OHIO RIVER VALLEY WATER SANITATION COMMISSION

a report on the interstate crusade for clean streams to the Governors of:

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OHIO PENNSYLVANIA
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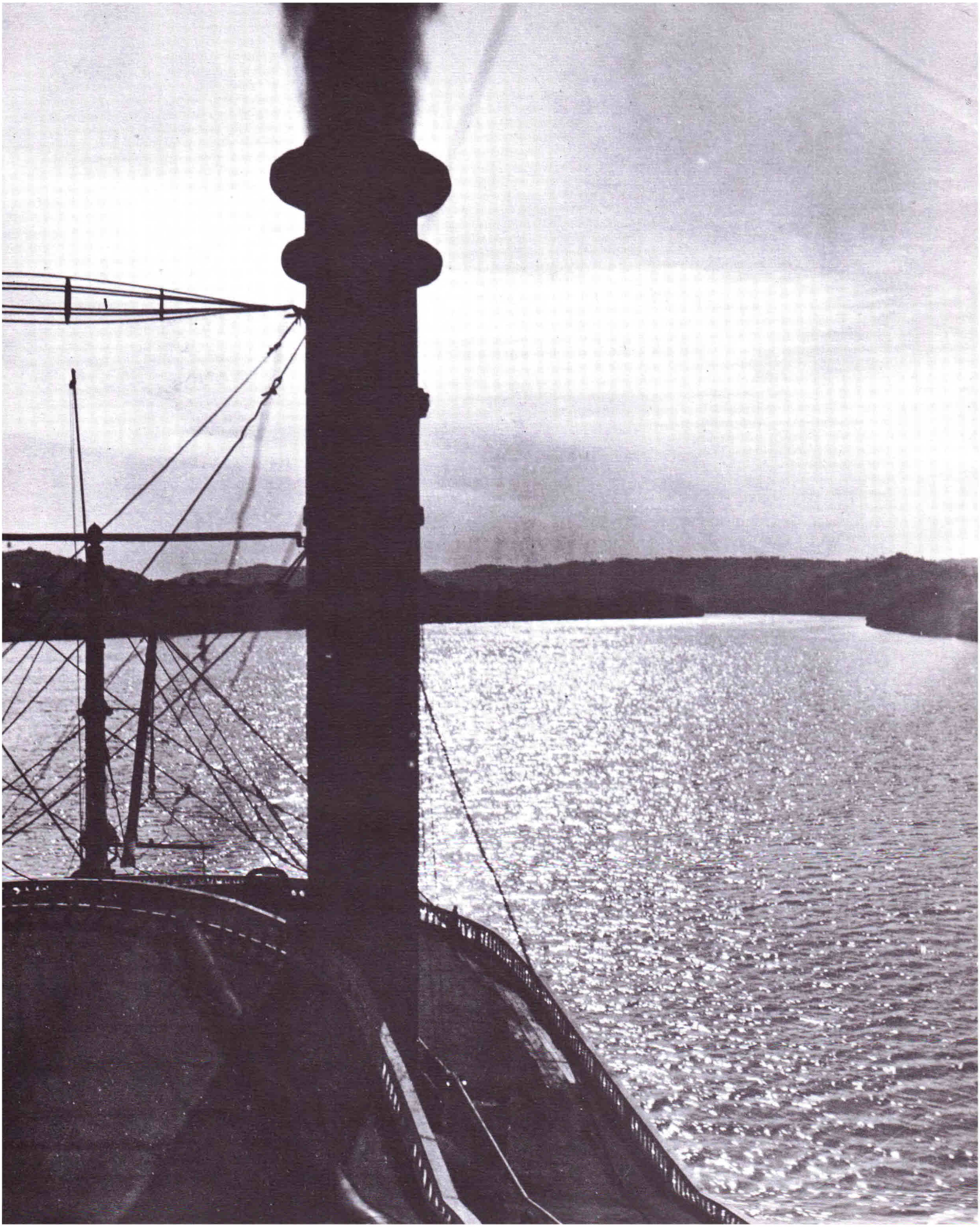
Chronicle of the Twelfth Year - 1960



OHIO RIVER VALLEY WATER SANITATION COMMISSION - 1960

Headquarters: 414 Walnut Street, Cincinnati 2, Ohio

Twelve years ago a regional crusade for clean waters was launched by eight states in the Ohio River Valley. The purpose: Eliminate existing river pollution and prevent new pollution. The method: Motivate communities and industries — by persuasion where possible and by compulsion where necessary — to install sewage and waste-control facilities.

To coordinate this program the states of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia established the Ohio River Valley Water Sanitation Commission in 1948. These states pledged to each other, under the terms of a compact approved by the Congress of the United States, to faithfully cooperate in this regional effort. Three commissioners from each state appointed by the Governor of the state, and three commissioners appointed by the President of the United States, administer this compact.

Rallying to the leadership provided by the states, the people in the Ohio Valley have effectively reversed the trend of half a century of river degradation. The most dramatic manifestation is on the Ohio River itself. Here 95 percent of the population is now served by sewage-treatment facilities as contrasted with less than one percent in 1948!

In more poetic form the editors of QUEST magazine (summer 1960 edition) put it this way in an article titled Rebirth of the Ohio: "The Ohio River was tediously born at the inching pace of glaciers; its genesis took perhaps 100,000 years. Man's work was swifter. In less than two centuries he turned pure water into foul. Then, in a single decade of penance, he made it wholesome again. This event will interrupt no newscast. The rebirth of the Ohio lacks the drama of a disastrous flood. But as geographic melodrama, it ranks as a major achievement for the central United States."

The eight states, their communities and their industries who have labored together in this mutual task have reason to take pride in what has been accomplished thus far. But this satisfaction is tempered by the knowledge that safeguarding the quality of water resources claims further effort and constant vigilance. These and other matters related to more effective conduct of the Ohio Valley crusade for clean streams are detailed in the following pages.

Edward J. Cleary

December 1, 1960

Executive Director and Chief Engineer

Chronicle of the

To measure progress in pollution control the eight states in the Ohio Valley compact district have adopted a practical yardstick. Each year they make a compilation of the number of people and industries that are served by or constructing waste-control facilities. From this detailed status tabulation, appearing elsewhere in this report under the title Tally for the Valley, these significant facts emerge:

- Municipal sewage-treatment facilities were placed under construction this year to serve another 167,000 people. This means that 84 percent of the 10,000,000 sewered population throughout the entire drainage area has now met its obligation for pollution control. Meantime, it should be noted that final plans have also been approved for construction of facilities to serve an additional 841,000 people.

- Industrial-waste control facilities rated as adequate were increased by 84 this year. This brings the total of adequate installations to 1,001, or 71 percent of 1,405 industries that discharge wastes directly into streams. Another 34 industries have control facilities under construction.

This is the record that has resulted from twelve years of united effort, preceded by many more years of individual effort, on the part of the signatory states to halt the degradation of water resources. And this record is testimony that millions of people and hundreds of industries have been motivated to invest more than a billion dollars in the proposition that clean waters are essential to the social welfare and economic destiny of the Ohio Valley. This is the perspective within which the Ohio River Valley Water Sanitation Commission (ORSANCO) details activities and happenings of the past year.

ON THE INDUSTRIAL FRONT

In many ways the Commission takes pride in what has been accomplished in the stupendous task of curbing industrial-waste discharges. But it derives small comfort from the knowledge that there are still 225 industries — representing 16 percent of the total — that have not yet been certified as meeting basic control requirements established by ORSANCO five years ago.

Although it is appreciated that the problems confronting some of these industries are of great complexity, and that corrective measures require time and substantial outlays of money, the Commission believes there may be reason now to question the integrity of efforts being made. Accordingly, it has initiated an inquiry and directed certain industries to supply time-schedules of expected compliance for detailed review. Meantime, there has been cause for gratification in the progress being made on other vital elements of industrial-waste control effort.

MINE-DRAINAGE CONTROLS

One of the important steps forward in coping with industrial pollution was the final adoption of acid mine-drainage control measures. This action represented more than a technical accomplishment; it signalized the establishment of an entirely new attitude with regard to a long-standing pollution problem in the Ohio Valley. Traditionally, as has been pointed out in previous annual reports, there has been a spirit of defeatism associated with control of mine-drainage. This was fostered by those who

took refuge in the theory that until research revealed the mechanism involved in the formation of mine-acid, it would be fruitless to undertake control of polluting discharges.

The Engineering Committee and the staff of ORSANCO did not share this view. Eventually sufficient evidence was gathered to demonstrate that the situation was not as hopeless as pictured. Much of this evidence came from experiences in Pennsylvania and Indiana, two of the signatory states wherein the control agencies and coal operators had tackled the problem on an empirical basis and achieved some notable success. In brief, it was concluded that pollution could be ameliorated by: (1) reducing water flow into the mines; (2) minimizing contact time of water with the acid-forming materials in a mine; (3) more effective disposal of gob and other refuse materials; (4) proportioning drainage discharge from the mines with flow of water in the stream throughout a 24-hour period instead of discharging intermittent "slugs" of acid water; and (5) employment of adequate closure procedures immediately following termination of mining activities.

In developing the control measure, the Commission had the benefit of review and appraisal by its Coal Industry Advisory Committee, which represents a cross-section of the mining operators in the Ohio Valley district. The happy outcome of this cooperative enterprise was the creation of unanimous support from the coal committee. In a message to coal-industry executives, following adoption of the measure, Mr. R. L. Ireland, chairman of the executive committee of the Consolidation Coal Company as well as vice-chairman of the National Coal Association and a participant in the affairs of ORSANCO's coal-industry committee, put it this way:

> "The Ohio River Valley Water Sanitation Commission has the obligation under law to ameliorate and, where practicable, to abate stream pollution. Its attitude toward the coal industry is one of accomplishing this mandate through cooperation, rather than compulsion. Let's not force ORSANCO to change its attitude."

To expedite implementation of acid mine-drainage control the Commission authorized its staff to conduct "curbstone clinics" for state agency personnel. These clinics include field expeditions in which engineers from each state visit mining operations to observe and develop methods for curbing acid discharges. Two such clinics, each of two-days duration, have been held thus far at properties in Pennsylvania and West Virginia.

IMPROVEMENT OF HAZARD-ALERTS

On September 30, 1959 the Commission adopted a measure designed to improve its monitor and alert system and thus promote establishment of further safeguards to water supplies in the valley. This resolution titled "Notification of Spill and Accidental Discharges", places the responsibility on all industries to promptly report such occurrences to state pollution control agencies so that appropriate steps can be taken to alert downstream water users where the possibility of hazard exists.

An incident some six-weeks later emphasized the wisdom of the signatory states in giving formal recognition to such hazards. ORSANCO headquarters was notified on November 13, 1959 by the West Virginia Water Resources Commission that an estimated 6,000 gallons of a poisonous substance known as aniline had found its way, by accident, to the Kanawha River. The Kanawha is a major tributary to the Ohio River. This alert set into motion a chain of events involving exchange of information and hazard evaluation among the West Virginia authorities, the industry reporting the spill, several downstream water companies and ORSANCO. Among other precautionary actions, water service in one small town was temporarily discontinued from the river and a supply was trucked in from another source.

Looking at this incident in terms of dealing more effectively with similar events in the future, the Commission is studying the feasibility of a procedure whereby each industrial plant would have at least

one individual informed and prepared to furnish information concerning the products that might escape into the river, their potential toxicity and analytical methods for their determination. The matter has been referred to the engineering committee of the Commission, as well as to its industry advisory committees.

In addition to hazard-potentials, other incidents involving violations of regulations that result in fish kills, nuisance or degraded stream conditions are matters of special concern. Reports of these incidents reach ORSANCO headquarters from various sources — state agencies, water plant operators, field crews working on river surveys, yacht-clubs, newspapers, and, through routine boat and air-surveillance. A summary of violations, spills and other occurrences that received attention during the period July 1, 1959 to June 30, 1960 is shown on page 18.

Investigations were made by state-agency personnel or Commission staff of all the incidents shown in the tabulation. And where evidence was obtained to fix responsibility, appropriate action was initiated by the state agencies to prevent a recurrence.

BARGE TRANSPORT OF HAZARDOUS MATERIAL

Another incident dramatizing the potential hazards to water supplies from accidental spills occurred on January 13, 1959. This concerned the beaching of a leaking barge a few miles above a municipal water intake on the Ohio River. The barge contained a chemical solvent. Several hours after the barge was beached a "benzine-type odor" was detected in the city water supply.

This incident and the experiences of the ORSANCO staff in dealing with it revealed a potential pollution hazard whose implications deserved evaluation. The Commission has no jurisdiction, of course, with regard to shipment or handling of chemicals on waterways. That responsibility has been

ORSANCO Resolution (5-60) for ACID MINE-DRAINAGE CONTROL

"WHEREAS: By resolution adopted on the 6th day of April, 1955, the Ohio River Valley Water Sanitation Commission promulgated a statement of policy and procedures for the control of industrial-waste discharges into waters included within its jurisdiction by the terms and provisions of the Ohio River Valley Water Sanitation Compact; and

"WHEREAS: Waters of the Ohio River Valley Water Sanitation District are being polluted by acid discharges from coal mining and related operations, hereinafter referred to as 'acid mine-drainage,' contrary to the language and intent of the Ohio River Valley Water Sanitation Compact; and

"WHEREAS: it has been demonstrated that the conscientious application of certain principles and practices will, under certain conditions, alleviate the pollution from acid mine-drainage;

"NOW, THEREFORE: In furtherance of the policy and procedures as above set forth and for the general purpose of contributing to the achievement of the objectives specified in Article I of the Ohio River Valley Water Sanitation Compact;

"BE IT RESOLVED: That the following measures are hereby adopted by the Commission for the control of acid mine-drainage pollution in the Ohio River Valley Water Sanitation District and pursuant to the statement of policy and procedures are to be followed by the signatory states:

"1 (a)—Surface waters and ground waters shall be diverted where practicable to prevent the entry or reduce the flow of water into and through workings;

(b)—Water that does gain entry to the workings shall be handled in a manner which will minimize the formation and discharge of acid mine-drainage to streams.

"2. Refuse from the mining and processing of coal shall be handled and disposed of in a manner which will minimize discharge of acid mine-drainage therefrom to streams.

"3. Discharge of acid mine-drainage to streams shall be regulated insofar as practicable to equalize the flow of daily accumulations throughout a 24-hr period.

"4. Upon discontinuance of operations of any mine all practicable mine-closing measures, consistent with safety requirements, shall be employed to minimize the formation and discharge of acid mine-drainage.

"5. Under appropriate circumstances, consideration shall be given to the treatment of acid mine-drainage by chemical or other means in order to mitigate its pollutional properties.

"Nothing stated in this control measure shall be construed to relieve any municipality, corporation, person or other entity from responsibility for compliance with existing federal, state and local laws and regulations."

delegated by federal law to the U. S. Coast Guard. But the Commission did feel a proper concern with pollution hazards and their prevention in the interstate waters of the district. Accordingly, the executive director was instructed to make an inquiry, and to present findings and recommendations for establishment of more adequate safeguards relating to the barge transport of chemicals. He reported as follows:

Findings

F-1 — Materials shipped by barge on the Ohio River and its tributaries include many chemical products, some of which may be classified as toxic. During 1958 shipments of chemical products, some of them in bulk lots, constituted 3 percent of the 73 million tons of river cargo transported. Shipment of these products is increasing both in tonnage and variety.

F-2 — Loss of cargo from damage to barges, as well as accidental sinking of barges, has occurred on the heavily-travelled Ohio River. Such incidents must be regarded as one of the risks associated with navigation. Accordingly, on navigable rivers used for water supply the adoption of appropriate safeguards commands attention.

F-3 — Present practices and responsibilities related to the transport and handling of chemical cargoes should be re-examined by navigation authorities and shipping interests from the standpoint of safeguarding water supplies. The incident that prompted this inquiry reveals the following deficiencies:

a) Unawareness on the part of navigation authorities, shippers and their agents that accidents involving loss of chemical cargoes may jeopardize the welfare of an entire community.

b) Lack of a system of notification whereby navigation interests might promptly alert state and local authorities regarding accidents affecting the quality of water supplies.

c) Laxity in providing the true name of chemicals and compounds on bills of lading and manifests, thus causing delay in obtaining essential information about the nature of a cargo when accidents occur.

F-4 — There are possibilities for establishing more adequate safeguards to protect water consumers from the potential hazards of accidental loss, discharge or submergence of chemical cargoes carried on the Ohio River inland navigation system. These possibilities are outlined in the following:

Recommendations

R-1 — Invite the U. S. Coast Guard to take official cognizance of the potential hazards to municipal and industrial supplies resulting from the transport of dangerous and toxic chemicals on inland waterways. In accordance with responsibilities assigned to it by the Congress of the United States, it would appear that the Coast Guard is the agency to promulgate such additional regulations, rules or instructions as may be necessary to provide maximum safeguards for these waterways from accidental contamination. Land-transit regulations of the Interstate Commerce Commission with regard to leaking or spilled cargoes offers a precedent for similar action by the Coast Guard, whose jurisdictional responsibility parallels the I.C.C. on matters relating to water-transit.

Safeguarding water supplies from accidental contamination by cargo leakage is one of the many responsibilities of the master of a towboat when navigating on streams in the Ohio River Valley.

Corps of Engineers (Pittsburgh District) photo

R-2 — Invite the U. S. Coast Guard to alert state water pollution control agencies (or ORSANCO headquarters, if this be considered most expeditious) concerning barge-transport accidents that could result in the contamination of water supplies in the Ohio River district.

R-3 — Invite the Ohio River Division, U. S. Corps of Engineers to designate the location of municipal

and industrial water intakes on all of its navigation charts when these charts come up for revision. This information is not now included on some charts. The object of this recommendation is to inform towboat pilots of the proximity of these intakes should accidents occur that may affect water supplies.

R-4 — Improve further an existing relationship between ORSANCO and the Ohio River Division, U. S. Corps of Engineers, whereby lockmasters have been encouraged to report unusual conditions observed in the river. This improvement would involve extension of this arrangement to promote prompt reporting to ORSANCO of lockmaster observations relating to leaking, stranded or sunken barges.

R-5 — Invite the American Water Ways Operators' Association to review this report and to communicate to its membership the vital responsibilities of those entrusted with the transport of chemical cargoes on rivers that are also used as a source of water supply. In particular, it is suggested that the Association consider means to impress upon towboat masters and others the necessity for giving immediate notification to the Coast Guard of any leakage or loss of cargo on the "dangerous" list, and that the masters be made aware of the hazards of beaching damaged barges containing chemicals in the vicinity of municipal water intakes. The Association might also emphasize the importance of shippers complying to the letter with Coast Guard regulations relative to the use of true descriptive names on bills of lading and manifests and thus prevent delay in identifying the precise character of chemical cargoes when a spill or leakage occurs. For the same reason, attention should be directed to the Coast Guard regulation (146.06-12) requiring that the manifest covering dangerous cargoes must accompany and remain with the shipment until final delivery.

R-6 — Bring this report to the attention of marine-underwriters in order that they may become informed of the apprehensions of the Ohio River Valley Water Sanitation Commission and thus consider employment of their influence in lessening liabilities and otherwise furthering safe practices in the handling and transport of toxic chemicals.

R-7 — Invite the signatory states to consider the merits of advising municipalities and industries to erect identification signs or markings on water intakes to aid navigators in spotting location of intakes and thus promote precautionary measures. Attached to this report is a drawing showing a suggested size and design of a suitable sign. The Coast Guard District Commander, who would have to approve installation on any such "private aid to navigation" has informally indicated no objection provided the sign does not interfere with signal lights for navigation.

R-8 — Invite the Water Users Committee of our Commission, which is composed of managers of municipal and industrial water supply systems, to undertake the preparation of a manual of emergency procedures to be followed by water purveyors in the event of accidental contamination of the river.

R-9 — Utilize the ORSANCO interstate alert system and monitoring facilities already established by the signatory states for prompt relay of information pertaining to the loss of chemical cargoes. It should be noted that ORSANCO maintains, on the basis of data supplied by the U. S. Weather Bureau in Cincinnati, a daily record of flow volumes and velocities at various points in the Ohio River and at some tributaries. From this it is possible to develop immediate information on dilution capacity and anticipated time-of-travel of pollutional materials.

DEFINITION OF CHLORIDE LOAD

In 1958 the Commission adopted a measure stating that: "Existing and future discharges of wastes containing significant chloride loads into the waters of the Ohio River Valley Water Sanitation District shall be subject to control, etc., etc." In seeking to implement this control measure the states found there was uncertainty as to the definition of "significant load." Accordingly, on the recommendation of its Engineering Committee the Commission on April 8, 1960 adopted the following:

"Resolved: That for present determination of chloride discharges subject to compliance with the ORSANCO chloride-control measure, a 'significant load' is defined as

"1. Any existing discharge to the Ohio River or its tributaries which is equal to or greater than 25 tons per day; or

"2. Any discharge from new or expanded operations to the Ohio River or its tributaries which is equal to or greater than 5 tons per day; or

"3. Any discharge less than any of the above values which, in the opinion of the state agency, causes a local degradation of water quality, although it otherwise satisfies interstate control requirements.

"Deviations from the above definitions may be permitted only with the approval of the water pollution control agency of the state in which the discharge originates after consultation with the Commission."

ON THE MUNICIPAL FRONT

Response of municipalities to the clean-streams crusade — particularly on the main stem of the Ohio where 95 percent of the population now has sewage-treatment plants in operation or under construction — has been gratifying. This has steeled determination of the Commission that the few delinquent communities must be speeded in shouldering their obligation to abate the discharge of raw sewage.

This is the background that prompted the Commission to intercede, at the request of the State of West Virginia, in the situation at Huntington. Here the largest of the remaining communities along the Ohio River that had not yet installed treatment facilities sought to delay completion until 1969.

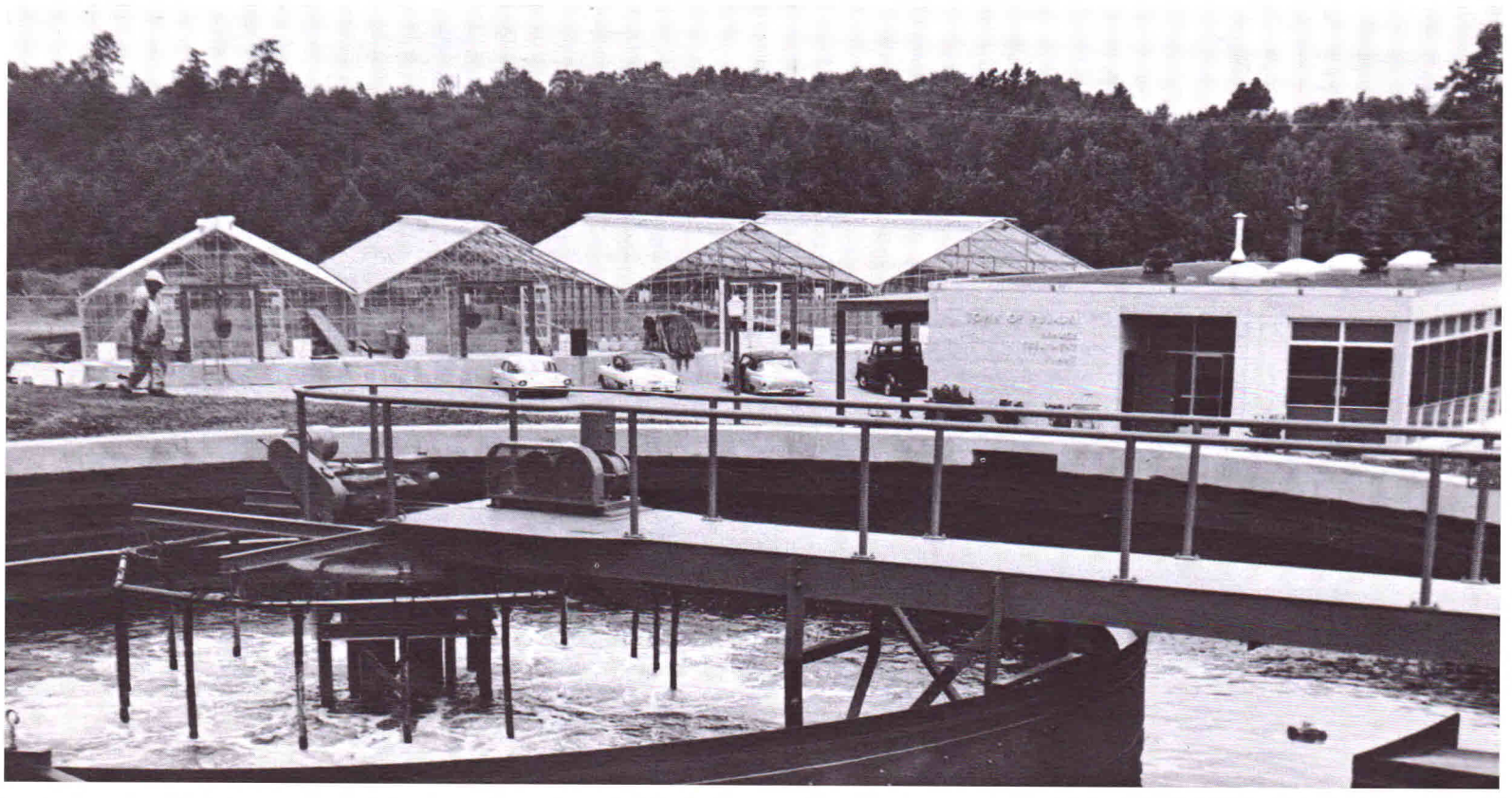
HUNTINGTON ACTION

As far back as 1949 the city was ordered by the West Virginia Water Commission to cease polluting the Ohio River. The city contested the validity of the state order in the courts from 1949 until January 1953, when the state Supreme Court upheld the position of the state agency. Meantime, interstate requirements for treatment of sewage discharged to the Ohio River had been formally established by ORSANCO in April 1952. This provided the state with additional obligations for securing compliance from Huntington. But such efforts were thwarted again in 1955 when a Cabell County grand jury refused to return an indictment, sought by the West Virginia Water Commission, against Huntington officials. In May 1956 the state issued another order against the city establishing December 1959 as the deadline date for completion of sewage-treatment facilities. But construction was not initiated until two years later — and this only on sewers. It was at this point that the West Virginia authorities learned that the city not only would fail to meet the deadline but expected another ten years period of grace in which to do so.

Thus it was that ORSANCO was called upon to exercise its interstate compact powers. As a first step the Commission formally requested that Huntington submit a report on September 16, 1959 outlining what action the city proposed to bring it into com-

Sewage-treatment works at Pulaski, Va., which will serve a population of 14,000 as well as the industries in the area. This million-dollar plant utilizes an aeration-clarification process and employs glass-covered enclosures for drying sludge. Wiley and Wilson consulting engineers of Lynchburg, Va., designed the facilities.

ORSANCO (Jones) photo



pliance with interstate requirements. The city responded by stating that its sewer construction program costing some $5,242,000 was already under contract; but facilities to provide treatment of sewage, estimated to cost an additional $5,205,000, remained to be financed. To meet this need the city council had adopted a "pay-as-you-go" plan for all future work, which meant that treatment facilities could not be completed until sometime in 1969.

This proposal was unacceptable to ORSANCO, and on September 30, 1959, a fact-finding committee was instructed to consult with Huntington officials. This committee reached the conclusion that construction of the entire project could be completed by May 1963, without imposing an undue financial burden on the city. Meantime, Huntington officials were cited to appear before the Commission on January 14, 1960, for the purpose of showing cause why, in the absence of an acceptable program, legal proceedings should not be initiated.

When the city officials were not prepared at this meeting to offer an alternate plan for a completion date earlier than 1969, the Commission unanimously agreed to exercise its enforcement powers. However, at the request of the city, action temporarily was held in abeyance so that Huntington officials might review the matter further.

On January 22, 1960 the City of Huntington submitted a revised plan for future action, under which construction work would be accelerated so that the entire project could be completed by July 1, 1965. Rejection of this proposal by the Commission led to further conferences, and on March 23, 1960, a second revised plan was submitted by the city.

The March 23 plan formed the basis for Commission action at its April 8, 1960 meeting. This plan differed from those previously offered in the following major respects: (a) treatment facilities to be completed and in operation by December 31, 1964, rather than July 1, 1965; (b) refinancing would be started in May 1961, rather than May 1962; (c) start of additional major construction is advanced from fiscal 1963 to May 1961.

The Commission accepted the plan of March 23, and established the financing and construction schedules contained in it as the criteria by which acceptability of progress by the city toward ultimate completion of its program would be judged. The city reports at three-month intervals to the Commission on its status of compliance with these schedules.

DELINQUENT COMMUNITIES

Believing that sufficient time has been granted to communities whose population comprises the 5 percent along the Ohio River, which has not yet been provided with sewage-treatment facilities, the Commission directed a subcommittee to review the status of each community whose performance was listed as "unsatisfactory" by the state agencies. The subcommittee was also directed to review the situation with regard to industries that had not yet complied with control requirements.

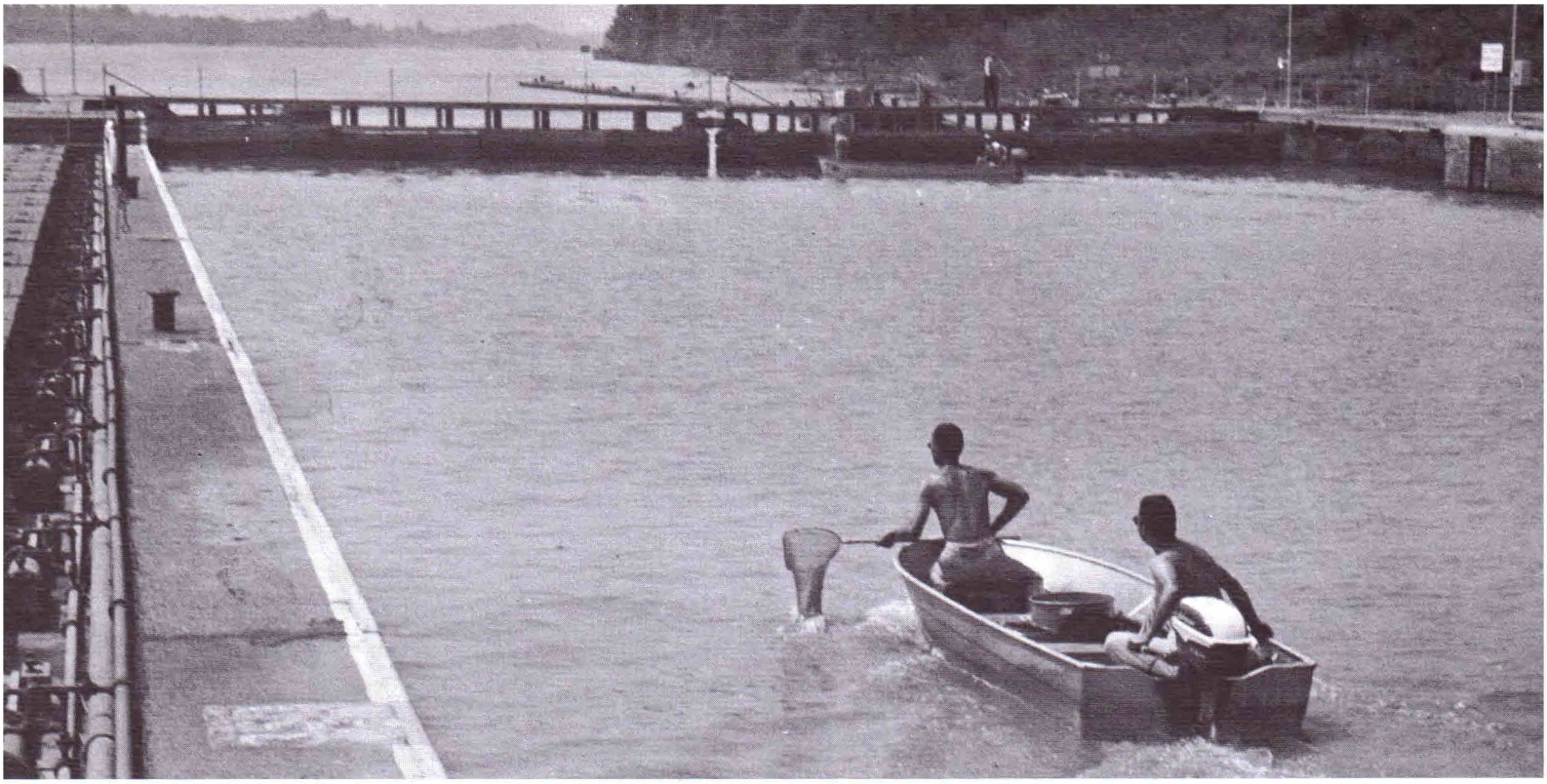
The Commission has now endorsed the subcommittee recommendation that each of these communities and industries be formally notified to proceed without delay in consulting their state agency in preparation of a timetable of compliance with interstate sewage-treatment requirements, and that these schedules be submitted to the Commission for review at its January 1961 meeting.

EMBARGO ON SEWER CONSTRUCTION

Seeking further to impress delinquent communities with the Commission's resolve to enforce statutory provisions of the interstate compact, which prohibits discharge of raw sewage after a time reasonable for construction of necessary facilities, a resolution was adopted on April 8, 1960 to promote use of an embargo on sewer extensions.

In this resolution the signatory states pledged themselves to a policy of issuing permits for extension of sewers in a community "only when adequate treatment facilities exist or are definitely assured within a time satisfactory to the state." This policy recognizes that a community already polluting a stream cannot in good conscience be permitted to increase such pollution by enlarging its collection system to receive additional sewage.

It is common practice to require that a municipality must have a state permit for the extension of sewers. Such permits are routinely granted provided the installation meets required construction standards. In recent years, however, the states of Illinois, Indiana and Pennsylvania have been attaching another condition to the granting of such permits — they are denied if a municipality has shown little disposition in meeting sewage-treatment obligations. It was the exchange of this experience that prompted the ORSANCO action, which is intended to promote application of the procedure throughout the interstate compact district.



Field crew on the ORSANCO aquatic-life project collecting fish specimens in one of the navigation locks on the Ohio River. These lock chambers are closed and then treated with rotenone, a chemical that brings the fish to the surface. In this fashion it becomes possible to sample a given area of river and make an inventory of types, sizes and weights of fishes.

University of Louisville (Clay) photo

SPECIAL PROJECTS STATUS

Not the least of activities that characterize the eight-state program are investigations undertaken to fulfill special needs. Toward this end the Commission has authorized staff and contractural projects relating to automatic monitoring of water quality, development of a public-affairs program and evaluation of aquatic-life resources. Details of these projects follow, along with a listing of current contract arrangements.

PUBLIC-AFFAIRS PROGRAM

Substantial progress has been made in implementing the public-affairs program, which was authorized a year ago. Designed to supplement the earlier efforts of the Commission in motivating people to support the interstate clean-streams crusade, the new venture is designed to further inform the public on what has been accomplished and what must still be done to safeguard water quality.

A 30-minute film "Good Riddance", tailored in part to highlight individual state activities, has been completed. This documentary film along with a series of radio and television "spot" messages has been offered to some 80 stations in the Ohio Valley area. Details of this program are featured in a special section of this report, beginning on page 19.

Meantime, work has begun on the production of two additional documentary films dealing with special phases of the pollution-control activities in the eight states. It is proposed that these films, along with additional "spot" messages and interviews with leaders in water-resources activities in the Ohio Valley will provide television stations in the area with a sustained program of vital public interest.

Plans have also been finalized for an orientation briefing of state personnel in the conduct of state public-affairs programs. Mr. Stuart Finley, consultant to the Commission, will undertake this assignment.

AQUATIC-LIFE RESOURCES

In September 1960 the commissioners received for review the preliminary draft of a final report on fish and aquatic-life conditions in the Ohio River. This contains findings from field studies conducted

by the University of Louisville and the Kentucky Department of Fish and Wildlife Resources, the initiation of which was authorized by the Commission three years ago. The report is being prepared for publication. Meantime, here are some of the highlights:

During the three-year period of investigations sampling was conducted throughout the 1,000 mile length of the river by a variety of methods including use of rotenone in lock chambers, trawls, seines and nets. From the 341 collections that were made a total of 741,000 individual fish were gathered. This revealed the presence of 131 different species of fish.

The ten most abundant species were the emerald shiner, gizzard shad, drum, mimic shiner, channel catfish, silver chub, black bullhead, thread-fin shad, blue catfish and sand shiner. Six of this group are forage fishes, three are species sought by both sport and commercial fishermen and one species, the black bullhead, is of interest primarily to the angler.

The ten species representing the greatest total weight were the gizzard shad, carp, channel catfish, drum, emerald shiner, skip-jack herring, flathead catfish, blue catfish, black bullhead and river carpsucker. It might be pointed out that none of the game or pan fishes rank high either in weight or number in these samples.

Fish are distributed over the entire river in a somewhat varied composition. In the upper stretches the most abundant species were the emerald shiner, mimic shiner, sand shiner, black bullhead and channel catfish. In the middle section the leading species were the emerald shiner, channel catfish, gizzard shad, drum and silver chub. Predominant in the lower third of the river were the drum, gizzard shad, blue catfish, channel catfish and thread-fin shad; the emerald shiner occurs in only small numbers.

The standing crop of fish in the Ohio River is estimated to be equivalent to 150 pounds per acre of water surface. This crop is above the average found in many streams in the United States.

Another part of the study sought to evaluate the extent of commercial and sport fishing. More than 7,200 fishermen were interviewed and from this it was determined that the catfish and drum comprised 70 percent or more of the sport-fishing catch. Catfish were more abundant in the upper and middle sections of the Kentucky section of the river (some 700 miles in length), and the drum were more abundant in the lower section. Other fishes which contributed substantially to the catches reported by sport fishermen were carp in all three sections, sun fishes in the upper section, white bass, crappies and black basses in the middle and lower sections.

Success in catching fish ranged from a low of 0.5 per hour in the middle section to a high of 1.4 fish per hour in the lower section. Average length of fish taken was approximately one foot. More than 90 percent of the fish were taken with live or prepared bait, a fact which probably accounts in part for the relatively small number of so-called game fishes in the catch.

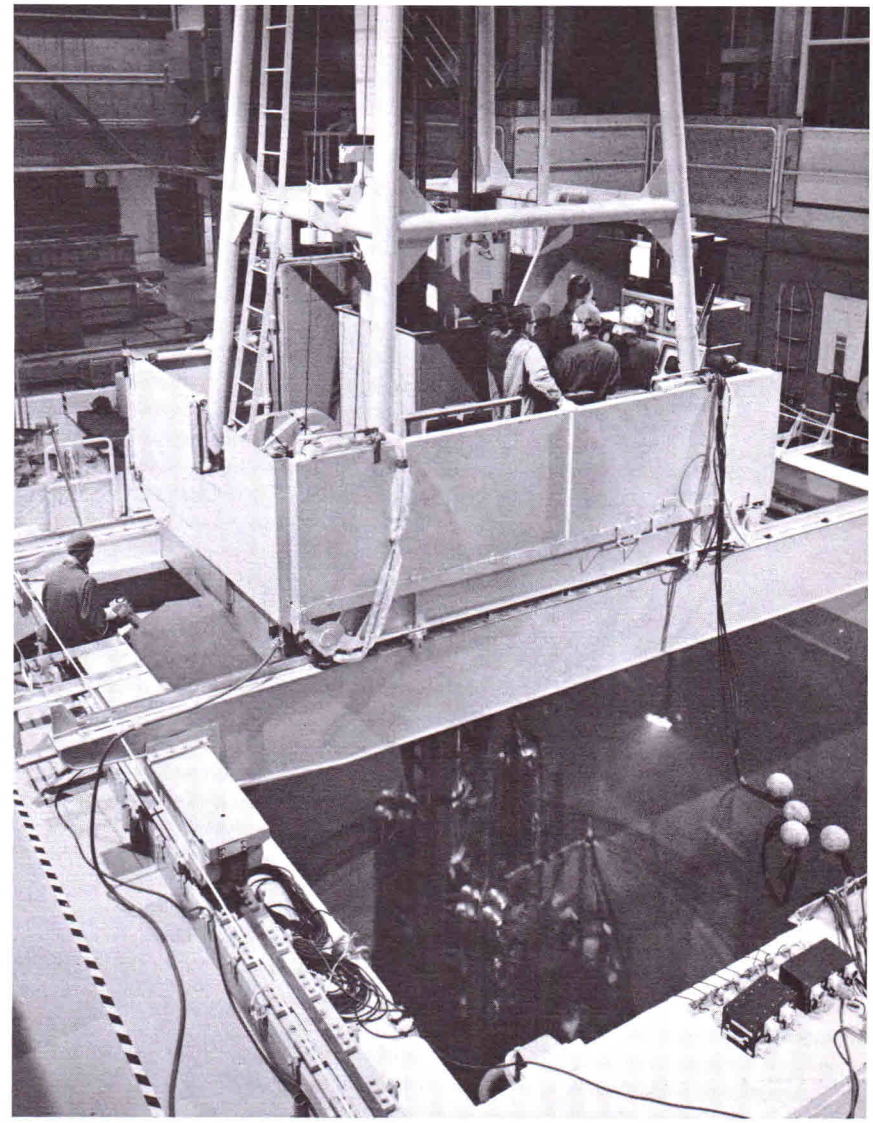
Fishermen counts were made both from boats and from airplanes. These revealed that the river supports an average fishing pressure of about 1,500 anglers per day or approximately 2.3 fishermen per mile. In the period, April to October 1959, 287,000 anglers caught 746,000 fish that weighed 522,000 pounds. Estimated market value of these fish amounted to $130,600. But the estimated outlay by the fisherman for equipment and other expenses in catching the fish was about $1.30 a pound, which is about five times the market value of the fish. This would indicate that the recreational values far exceed the food value of the fish.

The total harvest from commercial fishing in 1958 in the Kentucky section of the river (the only state permitting commercial fishing), amounted to about two million pounds valued at $410,000. Catfishes and drum comprised about 70 percent of the catch and accounted for $350,000 of the total value.

State Biologists Seminar — At the invitation of the Commission, aquatic biologists of the signatory states and Federal Government held their fourth annual meeting in Cincinnati in June. This event provides an opportunity for these specialists to discuss, aid and guide activities of mutual interest in the compact states. Advance findings from the Aquatic-Life Resources project were presented at this seminar.

RADIOACTIVITY SURVEILLANCE

Newspaper stories relating to potential radioactivity hazards in the Ohio River because of operations at the Shippingport, Pa. nuclear power plant created public concern during February 1960. This caused City Council of Wheeling to request information from ORSANCO regarding interstate interests and activities in radioactivity. A statement summarizing the attention given to the matter by the eight states was prepared, part of which follows:



Refueling the nuclear reactor at the Shippingport (Pa.) Atomic Power Station on the upper Ohio River was completed early this year. This represents the first refueling in the United States of a large-scale nuclear station.

The extractor crane is shown above the reactor pit, which is filled with water. Below the crane is suspended the housing for the control-rods, the raising or lowering of which varies the output of the reactor.

The Shippingport plant is a joint project of the U. S. Atomic Energy Commission and the Duquesne Light Company. Westinghouse Electric Corporation built the nuclear portion of the plant, which first produced power on December 18, 1957. The 60,000-kilowatt plant supplies power to the Pittsburgh district.

Duquesne Light Photo

"Studies and Reports — Our Commission (ORSANCO) has concerned itself since its establishment in 1948 with the impact of atomic-energy developments in the Ohio Valley. One of the early studies, conducted for and at the request of ORSANCO by the U. S. Public Health Service, was a determination of the natural or background radiation existing in the Ohio River prior to operation of the Shippingport plant. Meantime, the states signatory to the interstate compact were taking action to assume proper responsibilities in this new field of public-health protection. Personnel were given specialized training in radioactivity measurements, and laboratory equipment was acquired for this purpose. In addition, steps were taken in formulating radiation-control programs, notably by Pennsylvania, Ohio, Illinois, Indiana, Kentucky and New York, all of whom are signatory to the Ohio Valley Compact.

"With the cooperation of its signatory states, the Atomic Energy Commission and its contractors, and the U. S. Public Health Service, ORSANCO has been obtaining data continuously on radioactivity levels in the Ohio River and its tributaries from 70 monitor stations.

"In addition to this continual surveillance of water quality, ORSANCO has also been sponsoring for several years a study of possible radioactivity build-up in the muds, biota and fishes of the Ohio River. This work is done under contract by specialists at the University of Louisville.

"Shippingport Operation — On 12 September 1957, the Pennsylvania Sanitary Water Board reported at a regular meeting of the Commission that with the assistance of the U. S. Public Health Service and the states signatory to the Ohio River compact, conclusions had been reached on the conditions to be set forth for the operations at Shippingport. These conclusions reflected a policy that regardless of the permissible standards established by the National Committee on Radiation Protection, only the least possible amount of radioactivity discharge would be

permitted. Consequently, the Pennsylvania Sanitary Water Board limited such discharge to 1/10 (one-tenth) of the nationally recognized permissible concentrations. Furthermore, it stipulated that the Shippingport permit was temporary, and that conditions of operation would be reviewed and revised, if necessary, as determined from operating records and monitor results.

"After its most recent review of the Shippingport operation, on 22 January 1960, the Pennsylvania Sanitary Water Board announced that the radioactivity produced from this operation is less than anticipated, and it issued this statement: 'The Duquesne Power and Light Company (operator of the Shippingport facility) is commended for its high degree of engineering competence and accomplishment in operating safely and with a minimum of hazard to the public health the world's first commercial nuclear power station.'

"What might be considered as a confirmation of this conclusion comes from Dr. Joseph O. Lieberman, chief of the Environmental Sanitary Engineering Branch of the U. S. Atomic Energy Commission. In a speech delivered just a few days ago (27 January 1960) before the Sanitary Engineering Conference on Radiological Aspects of Water Supply at the University of Illinois, Dr. Lieberman made this statement: 'It is significant to note that in the first *year* of plant operation (at Shippingport) the total quantity of radioactivity discharged into the Ohio River was . . . . . much less than the permissible discharge for a single *month*.'

"*River Conditions* — Data compiled over a period of more than three years from the monitor stations established in cooperation with federal and state agencies leads to the conclusion that radioactivity in the Ohio River is below the permissible limits defined by the National Committee on Radiation Protection. This conclusion was set forth in the 11th annual report of ORSANCO, copies of which were released on December 1, 1959.

"The Taft Sanitary Engineering Center of the U. S. Public Health Service has collated and analyzed the radioactivity data obtained by the several agencies that maintain observations on conditions above and below the Shippingport Nuclear Power Station and it reports to ORSANCO as follows: Operation of the Shippingport Nuclear Power Station has produced no measurable increase in the radioactivity in the Ohio River. There is no detectable radioactivity at downstream points attributable to Shippingport. This confirms expectations based on operating records and the analysis of effluents being discharged.

"The State of Ohio corroborates this finding from its independent analyses of Ohio River water made at the East Liverpool waterworks intake. In a recent report Mr. F. H. Waring, chief sanitary engineer of the Ohio Health Department and secretary of the Ohio River Valley Water Sanitation Commission states: 'The monitoring of the Ohio River water at East Liverpool, three miles downstream from the Pennsylvania-Ohio state line, has been in operation since before the Shippingport plant was put into service. These tests at East Liverpool are made on samples collected by the chemist-in-charge at the water-purification plant, and then shipped to the Ohio State Health Department laboratories in Columbus once a month. We have been unable to detect any increase in total radioactivity of Ohio River at the East Liverpool waterworks intake over and above background determinations at this location before the Shippingport plant went into service.'

"The most recent appraisal of Ohio River monitoring data by Dr. A. Krebs, radiological consultant to ORSANCO and professor of radiobiology at the University of Louisville includes this conclusion: 'The gross radioactivity content given in the records for the Ohio River are in the frame of the provisional levels of permissible concentrations in water. The data reported for the Shippingport area especially are far below those accepted permissible amounts and do not present — so far — an unusual situation. There are no changes in the activities which could not be explained by and attributed to the observed seasonal fluctuation and to the well-established pattern of fall-out.'

"It might be added that in the interest of protecting downstream users and in adding to general knowledge, the Pennsylvania Sanitary Water Board has been sponsoring a research project of the University of Pittsburgh School of Public Health. Object of the study, which was initiated in 1957, is to determine if there is any detectable effect of the Shippingport operation on aquatic life in the river. Latest information from this project is that the radioactivity below Shippingport has been so low as to be virtually indistinguishable from that above the plant."

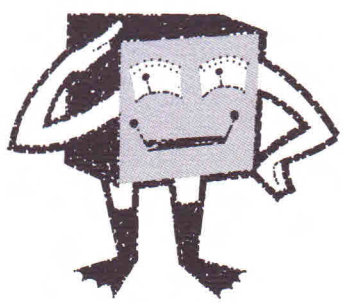
ROBOT MONITOR SYSTEM

As described in a separate section of this report, the ORSANCO ROBOT MONITOR system has reached the stage where units have been placed in

(continued on page 17)

INTRODUCING

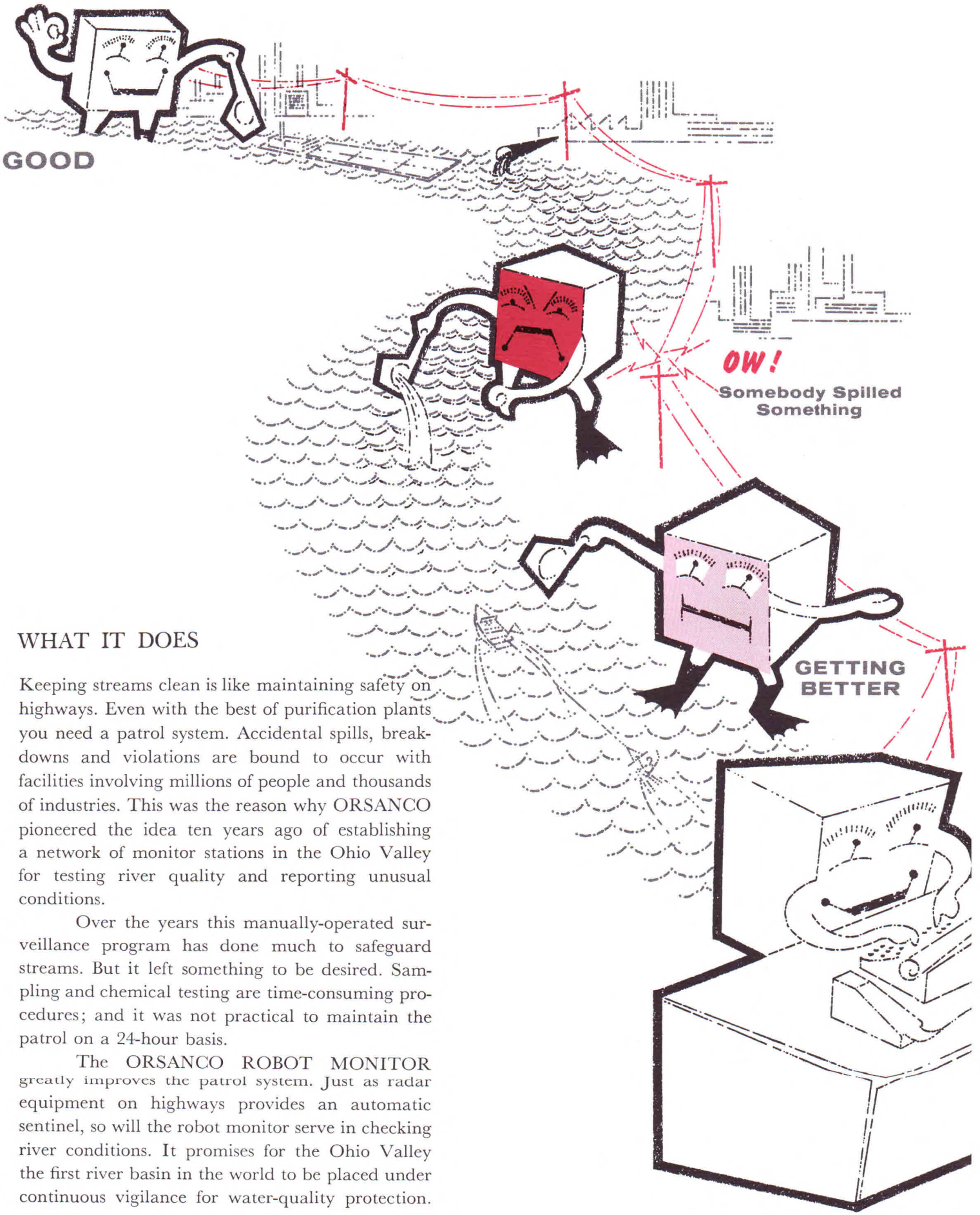
THE ORSANCO ROBOT MONITOR



Something is always happening on the river. To keep alerted on these happenings and thus assure the effectiveness of control, the Ohio River Valley Water Sanitation Commission (ORSANCO) has developed an electronic sentinel. Called the ROBOT MONITOR, this unique combination of devices for maintaining day and night vigilance on river quality will help to:

Guard water supplies for cities;
Inform industries on water characteristics;
Check conditions affecting recreation uses;
Speed alerts on accidental discharges;
Discover violations of pollution-control laws;
Reduce the cost of water and waste treatment.

OHIO RIVER VALLEY WATER SANITATION COMMISSION—CINCINNATI, OHIO
An interstate agency representing: Illinois • Indiana • Kentucky • New York • Ohio • Pennsylvania • Virginia • West Virginia



WHAT IT DOES

Keeping streams clean is like maintaining safety on highways. Even with the best of purification plants you need a patrol system. Accidental spills, breakdowns and violations are bound to occur with facilities involving millions of people and thousands of industries. This was the reason why ORSANCO pioneered the idea ten years ago of establishing a network of monitor stations in the Ohio Valley for testing river quality and reporting unusual conditions.

Over the years this manually-operated surveillance program has done much to safeguard streams. But it left something to be desired. Sampling and chemical testing are time-consuming procedures; and it was not practical to maintain the patrol on a 24-hour basis.

The ORSANCO ROBOT MONITOR greatly improves the patrol system. Just as radar equipment on highways provides an automatic sentinel, so will the robot monitor serve in checking river conditions. It promises for the Ohio Valley the first river basin in the world to be placed under continuous vigilance for water-quality protection.

HOW IT WORKS

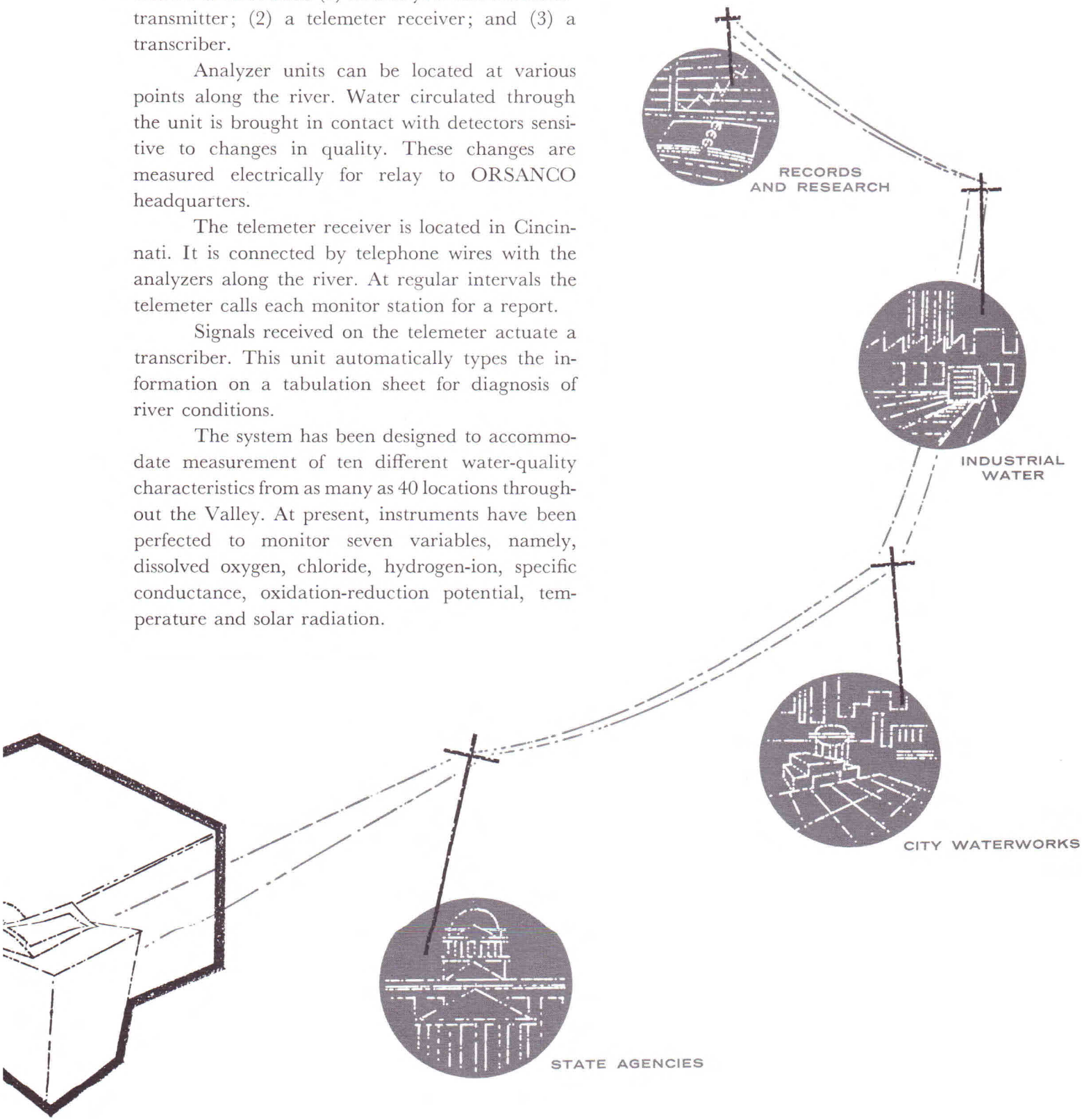
The ORSANCO ROBOT MONITOR system consists of three units (1) an analyzer and telemeter-transmitter; (2) a telemeter receiver; and (3) a transcriber.

Analyzer units can be located at various points along the river. Water circulated through the unit is brought in contact with detectors sensitive to changes in quality. These changes are measured electrically for relay to ORSANCO headquarters.

The telemeter receiver is located in Cincinnati. It is connected by telephone wires with the analyzers along the river. At regular intervals the telemeter calls each monitor station for a report.

Signals received on the telemeter actuate a transcriber. This unit automatically types the information on a tabulation sheet for diagnosis of river conditions.

The system has been designed to accommodate measurement of ten different water-quality characteristics from as many as 40 locations throughout the Valley. At present, instruments have been perfected to monitor seven variables, namely, dissolved oxygen, chloride, hydrogen-ion, specific conductance, oxidation-reduction potential, temperature and solar radiation.

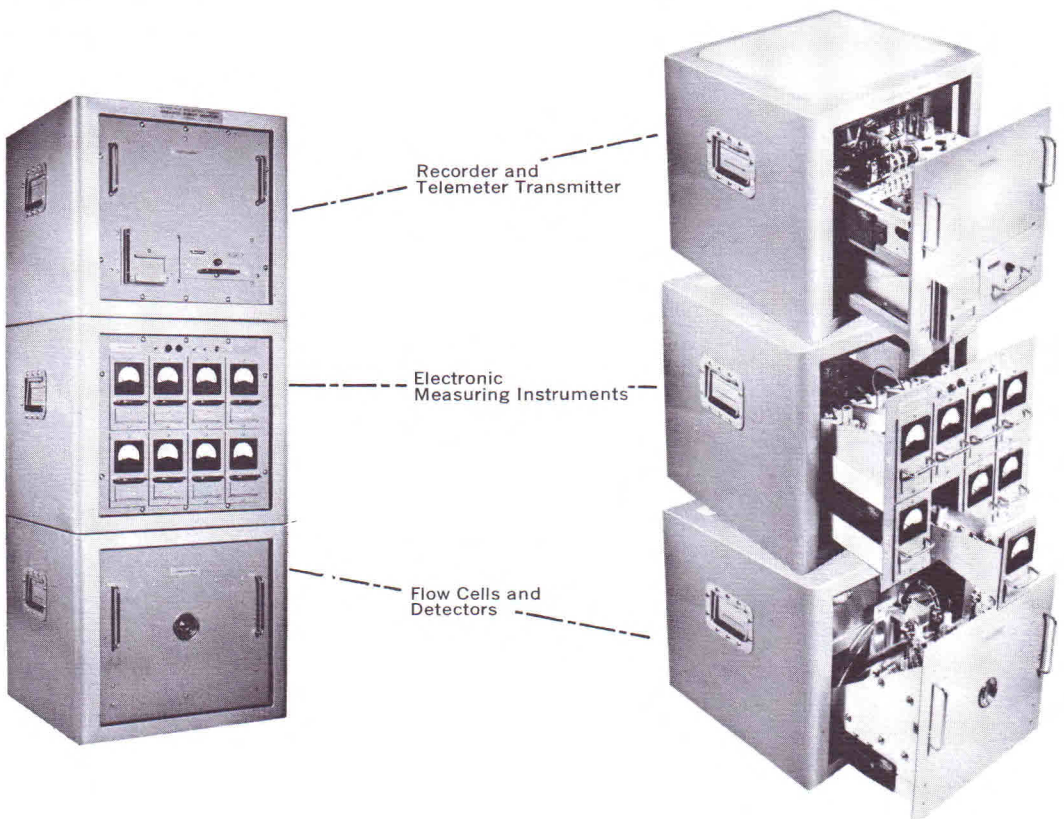


A WORD ABOUT ORSANCO

Introduction of the river-robot monitor system represents another innovation in the pollution-control program sponsored by eight states who organized the Ohio River Valley Water Sanitation Commission. The Commission was established on June 30, 1948, when the Governors of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia signed a compact pledging united effort in a regional crusade for clean waters.

How well that pledge is being redeemed is revealed by a single statistic. In 1948 less than one percent of the 3½-million people along the banks of the Ohio River provided sewage treatment. Today, treatment plants are operating or being completed to serve more than 95 percent of the population. And substantial progress has been made in the installation of industrial-waste control facilities.

This record of accomplishment is gratifying. However, river-quality conditions in the upper Ohio and on some tributaries are not yet what they should be. And unexpected pollution from accidental or careless spills claims constant attention. Through operation of the robot monitors, the eight states seek to improve their guardianship of water resources in the Ohio Valley.



The ORSANCO ROBOT MONITOR system is an original conception of Edward J. Cleary, executive director and chief engineer of the Ohio River Valley Water Sanitation Commission. Contractors who engineered and fabricated the units, under direction of William L. Klein, ORSANCO staff chemist-biologist and Carl Schneider, electronics consultant, were: Engineering Specialties Co. of Madeira, Ohio; Minneapolis-Honeywell Corp. of Philadelphia; and the Datex Corp. of Monrovia, Calif. Other equipment or consultation on development was furnished by Beckman Instruments Co., Hach Chemical Co., Jarrell-Ash Co., American Telephone and Telegraph Co., Industrial Instruments, Inc., Daystrom, Inc., George D. Philbrick Researches, Inc. and Met-L-Fab, Inc. The City of Cincinnati Water Works furnished facilities for testing equipment.

operation. This unique system represents the culmination of several years effort by the Commission staff to devise a practical means for maintaining 24-hours a day vigilance on quality conditions in the Ohio River and its tributaries. Introduction of this automatic monitor system represents another innovation in the pollution-control program sponsored by the signatory states. Perfection of the system offers the promise that rivers in the Ohio Valley will be the first in the world to be placed under automatic scrutiny for water-quality protection.

SEWAGE FROM BOATS

Having reached the stage where community sewage-treatment facilities will be serving 95 percent of the population along the Ohio River, the Commission has concluded that it is now appropriate to reconsider the prevention of raw sewage discharges from towboats, moored facilities and pleasure boats. This matter was previously under discussion, as recorded in the April 29, 1953 minutes of the Commission. Furthermore, developments during recent years with small sewage-treatment devices now point to the feasibility of such installations for boats and docks. Accordingly, the staff has been instructed to prepare a discussion draft of regulations.

SUPPLEMENTAL ACTIVITIES

To supplement state efforts in securing compliance with interstate control measures, notably with regard to industrial wastes reaching the upper Ohio River, the Commission authorized its executive director to employ personnel for assignment to state agencies. Conferences with Pennsylvania, Ohio, Kentucky and West Virginia revealed that only the latter state was in a position this year to give a trial to this supplemental-aid procedure.

In company with the West Virginia Water Resources Commission the ORSANCO staff prepared a job description and outline of duties and qualifications for a "Pollution-control Specialist". This was circulated among high-school and college science teachers in West Virginia, and several candidates for summer employment made themselves available. One of these, a chemist with a master-of-science degree who is regularly employed as a school teacher, was engaged for the following activities: Checking the operation of ten municipal sewage-treatment plants; inspecting waste-disposal procedures at 46 slaughterhouses; checking the quality of effluents discharged by twelve industrial plants and collected samples of effluents for laboratory analysis; conferring with municipal officials on problems relating to admission of industrial wastes in city sewers; and investigating complaints of pollution.

Summing up the experience, Mr. Bern Wright, commissioner from West Virginia and secretary of the State Water Resources Commission said: "We consider the venture very successful and satisfactory and hope that we will be in a position to continue it next year. We were somewhat concerned at first over the possibility that training a new man would require more time than we could find. However, this did not prove to be the case. Field work was available that did not require extended experience."

Taste-and-Odor Control — A final report was submitted on December 29, 1959 by The Kettering Laboratory of the University of Cincinnati on a contract investigation dealing with tastes and odors. The purpose was to examine, on a routine basis, samples of water from the Ohio River to determine the nature and quantities of substances that might contribute aberrant tastes and odors in drinking water. Work was started on June 14, 1957, with the location, at the Cincinnati Water Works, of an activated carbon filter. A second filter for monitoring raw river water was set up at Wheeling, W. Va. on September 14, 1957. In January of 1958, a third sampling station was established at Weirton, W. Va.

The procedure involved the use of carbon filters for adsorption of organic materials from river samples. A known volume of water was passed through the filter for one-week periods. Organic matter was then extracted from the carbon with a solvent, after which it was concentrated and subjected to chemical and physical analyses. The analytical methods initially employed failed for the most part to yield consistent and reliable results. Therefore, new methods of identification were investigated, of which the most useful was gas chromatography. The Kettering investigators concluded with this summary of findings:

"The complex nature of the organic matter in river water, and the probability that mere traces of certain compounds, alone or in combination with other organic material, may enhance odors and taste in water, make it very difficult to identify the specific materials responsible for taste and odor in any sample of water. No quick chemical method is available which will assist waterworks operators in determining the need for treating water to remove taste and odor. The need for treatment will depend, except in special situations, upon subjective tests for taste and odor, rather than on the identification of specific organic materials.

"Unsubstituted phenol, at the level of 1 to 10 ppb, does not appear to add appreciably to the taste and odor of waters. Some chlorinated phenols (o-chlorophenol and certain alkyl phenols apparently contribute odor and taste to water, but the causes of taste and odor are so variable that it is not possible to set up a standard chemical scheme for identifying materials consistently responsible for aberrant tastes and odors. An exception to this occurs when water is heavily polluted by a known material.

"Gas chromatography has been very useful in identifying certain organic materials that boil below 300 deg. C., but there is a need for developing methods for detecting materials boiling above 300 deg. C. There is a possibility that classical fractionation procedures, accompanied by columnar chromatography, will be useful for separating the heavy tars, which are found in some extracts removed from the carbon filters, into specific classes of compounds. This type of research is needed to characterize completely all of the organic matter extracted from water. Only a long and expensive period of investigation will elucidate the primary factors responsible for the production of taste and odors in water supplies."

Staff Projects — Two additional staff projects were initiated during the fall of 1959 — evaluation of river-quality conditions in the upper river during and after the steel strike, and a taste-and-odor control demonstration procedure in the Pennsylvania-West Virginia area of the Monongahela River. Final reports on these projects are now being prepared for review by the Commission.

SUMMARY OF FISH KILLS, SPILLS AND VISIBLE VIOLATIONS

Fish kills, accidental spills and visible violations of water-quality safeguards are matters of special concern. Following is a summary of such incidents that received attention of the Commission staff working in cooperation with state agencies during the period July 1, 1959 to June 30, 1960:

Fish kills — Four kills occurred on the Ohio River: July 27 — near Gallipolis, Ohio; Aug. 14 — near Louisville; Sept. 14 — near Maysville, Ky.; Oct. 14 — near Ashand.

There were five kills on tributaries: July 29 — Captina Creek near Powhatan Point, Ohio; Aug. 5 — Miami R. near Middletown, Ohio; Sept. 4 — Licking R. near Covington; Sept. 30 — Little Kanawha R. near Parkersburg; April 28 — Bear Grass Creek near Louisville.

Accidental spills — Four spills affecting Ohio water supplies were reported: Jan. 1, Feb. 12, Feb. 26 — phenolic materials above East Liverpool, Ohio; Mar. 28 — "paint-like" material above Pomeroy, Ohio.

Five spills occurred on tributaries: Nov. 13 — aniline spill on Kanawha R. at South Charleston; Jan. 28 — tar spill on Monongahela R. at Fairmont, W. Va.; Mar. 22 — coke-plant spill on Mahoning R. at Warren, Ohio; May 2 — tar spill on Mahoning R. at Youngstown; June 14 — coke-plant spill on Mahoning R. at Warren.

Oil pollution — On the Ohio River 48 incidents of oil pollution were noted: July 17 — above Montgomery Dam; Aug. 14 — near Louisville; Aug. 16 — four places between Huntington and Ironton; Aug. 17 — at Portsmouth; Sept. 15 — seven places between Neville Island, Pa. and Vanceburg, Ky.; Sept. 16 — seventeen places between Beaver, Pa. and Cincinnati; Oct. 17 — eight places between Huntington and Cincinnati; Feb. 9 and May 25 — near Cincinnati; June 3 — three places between Ashland and Portsmouth; June 4 — near Cincinnati; June 8 and 27 — near Portsmouth; June 30 — near Cincinnati.

On tributaries there were thirteen incidents of oil pollution: Sept. 4 — Licking R. at Covington; Sept. 15 — Allegheny R. at four places between Tarentum, Pa. and Pittsburgh, Monongahela R. near Pittsburgh, Little Scioto R. near Scioto-ville, Ohio; Sept. 16 — Raccoon Creek near Kobuta, Pa., Kanawha R. near Belle, W. Va. and Nitro, W. Va., Big Sandy R. near Catlettsburg, Ky.; Oct. 17 and June 3 — Big Sandy R. near Catlettsburg.

Abnormal color — On the Ohio River 34 violations regarding the discharge of color-producing materials were noted: July 14 and 23 — near Ashland; Aug. 16 — near Catlettsburg; Sept. 15 — three places between Portsmouth and New Richmond, Ohio; Sept. 16 — twenty-one places between Georgetown, Pa. and Coal Grove, Ohio; June 3 — seven places between Huntington and Maysville.

On tributaries 25 color violations were reported: July 23 — Guyandot R. at Huntington; July 24 — Raccoon Creek near Kobuta; Aug. 16 — Big Sandy R. near Catlettsburg, Ice Creek near Ironton, Muddy Creek at Cincinnati; Sept. 15 — Allegheny R. at four places between Freeport, Pa. and Oakmont, Pa., Monongahela R. at Elizabeth, Pa. and McKeesport, Pa.; Sept. 16 — Kanawha R. at five places between Belle and Nitro, Guyandot R. at Huntington, Licking R. near Covington; Oct. 17 — Guyandot R. at Huntington, Mill Creek at Cincinati, Muddy Creek at Cincinnati; Mar. 15 — Miami R. near Middletown; June 3 — Guyandot R. at Huntington, Licking R. at Covington, Mill Creek at Cincinnati.

Miscellaneous violations — The following nine additional violations were reported: Aug. 14 — floating solids on Ohio R. near Louisville; Aug. 16 — foam on Ohio R. near Catlettsburg; Sept. 16 — foam on Ohio R. near Marietta, scum on Ohio R. near South Point, Ohio, floating solids on Ohio R. near Ironton, floating solids on Guyandot R. at Huntington; Oct. 17 — scum on Big Sandy R. near Catlettsburg; Nov. 30 — coal fines on Ohio R. near Cincinnati; May 16 — "popcorn" (slag) on Ohio R. near Wheeling.

Investigations were made by state-agency personnel or Commission staff of the incidents listed. Where evidence was obtained to fix responsibility appropriate action was taken by the state agencies to prevent a recurrence.

FOR
OHIO RIVER VALLEY BROADCASTERS
ONLY
A PUBLIC SERVICE OPPORTUNITY

OFFERED BY

THE WATER POLLUTION CONTROL AGENCIES OF

ILLINOIS

INDIANA

KENTUCKY

NEW YORK

OHIO

PENNSYLVANIA

VIRGINIA

WEST VIRGINIA

AND

THE OHIO RIVER VALLEY WATER SANITATION COMMISSION

414 Walnut Street

Cincinnati 2, Ohio

the problem | **POLLUTION OF THE WATERS OF THE OHIO RIVER VALLEY**

where we stand

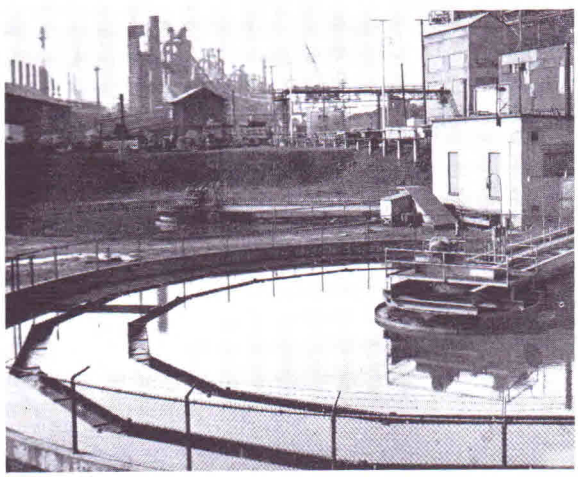
SEWAGE TREATMENT

Stands at 85% of the sewered population valley-wide.

Up from 1% to 95% in just a dozen years on the main stem of the Ohio.

BUT

Several large cities and hundreds of small communities need but do not have sewage treatment.



INDUSTRIAL WASTES

84% of some 1500 industries emptying wastes into the Ohio meet ORSANCO requirements.

BUT

Many industries, large and small, are lagging behind.

broadcasters can

Tell the citizens of the valley the truth about their water

Discuss the problem

Point out solutions

Render a genuine public service

ORSANCO will

Provide the tools so that you can do the job:

- radio transcribed announcements
- television film announcements
- "Good Riddance," 30 minute color film
- guest suggestions
- water pollution public affairs consultation

MEET – Mr. Ohio River

This puckish character is the central figure in a series of film announcements demonstrating problems of water pollution in the Ohio Valley.

He resents being defiled with overflows or raw sewage and industrial wastes—and shows you exactly what he is complaining about.

"It's indecent," he says. But he always has his say with a touch of humor. We hope we have helped you to help us by presenting this public service message in anything but a "deadly dull" manner.

Your set of MR. OHIO RIVER spots (five "20's"and five "minutes") will arrive within a week. Play them as often as you wish from October 2, 1960 through December 31, 1960. A new set will arrive every 13 weeks.

Take a look. Let us know if we are on the right track.

Document the problem with "Good Riddance"

ORSANCO's new, half-hour, color documentary about the Ohio Basin from Lake Chautauqua, New York, to Cairo, Illinois.

Traditional problems of water pollution are shown, new developments revealed—methods of combatting acid mine wastes, chloride problems, phenolic wastes, oil spills, and many more.

"Good Riddance" is cleared for television use and it may be broken into sections, each complete in itself, for use in a documentary series.

THE FORMAT:

00:00 – 14:30 Initial segment. Basic pollution problems

14:30 – 19:00 State segments, each complete, different, and timed precisely to 4:30:

Illinois
Indiana
Kentucky
Ohio
New York
Pennsylvania
Virginia
West Virginia

19:00 – 29:00 Final segment. New Problems

Run "Good Riddance" as two, complete 14:30 films—break it further by using state segments individually—add live discussion of local problems.

CONTRACT PROJECTS

Investigations and projects that lay claim for the application of special skills, facilities and personnel are sponsored by the Commission through contractual arrangements. Guided by recommendations made by the signatory states, the commissioners of ORSANCO have authorized the following work to further their efforts in the mutual task of advancing interstate pollution control. All these contracts, with the exception of the cooperative program with the U. S. Geological Survey, are financed with grants received under terms of P. L. 660.

ACID MINE-DRAINAGE — $7,000

Ohio State University, Engineering Experiment Station — To explore possibilities for new and more effective methods for control of acid mine-drainage. Contractor will assemble and evaluate findings and data available from mine-drainage research projects to determine gaps in knowledge and to indicate where further research might prove fruitful. (July 1, 1960 — December 31, 1960)

AQUATIC-LIFE RESOURCES — $30,000

University of Louisville, Biology Department — To develop an inventory of the aquatic-life resources of the Ohio River expressed in terms of the suitability of the river for the production of a harvestable fish crop. Contractor will include a historical review of past conditions and make a determination of present conditions. (March 29, 1959 — June 30, 1960)

AQUATIC-LIFE SURVEILLANCE — $10,800

University of Louisville, Potamological Institute — To continue investigation of the composition of fish fauna in specific areas of the Ohio River; to make "spot" analyses of river conditions below points of waste discharges; investigate fish kills and otherwise cooperate with signatory states in establishing causes of fish kills in waters of the compact district. (June 29, 1960 — June 29, 1961)

MOBILE MONITOR — $2,500

Engineering Specialties, Madeira, Ohio — To design, fabricate and perform tests on a portable measurement and recording instrument that can be used from a boat to check water quality and investigate sources of water pollution. (Contract entered into March 15, 1960)

PROTOTYPE ROBOT MONITOR — $9,200

Engineering Specialties, Madeira, Ohio — To design, fabricate and perform tests on instruments for automatic measurement of water quality, including transmitting and receiving units. (Contract entered into June 2, 1959)

PHYTOPLANKTON DETERMINATION — $7,000

University of Louisville, Potamological Institute — To ascertain the occurrence and composition of phytoplankton (floating plant life) in the Ohio River and the effect of these organisms on water-quality conditions. In addition, to evaluate factors affecting phytoplankton blooms and establish their relationship to taste-and-odor properties in public water supplies. (June 30, 1960 — June 30, 1961)

PUBLIC AFFAIRS PROGRAM — $18,000

Stuart Finley, Falls Church, Va. — To produce a 30-minute documentary film, in color with sound and narration, to be used to acquaint the public, through television and group showings, with efforts of the signatory states in safeguarding water quality. Contractor will produce and distribute a program of television and radio spot announcements, to be used as a public-service feature by stations throughout the Ohio River Valley. (April 8, 1960 — December 31, 1960)

PUBLIC AFFAIRS PROGRAM — $18,000

Stuart Finley, Falls Church, Va. — To extend the public-affairs contract and produce two additional 20-minute documentary films. Contractor will also produce and distribute additional radio and television spot announcements. (October 19, 1960 — June 30, 1961)

RADIOACTIVITY INVESTIGATIONS — $13,500

University of Louisville, Biology Department — To provide information, on a continuing basis regarding the accumulation of radio-materials by various organisms of the biota, in suspended material and in river sediments, which are to be sampled at selected intervals at established stations along the Ohio River. (February 26, 1959 — June 30, 1960)

RADIOACTIVITY EVALUATION — $15,000

University of Louisville, Potamological Institute — To extend a previous contract and, in addition, evaluate and provide consultation on radiation levels recorded through the Commission's network of radioactivity sampling stations. (June 30, 1960 — June 30, 1961)

ROBOT MONITOR UNITS — $53,000

Engineering Specialties, Madeira, Ohio — To construct ten monitor units similar to the prototype monitor, which will be made available to the signatory states for location at strategic points along the Ohio River and its tributaries. These units will automatically and continuously measure water quality and will transmit data into the Cincinnati control center. (Contract entered into July 5, 1960)

U.S.G.S. COOPERATIVE AGREEMENT — $25,000

United States Geological Survey, Washington, D. C. — To extend a cooperative agreement for investigation of quality conditions in streams of the Ohio Valley through collection and analysis of water samples. Current contract encompasses additional survey work on oil-field brine wastes and manganese content of streams. (July 1, 1960 — June 30, 1962)

ADVISORY COMMITTEE ACTIVITIES

Throughout the year all industry-advisory committees were engaged primarily with review of Commission proposals relating to improvement of control measures. Most notable, perhaps, was participation of the Coal Industry Advisory Committee in formulating the acid mine-drainage control measure, described in preceding pages of this report. This committee is now conducting orientation meetings with coal-mine operators throughout the region to disseminate information and promote compliance. In Ohio, where mine-acid discharges had been exempted "until practical methods for control were available", members of the Coal Industry Committee appeared before the state pollution control board and declared their willingness to support the exercise of controls as outlined by ORSANCO. As a result, the Ohio board has now officially embodied the ORSANCO proposals in its operations.

Likewise of importance was the formalization of procedures to expedite notification on spills and accidental discharges. Commission action in establishing such procedures followed, in large measure, a recommendation of the Chemical Industry Advisory Committee. However, since no industry is immune from the possibility of accidental loss of products, all committees became intimately involved in the development of notification procedures. This resulted in an ORSANCO resolution, adopted on September 30, 1959, which requires that any industry responsible for a spill that may be deleterious to stream quality shall give immediate notification to the appropriate state pollution-control agency, and that when interstate waters are affected such information shall be relayed to Commission headquarters. When requested by the state, the industry is required to file a report regarding measures taken to prevent a recurrence of the spill.

Industry committees became further involved in the development of safeguards from spills and accidents when, in January 1960, the Commission invited recommendations for speeding the exchange of toxicity information at times of emergency. New compounds are constantly being developed or put to use by industries in the Ohio Valley. Accordingly, ORSANCO has proposed development of a system whereby information on toxicity and analytical procedures on these new compounds might be quickly uncovered in time of need. How this might be accomplished in a practical manner is now being explored by the various committees and recommendations will be made early in 1961.

All of the industry committees are engaged in developing information on more effective ways of waste control. In this connection no effort has exceeded that of the Steel Industry Action Committee on pickling liquor; to date some 15 different processes have been evaluated. Recently one company has begun tests on the feasibility of underground disposal.

The Metal-Finishing Action Committee made a major contribution to the ORSANCO program in developing manuals of practice on waste-treatment and disposal. It is estimated that there are about 2,000 plating establishments in the Ohio Valley district, and this is confirmed by continuing requests for copies of manuals. As a consequence, the committee has been requested to review these manuals to determine the possible need for up-dating and re-issuance.

Activities of the Oil Refining Industry Action Committee are currently centered on a survey of refineries in the Compact district to determine the characteristics and quantities of waste discharges, and to evaluate the effects of these discharges on stream quality. Emphasis is being placed on an evaluation of substances from refineries that may cause objectionable tastes and odors in water supplies.

Chemical Industry Advisory Committee activities cover perhaps the widest range of subject matter because of the size, variety and complexity of chemical-plant operations in the Ohio Valley. In addition to the previously-mentioned promotion of procedures for spills and accidental discharges, the committee has distinguished itself in developing information on the question of detergents and their relation to stream pollution. Reflecting on the relationship of the committee with ORSANCO, the chairman and two past-chairmen jointly presented a paper at the recent national meeting of the Water Pollution Control Federation, which concluded with this statement: "The Chemical Industry Committee considers the arrangement established by the Commission of asking the industries in the basin their opinions and advice on matters pertaining to pollution as uniquely democratic. It is a system well worth preserving."

One area of activity in which the Commission wishes to encourage more attention from all industry advisory committees is the promotion of "in-plant education." By this is meant the training of operating plant personnel to exercise greater personal responsibility in reducing and preventing pollution. Too often the effectiveness of million-dollar expenditures for waste-control facilities are nullified because someone turns the wrong valve or otherwise unwittingly causes

pollution. From the evidence developed in connection with spills it would appear that one of the most fruitful efforts toward better control might be the indoctrination of employees regarding their role in helping to keep streams clean.

Aquatic-Life Advisory Committee — Since 1952 an eminent group of biologists and fisheries scientists has been serving as the advisor to the Commission on what constitutes "water . . . capable of maintaining fish and other aquatic life". This language is used in the compact to express one of the responsibilities of the commissioners.

The committee has thus far provided three comprehensive reports on quality criteria. The third report deals with radioactivity, detergents, cyanides, phenolic compounds, iron and manganese. Because of the broad interest in the findings of this committee the Commission has released these reports for publication in the *Journal* of the Water Pollution Control Federation, which is available in most libraries. Publication dates are: January 1960; May 1956; and March 1955.

Water Users Committee — The most critical judge of river quality conditions is the man who must process it for distribution to municipalities and industries. It was on this premise that the Commission enlisted the interest of water purveyors, and these experts have been serving since January 1952 as monitors and evaluators of pollution control. One of the invaluable contributions of the committee is the assembly of basic data contained in the two-volume edition of "Water Quality and Flow Variations" published by the Commission. This past year, in addition to regular data assembly, certain committee members participated in the special river survey conducted by ORSANCO in the upper Ohio basin during the 1959 shut-down of the steel industry. The committee is currently occupied in developing a handbook on emergency procedures to be followed at water-treatment plants in case of accidental river contamination.

Membership on the committee includes representatives of the U. S. Geological Survey and the U. S. Weather Bureau. Both of these federal agencies have an increasingly important role in the ORSANCO program. The Geological Survey in addition to rendering special services in connection with stream flow, also engages in a share-the-cost cooperative program on water-quality monitors. The U. S. Weather Bureau, through its Cincinnati Flow Forecast Center, is providing a unique service in forecasting daily flow rates on the Ohio River and some of its tributaries.

Clean rivers are enhancing recreational opportunities in the Ohio Valley. Pictured here is part of the estimated 65,000 people at hydroplane race regatta at Madison, Ind., on October 3, 1960. During the four-month period starting June 1, the U. S. Coast Guard issued notices covering 34 regattas or ski shows, 26 of which were conducted on the main stem of the Ohio River and eight on tributaries.

Cincinnati Enquirer (Cochran) photo

FINANCIAL REPORT

The following information relative to statement of receipts and disbursements and statement of resources was taken from the Audit Report of Wm. H. Mers & Co., Certified Public Accountants, for the year ended June 30, 1960

STATEMENT OF RECEIPTS AND DISBURSEMENTS

Receipts		
From signatory states *(For detail see schedule below)*		$130,000.00
From U. S. Department of Health, Education and Welfare *(Grant from Public Law 660*		110,258.00
Sale and handling of publications		620.40
Interest earned on bank deposit		2,867.68
Total receipts		$243,746.08
Disbursements		
From state funds:		
Auditing	$ 600.00	
Consulting services	1,400.00	
Electricity and water	657.70	
Employees' pension trust	12,994.27	
General office equipment and furnishings	698.37	
Insurance	525.21	
Legal services	3,600.00	
Maintenance and repairs	1,029.24	
Meetings	1,000.26	
Miscellaneous	797.47	
Office rent	6,576.00	
Office supplies	1,603.18	
Postage	989.39	
Printing	1,892.89	
Salaries	59,248.31	
Service fees and subscriptions	685.16	
Social security tax	1,457.77	
Telephone and telegraph	2,701.92	
Travel:		
Advisory committees	1,521.14	
Commissioners	6,303.14	
Staff	5,518.89	
U. S. Geological Survey	21,000.00	
	$132,800.31	
From federal funds:		
Administrative expense	32,264.60	
Projects:		
Aquatic-life resources	612.56	
Aquatic-life surveillance	10,800.00	
Mine-drainage control — Note A	2,081.67	
Public affairs — Note A	10,177.40	
River surveillance	1,025.42	
Robot monitor — Note A	29,283.33	
Taste-and-odor	4,223.03	
	90,468.01	
Total disbursements		223,268.32
Excess of receipts over disbursements		$ 20,477.76

Note A — As of June 30, 1960, federal funds in the amount of $44,700 were encumbered for equipment for the robot monitor project and for contracts covering the radioactivity monitoring, mine-drainage and public affairs projects.

STATEMENT OF RESOURCES — June 30, 1960

	State Funds	Federal Funds	Total
Available resources to June 30, 1959	$ 52,869.98	$ 55,768.32	$108,638.30
Add: Annual budget — July 1, 1959 to June 30, 1960	130,000.00		130,000.00
U. S. Department of Health, Education and Welfare		110,258.00	110,258.00
Sale and handling of publications	620.40		620.40
Interest earned on bank deposit	2,867.68		2,867.68
	$186,358.06	$166,026.32	$352,384.38
Less: Disbursements July 1, 1959 to June 30, 1960	132,800.31	90,468.01	223,268.32
Available resources for period to June 30, 1960 before encumbrances	$ 53,557.75	$ 75,558.31	$129,116.06
Encumbered resources at June 30, 1960 — Note A		44,700.00	44,700.00
Available resources at June 30, 1960 after encumbrances	$ 53,557.75	$ 30,858.31	$ 84,416.06

The above amount of $129,116.06 is comprised as follows:

Cash on deposit with The Central Trust Company — Note A		$127,174.36
Cash on deposit with American Airline, Inc.		425.00
Cash on deposit with Ohio Bureau of Workmen's Compensation		89.20
Petty cash on hand		200.00
Accounts receivable — advances for employees:		
Employees pension trust	$ 1,082.80	
Hospitalization	144.70	
(Hospitalization expense and employee pension trust contributions are advanced by the Commission and repaid by the employees through monthly payroll deductions)		
		1,227.50
		$129,116.06

Note A — Of the $127,174.36 on deposit with The Central Trust Company at June 30, 1960, $44,700.00 is encumbered for equipment for the robot monitor project and for contracts covering the radioactivity monitoring, mine-drainage control and public affairs projects.

SCHEDULE SHOWING REVENUES COLLECTED FROM SIGNATORY STATES FOR YEAR ENDED JUNE 30, 1960

State of Illinois	$ 6,695.00
State of Indiana	22,945.00
Commonwealth of Kentucky	27,560.00
State of New York	1,430.00
State of Ohio	30,420.00
Commonwealth of Pennsylvania	20,215.00
Commonwealth of Virginia	4,875.00
State of West Virginia	15,860.00
	$130,000.00

TALLY FOR THE VALLEY

Effectiveness of a pollution-control program can be gauged by the number of people and industries operating or constructing facilities for control of pollution. Each year the signatory states make an inventory of the situation, details of which are shown in the accompanying tabulations. From this we learn that 84 percent of the sewered population in the 155,000 square-mile district now has sewage treatment plants in operation or under construction. For the year ending June 30, 1960 the record shows:

Placed in operation — New treatment plants for 135 communities serving 2,173,800; and improvement of existing facilities for 21 communities serving 160,500.

Placed under construction — New treatment plants for 45 communities serving 166,600; and improvements of existing facilities for 9 communities serving 134,800.

Turning to the inventory with regard to industrial-waste control, it will be noted that 71 percent of the 1,405 establishments that discharge effluents directly into streams are rated as having adequate facilities.

FEDERAL-AID PROGRAM

Grants-in-aid to municipalities for construction of sewage-treatment facilities were authorized in 1956 by the Federal Water Pollution Control Act (Public

INDUSTRIAL WASTE-CONTROL FACILITIES — July 1, 1960
For industries discharging effluents directly into streams

STATUS	ILL.	IND.	KY.	N. Y.	OHIO	PA.	VA.	W. VA.	TOTAL	% of TOTAL
Conrol currently acceptable	9	184	130	19	270	179	31	179	1,001	71.2
Control provided, but not adequate	8	26	45	11	69	36	2	25	222	15.9
Control facilities inadequate, improvements in progress	0	2	5	0	40	3	0	2	52	3.7
New control facilities under construction	0	7	0	0	0	9	1	17	34	2.4
Planning treatment facilities or preparing to connect to municipal sewers	0	2	3	6	14	22	3	13	63	4.5
No action by company	0	1	0	10	0	6	0	16	33	2.3
Total number of industries	17	222	183	46	393	255	37	252	1,405	100.0
Complying with ORSANCO minimum requirements	17	192	146	19	356	234	34	182	1,180	84.0

MUNICIPAL AND INSTITUTIONAL SEWAGE-TREATMENT FACILITIES — July 1, 1960
Number of communities (top number) and population served (bottom number)

STATUS	ILL.	IND.	KY.	N. Y.	OHIO	PA.	VA.	W. VA.	TOTAL	% of TOTAL
Adequate treatment	44	130	131	8	245(a)	162	28	31	779	48.3
	242,385	948,743	539,978	76,466	2,544,382	1,859,059	83,879	146,620	6,441,512	63.4
Treatment provided, but not adequate	3	16	14	6	30	11	26	11	117	7.2
	16,406	85,710	83,805	19,778	112,488	30,559	29,761	30,963	409,470	4.0
Treatment provided, not adequate; improvements under construction	2	1	1	0	5(b)	1	0	2	12	0.7
	4,549	427,173	2,167	0	116,542	1,553	0	11,870	563,854	5.6
New treatment works under construction	2	11	9	0	12(c)	20	2	16	72	4.5
	7,164	39,556	412,972	0	135,564	189,995	6,371	369,977	1,161,599	11.4
No treatment, construction not started	11	59	30	8	73	123	28	101	433	27.0
	32,389	148,105	71,446	15,280	300,008	559,309	50,021	190,611	1,367,169	13.5
Discharge of minor significance	3	61	23	0	79	14	4	15	199	12.3
	6,354	49,896	41,580	0	50,425	50,616	420	14,186	213,477	2.1
TOTAL	65	278	208	22	444	331	88	176	1,612	100.0
	309,247	1,699,183	1,151,948	111,524	3,259,409	2,691,091	170,452	764,227	10,157,081	100.0

(a) Includes 617,488 served by two Cincinnati plants

(b) Includes Cincinnati

(c) Includes 39,706 served by one Cincinnati plant

Law 660 — 84th Congress). In the Ohio Valley compact district, as of July 1, 1960, grants totaling $21,928,300 had been allotted to 177 projects. These municipal projects involve an estimated construction cost of $103,956,000 and will provide treatment facilities for 3,181,000 people.

A summary for the Compact District showing amount of grants, construction costs and population served in each of the four years the grant program has been in effect is as follows:

Year	No. of Projects	Pop. served (1950 census)	Estimated cost of Projects	Federal Grants
1956-57	30	1,492,200	$16,943,200	$3,763,100
1957-58	52	838,300	32,275,500	6,085,000
1958-59	48	542,500	30,725,800	6,636,400
1959-60	47	308,000	24,011,500	5,443,800
Total	177	3,181,000	$103,956,000	$21,928,300

Details on projects receiving federal grants in fiscal 1957 and 1958 are given in the Commission's ninth and tenth annual reports. The 1958 list, as published in the tenth report, should be corrected by adding two projects. Subsequent to publication, Pennsylvania reported that a grant of $250,000 was awarded to Bethel, Pa. (pop. 11,300) for construction of treatment facilities costing $1,202,700; and Illinois reported receipt of a grant of $169,000 by the Westville-Belgium Sanitary District (pop. 3,700) for sewers and treatment facilities costing $563,300.

A listing of communities receiving federal grants in fiscal 1959 and 1960 is given in the following summary (T indicates treatment facilities only; S is sewers only and T-S denotes both facilities).

FEDERAL GRANTS — July 1, 1958 — June 30, 1959

Municipality	Pop. 1950	Type	Est. Cost Dollars	Fed. Grant
Flora, Ill.	5,300	T	$ 206,100	$ 61,800
Metropolis, Ill.	6,100	T-S	913,000	250,000
Noble, Ill.	800	T	37,700	11,300
Columbia City, Ind.	4,700	T-S	854,500	250,000
Martinsville, Ind.	6,000	T-S	706,000	211,800
North Vernon, Ind.	3,500	T-S	763,800	229,200
Sullivan, Ind.	5,400	T-S	1,119,500	250,000
Ashland, Ky.	31,100	T-S	2,701,800	250,000
Berea, Ky.	3,400	T-S	284,100	80,700
Campbell-Kenton Dist., Ky.	143,700	S	783,400	235,000
Columbia, Ky.	2,200	T	180,000	54,000
Danville, Ky.	8,700	T-S	310,000	93,000
Elizabethtown, Ky.	5,800	T-S	354,100	106,200
Flatwoods, Ky.	300	T-S	390,200	117,100
Highland Heights, Ky.	1,600	S	314,100	94,200
Leitchfield, Ky.	1,300	T-S	234,700	67,000
Paducah, Ky.	32,800	T	6,300	1,900
Baltimore, Ohio	1,800	T-S	321,700	96,500
Farmersville, Ohio	600	T-S	116,300	34,900
Gallipolis, Ohio	7,900	T-S	856,700	250,000
Garrettsville, Ohio	1,500	T-S	136,600	41,000
Gnadenhutten, Ohio	900	T	90,000	27,000
Milton Dist. No. 11, Ohio	600	T	92,900	27,900
McDonald, Ohio	1,900	T	275,000	82,500
Mingo Junction, Ohio	4,500	T-S	668,700	200,600
Newton Falls, Ohio	4,500	T-S	920,000	250,000
W. Jefferson, Ohio	1,600	T-S	433,700	130,100
Warren, Ohio	49,900	T-S	3,380,000	250,000
Brookville, Pa.	4,300	T	291,000	87,300
Ebensburg, Pa.	4,100	T-S	832,200	249,700
Freeport, Pa.	2,700	T-S	397,800	119,300
Kittanning, Pa.	7,700	T	535,500	160,600
Leetsdale, Pa.	2,400	T-S	760,000	228,000
McKeesport, Pa.	51,500	T-S	1,064,300	250,000
New Kensington, Pa.	25,100	T	2,990,000	250,000
Port Allegany, Pa.	2,500	T	302,600	90,800
Versailles, Pa.	2,500	S	198,000	59,400
Pulaski, Va.	9,200	S	981,600	250,000
Dunbar, W. Va.	8,000	T-S	780,000	220,000
Glen Dale, W. Va.	1,500	T	44,700	13,400
Kenova, W. Va.	4,300	T	175,000	52,500
Mount Hope, W. Va.	2,600	T-S	259,400	69,800
Mullens, W. Va.	3,500	T-S	307,000	92,100
Nitro, W. Va.	3,300	T-S	688,700	172,600
Oceana, W. Va.	1,400	T-S	210,100	62,900
Paden City, W. Va.	2,600	T-S	225,800	61,500
Vienna, W. Va.	6,000	T-S	475,900	142,800
Wheeling, W. Va.	58,900	T-S	1,755,300	250,000
48	542,500		$30,725,800	$6,636,400

FEDERAL GRANTS — July 1, 1959 — June 30, 1960

Municipality	Pop. 1950	Type	Est. Cost Dollars	Fed. Grant
Chrisman, Ill.	1,100	T-S	$150,300	$ 45,100
Palestine, Ill.	1,600	T	34,500	10,400
Tuscola, Ill.	3,000	T-S	353,600	106,100
Carmel, Ind.	1,000	T-S	293,200	88,000
Ellettsville, Ind.	900	T-S	182,100	54,600
Gas City, Ind.	3,800	T-S	323,200	97,000
Middletown, Ind.	1,700	T-S	266,300	79,900
Napoleon, Ind.	300	T	63,200	19,900
Palmyra, Ind.	300	T	36,300	10,900
Pierceton, Ind.	1,000	T-S	150,900	45,300
Shelbyville, Ind.	11,700	T-S	865,300	250,000
Sunman, Ind.	400	T	37,000	11,100
Wabash, Ind.	10,600	T-S	934,000	250,000
Beechwood Village, Ky.	1,600	S	79,400	20,900
Corbin, Ky.	7,700	T-S	900,000	250,000
Elsmere, Ky.	3,500	T	243,600	56,000
Florence, Ky.	1,300	T-S	821,000	225,400
Glasgow, Ky.	7,000	T-S	725,100	211,000
Lexington, Ky.	55,500	T	3,120,000	250,000
Shively, Ky.	2,400	T-S	634,300	150,000
Versailles, Ky.	2,800	T	219,000	65,700
Bethel, Ohio	1,900	T-S	193,500	58,100
Canal Winchester, Ohio	1,200	T-S	333,000	99,900
Dresden, Ohio	1,300	T	89,700	26,900
Milford, Ohio	2,400	T-S	525,400	157,600
Niles, Ohio	16,800	T-S	946,100	250,000
Sabina, Ohio	1,700	T-S	170,000	51,000
Smithville, Ohio	800	T-S	193,800	58,100
South Point, Ohio	800	T-S	150,000	45,000
Toronto, Ohio	7,300	T-S	882,200	115,800
Bradford, Pa.	17,400	T-S	901,400	250,000
Claysville, Pa.	1,000	T-S	205,400	61,000
DuBois, Pa.	11,500	T	1,250,000	250,000
Elizabeth Township, Pa.	10,000	T-S	993,700	250,000
Johnstown, Pa.	63,200	T-S	2,307,800	250,000
Lower Burrell, Pa.	6,400	S	170,600	50,200
Reynoldsville, Pa.	3,600	T-S	400,200	120,000
Sharpsville, Pa.	5,400	T	214,800	64,400
Richlands, Va.	4,600	T-S	750,000	152,000
Buckhannon, W. Va.	6,000	T-S	781,700	234,500
Hinton, W. Va.	5,800	T-S	565,800	141,100
Marmet, W. Va.	2,500	T-S	342,800	102,800
New Cumberland, W. Va.	2,100	T-S	226,700	68,000
Pineville, W. Va.	1,100	T-S	401,600	120,500
Ripley, W. Va.	1,800	T	168,500	48,000
St. Albans, W. Va.	9,900	T-S	114,500	31,600
Sistersville, W. Va.	2,300	T-S	300,000	90,000
47	308,000		$24,011,500	$5,443,800

Ross H. Walker, Chairman 1960-61

ADMINISTRATIVE AFFAIRS

During the year summarized in this report, Maurice E. Gosnell of Illinois served as chairman. Elected to take office on July 1, 1960 were: Ross H. Walker of Virginia as chairman and Charles L. Wilbar, M.D. of Pennsylvania, vice-chairman.

Chairman-elect Walker has served continuously as a commissioner of ORSANCO since it was established in 1948. He has also been a member of the Virginia State Water Control Board for the past fifteen years.

In addition to his long tenure in public-service matters relating to water conservation, Mr. Walker has been prominent in the Izaak Walton League of America, acting as president of the Virginia division and as a national director. His business affiliation is senior partner in the brokerage firm of Abbott, Proctor and Paine of Richmond, Va.

Membership Changes — Dr. L. L. Fatherree, Director of Public Health, State of Illinois, was appointed to the commission on February 1, 1960 by Governor Stratton to succeed Dr. R. R. Cross (deceased); Mr. J. O. Matlick, Commissioner of Conservation, Commonwealth of Kentucky was appointed to the Commission on April 5, 1960 by Governor Combs. He succeeds Mr. Laban Jackson, resigned; and on June 30, 1960, Governor Almond of Virginia appointed Mr. William H. Singleton to succeed Mr. E. Blackburn Moore. Mr. Singleton is a member of the Virginia Water Control Board.

Appropriations — Operating funds are appropriated by the states, the amount representing a pro-rata share of the Commission's operating budget based one-half in proportion to population and one-half in proportion to land area within the Compact District. Originally set at $100,000 per year, in 1955 the signatory states increased the budget to $130,000 annually. Under the pro-rata distribution, Ohio provides $30,420; Kentucky, $27,560; Indiana, $22,945; Pennsylvania, $20,215; West Virginia, $15,860; Illinois, $6,695; Virginia, $4,875; New York, $1,430. In addition, the Commission receives a federal grant in accordance with the Water Pollution Control Act of 1956 (Public Law 660). A financial statement for the fiscal year appears on page 25.

members of the commission

ILLINOIS

L. L. Fatherree, M.D., Director of Public Health
Maurice E. Gosnell, Gosnell & Fitzpatrick
Clarence W. Klassen, Chief Sanitary Engineer

INDIANA

A. C. Offutt, M.D., State Health Commissioner
B. A. Poole, Stream Pollution Control Board
Joseph L. Quinn, Jr., The Hulman Company

KENTUCKY

J. O. Matlick, Commissioner of Conservation
Russell E. Teague, M.D., State Health Commissioner
Minor Clark, Department of Fish and Wildlife Resources

NEW YORK

Earl Devendorf, Department of Health (Retired)
Herman E. Hilleboe, M.D., State Health Commissioner
Joseph R. Shaw, Associated Industries of New York State, Inc.

OHIO

Hudson Biery, Ohio Valley Improvement Association
Ralph E. Dwork, M.D., Director of Health
Kenneth M. Lloyd, Mahoning Valley Industrial Council

PENNSYLVANIA

Karl M. Mason, Department of Health
M. K. McKay, Sanitary Water Board
Charles L. Wilbar, Jr., M.D., Secretary of Health

VIRGINIA

William H. Singleton, State Water Control Board
T. Brady Saunders, State Water Control Board
Ross H. Walker, State Water Control Board

WEST VIRGINIA

N. H. Dyer, M.D., State Health Commissioner
W. W. Jennings, State Water Commission
Bern Wright, State Water Commission

UNITED STATES GOVERNMENT

Edwin E. Abbott, Corps of Engineers
Leroy E. Burney, M.D., Public Health Service
O. Lloyd Meehean, Fish and Wildlife Service

officers

Ross H. Walker, Chairman
Charles L. Wilbar, Jr., M.D., Vice-Chairman
Fred H. Waring, Secretary
Verna B. Ballman, Treasurer
Edward J. Cleary, Executive Director and Chief Engineer
Leonard A. Weakley, General Counsel

staff

Edward J. Cleary, Executive Director and Chief Engineer
Robert K. Horton, Assistant Director
David A. Robertson, Jr., Engineer-Hydrologist
Francis W. Montanari, Sanitary Engineer
William L. Klein, Chemist-Biologist
Verna B. Ballman, Office Manager

Secretaries: Ruth C. Bergmeyer, Alice Courtney
Jane W. Renaldo, Grace B. Ziegler

Regulatory Agencies of the Signatory States

Listed on this page are the names and addresses of the regulatory agencies in the signatory states. Questions concerning compliance with water-pollution control requirements should be addressed to the agency in the state in which a municipality or industrial plant is located. The state agency will arrange for such contact or consultation with the Commission as may be necessary or requested.

ILLINOIS	Technical Secretary State Sanitary Water Board Springfield, Illinois
INDIANA	Technical Secretary Indiana Stream Pollution Control Board 1330 West Michigan Street Indianapolis 7, Indiana
KENTUCKY	Executive Director Kentucky Water Pollution Control Commission 620 South Third Street Louisville 1, Kentucky
NEW YORK	Executive Secretary New York State Water Pollution Control Board New York State Dept. of Health Albany 1, New York
OHIO	Engineer in Charge Sewage and Industrial Wastes Unit Division of Sanitary Engineering Ohio Department of Health Columbus 15, Ohio
PENNSYLVANIA	Sanitary Water Board Box No. 90 Harrisburg, Pennsylvania
VIRGINIA	Executive Secretary State Water Control Board 415 West Franklin Street Richmond 20, Virginia
WEST VIRGINIA	Executive Secretary State Water Commission 1709 Washington Street, East Charleston, West Virginia