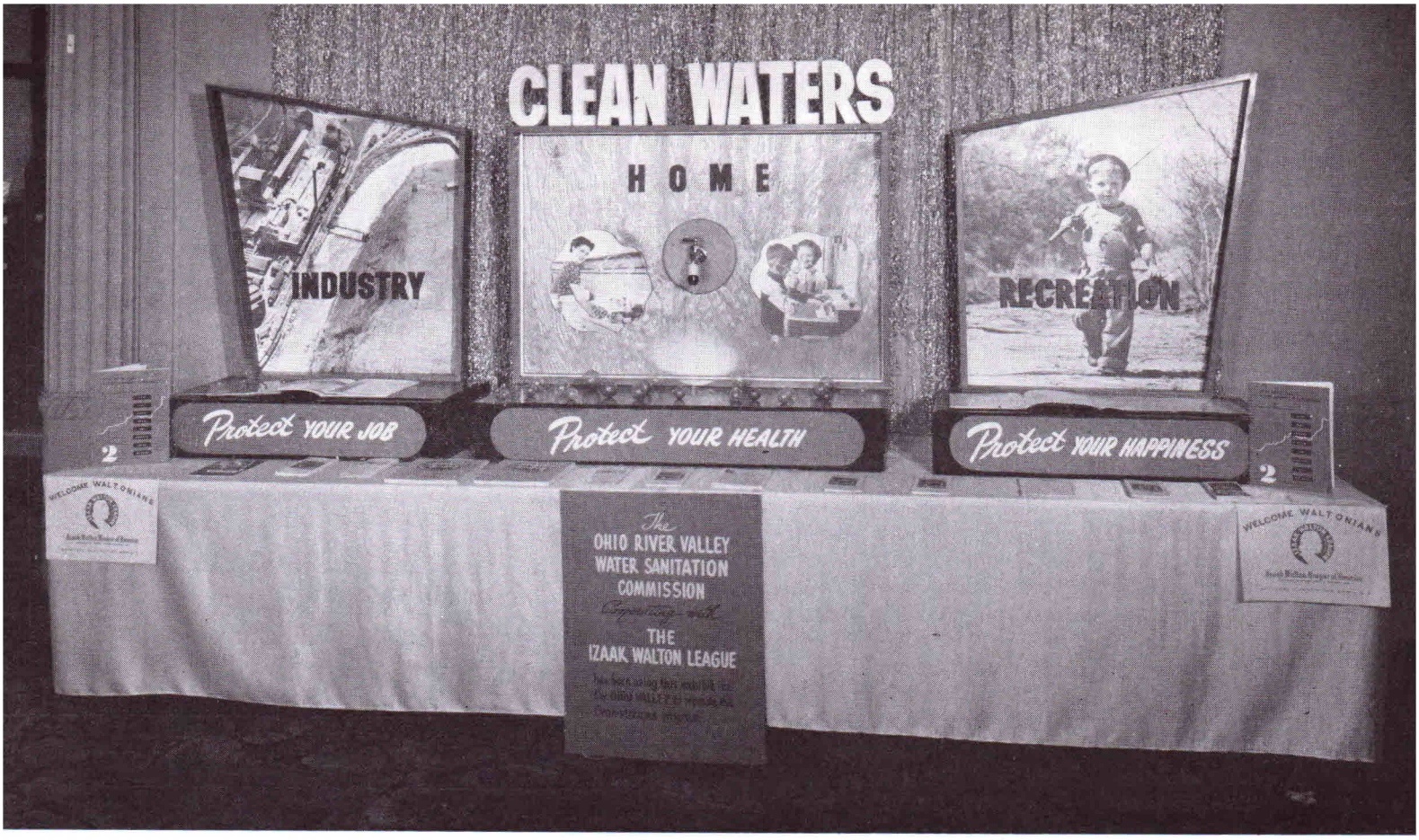
A fundamental of Commission philosophy is that solid accomplishment in the clean-streams campaign can be achieved only with the support of an informed, convinced and aroused public. Technical investigations, hearings and the application of legal restraints form an essential and important part of the program. But the real momentum – the desire to do – must be instilled in the people, in the communities in which they live, and in the industries of the region.

To bring the message of economic survival to the people of the Ohio valley, and with it the call to action, the Commission has been expanding its public education program. As an initial step, there were news releases, magazine articles, speeches and radio interviews on a valley-wide basis. Now the program is being intensified to provide local and individual impact.

PERSONAL-STAKE THEME

The intimate relationship of pollution control to the welfare of the individual has been developed around the theme: "Clean Waters Protect Your Health – Protect Your Job – Protect Your Happiness."

An exhibit to visualize this theme was built and has been used for display purposes in several cities



A changing diorama showing the effects of pollution, coupled with flashing messages and color transparencies, comprises an exhibit developed by the Commission in cooperation with the General Electric Company. It forms part of the local-action campaign that has been inaugurated in communities along the Ohio River to promote municipal compliance with sewage treatment requirements.

The role of clean waters in the protection of the citizen's health, his happiness and his job, is emphasized in another exhibit, above. It has been made available to convention groups but is designed primarily for display in communities where local action campaigns are being conducted by organized citizen groups.

and at conventions. Another exhibit with changing diorama views, flashing messages and illustrated views of sewage-treatment methods has just been completed to dramatize further the evils of pollution and the benefits from clean streams.

COMMUNITY ACTION PROGRAM

These exhibits, a pamphlet on pollution for laymen, and a motion picture, "Clean Waters" – the prize winning documentary film produced in color by the General Electric Company – are the principal props at present for the community program. Another film, "Waters of The Commonwealth," produced by The Pennsylvania Sanitary Water Board, has just been added.

The object of this program is to enlist the support of officials and leaders in specific communities to conduct campaigns to inform the citizens on pollution-abatement needs and the ways to meet them. This includes the establishment of a permanent Citizens Clean Waters Committee, with whom the Commission and the state agency can work to secure local action.

To insure maximum effort from these committees the Commission has prepared fact sheets, speech outlines, suggested proclamations and resolutions, news releases, program outlines for radio and television presentations, slogan cards and other aids. In addition, the Commission will provide the services of a member of the staff during the "Clean Waters Week" along with the exhibit to aid in the promotional efforts.

Trials of this program, modified to meet local conditions, were conducted at Hamilton, Ohio and Covington, Kentucky. More recently the exhibits and film were used at the Kentucky State Fair, where the audience was estimated to be more than 300,000.

In the development of this program, and at its request, the Commission received the generous support of the General Electric Company. As one of its public-service functions this company has been engaged for some time in promoting pollution abatement, a notable example being the production of the film "Clean Waters."

When it was suggested that the company could aid the Commission in developing its public educa-

Continued on Page 20

SCOREBOARD on MUNICIPAL SEWAGE

Where we stand at the end of this third year on the installation of works for the treatment of municipal sewage is detailed in the accompanying tabulation. Salient facts revealed from this round-up of state progress reports are as follows:

Urban population (in the areas connected to sewers) in the compact district is almost 8,500,000. Some 39 per cent of the sewage wastes from this total is presently being treated; only half, however, can be considered as receiving adequate treatment.

Construction programs are under way in municipalities whose populations total 8 per cent of those now discharging wastes. This could be construed as an encouraging sign of progress if there were sufficient reason to believe that this rate of addition could be maintained. Some of these plants will require several years for completion, and there have been few signs that other and even more important treatment projects are advancing to the point of early construction. Obviously the restrictions on construction that are stemming from the national defense program have a serious retarding effect. But this is not the sole reason for lack of action.

Final plans have been approved for works serving 20 per cent of the population, and final plans are being drafted for another 17 per cent. The Commission considers this to be satisfying, but recognizes that blueprinted sewage plants must be financed and converted into structures of concrete and steel if they are to contribute to pollution abatement.

Projects to serve the remaining 16 per cent of the population are in the state of preliminary planning or discussion stages.

Interest-free planning loans for sewage projects made available by the Federal Housing and Home Finance Agency, which totalled $533,100 in the compact district during the fiscal year 1951, were less than a third of the amount provided the previous year. On June 29 the agency halted the receipt of any further applications for funds.

Thirty-four projects in six of the compact states were benefitted by planning loans in fiscal 1951. Estimated cost of the completed projects is about $16,000,000; population to be served is 227,000.

In contrast, the 1950 planning loans in the Ohio Valley district totalled $1,886,000. These loans were applied to forty-seven projects whose cost on completion was estimated to be $102,000,000.

Status of Municip

POPULATION SERV

Status	*Illinois*
Adequate treatment facilities	181,533 (*30*)
Treatment provided but not adequate	26,961 (*9*)
Treatment works under construction	8,857 (*5*)
Final plans approved by state	28,670 (*16*)
Final plans in preparation	
Preliminary plans approved or in preparation	13,274 (*2*)
Treatment program under discussion	1,828 (*2*)
Order, notice or recommendation for treatment issued by state	
Court action pending	
Investigations by state agency not completed	
Sewage discharged under permit	
Pollution of minor significance. Further attention when need revealed	
No action	14,407 (*1*)
Acid stream. No action required by state law.	
Incorporated municipalities not having community sewer system	
TOTAL	275,530 (*65*)

* 23 plants serving 24 cities with total population of 252,759 are under total population of Evansville and Cincinnati (including six suburbs) is

TREATMENT PROGRESS

nd Industrial Sewage-Treatment Installations—July, 1951

FIRST LINE) AND NUMBER OF COMMUNITIES (SHOWN IN PARENTHESES)

iana	*Kentucky*	*New York*	*Ohio*	*Pennsylvania*	*Virginia*	*West Virginia*	*Totals 8-State Dist.*	*Percent of Total*
,871 69)	161,398 (45)	45,772 (10)	618,261 (100)	181,837 (45)	24,632 (11)	27,824 (4)	1,584,128 (314)	19% (23%)
,401 31)	140,156 (33)	44,038 (2)	722,897 (47)	133,579 (27)	14,048 (13)	22,781 (11)	1,681,861 (173)	20% (13%)
,789 6)			538,409 (13)	(1)	12,102 (4)	1,803 (2)	689,960* (31) *	8% (2%)
,174 24)	414,277 (12)	9,011 (1)	347,810 (45)	492,342 (83)	6,227 (3)	251,064 (15)	1,668,575 (199)	20% (15%)
,614 12)	118,401 (7)		32,786 (6)	1,132,289 (79)	1,677 (1)	95,086 (4)	1,469,853 (109)	17% (8%)
,825 4)	26,946 (6)	1,354 (1)	252,652 (4)	127,205 (44)	29,633 (14)	33,387 (8)	513,276 (83)	6% (6%)
,990 13)	1,491 (1)		54,113 (3)	28,505 (10)		82,194 (21)	192,121 (50)	2% (4%)
,561 26)	18,676 (3)			17,409 (6)		45,978 (33)	187,624 (68)	2% (5%)
						2,983 (1)	2,983 (1)	
						69,336 (48)	69,336 (48)	1% (3%)
					27,516 (13)		27,516 (13)	.... (1%)
,945 85)	27,245 (25)						99,190 (110)	1% (8%)
	54,354 (17)		137,962 (83)	2,467 (2)		1,541 (4)	210,731 (107)	3% (8%)
				49,819 (12)			49,819 (12)	1% (1%)
						19,351 (35)	19,351 (35)	.... (3%)
8,170 270)	962,944 (149)	100,175 (14)	2,704,890 (301)	2,165,452 (309)	115,835 (59)	653,328 (186)	8,466,324** (1,353) **	100% (100%)

tion. One community (700 pop.) constructing sewers to Dayton, Ohio, treatment plant. Plants at Evansville, Ind., and Cincinnati will serve 183,000;

** Does not include 431 communities that either are not incorporated or do not have sewer systems.

tion program in the Ohio Valley the services of H. Vance Crawford were made available. Mr. Crawford, who was the producer of "Clean Waters," took up residence in Cincinnati for almost a year. During this period he gave substantially of his time to the Commission staff in developing the exhibits and other promotional aids. Construction of the diorama exhibit was financed by the General Electric Company and it is on loan to the Commission.

A detailed program for a local-action campaign and some of the materials for it, all tailored to the Commission's specific requirements, was developed with the aid of H. Peter Converse, a specialist in community relations of the General Electric Co.

MEETINGS

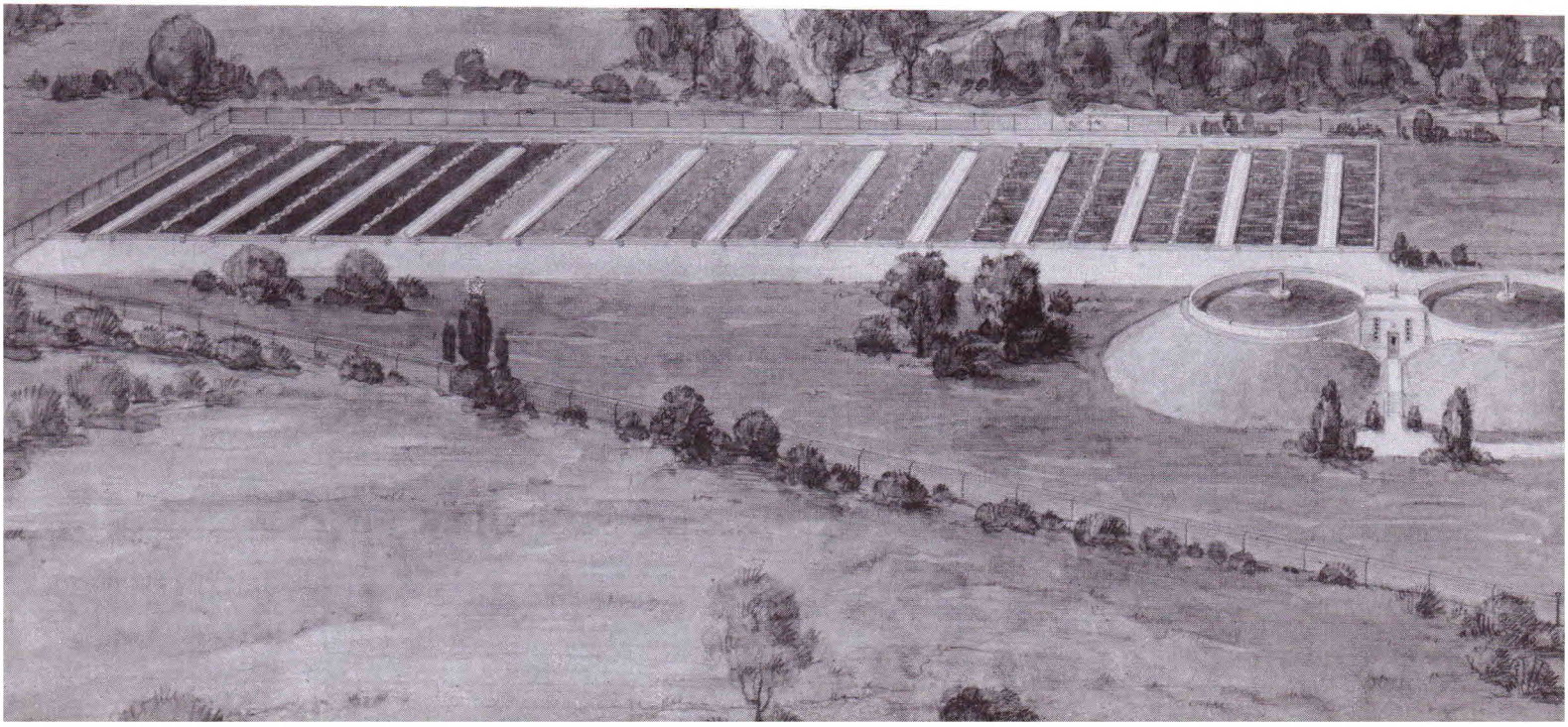
Major conferences and meetings in which the staff participated during the year numbered 102; at 26 of these prepared speeches were delivered, as indicated by asterisks in the following list:

National Meetings

*American Gas Association – New York City
*American Public Health Association—St. Louis, Mo.
American Public Works Association—New York Ctiy
American Institute of Chemical Engineers – Columbus, Ohio; Louisville, Ky.
*American Society of Civil Engineers – Louisville, Ky.; Pittsburgh, Pa.; Toronto, Ont.
American Society of Corrosion Engineers – Cincinnati, Ohio
Izaak Walton League of America – Cincinnati, O.
*Manufacturing Chemists Association – New York City

Sectional and Local Meetings

American Industrial Hygiene Association – Cincinnati, Ohio
*American Electroplaters Society – Dayton, Ohio; Pittsburgh, Pa.
American Institute of Chemical Engineers – Columbus, Ohio; Pittsburgh, Pa.
*American Legion, District Governors – Cincinnati, Ohio
*American Society of Military Engineers – Cincinnati, Ohio
American Society of Testing Materials – Cincinnati, Ohio; Columbus, Ohio
*American Water Works Association – Pennsylvania Section; Ohio Section; and Kentucky-Tennessee Section.
*Armco Maintenance Superintendents – Middletown, Ohio
*Cincinnati Sewage Treatment Plant groundbreaking ceremonies – Cincinnati, Ohio
*Engineers and Architects Club – Louisville, Ky.
Illinois Sewage Works Operator's Conference – Springfield, Ill.
Illinois Sportsmen's Association— Springfield, Ill.
*Industrial Waste Conference, Purdue University— Lafayette, Ind.
*Kentucky Municipal League—Mammoth Cave, Ky.
National Council for Stream Improvement – Cincinnati, Ohio; New York City
*Ohio Sewage and Industrial Wastes Treatment Conference – Columbus, Ohio
Old Taylor - Old Crowe Distillery, inauguration of waste treatment plant – Lexington, Ky.
*Optimist Club – Covington, Ky.
*Pennsylvania Sewage and Industrial Wastes Association – State College, Pa.
*Professional Engineering Society—Weirton, W.Va.
*Rotary Club – Middletown, Ohio
*Terre Haute Engineers Club – Terre Haute, Ind.
Upper Mississippi and Great Lakes Basin Engineers conference – Chicago, Ill.

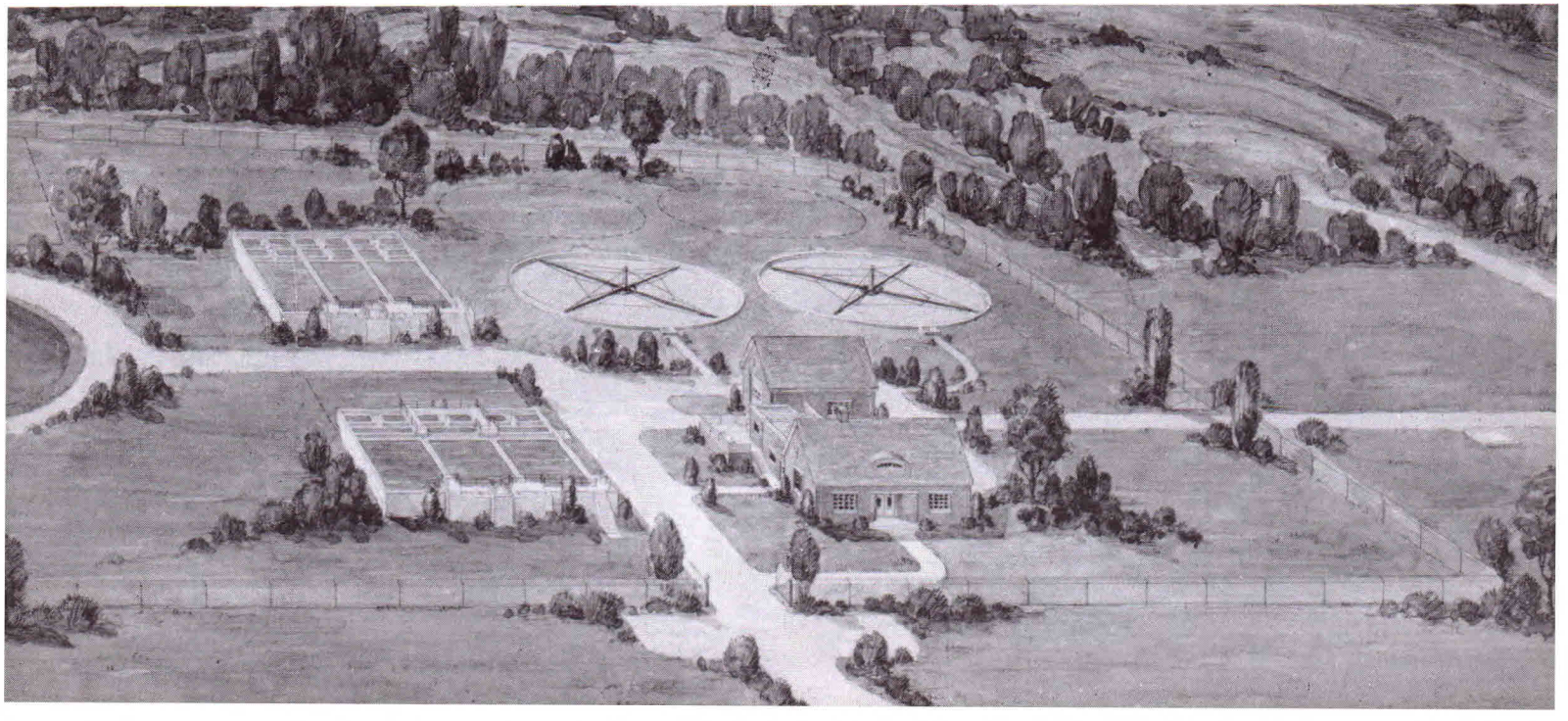


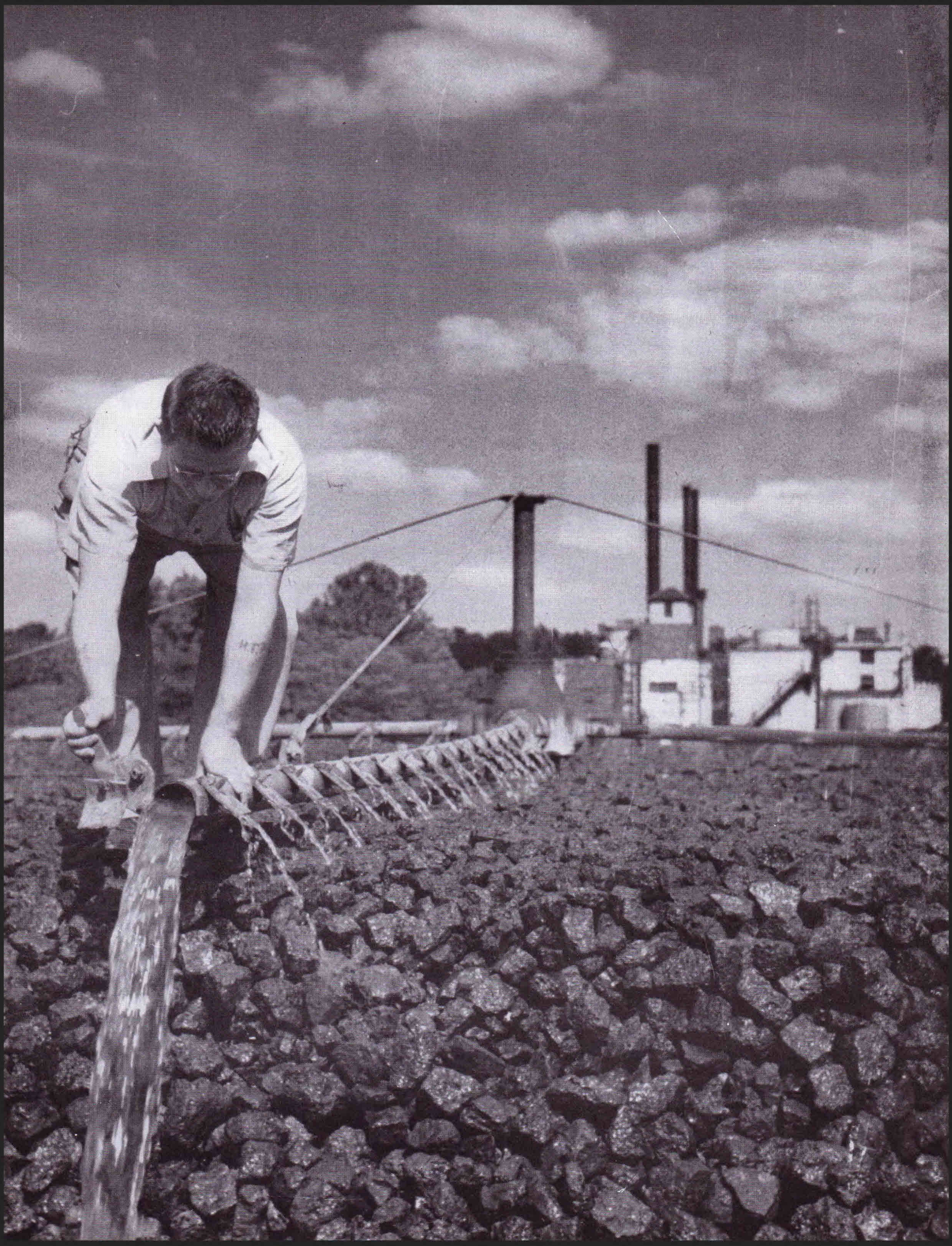
Water Conservation Symposium – Purdue University – Lafayette, Ind.
West Virginia Water Works Association and Sewage and Industrial Wastes Association joint conference – Huntington, West Va.
*Young Charterite Group – Cincinnati, Ohio
*University of Cincinati Medical School – Cincinnati, Ohio
*Industrial Wastes and Sewage Works Association – Memphis, Tenn.

Industrial Conferences

Allied Chemical and Dye Corp., Semet-Solvay Division – Ashland, Ky.
Armco Steel Corp. – Middletown, O.
Ashland Oil Co. – Ashland, Ky.
Babcock and Wilcox – Barberton, O., Alliance, O.
Bakelite Corp. – Bound Brook, N. J.
Baltimore and Ohio Railroad – Newark, O.
Battelle Institute – Columbus, O.
Brush Development Co. – Cleveland, O.
Bureau of Mines – Pittsburgh, Pa.
Carbide and Carbon Corp. – Catlettsburg, Ky.
Cincinati Chemical Co. – Cincinnati, O.
James B. Clow Steel Co. – Newcomerstown, O.
Daugherty Refinery – Petrolia, Pa.
Dupont Co. – Belle, West Va., Wurtland, Ky., Wilmington, O.
Emery Industries – Cincinati, O.
Electric Auto-Lite – Lockland, O.
Frigidaire Corp. – Dayton, O.
General American Transportation Co. – Saegertown, Pa., Chicago, Ill., E. Chicago, Ind.
General Electric Co. – Schenectady, N. Y., Coshocton, O.
Greer Steel Co. – Dover, O.
Hardesty Chemical Co. – Dover, O.
H. J. Heinz Co. – Pittsburgh, Pa.
Houdaille-Hershey Corp. – Detroit, Mich.
Industrial Materials Co. – Philadelphia, Pa.
International Nickel Co. – New York City
Kentucky Synthetic Rubber Corp. – Louisville, Ky.
King Powder Co. – Riverton, Ky.
Koppers Co., Inc. – Russel, Ky.
Mathieson Chemical Co. – Cincinnati, O.
Mellon Institute – Pittsburgh, Pa.
Morton Salt Co. – Rittman, O.
Muskingum Sand and Gravel Co. – Zanesville, O.
National Cash Register Co. – Dayton, O.
Ohio Power Co. – Philo, O.
Ohio Water Co. – Massillon, O.
Pennsylvania Railroad – Cincinnati, O.
Permutit Co., – New York City
Pittsburgh Coke and Chemical Corp. – Pittsburgh, Pa.
Pittsburgh Plate Glass, Columbia Chemical Division – Pittsburgh, Pa.
Reeves Steel and Manufacturing Co. – New Philadelphia, O.
Schenley Distillers – Frankfort, Ky.
Solvay Process – Syracuse, N. Y.
Standard Steel Spring Co. – Newton Falls, O., Correapolis, Pa.
Standard Ultramarine – Huntington, W. Va.
Talon, Inc. – Meadville, Pa.
C. I. Thornburg Co. – Huntington, W. Va.
Traux-Traer Coal Washery – Huntington, W. Va.
United Fuel Co. – Catlettsburg, Ky.
United States Steel Corp. – Pittsburgh, Pa., New York City
Wadsworth Watch Case Co. – Dayton, Ky.
Wallace and Tiernan – Newark, N. J.
Weirton Steel Corp. – Weirton, West Va.

Speedway, Indiana, has taken bids on this high-rate filter treatment works, which will handle domestic sewage, industrial waste and grind garbage. Capacity is three million gallons a day. Couch & Kulin, Inc., of Indianapolis, are the consulting engineers.





Industry action teams

Holding one of the largest stakes in the water conservation program of the Ohio River Valley is industry. Industry needs clean water for processing; and industry discharges fouled water. Recognizing that fact, the Commission has invited industrial representatives to share in the development and promotion of the regional stream cleanup campaign.

This participation is being expressed and strengthened through "industry-action" committees. Four of these have been operating for more than a year, a fifth has just been organized, and several others are in the discussion stage.

What They Are

These committees are the offshoot of a series of conferences at which the executive committee of the Commission explored with management representatives of allied industry groups how efforts might be integrated to advance pollution-abatement measures. With but one exception, each group has elected to establish a committee. These include the steel industry, the metal-finishing industries, the distillery interests, the chemical-salt processors and the coal producers.

BASIC FUNCTIONS

The aims and purposes of the several industry action committees are:

To promote within the ranks of their specific industry an appreciation of the need to minimize pollutional wastes.

To assemble facts and make an appraisal of the waste disposal problems of the industry, with specific reference to conditions in the Ohio River valley.

To consult with the Commission in the establishment of water-quality objectives and treatment requirements.

To encourage joint research and development of more effective control of waste discharges through better housekeeping or by treatment measures.

To maintain liaison through the Commission with other industry committees for the pooling of knowledge and the dissemination of information.

BASIC PHILOSOPHY

Without the establishment of mutual bonds of confidence, the Commission acknowledges that the industry committees cannot achieve their greatest usefulness. This view is shared by industry. Hence, committee-Commission relationships have been founded on this principle.

The industry committee is not expected to define either in degree or method what any company should be expected to do. And the Commission preempts no relationships that exist or may develop between any one of its signatory states and the industrial plants in that state.

An industrial waste filter bed, which removes putrescible characteristics from an organic waste by bacterial action.

The organization, size and work-program of each committee are matters solely within the decision of the industry group. Upon invitation of the committee the Commission furnishes a staff liasion member. His role is to post the committee on Commission plans and policies, to aid in the execution of the committee's program on matters of data assembly, research or technical development, and otherwise to facilitate conduct of the committee's operations.

Experience to date indicates that there is no established pattern of committee organization or activity. Each group has its own "personality," reflecting industry characteristics and relationships, geographic or physical situations, and technical problems peculiar to certain processing or manufacturing methods.

What Committees Are Doing

At a joint meeting of the entire Commission with members of the industry action teams, held on April 5, the results of one year's experience were examined. Spokesmen for the metal-finishing, steel-producing, distillery and chemical-salt industrial groups reported how they were compiling for themselves and the guidance of the Commission information on their specific waste problems, procedures for analyzing pollution volumes and characteristics as well as reports on the application and limitations of treatment processes.

Some of this material – developed under the guidance of twelve sub-committees – is recognized as having special usefulness to individual industrial plants in devising waste control measures. This information is being assembled for publication by the Commission. (The first manual, *Plating Room Controls for Pollution Abatement,* has just been distributed to some 2,000 metal-finishing plants in the Ohio River valley.)

Details of committee activity and philosophy are revealed in the following excerpts from the conference notes and other memoranda.

METAL-FINISHING INDUSTRY COMMITTEE

The scope and activities of the Metal Finishing Industry Action Committee are outlined by Walter

METAL-FINISHING INDUSTRY COMMITTEE

Walter L. Pinner
Manager of Research
Houdaille-Hershey Corp.
Detroit, Michigan
(Chairman of the Committee)

R. G. Chollar
Director of Research
National Cash Register Company
Dayton, Ohio

C. C. Cupps
Assistant Chief Engineer
Newton Falls Division
Standard Steel Spring Co.
Newton Falls, Ohio

H. L. Farber
Chief Chemist
Mansfield, Ohio, Works
Westinghouse Electric Corp.
Mansfield, Ohio

L. J. Hibbert
Head, Finishes Laboratories
National Cash Register
Dayton, Ohio

Harry W. McElhaney
Head, Metal-Finishing Division
Talon, Incorporated
Meadville, Pennsylvania

Hubert S. Kline
Director
Industrial Hygiene and
Sanitary Engineering
Frigidaire Division
General Motors Corporation
Dayton, Ohio

Garland A. Logsdon
Plating Superintendent
American Radiator and Standard
Sanitary Corporation
Louisville, Kentucky

Walter Miller
Assistant Secretary-Treasurer
Hamilton Manufacturing
Corporation
Columbus, Indiana

David Milne
Chemical Engineer
Production Engineering Section
General Motors Corporation
Detroit, Michigan

William J. Neill
President
American Electroplaters' Society
Columbus Metal Products, Inc.
Columbus, Ohio

C. L. Prichard
Manager
Electrical Appliances Factory
Arvin Industries, Inc.
Columbus, Indiana

Allan M. Reed
Chemist
Lockland, Ohio, Plant
Electric Auto-Lite Co.
Lockland, Ohio

W. H. Toller, Jr.
Chief Chemical Engineer
Huntington Division
Houdaille-Hershey Corporation
Huntington, West Virginia

K. S. Watson
Manufacturing Policy Division
Building 36, Room 110
General Electric Company
Schenectady, New York

° ° °

John E. Kinney
(Commission staff liason member)

STEEL INDUSTRY COMMITTEE

THOMAS F. REED
Chemical Engineer
U. S. Steel Corporation
525 William Penn Way
Pittsburgh, Pennsylvania
(Coordinator—Committee on acid-pickle liquor)

G. M. DREHER
Chemical Engineer
Jones and Laughlin Steel Co.
Pittsburgh, Pennsylvania

R. M. FENTON
Assistant Engineer
Youngstown Sheet and Tube Co.
Youngstown, Ohio

EARL SMITH
Chief Metallurgist
Republic Steel Corporation
Cleveland, Ohio

JOSEPH SAMPLE
Chief Chemist
Weirton Steel Company
Weirton, West Virginia

R. F. PULLEN
Fuel Engineer
Bethlehem Steel Company
Johnstown, Pennsylvania
(Coordinator—Committee on settleable solids disposal)

RALPH DREWS
Metallurgist
Manufacturing Division
Republic Steel Corporation
Cleveland, Ohio
(Coordinator—Committee on coating and plating wastes)

G. A. HOWELL
Ass't Chief Engineer
U. S. Steel Corporation
525 William Penn Way
Pittsburgh, Pennsylvania

J. H. STRASSBURGER
Manager
Dept. of Service and Maintenance
Weirton Steel Company
Weirton, West Virginia

GRANT A. PETTIT
Industrial Waste Engineer
Armco Steel Company
Middletown, Ohio
(Coordinator—Committee on by-product coke plant effluents)

H. A. STOBBS
Special Engineer
Wheeling Steel Corporation
Wheeling, West Virginia

C. W. WEESNER
Consulting Metallurgical Engineer
Sharon Steel Corporation
Sharon, Pennsylvania

J. S. WILLIAMSON
Vice-President
Weirton Steel Company
Weirton, West Virginia

° ° °

JOHN E. KINNEY
(Commission liaison member)

L. Pinner, manager of research, Houdaille-Hershey Corporation, and chairman of the committee as follows: the committee's activity was defined as including considerations of waste liquors derived from chemical and electrochemical surface treatment of metals and related cleaning proceedures. Under this definition is included such manufacturing operations as electroplating, electrotyping, anodizing, electropolishing, phosphating and coating of plastics.

Five sub-committees were activated, two of whom have now virtually completed their tasks. Work of the other three sub-committees is much more involved and is far from completed.

One sub-committee, assigned to the task of reporting on tolerable toxicity limits, is under the direction of R. G. Chollar, director of research, National Cash Register Company. Mr. Chollar's latest report includes the following information: A list of agencies and associations undertaking toxicity projects; summaries of data from 147 industries and agencies; a bibliography of published material containing 635 references, of which over 200 are abstracted; and an assembly of recommendations of the limits of sensitivity required on analysis. The work of this sub-committee is now coordinated as a part of the Commission's program of research at the Kettering Laboratory of Applied Physiology.

Another sub-committee, concerned with waste-treatment methods, is directed by Hubert Kline, director, industrial hygiene and sanitary engineering, Frigidaire Division of General Motors. Mr. Kline's sub-committee acknowledges special aid received from Talon, Incorporated of Meadville, Pa., which has made available information they had assembled on numerous waste-treatment methods. An interim report, now being greatly expanded, includes data relating to the treatment of cyanides by eleven different methods. It includes methods for neutralization of acid and the removal of metals by four different methods. It also contains methods for the removal of oil and sludge from industrial metal-finishing wastes. The report cites experiences at various plants using particular methods, together with comments by the sub-committee on the workability, desirability and economy of each method as opposed to others for accomplishing a specific purpose.

A third sub-committee is concerned with analysis methods for extremely small amounts of impurities that are found in metal-finishing wastes. The project is being directed by William Neill who, as president of the American Electroplaters' Society, is liaison member of the society to the committee.

The most active work in progress related to these fundamental considerations is occurring on two research projects sponsored by the sustaining members of the American Electroplaters' Society. A list of twenty-three elements and compounds has been compiled containing those substances that are most commonly referred to as important in stream pollution. Dr. Earl Serfass, of Lehigh University, who is directing the American Electroplaters' Society research projects, is also project director of the Commission's recently established project with Lehigh to accelerate the development of these analytical procedures.

The mechanism by which the information obtained from the foregoing subcommittee will be used is this: As final reports are received by the main committee, the methods of analyses will be field-tested by the individual companies whose representatives are members of the committee. If the methods merit approval on the basis of these field tests, they will be referred to the Commission for publication and distribution to industrial plants.

A fourth sub-committee under direction of William Toller, chief chemical engineer, Huntington Division of the Houdaille-Hershey Corporation, has virtually completed a manual outlining practical methods of measuring waste discharges in a plant.

The fifth sub-committee, directed by Mr. Pinner, is concerned with in-plant waste-control measures. Special assistance has been provided by Harold Farber, chief chemist, of Mansfield Works of the Westinghouse Electric Corp. A manual on what can be called good "housekeeping" practices has been completed. (The manual has now been published by the Commission and has gained wide attention in the industrial field.)

STEEL INDUSTRY COMMITTEE

Operations of the Steel Industry Action Committee are conducted through the medium of four co-ordinators, each of whom has undertaken the responsibility for a specific phase of waste control. These subcommittees and their program are:

Coke Plant Effluents: Under the direction of G. A. Pettit, industrial waste engineer, Armco Steel Corporation, this group standardized a method of analysis for phenol, the major waste in a coke plant; developed a report form by which a coke plant can properly make a waste survey; and critically reviewed the report on the Commission-sponsored research project on chemical oxidation of phenol wastes.

The committee is now engaged in analyzing report forms received from 75 per cent of the coke plants in the Ohio basin. This summary will serve as the basis for the steel committee's recommendations on plant operation. The committee is also preparing recommendations on permissible

DISTILLERY INDUSTRY COMMITTEE

Frank Shipman
Technical Director
Brown-Forman Distillers Corp.
Louisville, Kentucky
(Chairman of the Committee)

James Banks
Chemist
George T. Stagg Co.
Frankfort, Kentucky

Russel Blaine
Chemist
Hiram Walker and Sons, Inc.
Peoria, Ilinois

C. S. Boruff
Technical Director
Hiram Walker and Sons, Inc.
Peoria, Illinois

W. O. Rigdon
Fleischmann Distilling Corp.
Peekskill, New York

Wilbur R. Gouveia
Plant Manager
Fleischmann Distillery Corp.
Peekskill, New York

Alex B. Davidson
Chemical and Sanitary Engineer
Schenley Distillers
Cincinnati, Ohio

Nelson Roberts
Development Engineer
Joseph E. Seagram and Sons, Inc.
Lawrenceburg, Indiana

Lester Rodenberg
Regional Production Manager
National Distillers Products Corp.
Cincinnati, Ohio

John Wight
Frank L. Wight Distilling Co.
Loreley, Maryland

P. J. Schaible
Director
Distillers Feed Research Council
Cincinnati, Ohio

Stuart Schott
Assistant Director of Research
National Distillers Chemical Corp.
Cincinnati, Ohio

J. W. Spanyer, Jr.
Assistant Technical Director
Brown-Forman Distillers Corp.
Louisville, Kentucky

E. M. Stallings
Member of the Executive Committee
Joseph E. Seagram and Sons, Inc.
Louisville, Kentucky

* * *

Robert K. Horton
(Commission liaison member)

phenol limits that include consideration of plant operation, limitations and cost of methods of treatment of wastes, and effects of phenols on downstream water users. The latter include consideration of toxicity, taste and oder, analytical techniques, and natural stream purification.

Acid Pickle Liquor: Activities of this group under Dr. Thomas F. Reed, chemical engineer, U. S. Steel Company, have thus far been concerned principally with the pickle liquor problem resulting from sulfuric acid or hydrochloric acid treatment of plain carbon steel. This program includes standardization of methods of analysis for free acidity and iron in concentrated and rinse water solutions. Meantime a report form has been completed to facilitate conduct of a plant survey of rinse waters and concentrated acid solutions. The member companies are using these forms to obtain the data necessary for a report to the Commission on plant practices.

At the request of the subcommittee, the American Iron and Steel Institute has authorized participation of their research fellow, Dr. Richard Hoak, in the preparation of a summary report on methods of treatment. This will aid in an appraisal of what is now known, and also point out where further work should be done. The committee plans to prepare a supplemental report containing data that will permit an engineering cost comparison of the methods described.

Information is now being assembled on conditions under which waste pickle liquor affects other water uses. This phase of the work is being coordinated with the Kettering laboratory project.

Coating and Plating: This phase of the steel industry committee work is closely allied to the metal-finishing committee activities. As chairman of the sub-committee, Ralph Drews, metallurgist, Republic Steel Corporation, acts as liaison representative and meets with the metal-finishing committee.

As procedures for plant surveys are developed by this group surveys on plating operations in the steel industry will be initiated. These surveys will be the basis for recommendations on plant practices.

Settleable Solids: This sub-committee headed by F. R. Pullen, combustion engineer, Bethlehem Steel Company, has thus far standardized a method of analysis for settleable solids and prepared a report form to assist in a plant survey.

After the individual plants have conducted their surveys the sub-committee will review the data as a basis for recommendations on plant practice. Further studies are contemplated on the effects of residual solids on stream usage; limitations and costs of methods of treatment; and possibilities of increasing salvage of the solids for reuse.

DISTILLERY INDUSTRY COMMITTEE

A fourteen-man committee under the chairmanship of Dr. Frank L. Shipman, vice president, Brown-Forman Distillers Corporation, is engaged in assembling and evaluating information with regard to:

Location and capacities of all distilleries in the Ohio Basin.
Magnitude of waste loads from each distillery.
Methods of analysis.
Processes now in use for by-product recovery.
Good housekeeping practices for reduction of waste loads.
Methods of waste treatment.

The committee anticipates that work on the first four items will be completed this year. Meantime, discussions at committee meetings reveal that most of the major distilleries are well advanced in their pollution-control programs. The smaller distilleries, however, are still faced with very serious problems. Committee activities are designed to provide assistance in developing solutions to these problems.

The committee reports that most distilleries with capacities of more than 2,000 bushels of grain daily are now engaged in the recovery of cattle foods from waste products; such by-product recovery accounts for a reduction in potential pollution load of about 98 per cent. While the industry is willing to provide additional reduction in waste loads wherever the need for such reduction is demonstrated on the basis of stream-quality conditions, the distillers desire assurance that municipalities and other industries also will be required to do their part of the job.

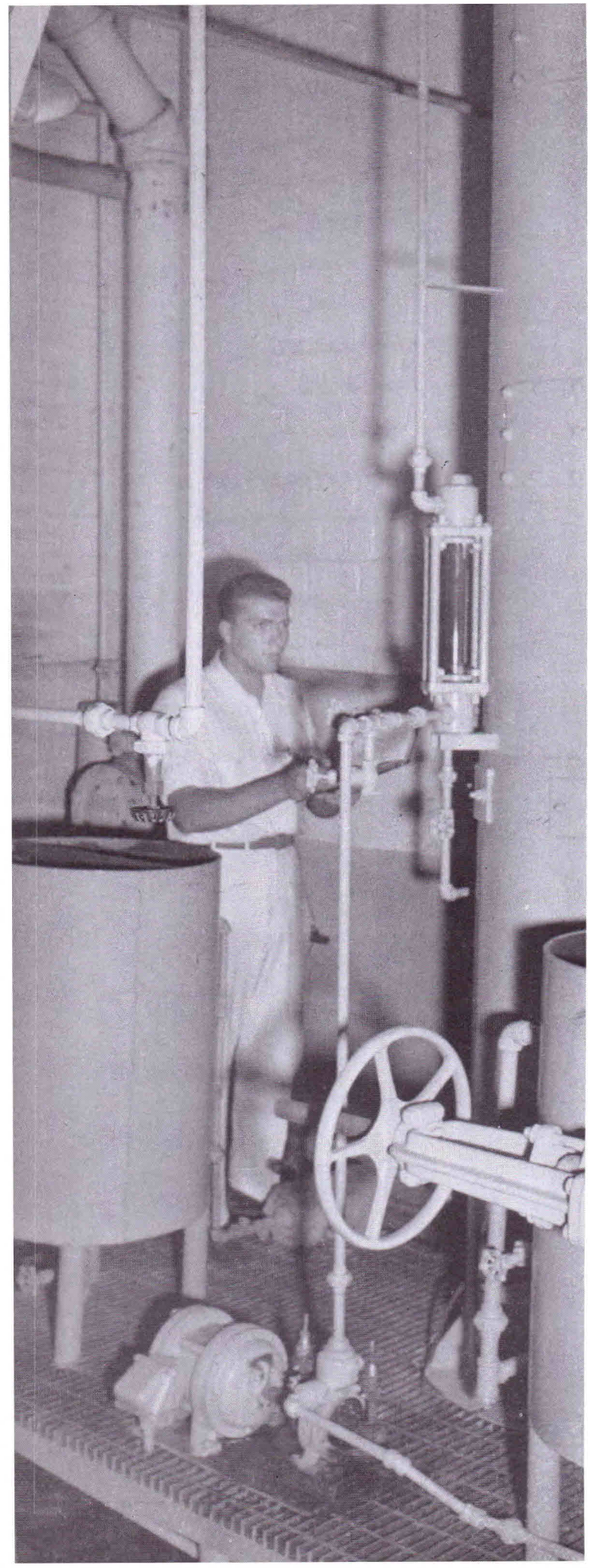
CHEMICAL SALTS COMMITTEE

An appraisal of the waste disposal problem in the soda-ash industry has been developed by the chemical-salts committee under the chairmanship of Walker Penfield, Pennsylvania Salt Manufacturing Co. The committee reaches these conclusions:

Reduction of the soda-industry pollution load is a long-range proposition and will come from technological advances and process changes. The newly authorized expansion in electrolytic processes using sodium chloride brine will doubtlessly minimize the increase in soda plant expansion with a correspondingly smaller increase in pollution load.

Underground disposal in the Ohio River valley, on the basis of present information, is feasible only for volumes so small as to offer no solution to the soda industry.

Unless new uses are developed for calcium chloride, its market can be expected to absorb



not more than about 25 per cent of the potential chloride pollution.

The committee does not feel qualified to explore the physiological effect of chlorides in drinking water, and is, therefore, particularly glad to note that the Commission has initiated study of this phase of the problem.

Pointing out that its conclusions are not intended to be considered as final, the committee notes that the chemical industry is becoming increasingly efficient in its processes, and that technological advances will probably offset increased pollution due to growth. A good example of this, in new salt-consuming installations, is the trend toward electrolytic chloride-caustic plants. This process produces a minimum of waste.

There is little doubt, says the committee, that the soda-ash industry is the least efficient major user of salt in the chemical industry. Even the most efficient plants manufacturing soda ash by the conversion of sodium in salt from the chloride to the carbonate form are able to convert only 75 per cent. The balance goes along in the same solution with the calcium chloride made from the salt that is actually converted to carbonate. Hence, the net result of the process is that for each ton of soda ash produced, about one-half ton of salt and one ton of calcium chloride must be disposed of. In addition, there are minor amounts of other soluble constituents as well as sizeable quantities of settleable solids present.

Manufacture and sale of by-product calcium chloride as a means for alleviating this waste load in the Ohio River was studied by the committee. It was revealed that the available calcium chloride far exceeds the demand for this material, and that the present market (which requires only 12 per cent of production) is not expanding at a rapid rate. Furthermore, markets available (without penalty on freight rate differentials) to a producer in the Ohio River valley represent not more than 25 per cent of the total market. No new developments, which might greatly expand the market for this product, are known at this time.

Possibilities of underground disposal methods for relieving surface waters from industrial waste dis-

Pilot plant for waste treatment at Seagram distillery in Lawrenceburg, Ind., left, is providing new information on the application of a recirculating-filtration process. Primary and secondary settling tanks are in the foreground, and behind them is the 8-foot deep biological filter. The unit processes dry-house effluent.

charges generate no enthusiasm from the committee. It concludes that this means of waste disposal is quite limited by the geology of the Ohio valley area. Disposal of millions of gallons of waste per day in now known strata is not possible, although one plant is reported to be pumping back into the ground a very small volume of waste. The committee warns that legal risks involved, due to geological conditions, should be considered before reliance is placed on underground disposal for any volume of waste.

COAL INDUSTRY COMMITTEE

Newest of the groups to join forces with the Commission and assume leadership in coping with an industry problem is that representing the bituminous coal producers.

Following an exploratory conference on June 19, attended by 40 representatives of the industry, organizational plans were set in motion that resulted in the formal establishment of a committee on August 29.

Although the program has not yet been fully defined, it contemplates that consideration will be given to the control of the three main sources of pollution arising from coal production. In order of importance such pollution is: Acid water in mine drainage; suspended solids carried by water discharged from mines and coal preparation plants; and discoloration of waters discharged to the stream system.

Committees have already been appointed from representatives of the coal industry to study these problems looking toward means for their solution.

How the Commission Feels

At various conferences with industry committees the viewpoint of the Commission with regard to progress has been expressed by spokesmen in these words:

Henry Ward, Chairman – The Commission appreciates that industry has serious problems involving waste control. But the Commission expects that industry will also appreciate that this regulatory body has equally grave problems in carrying out the mandate of the people to clean up the streams in the Ohio Valley. To do the job right, industry and the Commission should work together as a team.

A lot has already been accomplished. And we are gratified to see the evidence of tangible accomplishments by industry-management representatives working jointly with the Commission to insure wise use of water resources.

Industry's active participation in the Commission's program should be looked upon as another manifestation of the spirit in which the Ohio River compact was conceived – namely, that local interests who have a stake in the region should be given an opportunity to assume responsibility for guiding that development in the public interest.

Clarence W. Klassen, Chairman-elect – It has been my experience that rare is the industry that has as its policy the pollution of streams. Industry does have a right to legitimate use of an outlet watercourse but, obviously, not its misuse; and the degree of treatment required of its wastes should not necessarily be dictated by the highest

CHEMICAL-SALTS INDUSTRY COMMITTEE

WALKER PENFIELD
Assistant to Vice-President
Pennsylvania Salt Mfg. Co.
Philadelphia, Pennsylvania
(Chairman of the Committee)

DR. U. I. GREENE
Staff Engineer
Central Engineering Division
Diamond Alkali Company
Painesville, Ohio

WILLIAM R. HARRIS
Chemical Engineer
Columbia-Southern Chemical Corp.
Pittsburgh Plate Glass Company
Pittsburgh, Pennsylvania

L. L. HEDGEPETH
Waste Consultant
Calco Chemical Division
American Cyanamid Company
Bound Brook, New Jersey

J. F. SYNAN
Manager
Product Development Department
Mathieson Chemical Corporation
Baltimore, Maryland

J. A. NEUBAUER
Technical Director
Columbia-Southern Chemical Corp.
Pittsburgh Plate Glass Co.
Pittsburgh, Pennsylvania

L. W. JILLSON
Chemical Engineer
Wyandotte Chemicals Corporation
Wyandotte, Michigan

BATES TORREY, JR.
Chemical Engineer
Solvay Process Company
Allied Chemical and Dye Corp.
Syracuse, New York

* * *

WILLIAM R. TAYLOR
(Commission liaison member)

possible known degree of treatment but rather by the use of the outlet stream at that location.

I consider it the responsibility of a control agency to make the necessary surveys to define the industrial problem in terms of volume, strength of wastes, their effect on the outlet stream, and the degree of treatment required. However, the solution of an industrial waste problem is the responsibility of the industry, and because no practical solution to a particular waste problem has yet been effected merely indicates that insufficient time and study have been given to it by that industry. The cost of industrial waste treatment, I feel, is rightfully charged to production costs.

It must be recognized by control agencies that industry is not static. Changes and advancement in industrial processes is one of the prime factors in making this country a great industrial nation. Waste treatment processes often depend upon production methods, and as these change so do the solutions to the waste problem. Thus, regardless of how enthusiastic we may become, we must be practical and face the fact that at any particular time all of our industrial waste problems will not be solved. Mutual understanding is a prime requisite in the solution of any industrial waste problem, and there must be mutual confidence that the ultimate aim is to abate pollution by the most economical and practical method.

E. Blackburn Moore, Vice-chairman – Industry must hold itself responsible for the development of methods of treating wastes. This cannot be the function of a regulatory agency. However, a regulatory agency does have the responsibility to work with industry in determining how much treatment is required.

The attitude of this Commission is one of reasonableness. But time is passing and the public represented by this Commission has a right to expect steady progress in pollution abatement.

Hudson Biery, Past-Chairman—The compact is founded on the belief—by the people in the Ohio Valley—that pollution abatement is primarily a state and local responsibility. However, because of the interstate character of rivers and pollution problems, a regional agency for coordination is needed.

COAL INDUSTRY COMMITTEE

E. R. Price
Manager of Mines
Inland Steel Company
Wheelwright, Kentucky
(Chairman of the committee)

R. T. Laing
Managing Director
Central Pennsylvania Coal Producers Association
Box 230, Altoona, Pennsylvania
(Vice-chairman of the committee)

J. J. Foster
Assistant to President
Island Creek Coal Company
Huntington, West Virginia
(Vice-chairman of the committee)

Henry F. Hebley
Research Consultant
Pittsburgh Consolidation Coal Co.
Pittsburgh, Pennsylvania
(Secretary of the committee)

William Foster
General Attorney
U. S. Steel Company
(H. C. Frick Coke and Associated Companies, Subsidiary)
Pittsburgh, Pennsylvania

S. M. Cassidy
President
Consolidation Coal Company of Kentucky
Jenkins, Kentucky

L. I. Cothern
Director of Engineering
Jewel Ridge Coal Corporation
Tazewell, Virginia

Larry Cook
Executive Vice-President
Ohio Reclamation Association
1303 Prospect Avenue
Cleveland, Ohio

L. N. Thomas
President
Carbon Fuel Company
Kanawha Building
Charleston, West Virginia

W. P. Vance
General Superintendent
Butler Consolidated Coal Company
Wildwood, Pennsylvania

T. J. Hoffman
Vice-President
West Kentucky Coal Company
Madisonville, Kentucky

James Hyslop
President
Hanna Coal Company
St. Clairsville, Ohio

T. E. Johnson
Secretary
Northern West Virginia Coal Association
Box 1386, Fairmont, West Virginia

I. J. Richardson
Vice-President
H. E. Harman Coal Corporation
Harman, Virginia

Harvey Cartwright
Commissioner
Indiana Coal Operators Association
Grand Opera Building
Terre Haute, Indiana

Ernest B. Agee
Secretary
Indiana Coal Producers Association
Grand Opera Building
Terre Haute, Indiana

° ° °

John C. Bumstead
(Commission liaison member)

This Commission has been established to provide this planning and coordination; and most importantly, it has been empowered to enforce compliance with its orders whenever action of a signatory state fails to accomplish the desired objective.

The Commission is of the opinion—and believes that industrial concerns in the valley concur—that pollution abatement can be carried out more effectively, more realistically and more economically on an interstate regional basis than on a federal level. The Congress of the United States also shares this view: The preamble of Public Law 845 states in part: "It is hereby declared to be the policy of Congress to recognize, preserve and protect the primary responsibilities and rights of the states in controlling water pollution . . . ."

Should the Commission fail in its purpose, there would be no alternative but to put pollution control —meaning regulation of waste discharges—into the hands of the federal government.

Joseph L. Quinn, Jr., Past-Chairman—In its relation with industrial interests in the Ohio Valley this Commission is seeking to provide leadership—to impel rather than compel. We are eager and willing to work with all industry groups. And we are glad to see that industry representatives want to cooperate with us.

W. W. Jennings, West Virginia Commissioner—The organization and operations of this Commission are designed to further the free enterprise system in the Ohio Valley. It is the intent of Public Law 845 that the federal government will step in and do what the states and the compact commission fail to do. We do not want that to happen. And industry can help us prevent it by tackling their waste control problems promptly and aggressively.

Distillery-committee member James Banks of Schenley Distillers, making tests on the Kentucky River as a check on the efficiency of waste disposal control measures at his company's plant at Frankfort. Cooperative relationships of this kind with pollution-abatement agencies typefy the attitude displayed by progressive industrial management toward the problems of water conservation.

Joint conference of industry-action committee representatives and Commission on April 5 included: Dr. Thomas F. Reed, U. S. Steel Corp.; W. L. Pinner, Houdaille-Hershey Corp.; E. Blackburn Moore, vice-chairman, Henry Ward, chairman, and Hudson Biery, past-chairman, all of the Commission; Walker Penfield, Pennsylvania Salt Mfg. Co.; and Dr. Frank Shipman, Brown-Forman Distillers.

Chairman Klassen, vice-chairman Moore and past-chairman Ward.

COMMISSIONERS and COMMITTEES

The Commission is composed of three representatives from each of the eight states and three members representing the United States government. State commissioners are appointed by their respective governors, the terms of office varying from three to six years and in accordance with the laws of the state. Federal commissioners are appointed by the President of the United States. No commissioner receives any monetary compensation.

During its first three years of operation only two changes in the membership of the Commission have occurred. Dr. Russell E. Teague, Secretary of Health in Pennsylvania, succeeded Dr. Norris W. Vaux; Robert F. Rocheleau, Executive Secretary-Engineer of the West Virginia Water Commission, was appointed to fill a vacancy from that state. Many local interests and a wide variety of viewpoints are represented in the membership of the Commission, which includes public-health administrators, industrial managers, legislators, engineers, educators, lawyers, financial advisors and conservation leaders.

Names of the officers of the Commission, the Commissioners, legal counsel, and staff are given on Page 2. The resident-deputy for United States Commissioner Leonard A. Scheele is Maurice LeBosquet, sanitary engineer director, U. S. Public Health Service.

Serving in the same capacity for United States Commissioner Robert G. West is Edgar Landenberger, civil engineer, U. S. Corps of Engineers.

The chairman and vice-chairman are elected to hold office for one year. For the fiscal year 1950-51 Henry Ward of Kentucky served as chairman and Clarence W. Klassen of Illinois was vice-chairman.

On July 1, 1951, Mr. Klassen took office as chairman. At the same time E. Blackburn Moore of Virginia was elected vice-chairman.

Mr. Klassen brings to the chairman's post the viewpoint of a public-health administrator with more than 25 years of experience in state and military sanitary engineering. He is chief engineer of the Illinois Department of Public Health and also technical secretary of that state's Sanitary Water Board. During World War II he served for three years as an officer in the U. S. Army Sanitary Corps in charge of procurement and assignment of sanitary engineering personnel for all the armed forces and later as chief sanitary engineer for the Eighth Service Command.

Mr. Klassen joined the Illinois health department shortly after his graduation from the University of Michigan in 1925. Ten years later he became head of the sanitary-engineering division, the position he now holds. In addition, he serves as assistant professor of bacteriology and public health at the University of Illinois and as a member of the Illinois River Pollution Legislative Commission.

COMMISSION COMMITTEE ASSIGNMENTS AND MEMBERSHIP

EXECUTIVE

C. W. Klassen, *Chairman*
Martin F. Hilfinger
E. A. Holbrook
W. W. Jennings
O. Lloyd Meehean
E. Blackburn Moore
John D. Porterfield, M.D.
Joseph L. Quinn, Jr.
Earl Wallace
Ross H. Walker
Henry Ward
J. J. Woltmann

ENGINEERING

H. E. Moses, *Chairman*
F. H. Waring, *Vice-Chairman*
Earl Devendorf
F. Clarke Dugan
Harry K. Gidley
Clarence W. Klassen
Edgar Landenberger
Maurice LeBosquet
O. Lloyd Meehean
Richard Messer
Blucher A. Poole
Robert F. Rocheleau
W. W. Towne

AUDIT

Ross H. Walker, *Chairman*
John D. Porterfield, M.D.
Joseph L. Quinn, Jr.
Herbert P. Sorg
Bruce Underwood, M.D.

BY-LAWS

Henry Ward, *Chairman*
Hudson Biery
L. E. Burney, M.D.
W. W. Jennings
T. Brady Saunders

FINANCE

B. A. Poole, *Chairman*
Kenneth M. Lloyd
E. Blackburn Moore
Russell E. Teague, M.D.
J. J. Woltmann

PUBLIC RELATIONS

J. L. Quinn, Jr., *Chairman*
N. H. Dyer, M.D.
Charles B. McCabe
O. Lloyd Meehean
Earl Wallace
Robert G. West

PENSION PLAN

B. A. Poole, *Chairman*
Roland R. Cross, M.D.
Martin F. Hilfinger
John D. Porterfield, M.D.
Ross H. Walker
Earl Wallace

POLICY

E. A. Holbrook, *Chairman*
Martin F. Hilfinger
Clarence W. Klassen
Blucher A. Poole
Henry Ward

INTERSTATE RELATIONS

Hudson Biery, *Chairman*
W. W. Jennings
Henry Ward
Ross H. Walker

SOIL EROSION

O. L. Meehean, *Chairman*
E. A. Holbrook
Ross H. Walker
Henry Ward
J. J. Woltmann

MONEY RECEIVED AND SPENT

•

JULY 1, 1950 to JUNE 30, 1951

Funds for operating the Commission are appropriated by the signatory states in accordance with Article X of the Compact:

> The signatory states agree to appropriate for the salaries, office and other administrative expenses, their proper proportion of the annual budget as determined by the Commission and approved by the Governors of the signatory states, one-half of such amount to be prorated among the several states in proportion to their population within the District at the last preceding Federal census, the other half to be prorated in proportion to their land area within the District.

The annual budget appropriated by the eight states for the fiscal year ending June 30, 1951, was $100,000. Additional receipts from the states, representing payments due, totalled $16,000. This included $3,750 from the Commonwealth of Virginia and $12,250 from the State of West Virginia; payment of the latter had been withheld pending the outcome of litigation, which was decided in favor of the Commission.

Under the provisions of Public Law 845, the 80th Congress, $42,000 of Federal funds were made available to the Commission. These funds are being applied to the conduct of supplementary investigations, surveys and studies related to the prevention and control of water pollution caused by industrial wastes.

Details of receipts and disbursements are given in the accompanying tabulations.

The Commission retains the services of William H. Mers Company, certified public accountants, Cincinnati, to make an examination of its books and records. Appended is the auditor's certificate of report. All books and records of the Commission are available for inspection in Cincinnati by authorized representatives of the signatory states.

AUDITOR'S CERTIFICATE

In our opinion, the accompanying statement of receipts and disbursements, statement of unused resources, and schedule of receipts from signatory states present fairly the operations of the Ohio River Valley Water Sanitation Commission on a receipts and disbursements basis for the fiscal year ended June 30, 1951 and its financial condition on June 30, 1951.

s/WILLIAM H. MERS & COMPANY
Certified Public Accountants

Cincinnati, Ohio
July 10, 1951

Statement of Receipts and Disbursements

YEAR ENDED JUNE 30, 1951

Receipts:

From signatory states *(For detail see schedule attached)*	$116,000.00
From Federal Security Agency *(Grant from P. L. 845 fund)*	24,537.75
Interest earned on bank deposit	228.94
TOTAL RECEIPTS	$140,766.69

Disbursements:

From state funds:		
Salaries	$38,269.15	
Dues and subscriptions	456.00	
Telephone and telegraph	1,524.14	
Printing	5,871.74	
Office supplies	2,300.51	
Postage	889.00	
Meetings	751.74	
Travel—commissioners	3,694.56	
Travel—staff	5,013.39	
Electric and water	478.08	
Insurance	439.92	
Office rent	4,090.00	
Miscellaneous	1,587.69	
General office equipment and furnishings	5,921.13	
Legal services	2,400.00	
Auditing	550.00	
Consulting service	1,800.00	
Contractual service	6,885.70	
Clean Water Exhibit	359.63	
The Wabash Project	834.32	
	$84,116.70	
*From federal funds:		
Ohio River Survey	$ 653.83	
Muskingum River Survey	1,158.35	
Phenol Waste Study	420.92	
Methods of Analysis	4,925.00	
Toxicity Limits	13,500.00	
Industrial Waste Inventory	8,912.28	
Industrial Action Committee	4,364.78	
	$33,935.16	
TOTAL DISBURSEMENTS		$118,051.86
Excess of Receipts Over Disbursements *(Indicating the net income of the commission on a receipts and disbursements basis for the fiscal year ended June 30, 1951)*		$ 22,714.83
ADD: BALANCE OF CASH, JULY 1, 1950		49,841.47
BALANCE OF CASH, JUNE 30, 1951		$ 72,556.30

**Note: As of June 30, 1951 federal funds were encumbered in the following amounts:*

Muskingum River Survey	$ 96.50
Industrial Waste Inventory	835.65
Industrial Action Committee	1,054.50
	$ 1,986.65

Statement of Unused Resources

JUNE 30, 1951

	STATE FUNDS	*FEDERAL FUNDS	TOTAL
Unused resources, June 30, 1950	$ 48,379.22	$17,462.25	$ 65,841.47
Annual budget— July 1, 1950— June 30, 1951	100,000.00		100,000.00
Federal Security Agency		24,537.75	24,537.75
Interest earned on bank deposit	228.94		228.94
	$148,608.16	$42,000.00	$190,608.16
Disbursements July 1, 1950— June 30, 1951	84,116.70	33,935.16	118,051.86
UNUSED RESOURCES, JUNE 30, 1951	$ 64,491.46	$ 8,064.84	$ 72,556.30

The above Unused Resources at June 30, 1951 is comprised as follows:

Cash on deposit with The Central Trust Company	$71,931.30
Petty cash on hand	200.00
Cash on deposit with American Airlines, Inc.	425.00
	$72,556.30

**Note: As of June 30, 1951 federal funds were encumbered in the following amounts:*

Muskingum River Survey	$ 96.50
Industrial Waste Inventory	835.65
Industrial Action Committee	1,054.50
	$ 1,986.65

Schedule of Receipts From Signatory States

YEAR ENDED JUNE 30, 1951

	BALANCE DUE JULY 1, 1950	BUDGET FOR FISCAL YEAR	TOTAL	RECEIPTS DURING FISCAL YEAR
State of Illinois	$	$ 5,600.00	$ 5,600.00	$ 5,600.00
State of Indiana		17,300.00	17,300.00	17,300.00
Commonwealth of Kentucky		21,500.00	21,500.00	21,500.00
State of New York		1,150.00	1,150.00	1,150.00
State of Ohio		22,600.00	22,600.00	22,600.00
Commonwealth of Pennsylvania		15,850.00	15,850.00	15,850.00
Commonwealth of Virginia	3,750.00	3,750.00	7,500.00	7,500.00
State of West Virginia	12,250.00	12,250.00	24,500.00	24,500.00
TOTALS	$16,000.00	$100,000.00	$116,000.00	$116,000.00

COMMISSION PUBLICATIONS

Available on request except where otherwise noted

FIRST ANNUAL REPORT, Nov., 1949 (26 pp., illus.). *Background leading to establishment of Commission; plans and goals; reproduction of the compact, policy statement, budget distribution and findings of the Cincinnati Pool hearing Board.*

PREVENTING STREAM POLLUTION FROM OIL PIPE-LINE BREAKS, Sept. 1950 (22 pp., illus.). *A guidebook of recommended practice in preventive measures, emergency organization, methods and equipment for handling breaks based on data submitted by pipeline companies. (Out of print.)*

SECOND ANNUAL REPORT, Nov., 1950 (44 pp. and insert, illus.). *An accounting of activities and projects; status of municipal sewage-treatment programs; development and work of industry-action committees; an appraisal of mine-acid drainage; abstract of report on Wabash River pollution-abatement needs; and a digest of the organization and legal authority of water-pollution control agencies of states signatory to the compact.*

WABASH RIVER POLLUTION-ABATEMENT NEEDS, Aug. 15, 1950 (83 pp., graphs and tables.). *Findings with regard to the natural-purification characteristics of the river under varying loads and run-off. Recommendations for treatment requirements. Description of survey methods and analysis of data. (Limited supply.)*

BACTERIAL-QUALITY OBJECTIVES FOR THE OHIO RIVER, June 1, 1951 (26 pp., graphs and tables). *Recommendations adopted by the Commission as a guide in the establishment of requirements for sewage discharges, and as a yardstick for evaluating sanitary conditions in waters used for potable supplies and recreational purposes. Enumerates objectives, the manner in which they are to be interpreted, and the background for their validity.*

PHENOL WASTES TREATMENT BY CHEMICAL OXIDATION, June 15, 1951 (42 pp., illus.). *Final report of a cooperative research project conducted by industrial representatives and public agencies on coke-plant waste. Laboratory studies, confirmed by pilot-plant operations, show how phenols can be destroyed by three methods of chemical oxidation—using chlorine, ozone and chlorine dioxide.*

POLLUTION PATTERNS IN THE OHIO RIVER—1950, June 20, 1951 (57 pp., maps and graphs). *Water quality changes and conditions revealed by a simultaneous sampling of a 963-mile stretch of the Ohio River from Pittsburgh to Cario. An analysis of pollution conditions that occur during a period of minor freshets when flush-outs occur in pooled areas. (Limited suupply.)*

PLATING-ROOM CONTROL FOR POLLUTION ABATEMENT, July 1, 1951 (20 pp., illus.). *A manual of principles and practice on "good housekeeping" to curb losses of solutions and metals that otherwise might find their way into water courses. Compiled by sixteen industrial representatives who comprise the Metal-Finishing Industry Action Committee of the Commission. (Price* 50c.)

BRINE CONTAMINATION IN THE MUSKINGUM RIVER, Aug. 15, 1951 (43 pp., illus.). *Determination of the nature and magnitude of brine-waste discharges from salt-processing operations, and their effect on water quality. Describes how data was obtained and how it was interpreted. Discusses economic losses. (Limited supply.)*

CLEAN STREAMS FOR THE OHIO VALLEY, Sept., 1951 (18 pp., illus.). *A public education booklet in layman's language that tells the story of water pollution, something about the cost of such plants, and what citizens can do to get action on the construction of treatment plants for their communities.*