



Report

John M. Mores
Executive Director
(412) 256-2433

STATE APPROVES 9.6 MILLION MINE DRAINAGE PROJECT

When English fur traders crossed the Alleghenies in the 1740's, they found Delaware Indians camped along a pure, sparkling stream they called "Tulpewi Sipi" or Turtle Creek.

Full of fish and turtles, the stream drained a wide, protected valley and rich forested uplands filled with game.

The Delawares maintained villages on the lowlands where now are located the communities of Trafford, Pitcairn and Turtle Creek. Easy catches of fish and game made these wanderers semi-permanent residents.

George Washington and other early travelers using the Indian's Raystown Path from the east, or the Monongahela-Youghiogheny Rivers corridor from the southeast, were greeted by these friendly tribes as they traveled to the forks of the Ohio. No doubt many a dinner was served from Turtle Creek's abundant aquatic life.

Turtle Creek remained a pure stream until the start of coal mining that began locally in 1853. Coal, which was both a blessing and a curse to the area, along with pure water and an ideal transport location, led to the early industrialization and growth of the basin.

However, by the end of the 19th Century coal mining, with its attendant acid mine drainage, had caused most of the streams in the watershed to become orange colored wastewaters, devoid of stream life.

That is the condition in which the Turtle Creek Watershed Association (TCWA) found the local watercourse in 1970 when the TCWA's environment program began. Acid mine drainage abatement was named as a first order



Clifford H. McConnell, DER Deputy Secretary, outlines the Irwin Syncline project and timetable for construction to local officials at TCWA's October, 1978 luncheon conference at the Westinghouse Recreation Lodge, Chalfant, Pa.

of business.

In the eight years that followed, TCWA has worked unwaveringly to achieve that goal. With excellent help from the Allegheny County and Westmoreland County Commissioners, John F. Laudadio, former legislator and avid conservationist, and with fine cooperation from the Department of Environmental Resources (DER), success is at hand.

On April 11, 1978, the Joint Legislative Air and Water

Conservation Committee approved the 9.6 million dollar "Irwin Syncline Mine Drainage Abatement Project" committing the State to the program.

This action assures that soon the virtually lifeless waters of Turtle Creek will be returned to a state of health sufficient for normal biological growth. Fish and other aquatic life will be returning.

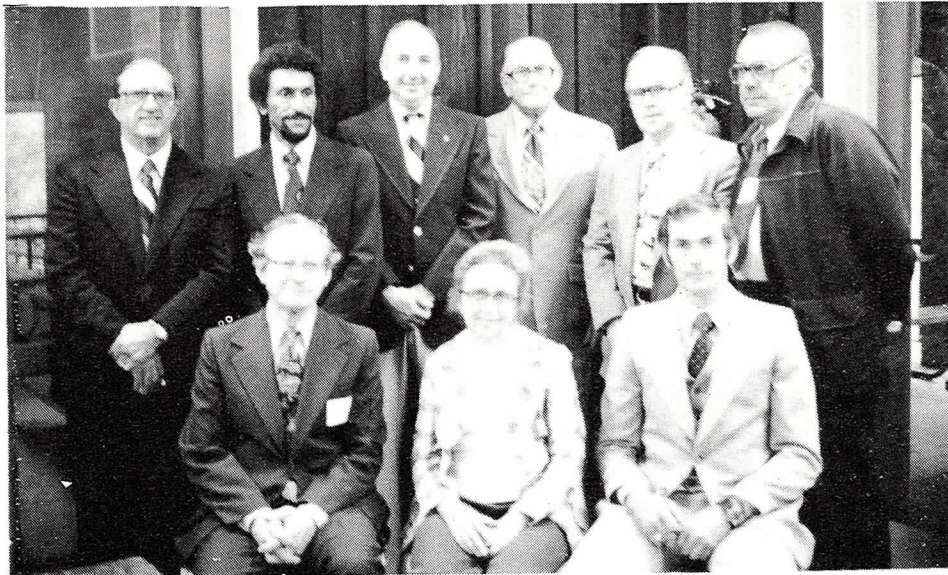
The project is one of the largest of its type ever approved in the Nation.

Work will soon start on the securing

Continued On Page 2

9.6 MILLION DRAINAGE PROJECT

Continued From Page 1



At October TCWA Conference. (Seated) Principle speaker Clifford H. McConnell, DER, Mrs. Shirley Turnage, TCWA Director, John M. Mores, TCWA Executive Director. (Standing) TCWA Directors James M. Tempero, Alfred B. Carl, Paul J. Sorokach, John L. Schwartz, TCWA Chairman, Earl M. O'Connell and Warren D. Pfost.

of property releases for exploratory drilling into the old mine workings.

At the October 13 Annual Luncheon Conference of the TCWA, Department of Environmental Resources Deputy Secretary, Clifford H. McConnell, outlined the abatement program to local leaders.

He noted that mining operations in over 25 separate mines in the syncline, and dating back to the 1850's, are the cause of the mine drainage. Average flows of the seven major discharges total about 21 million gallons per day (MGPD). Around 15 million gallons per day flows into watershed streams, the rest flows into Sewickley Creek and the Youghiogheny River.

The abatement steps McConnell outlined include concentrating the outfalls to as few locations as possible, and then using conventional lime treatment for neutralization. These include:

* EXPORT AREA. A total of 11



Surface water enters the tunnel system of the Irwin Syncline through an old pit mouth. DER has since sealed this entrance.

discharges in the Export-Delmont--White Valley region and one along Thorn Run will be concentrated and piped back into the syncline structure, where it will flow underground to Irwin. Cost of this phase is estimated at \$900,000.

Exploratory drilling and water testing (in process) will continue through the summer of 1979. Final design will commence during Fall, 1979 and construction will begin by Spring, 1980.

By Summer, 1981 Turtle Creek from Delmont to Trafford will be cleansed.

* IRWIN AREA. The second phase of the project involves piping the Irwin and Coal Run discharges, which includes the diverted flows from Export previously noted, to one point, and construction of a lime treatment plant. Location of the plant is as yet undetermined, but it probably will be in the vicinity of the recently completed Brush Creek sewerage treatment plant.

Cost of the AMD treatment plant is estimated at \$3,900,000, and will clean up Brush Creek, and Turtle Creek to its confluence with the Monongahela River.

Monitoring work on the underground reservoir that feeds the Irwin discharge will begin as soon as the Export flows are diverted into the pool. Design of the Irwin facilities will then begin, probably during the Winter of 1981. Construction of the treatment facility is expected during the Spring of 1982, and be complete in about a year.

* OUTSIDE THE WATERSHED.

Two treatment plants are to be built outside the watershed. Construction of two treatment plants to handle the Marchand Discharge near Lowbar and the Guffy Discharges near Sutersville in Westmoreland County will cost about \$4,800,000. The plants will be in operation within five years improving the waters of Sewickley Creek and 17 miles of the lower Youghiogheny River.

Funding for the project will be derived from Project 500 Land and Water Reclamation Bond monies approved by Pennsylvania voters in 1968. Maintenance costs will be funded by the federal government from royalties tacked onto coal mined since the 1977 Federal Surface Mining Act was passed.

During the luncheon conference, McConnell lauded the Watershed Association and the work TCWA has done to procure and facilitate the mine drainage project.

Note: TCWA's John Mores and Vice-Chairman Jim Tempero were on hand at the April 11 approval meeting of the Joint Legislative Committee, and represented local citizen, municipal and industrial interests in the program. Benefits of the project including opening large areas for needed recreation uses and improving the industrial climate of the Turtle Creek Valley were identified.

Also attending was Senator Edward P. Zemprelli (D, Clairton) who spoke on behalf of the project, and pledged his support throughout the construction phase.



Help from former state Representative John F. Laudadio (above) from Jeannette, along with the excellent aid of both the Allegheny County and Westmoreland County Commissioners have provided the necessary state and local support for achieving the Irwin Syncline Project.

THE MECHANICS OF STREAM RECOVERY

The waters of Turtle Creek and its tributaries are presently undergoing a major qualitative change. Normal stream life is returning after a three-quarter Century absence.

Sewerage construction in up-water-shed areas including the \$25,000,000 Brush Creek system and \$3,000,000 expansion of the Holiday Park Treatment Plant are removing major sources of nutrients and biodegradables from the waters.

Soon the \$9,600,000 Irwin Syncline Mine Drainage Abatement Project will be underway, allowing the pH to return to normal, removing habitat covering yellowboy and eliminating toxic substances.

Perhaps it is timely to discuss some basics of streams, providing some guides of physical, chemical and biological systems operating in Turtle Creek's recovery.

STREAM DYNAMICS

Nature has provided water with a considerable ability to rid itself of pollutants. The natural process of self-purification is accomplished by a combination of physical, chemical and biological forces.

In almost all cases, these forces are successful in returning polluted and unproductive waters to a form nature (and man) can use again — if the "purification parameters" are not exceeded.

Turtle Creek has for years contained large reaches where the

pollutants are so massive as to defy the natural cleansing process. This is changing as major sewage and mine drainage treatment facilities progressively remove these contaminants.

As pollution loads lessen, natural reconstructive forces will soon gain the upper hand.

Physical forces will counter pollutants such as sediments, chemical reactants will neutralize wastes as found in mine drainage, and biological action will help both of the previous processes and remove biodegradables such as domestic sewage.

Of the three, biological forces are the most active and generally will play the most vital role in reclaiming Turtle Creek. But physical and chemical actions are important to preparing a medium where biologic forces will live.

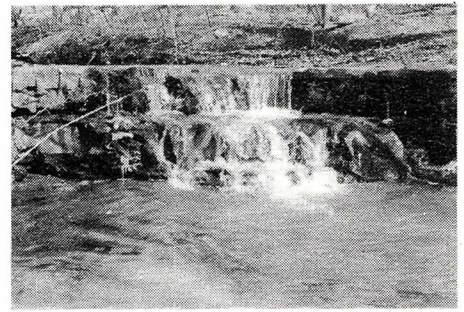
PHYSICAL ACTION

The physical actions of gravity as well as light, aeration and dilution may begin the reclamation.

GRAVITY provides the force to remove sediments such as sand, silt or ash to the flood plain or to the bottom of the stream.

With the silt deposited, the action of light removes color from the water by bleaching. Photosynthesis may then occur, increasing vital oxygen and removing carbon dioxide.

AERATION, caused by the



Falls and riffles in streams are the primary locations where life-giving oxygen enters the water.

turbulence of water flowing over riffles and falls and by the interface of the water and the air, provides for oxygen directly from the atmosphere. This improves conditions for life.

Finally, DILUTION by "pure" water from clean tributaries normally adds a reserve of alkaline chemicals that combat acid mine drainage and other acidic conditions.

CHEMICAL ACTION

Water in streams is never pure. It is more like a soupy composite of chemicals in the gaseous and solid states.

Chemicals are carried along in solution or suspension.

Two common chemical gases are particularly vital to stream life, and the capability of streams to recover from pollutants. They are oxygen and carbon dioxide.

Green plants such as algae intake carbon dioxide and expel oxygen as a waste. Conversely, stream animals "breathe" oxygen and expel carbon dioxide to provide a balanced system.

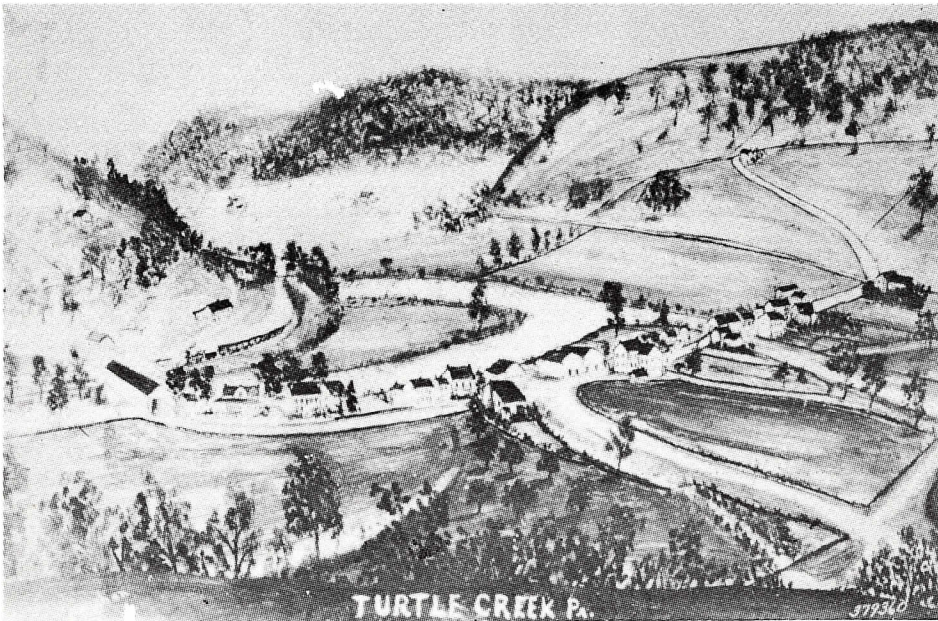
Chemical oxidation and reduction are other vital facets in providing for biological activity.

OXIDATION of a multitude of unstable wastes takes place, if the stream is well aerated, where an element of a harmful compound is replaced with oxygen. Mineral matter that can be used as plant food and carbon dioxide that escapes to the atmosphere are usually the result.

REDUCTION, which takes over as the basic stabilizing action of wastes when little oxygen is present in the water, also changes harmful substances into useful matter, but at a much slower rate than oxidation.

The number of solid chemical

Continued On Page 6



The town of Turtle Creek, occupying an old Indian camp ground at the confluence of Thompson Run and Turtle Creek, is shown here as it looked in 1863. The waters of both streams then teemed with fish and aquatic life.

PITT STUDIES THOMPSON RUN

Thompson Run, "an ugly stream passing through beautiful valleys of green."

This is how six Pitt Graduate School of Public Health students found Thompson Run during a 1978 summer-long project identifying water quality problems along that troubled stream.

According to the students, the ugliness stems from feces laden sewage outfalls, runoff from open dumps, industrial discharges and uncontrolled storm runoff from the Monroeville Mall and other large developments.

What could live in Thompson Run? Apparently nothing.

The study reports, "There are other polluted streams in Western Pennsylvania that support lesser life forms such as midges, worms, snails and carp. But except for mosquitos and water striders, biological activity is nil in Thompson Run."

Mallard ducks do inhabit the watershed, but they, like the mosquitos and waterstriders do not have to breathe in the water.

Altogether, Thompson Run drains eighteen square miles in the western-portion of the Turtle Creek Watershed. Encompassed are areas in the municipalities of Monroeville, Penn Hills, Plum, Chalfant, Churchill, Wilkins and Turtle Creek.

It is a watershed important to industrial, business, recreation and residential development.

While the hilltop areas are intensively used and contain some of the most attractive residential communities and largest business areas of Metropolitan Pittsburgh, the main watercourse flowing through a deep valley has been all but forgotten.



The streams of the Thompson Run watershed were first gauged by the Pitt graduate students to determine flows.

It has become the depository for all sorts of pollution ills. So much so, that identification of individual contributors has been extremely difficult.

To compound matters, large areas have covered storm sewers, allowing illegal top-ins to go unnoticed.

Because of the difficulty of detection and analysis, the TCWA requested the help of Pitt's Graduate School of Public Health students, and their sophisticated lab testing equipment.



Raw sewage shown here seeps from a manhole into Thompson Run when flow rates are high.

In early May, TCWA executive director John Mores and the students met and outlined the field project. It was decided that a sampling program testing for biological and chemical agents along the five and a quarter mile mainstream would provide essential data.

Results of the three month project provides some interesting conclusions.

The report states, "people living near Thompson Run consider it a hopelessly polluted stream which cannot be harmed by additional waste loads being discharged into it. This has led to the stream becoming an 'orphan' with no one, either adjacent municipalities or responsible enforcement agencies, taking a hand to correct the problem."

The students see a reversal of this attitude as an essential first step in improving water quality.

Other recommendations outlined in the final report include:

- Tracers should be used in the Saltsburg Road and Universal Road areas of Penn Hills to locate pollution

illegally entering the underground storm water system.

- Discharge pipes from a number of industries (listed in the report) should be investigated to determine possible violations of the 1972 Federal Water Pollution Control Act.

- Penn Hills should expand and upgrade their existing sanitary sewer system.

- A study should be made by ALCOSAN to determine the role their interceptor system plays in contributing to the fecal pollution of Thompson Run.

- A plan and program should be developed to control storm runoff from the Monroeville Mall.

- Stormwater runoff programs should be developed for the entire watershed to avoid the costs of treating stormwater in the future.

Working on the project were students David Volk of Irwin, Patrick Regan of Johnstown, Luann Popovich of Mount Pleasant, Vincent Victoreen of Delaware, Phillip Abraham of Butler and Richard Roche of Pittsburgh.

John Mores and Dr. Attila Sooky, a specialist in water pollution control at the Graduate School, provided class supervision.

PENN HILLS USES STUDY

Shortly after the study was completed, Alex Hutchinson and Sons Engineers requested a copy to aid in their efforts to obtain an EPA grant for sewer line expansion in Penn Hills. TCWA supplied the requested materials and offered to aid efforts in any way possible to further Penn Hills' sewer system upgrading.

CABLE TV MAKES PROGRAM

Mid-way in the study, Valley Cable TV was contacted by TCWA to determine any interest in generating a TV program on the students activities, to be shown on the local cable station.

The answer was yes. Valley Cable felt that there was sufficient local interest, and educational worth, to prepare a dual purpose film.

Subsequently, a 45 minute program was prepared of both field and lab activities identifying essential activities and findings of the project. The program was shown twice during the month of September in the area.

Presently, Cable TV and the TCWA are refining the program down to 30 minutes, to be used as an educational tool for senior high school biological and environmental students.

TAL PROBLEMS ENVIRONMENTAL PROBLEM

AREA STORMWATER PLANNING FUNDED

Allegheny County, using federal Community Development monies has responded to an urgent need.

During the summer of 1978, the County funded the separate stormwater planning efforts of Monroeville, Squaw Run Watershed Association and the Turtle Creek Watershed Association (TCWA),

For TCWA, it was light at the end of the tunnel, the culmination of a four year search.

That's how long TCWA has been rooting around, looking for monies to prepare a plan to combat the runoff problems of the watershed.

Flood damages have been increasing alarmingly in the Turtle Creek Valley, and in sub-watersheds heavily impacted by development.

It became imperative, if anything was to be done short of extremely costly flood control facilities, to prepare a plan and implement a program now.

After growth has occurred is too late. There is no land left for the control facilities, and the only relief is from expensive flood control projects.

Essentially, the planning is aimed at controlling storm water at each development site. Since each land parcel is a contributor to the overall watershed problem, control should begin there.

The plan, to be done for Allegheny County portions of the watershed, will closely follow the edicts of Act 167, the recently passed Stormwater Management Bill.

TCWA set a goal of zero "accelerated runoff" in 1976, which is what Act 167 requires, also.



A large detention pond serving the East Suburban Hospital in Monroeville absorbs storm runoff, and safely discharges the water to nearby streams when the storm has passed.

The planning will cover a three-year period, beginning January 2, 1979. The first year will be devoted to analyzing existing topographic, land use and hydrographic conditions leading to flooding.

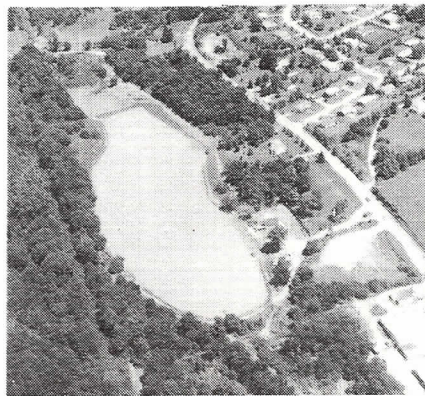
Existing storm water sewers and other runoff carriers will be analyzed for adequacy. Stream flow gauges and precipitation gauges will provide rainfall and runoff data.

Municipal and public participation will be arranged through meetings and letter survey programs. Policies and objectives governing the plan will be developed using this public cooperation.

One product of the first year's effort will be a step-by-step users manual identifying stormwater control objectives and policies, a standardized method (or methods) of determining runoff, and identification of other hydrologic data sufficient to allow uniform computation by all parties — developers, planners, enforcement agents — of runoff generation.

Municipalities served by the planning include Braddock Hills, Chalfant, Churchill, East McKeesport, East Pittsburgh, Forest Hills, North Braddock, North Versailles, Penn Hills, Pitcairn, Plum, Turtle Creek, Wall, Wilkins and Wilmerding.

As a part of their responsibilities, TCWA will aid participating municipalities in a survey of all areas where stormwater damages have occurred. Letters will be sent, with a



The final plan is expected to call for individual on site controls, possibly detention ponds serving the entire development (as shown above), or combination of these and other stormwater management solutions.

geographic distribution covering areas with potential flooding, requesting full data on previous flood heights, frequency of flooding and damages incurred.

This could greatly expand field data on flood conditions accumulated by TCWA's engineers.

Providing technical assistance will be Betz-Converse-Murdoch Engineers, who have completed extensive stormwater management studies in eastern Pennsylvania, Delaware and Maryland.

743 & 744 PASS

Two recent legislative actions strongly impact Turtle Creek's environs.

The state legislature recently passed Senate Bill 743, the Flood Plain Protection Bill, and Senate Bill 744, the Stormwater Management Bill. They are now known as Act 166 and 167, respectively, of 1978.

Governor Shapp signed them into law on October 4, 1978.

Act 166 regulates flood plain development to protect against excessive flood damages to people and property, and to retain flood plains as natural retention areas to lower flood crests during high flow periods.

Act 167 requires that each county prepare a storm water management plan for "priority" watersheds, within two years of promulgation of DER guidelines (now underway). Subject municipalities must adopt the plan and provide an implementation program within six months after the plan is accepted.

Both Acts are important to efforts hereabouts. TCWA has just begun a stormwater management plan for portions of Allegheny County, using County Community Development monies.

Act 167 will shortly provide matching grants for stormwater planning, and TCWA hopes to obtain such monies to continue our planning into Westmoreland County areas.

TCWA has already petitioned the state Department of Environmental Resources to be listed as a "priority watershed" in preparation for requesting such funding.

THE MECHANICS OF STREAM RECOVERY

Continued From Page 3

agents that may be carried along in streams in the dissolved or suspended state are too numerous to itemize. They are often classified as organic and inorganic solids.

Organic solids are derived from living agents and include waste materials and bodies of dead plants and animals. Domestic sewage is the most common example. Inorganics include industrial and mining wastes, such as salts, heavy metals, phenols and many, many others.

Important solids in Turtle Creek water include those of mine drainage: iron, aluminum, magnesium and sulfur; and those from domestic sewage.

Mine drainage has harshly affected Turtle Creek streams. Dissolved sulfur salts have lowered the pH in many areas to the point where the acidic waters are devoid of stream life.

pH is the expression of hydrogen ion (acidity) in the water. Proper pH is vital to stream life. Water which is neutral has a pH of 7.0. The acidity of a solution increase from 7.0 to 0, while alkalinity increases from 7.0 to 14.0. Most aquatic life exists in a pH range from 5.5 to 9.0.

Abatement efforts will soon remove the bulk of mine drainage from local streams, and natural oxidation, reduction, and neutralization from alkaline tributary streams will help remove the rest.

BIOLOGICAL ACTION

All normal streams maintain a balance of biological forms, both in

the water, and with the surrounding environs.

From the air, rainfall collects dusts laden with molds, yeasts, bacteria and free-floating spores. Runoff adds many of the minute life forms with which the soil everywhere teems, and washes them into nearby streams.

Thus the total environment supplies the variety of life to watercourses. Equilibrium between stream, land and air results, and any change in the surrounding environment causes the stream to react accordingly.

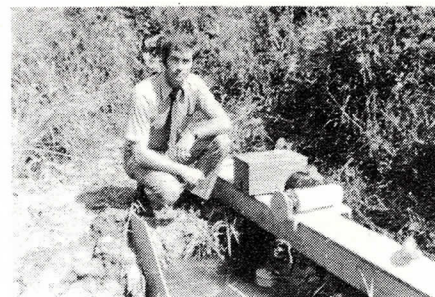
Indeed, the many forms of aquatic life, from the smallest bacteria to the largest fishes are distributed in a stream according to environmental determinations.

If a domestic or industrial waste is added, the stream will react to rid itself of these foreign substances. Bacteria and algae for which these substances are food will grow, until the food supply is exhausted.

The animal organisms that feed on these agents will then grow, until a balance is attained. This ability of the stream biota to change to recover a polluted stream is called "dynamic equilibrium".

Nature provides for an interdependence of species (food chain), capable of handling most pollutants, as long as the dissolved oxygen in the water is used at a rate less than the ability of the stream to replenish the oxygen.

As the many miles of Turtle Creek streams affected by domestic sewage and mine drainage are brought to a life-sustaining pH, and other caustic



TCWA's John Mores checks a Westinghouse Electric Corp. gauging and testing station at the Trafford Works. Industry throughout the watershed is preparing to comply with the edicts of the 1972 federal Water Pollution Control Act, further improving water quality.

agents are removed, nature's biologic cleansing system will activate.

At the bottom of the food chain are the algae and photosynthetic bacteria that manufacture their own food from sunlight and the inorganic materials: nitrogen, phosphorus and carbon.

The type of algae indicates the level of pollution present. Blue-green algae indicates pollution probably from sewage. Generally, if 10 percent or more of a streambed is covered, that stream has a pollution problem.

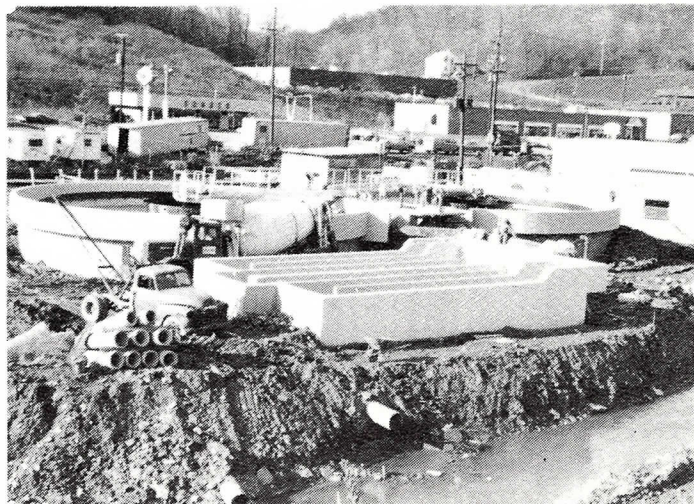
The green algae indicate better water, but high nutrients are still present.

Brown (diatom) algae which grows on the streambed as single cells, are found in healthy streams. They cover rocks and fishermen know them for their slipperiness.

Bacteria are next on the food chain including the "saprophytics", which consume dead organics such as algae or human wastes, and "chemoautotrophics" which derive their nourishment from the break-



Shown above is the Larimer Treatment Plant of the 25 million dollar Brush Creek sewerage system in Westmoreland County. The plant was dedicated August 19, 1978 and serves 30,000 residents of six municipalities in the Irwin Area.



The 3 million dollar expansion of the Holiday Park Treatment Plant, Plum Borough, is expected to be complete in early 1979.

down of inorganic materials, such as the components of mine drainage.

Chemoautotrophic iron bacteria help stabilize iron compounds in mine drainage and account for the orange coloring on stream beds (yellowboy). Fecal coliforms are a particular kind of saprophytic bacteria that live on human wastes and are commonly used as a test indicator for sewage pollution.

Bacteria numbers rise and fall according to available food supplies.

Fungi are like bacteria, only larger and more complex. Most feed on dead materials. They are found in large numbers coating the stream bed in polluted waters, but are sparse in

clean streams.

Next are protozoa which are minute animal life that feed on both the bacteria and the algae. They, in turn, are consumed by higher animal forms.

Annelids and Crustaceans are next. Annelids are worms, most of which live in the sediments of the bed. They consume organic material that are part of the bed and purify the stream. A special type reach great numbers in extreme nutrient polluted streams, and are one of the first higher life forms to appear as a stream 'fights back'.

Crustaceans are the hard-shelled animals including scuds,

BOARD OF DIRECTORS

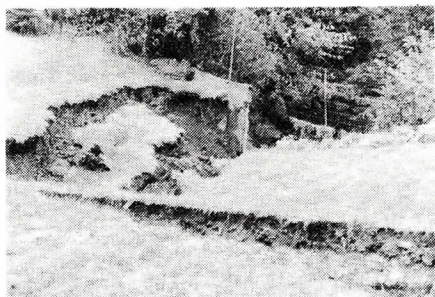
John L. Schwartz, Jr., Chairman
James M. Tempero, Vice Chairman
William R. McKee, Treasurer
& Solicitor
Paul J. Sorokach, Secretary
John M. Mores, Executive Director

Shirley J. Turnage
Alfred B. Carl
Mary Ann Walko
Earl M. O'Connell
Warren D. Pfost

sideswimmers and crayfish.

Fish top the aquatic food chain. And their future existence in area streams will indicate success to TCWA, our many volunteers, Allegheny and Westmoreland Counties and the State who have spent of their time and money to achieve a useful and productive environment for area residents.

ZEMPRELLI WORKS FOR STORM DAMAGE AID



A heavy thundershower on September 21, 1978 caused massive wall damage along Sawmill Run in Turtle Creek Borough. A real threat exists that sections of the wall or covering cement blocks will fall into the creek, causing a dam, and flooding home owners along Brown Avenue.

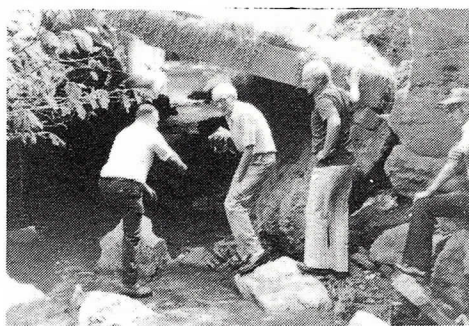
On the afternoon of September 12, 1978, an extremely severe thunder-shower deluged the Thompson Run area of eastern Allegheny County.

The municipalities of Wilkins, Churchill, Penn Hills and Monroeville, among others, were hit.

Torrential rainfall for almost an hour brought streams to bankfull flows, and local flooding in the downstream boroughs of East Pittsburgh and Turtle Creek resulted. Retaining walls were washed out, manhole covers were blown off and damages to low-lying houses were experienced.

A critical problem was generated along Brown Avenue in Turtle Creek Borough, where walls supporting yards, six or seven homes and State Route 130 were undermined. Portions slid into the stream channel. There is a potential that these broken walls may form a dam during the next high water, causing enormous damages along the length of Brown Avenue.

TCWA and the Borough were immediately called by worried



State and local engineers discuss ways of resolving wall slippage. Shown (L to R) are Arthur Topper, Street Foreman of Turtle Creek Borough, and William Banks, John Cain and Vernon Houghton, all of DER.

residents, and have since worked to find a solution. Among other agencies and parties notified were the state Department of Environmental Resources (DER) and Senator Edward P. Zemprelli, who represents this district.

Both have acted quickly.

DER has supplied alternatives for resolving the situation, and Senator Zemprelli has instituted several legislative actions.

Emergency monies were located in mid-January, 1979 for removing the most immediate flooding concern — slippage of a section of the channel bank and culvert into the stream.

The Senator reports, "We were able to effect transfer of state revenue to provide the approximate \$15,000 to \$20,000 needed for the culvert removal". Work will reportedly soon begin.

This was most welcome news to local citizens, the Borough and TCWA who feared a dangerous backwater flood.

Also, DER has formulated a 2.2

million dollar reconstruction plan for the damaged culvert system.

According to Senator Zemprelli, the proposal includes two alternatives for the Brown Avenue section of the culvert. The first alternative involves removal of the damaged structures and construction of a new, reinforced concrete box culvert, channeling the stream primarily under Brown Avenue. The cost would be approximately \$850,000.

The second alternative involves both a concrete box culvert and an open rectangular concrete channel. The cost would be \$700,000 and would involve the acquisition and demolition of several existing homes below Mortimer Avenue.

Also, the DER project may include removal of an arch culvert between Brown Avenue and Thompson Run and construction of a reinforced concrete box culvert, costing an additional 1.35 million dollars.

TCWA SAMPLING

As a part of the Irwin Syncline Mine Drainage Abatement Project, TCWA has been awarded a contract for stream sampling of mine drainage outfalls.

Subsequent to the construction of diversion and treatment facilities, DER must know the acid and iron loads of the outfalls, and the volume of flow. This is the purpose of the sampling program.

Bi-monthly samples are being taken by TCWA at 25 discharge points. They are then sent to the State's Hawks Run Laboratories for testing.

The program began in July of 1978 and will continue for one year.

MONROEVILLE FIRST

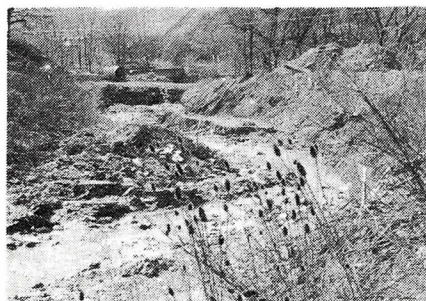
Monroeville is in the final stages of adopting Southwestern Pennsylvania's first comprehensive stormwater management ordinance. Marshall Bond, municipal manager, reports that he expects the ordinance, prepared by Buchart-Horn Consulting Engineers, to be approved by Council in the near future.

At present, corrective recommendations are being sought from developers, engineers and interested parties.

TCWA reviewed the ordinance and noted many good points. A clear statement of intent and objectives is first presented, followed by essential standards for hydrologic calculations, design storms and facilities for runoff control.

TCWA noted that certain elements may require modification and clarification, and that numerical standards, often very strict, may need to be revised. Still, the ordinance is a valued step in the right direction.

After a period of "ringing out", and after a thorough review by TCWA's engineer, Betz-Converse-Murdoch, the Association hopes to use an updated revision of the ordinance as the watershed's model stormwater management ordinance.



Ordinance to Prevent: Devastation exists below the Monroeville Mall where runoff increases from impervious surfaces have ripped apart a streambed.



**WHAT'S HAPPENING
OUT THERE IN THE
TURTLE CREEK
WATERSHED?**

Turtle Creek Boro Clean And Green

The Turtle Creek Valley is one of two areas chosen by the Mon-Yough Chamber of Commerce for assistance in community improvement.

The program, called Clean and Green in Turtle Creek Borough, is a comprehensive approach to improving community amenities through both long-term local government commitment and constituency involvement.

In addition to the traditional clean-up, paint-up, clean-up approach, major problems are being attacked including general code enforcement, billboard and sign control, air, water and noise pollution, dumping and abandoned cars, landscaping and tree preservation, legislation, etc.

Local leaders have been asked to participate and chair sub-committees. TCWA was asked to chair the Water Quality Committee, and TCWA's John Mores has developed a program for water improvement. The recently completed Pitt study of Thompson Run was an outgrowth of this committee's work.

Any local citizens living or working in Turtle Creek Borough who are interested in participating in any phase of the program are asked to call Mayor Harper at 824-2500, or Clean and Green chairman, Dr. DeWayne Doyle, at 824-9307.

MURRYSVILLE IMPACT

..The municipality of Murrys ville has adopted a major program of impact assessment for new development, in their zoning and subdivision ordinances.

..Amendments, passed October 24, 1978 by Council, call for a comprehensive report of all effects new growth will have on the community.

..Included are data requirements associated with the site on physical aspects: soils, slopes, topography, runoff, geology, mining activity, existing vegetation, etc; and development factors: roads, parking, recreation areas schools, utilities, green areas, type of unit, proposed use, surrounding land use, etc.

..Full information on impacts of that site on community systems is required, and any measures to minimize negative impacts are considered.

..Approval of the site is then based on compatibility of that development with Murrys ville's physical and service capabilities.



The impacts of all future developments in Murrys ville must be quantified and reported according to a new municipal ordinance.

TCWA REPORT

Turtle Creek Watershed Association, Inc.
700 Braddock Avenue 4S2
East Pittsburgh, Pa. 15112

