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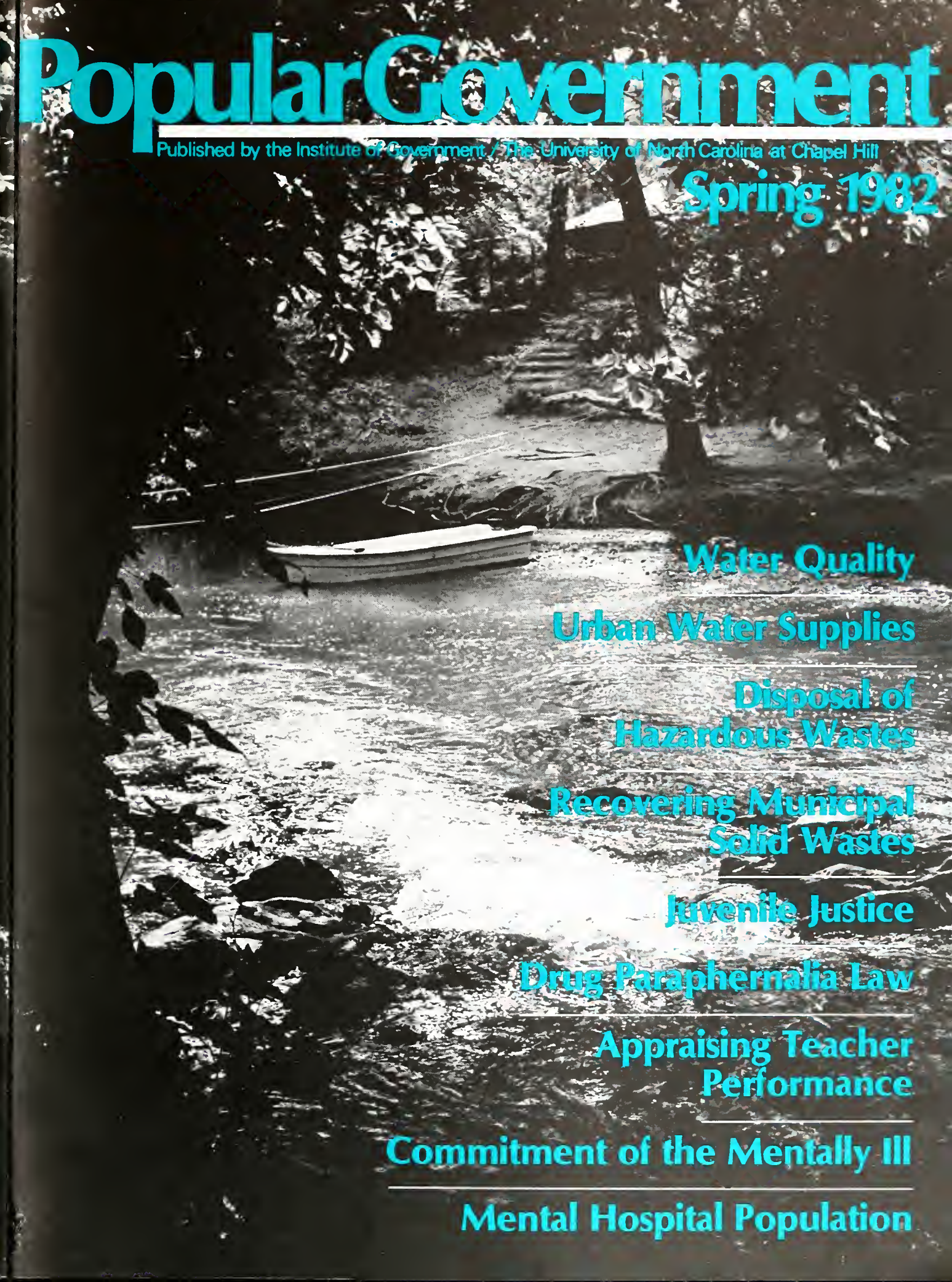

Water Quality

Urban Water Supplies

Disposal of Hazardous Wastes

Recovering Municipal Solid Wastes

Juvenile Justice

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Appraising Teacher Performance

Commitment of the Mentally Ill

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The Quality of North Carolina's Water

Neil S. Grigg

Keeping North Carolina's water clean is the number one challenge for this state's industrial and governmental water managers. The task is complicated here, as elsewhere, by the diversity and magnitude of industrial and urban activity and by the diffuse character of runoff sources from which water pollution largely comes. Despite the efforts of state and local officials to solve this problem, growing industrial and other development of the state—together with the use of chemicals that cannot be easily and inexpensively measured—threatens government's ability to monitor the state's waters adequately. While we have generally "held our own" over the last decade, water pollution remains a primary problem.

This article will summarize the nature and severity of the problem, point out what must be done to improve the situation, and list some key policy issues facing the state.

The author is an engineer with long experience in water resources management. He recently returned to Colorado after approximately five years in North Carolina. While here, he served first as Director of the University of North Carolina Water Resources Research Institute and then as Assistant Secretary of the State Department of Natural Resources and Community Development.

Measures of water quality

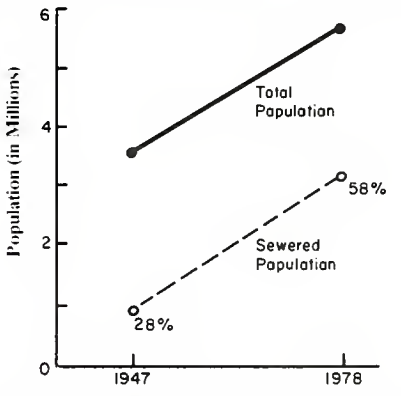
In order to speak about water quality, we must first define that term. It would be helpful to have a single universally accepted index of water quality. Unfortunately, no such index exists, mainly because we do not all agree on our objectives for water quality. But we do agree that excessive levels of certain measurable water pollutants are undesirable. As a result, water quality is generally measured by the levels of undesirable pollutants present and by certain other characteristics such as temperature, dissolved oxygen, and acidity. In all cases, the acceptable levels of those measures must be determined by how the water is used and by public demand. Some measures of water quality are as follows.

Oxygen levels. One measure of basic stream health is dissolved oxygen (DO). DO is necessary to sustain healthy aquatic life. High levels (such as 6 to 8 parts per million) of DO might be necessary to sustain a certain trout population, whereas lower levels (such as 4 to 5 parts per million) might sustain rougher fish. The most common indicator of demand for oxygen (and therefore the likely depletion of the remaining oxygen level) in a body of water is called biochemical oxygen demand (BOD), which is basically a measure of the presence of organic oxygen-demanding wastes from such sources as urban sewage, farms, and industries.

Bacterial and viral levels. Undesirable bacteria or viruses in water are threats to public health. Since human and animal wastes are the main source of these organisms, an indicator bacterium, coliform, is used to check for contamination of water. Standards for number of coliform bacteria vary with water use; the tightest restrictions apply to drinking water supplies.

Figure 1

North Carolina
Population with Sewers



Source: N.C. Department of National Resources and Community Development, *North Carolina Environment 1980*.

Chemical levels. Measuring the chemical quality of water is exceedingly complex, especially in view of the many trace chemicals that can now be measured with modern instruments. These chemicals include everything from nutrients to toxic chemicals. Nutrients, such as nitrogen and phosphorus, are harmful to quiet waters when concentrations become too high. They can cause overenrichment, or "eutrophication"—a problem in some lakes and estuaries, such as the Chowan River. Toxic chemicals include well-known poisons like polychlorinated biphenyls (PCBs), which were illegally dumped alongside North Carolina roadways a few years ago. Acceptable levels of most of these chemicals are still being determined through research, although interim standards or guidelines have been set by enforcement agencies.

Water quality across North Carolina

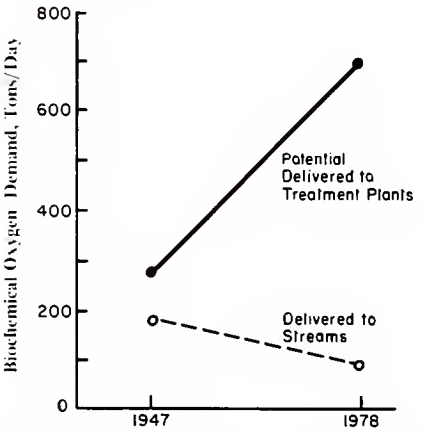
Where do we stand now with respect to water quality in North Carolina? The consensus is that, despite certain problems, water quality is generally acceptable.[1] Recent reports of the State Department of Natural Resources and Community Development (DNRCD) say that improvements have been made during the last decade in some measures of water quality but not in others. Yet there now is a new area of concern—toxic substances, which are considered later in this article.

A water-quality "report card" (*North Carolina Environment 1981*, published by DNRCD) shows ten-year trends that range from improvements to unknown tendencies. For example, water quality has been improved by the great rise since 1947 in the percentage of North Carolinians who are served by sewers (see Figure 1). Also, reductions have been generally noted in the amount of oxygen-demanding wastes and bacteria in water supplies (see Figure 2). Such wastes and bacteria have been the main targets of recently built wastewater treatment plants. They are also the pollutants of greatest concern historically.

Somewhat surprisingly, private industry has done better than local government in complying with water quality standards. (See Figure 3.) One reason may be the slowness of the grant program for wastewater treatment plants. Local governments have depended on it almost entirely, whereas private industry has used its own capital to build water pollution control facilities. Nationally, some believe that the federal

Figure 2

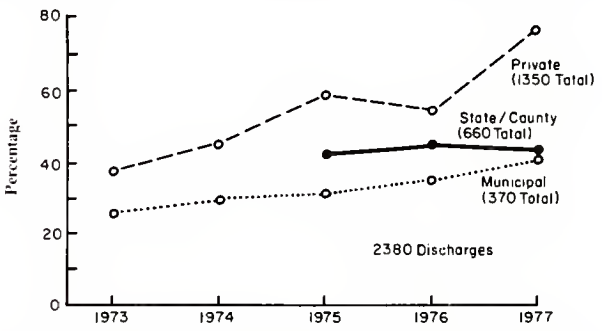
Organic Load to Treatment Plants and Streams



Source: N.C. Department of National Resources and Community Development *North Carolina Environment 1980.*

Figure 3

Percentage of Wastewater Discharges in Compliance with Effluent Limits



Source: N.C. Department of National Resources and Community Development *North Carolina Environment 1980.*

1. In preparing an assessment of water pollution in North Carolina, I used documents prepared through the "208 Program." This program takes its name from the provisions of Section 208 of the Federal Water Pollution Control Act of 1972. Its goal was to prepare the water quality management plan for North Carolina. The result appears in a number of documents of the North Carolina Department of Natural Resources and Community Development (DNRCD), principally in the "Water Quality Management Plan" published by the Division of Environmental Management.

In a 1982 report to the Legislative Committee on Agency Review, DNRDC said:

> . . . the amount of wastewater being generated in this State today has more than doubled since the early 1950s (when the State program began). However, the amount being delivered to streams has been decreased by almost one-half over this same period. These improvements have allowed numerous stream segments to be upgraded to a higher classification. Fifteen years ago North Carolina had 42 stream segments with standards only stringent enough to protect against human health hazards, and 1700 segments (almost 10 per cent of the total) with standards sufficient to allow fish to survive, but not to allow fish to propagate. All waters of the State are now classified with a minimum designated use to allow fish propagation in keeping with the intent of the Federal Clean Water Act. More recently, the 682 degraded stream segments officially recognized by the Division in 1977 were reduced to 410 by 1980. With regard to groundwater protection, classifications applicable to the groundwaters of the State and accompanying quality standards have been developed and adopted by the Environmental Management Commission.

grant program actually retarded local governments' initiative in solving water quality problems. Only about 40 per cent of local governments across the country made the 1977 deadline set by the federal Clean Water Act of 1972 to achieve the "best practicable technology," and 50 per cent still had not met that goal by 1981. Industry, on the other hand, achieved a 90 per cent compliance without a grant program. Because of red tape and other problems, building a municipal wastewater treatment plant under the grant program takes an average of nearly ten years—an entirely unacceptable figure. Furthermore, reduced funding has made it hard for governments to hire and keep capable staff.

The federal government's involvement in water pollution control is fairly recent. The Public Health Service was authorized to study and disseminate information on water pollution as far back as 1912. But only in 1948 did it begin planning and offering technical assistance in water pollution control. Grants for constructing wastewater treatment facilities were modest until the 1960s. It was the passage in 1972 of the Water Pollution Control Act (later renamed the Clean Water Act), which established goals for cleaning up various sources of pollution, that began the intense activity in water pollution control we saw in the 1970s.

After the Clean Water Act was passed, the emphasis in pollution control shifted from reliance on what was called "stream standards" to more reliance on "technology-based effluent standards." Before 1972 we attempted to classify each stream according to its intended use and then to determine the effluent limitations on the basis of that use. Now the approach is to base all effluent limitations on an achievable level of technology and to tighten these requirements even more when special conditions or stream standards in specific areas require it. Thus the Water Quality Management Plan will have to adapt to both the policy changes at the national level and new policies determined by the North Carolina General Assembly.

As part of its response to the Clean Water Act, DNRCD prepared a Water Quality Management Plan, which identifies most of the state's water problems and proposes solutions for them. That plan lists the following sources of pollution according to the magnitude of their contribution to our water quality problems:

(1) Point sources from cities and industries;
(2) Urban stormwater runoff;
(3) Agriculture;
(4) Construction;
(5) Mining;
(6) Faulty on-site wastewater disposal (such as malfunctioning septic tanks);
(7) Solid waste disposal;
(8) Logging.

At the top of the list are point sources from cities and industries. Point sources are pipelines and ditches where discharge to a receiving stream can be identified at a precise spot. Nonpoint sources are those that occur in a diffuse manner, such as runoff from agricultural fields and highways or seepage from groundwater locations. Table 1 summarizes the severity and the locations of water pollution identified from these sources.

Municipalities have responded to point source problems by improving existing waste treatment plants and building new ones, mostly with construction grants from the U.S. Environmental Protection Agency. Apparently much less money will be available to maintain these construction grant programs since the Reagan Administration's decision to shift much greater responsibility for this and other activities to the states. But the permit requirements for municipal plants are still in effect.

What about nonpoint sources of pollution? This problem must be faced by state and local officials. For example, agricultural sources are not really under the control of any regulatory agency. Yet the threat of agricultural pollution is real, and the new chemical fertilizers will increasingly threaten water quality. Agriculture contributes substantial quantities of sediments, nutrients, and chemicals to the state's waters. We must find ways to keep these pollutants within acceptable limits. What is needed is local governmental control and encouragement together with self-regulation by agricultural interests.

Other nonpoint sources of pollution are controlled by various constituencies and by the state's Environmental Management Commission and Division of Environmental Management. Urban stormwater runoff is the responsibility of local public works agencies and the North Carolina Sedimentation Control Commission. Construction runoff is regulated by a local agency or by the Sedimentation Control Commission. On-site wastewater disposal (e.g., septic tanks) and solid waste disposal generally are monitored by county or district health departments. Logging is usually looked over by federal or state agencies.

Another cause of concern over water quality is groundwater. The same pollutants that can damage surface water, especially toxic substances, can seep into groundwater. A recent DNRCD study revealed that many of the state's pits, ponds, and lagoons that hold wastewater can become a source of groundwater pollution because of their design or the nature of the waste they hold. Also, the sheer proliferation of dumping sites for chemicals and other waste liquids threatens the quality of groundwater. We must find ways to protect groundwater better, since it will increasingly be used as a water supply. In fact, some 60 per cent of the state currently takes its water from groundwater sources. DNRCD's groundwater program is working to solve this problem, and the Governor's Waste Management Board (recently created through legislative action) is charged with finding ways to locate hazardous waste disposal sites without contaminating groundwater or bringing other harmful effects.

The threat of toxic substances in our ground and surface water supplies is real. New toxic chemicals are continually being introduced by industry in its manufacturing operations. We cannot now adequately measure the presence of

Table 1

Water Pollution in North Carolina—Sources, Severity, Sites

Priority/source issue	Severity of effect on water quality (Effect on aquatic biology)	Extent of effect (Geographic location)
Point Sources		
Municipal industrial pits, ponds, lagoons	Severe effect when treatment is inadequate; toxic problems; unknown effect from toxics on groundwater	Statewide; concentration in Piedmont; Coastal Plain groundwater is susceptible
Urban Runoff	Severe effect, sources of pollution are unknown	All cities (monitoring done in 4 cities)
Agriculture		
Sediment	Severe problems in slow-moving rivers and streams	Piedmont and mountains (very widespread)
Pesticides	Unknown—fish-kills still occur	Statewide
Nutrients	A problem in Chowan and other estuaries; high levels statewide	Coastal eutrophication problems
Freshwater intrusion bacteria	Definite problems in a few estuaries	Coastal problem
Construction		
Residential general	Small to heavy sediment loads	Statewide; concentrations in Piedmont
Highway	Very severe biological problem; heavy sediment loads	Piedmont and mountains
Eroding roadsides	Moderate sediment loads	Piedmont and mountains (very widespread)
Mining		
Industrial minerals	Very heavy sediment load	Mountains, some Piedmont operations
Sand and gravel	Excavation up to and into streams; effect unknown	
Septic Tanks		
Surface water	Bacterial contamination of shellfish waters	Common at coast; scattered Piedmont problems
Groundwater	Surficial water table contaminated with bacteria	Coastal Plain and central Piedmont
Solid Waste Disposal		
Surface water	Moderate sediment load; leachate problem unknown	Mountains and Piedmont
Groundwater	Surficial water table affected at coast	Coast (scattered)
Logging		
	Isolated minor sediment problems—harvesting and site preparation	Upper Piedmont and mountains (scattered)

Source: N.C. Department of Natural Resources and Community Development, *North Carolina Environment 1980*.

these chemicals in our waters, and it is unlikely that the finances and means to measure them will be available in the near future. Biological organisms may be increasingly used to monitor the presence of toxic chemicals, and improved methods to handle this material will be necessary. At present, several state agencies are studying the problems of toxic substances, with special attention to water supplies.

Special coastal zone problems

One of North Carolina's most sensitive water pollution areas is the coastal zone, where disturbing trends have been noted. These waters are the receiving bodies for streams from the Piedmont and mountain areas. Large quantities of municipal and industrial wastes and many kinds of nonpoint

sources are often discharged into the waters that eventually reach the coast. Also, large-scale development of coastal land resources is changing the water balance in that area, and the ecological systems can easily become disturbed.

The four primary characteristics of the water problems in the coastal zone, are (1) eutrophication, (2) excessive bacteria, (3) freshwater intrusion, and (4) toxic substances.

Eutrophication. One of the state's best-known water pollution sites is the Chowan River, plagued with eutrophication and blue-green algae. Eutrophication is the process by which a lake or river becomes overenriched with nutrients. Algae multiply, odors develop, aquatic life changes, and the possible uses of the water are greatly restricted. The Neuse River estuary and several other locations may face the same problem. To reverse this process on the Chowan, the Chowan River Restoration Project (CHORE) has been initiated, and Governor Hunt made CHORE his top environmental priority in 1979. Because 75 per cent of the Chowan basin is located in Virginia, that state's cooperation is essential. A Governor's Bi-State Water Management Committee is working to develop a pollution control agreement between the two states.

Excessive bacteria. The problem of excessive bacteria shows up in the contamination of shellfish beds—a condition that may be attributable to human or animal wastes. A stream may be contaminated either by too much animal wastes (for example, wastes discharged when many farm animals are feeding on the stream bank) or by improperly handled human wastes. When the contaminated stream flows into the ocean, it can contaminate shellfish beds.

Freshwater intrusion. Freshwater intrusion—that is, flooding because of improper channelization or ditching—damages the fragile nursery areas in the sounds and estuaries and interferes with the new crops of fishery resources, including finfish, shellfish, and crustaceans. The flooding comes from disturbing brackish or saltwater fish nurseries with shock loads of fresh water. The Governor's Coastal Water Management Task Force is seeking ways to mitigate this problem without interfering with drainage of farm or forest land.

Toxic substances. Toxic substances in coastal waters have a generally unknown effect, but one result seems to be a decline in the viability of fish eggs. The reason for concern is the fragile but important nursery and food-production functions of the estuaries and sounds.

Managing these coastal water resources successfully will require new technology as well as greater cooperation between the government and the private sector.

Issues for the future

While water quality has not been damaged in North Carolina as much as in some industrial states, water managers are concerned about the future. Despite substantial investments for the control of urban and industrial point sources, water quality in our state has not improved much. There are a number of present or potential problems, such as toxic substances in surface and ground water and the state's limited ability to monitor the many sources of anticipated future pollution. Nonpoint sources are also not satisfactorily controlled. We still depend on voluntary compliance from such sources as farms to keep harmful chemicals and wastes out of the water.

The state and local governments will face financial problems from the cutbacks in federal funding for wastewater management. North Carolina's 1981 Clean Water Bond Act—the third in a series of five-year efforts—seeks to provide more help in water management to local governments as the state adapts to the "new federalism."

Much attention will be given to controlling toxic chemicals, especially through pretreatment programs at the local level. Local governments will have to make a greater effort to control pollution from storm drainage, using maintenance and street-cleaning practices as a principal tool.

Last fall the Triangle J Council of Governments identified some water management objectives that local governments throughout the state should aim for: (1) a regional approach to wastewater management; (2) protection of upland water supply sources; (3) a fair and comprehensive approach to dealing with proposals for transfer of water from one river basin to another; (4) appropriate financing; (6) centralized technical services to local governments; (7) plans for conservation and water re-use by industry and agriculture; (8) better training programs; (9) good on-site water management; (10) a better groundwater management system; and (11) management of irrigation withdrawals, particularly during periods of low flow.

North Carolina is working to develop a sound water quality management program. Success will require cooperation among the three levels of government and the private sector.●

Urban Water Supplies in North Carolina

David H. Moreau

Cities need to plan now for their increasing needs for water — and the state and federal governments must help them do so.

North Carolina cities—principal providers of water to a majority of the state's citizens—face the problem of water shortages. As they seek to provide more sources, they also encounter problems of increased regulation and higher construction and financing costs. These difficulties have arisen in a time of significant reductions in federal leadership and financial aid in both water resource development and water quality management. With its technical expertise, its broad regulatory and fiscal powers, and its geographical coverage, state government is the logical authority to take the lead in formulating water resource programs. This article examines some recent changes that have brought about the need for a greater role by state government and suggests a planning mechanism built around local government that could improve management of North Carolina's water supplies and related waste management activities.

The author is a faculty member in the Department of City and Regional Planning and Environmental Sciences and Engineering at The University of North Carolina at Chapel Hill. He holds graduate degrees in Civil Engineering and Water Resources, and he has conducted two major studies of water resource and water quality management in the urban Piedmont of North Carolina. He has also served as chairman of the board of directors of the Orange Water and Sewer Authority.

Water management

The water management problem is not trivial. There are about 500 municipally owned water supply systems of all types and sizes in North Carolina. Approximately 300 of them serve fewer than 500 people each. There is not much information on many of these systems, but an extensive survey of the larger systems was made in 1978.[1] Of the 224 systems included in this survey, 58 per cent drew their water from surface sources like rivers and creeks—some with reservoirs, some without. The others took their supplies from groundwater sources, using wells almost exclusively. Few systems used both surface and groundwater sources; a few towns relied on well water to supplement supplies bought from larger communities. The 58 systems that serve more than 10,000 persons tend to be a more homogeneous group; 84 per cent use surface water. Small water systems present special management problems that should not be ignored, but this article is directed primarily to larger systems, especially those that use surface supplies.

An array of state and federal laws and regulations affect local governments in their efforts to increase water supply. Some of the most important activities of the state and federal governments, the executive agencies, and their statutory authorities are listed in Table 1. These include:

(1) Long-established plan reviews and surveillance of health aspects of public water supplies by the Environmental Health Section of the State Department of Human Resources.

(2) Permits for water use, dam safety, and well construction; water quality certification; and stream reclassification procedures administered by the Division of Environmental Management in the North Carolina Department of Natural Resources and Community Development and its policy board, the Environmental Management Commission (EMC).

(3) Dredge and fill permits required by the U.S. Army Corps of Engineers; obtaining the permit triggers a requirement for an environmental impact statement under the National Environmental Policy Act (NEPA).

(4) Project notification and environmental assessments required under the State Environmental Policy Act (SEPA) procedures, which are co-

1. J. T. Mann, Jr., *Public Water Supplies of North Carolina* (U.S. Geological Survey, Water Resources Investigations 78-16, Raleigh, N.C., April 1978).

ordinated by the Department of Administration.

Regulations and permits

Local water suppliers are faced with increasingly complex state and federal regulations and permit requirements. Of particular importance are the dredge and fill permits, known as "404" permits because they are required under Section 404 of the 1972 Federal Water Pollution Control Amendments (later amended and known as the Clean Water Act). This legislation has the meritorious objective of incorporating environmental values into all decisions affecting U.S. navigable water resources. It requires municipalities to obtain a federal permit to construct any reservoir on a stream that has an average flow greater than five cubic feet per second. In North Carolina this requirement applies to any reservoir on a stream that drains more than five to ten square miles of watershed—and therefore it affects most municipalities that use surface water sources.

This requirement does make municipalities give serious attention to environmental effects in choosing new reservoir sites. At the same time, it brings the federal government, through the U.S. Army Corps of Engineers, directly into local water supply decisions. It also subjects local governments to the expense and

Table 1

Governmental Responsibilities for Various Aspects of Water Supply Management

Unit of Government	Responsibility	Source of Authority
N.C. Dept. of Human Resources and Health Services Commission	1. Determines eligibility for: (a) Grants-in-aid for construction (b) Loans for regional planning 2. Approves plans and facilities 3. Enforces drinking water standards	Clean Water bond Act of 1971 Regional Water Supply Planning Act of 1971 (G.S. 162A-20 through 162A-25) NCAC, Title 10, Subchapter 10D Drinking Water Act of 1979 (G.S. 130-166.39 et. seq. and Federal Safe Drinking Water Act, 42 U.S.C. § 300f et seq.)
U.S. Environment Protection Agency	Issues drinking water standards	
N.C. Dept. of Natural Resources and Community Development and the Environmental Management Commission	Issues: 1. Water-use permits in designated "capacity use areas" (i.e., areas of extreme water shortage) 2. Dam safety permits 3. Well construction permits 4. Water quality certification permits 5. Stream reclassification 6. Powers of eminent domain to local water authorities 7. State environmental impact statements	Water Use Act of 1967 (G.S. 143-215.13) Dam Safety Law of 1967 (G.S. 143-215.23 et. seq.) Well Construction Act (G.S. 87-83 et seq.) Section 401, Federal Clean Water Act (33 U.S.C. § 1341) NCAC, Title 15, Ch. 2, Subchapter 2B G.S. 162A-7(b) NC Environmental Policy Act of 1971 (G.S. 113A-1 et seq.)
N.C. Dept. of Administration	1. Administers Clean Water Bonds and revolving funds for regional water supply planning 2. Conducts A-95 review process (required for regional use of federal funds)	See above Fedral Office of Management and Budget, Circular No. A-95
Army Corps of Engineers, U.S. Council on Environmental Quality, and Fish and Wildlife Service	Issues dredge and fill permits and related environmental impact statements	Section 404, Federal Clean Water Act (33 U.S.C. § 1344) National Environmental Policy Act of 1969 (42 U.S.C. § 4321 et seq.) U.S. Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)

delays incurred in writing environmental impact statements and adds to the cost of projects that require mitigations lands (that is, land set aside for conservation purposes to "mitigate" or compensate for the adverse effect that results from inundation of land). Two early experiences with this process are worthy of note.

Asheboro. In 1977, because of the adverse effects that might result from its original choice of a new impoundment site on Back and Carroway creeks, the City of Asheboro chose an alternative site on the Uwharrie River. EMC reclassified the affected stream segment, and Asheboro received over $2 million from the state's Clean Water Bond revenues after it won state and local approval. Early in 1979, as Asheboro prepared for a $7.5 million referendum for land acquisition, the Corps of Engineers informed the city that it would need a 404 permit before it could build the project. After the city prepared and submitted an environmental impact assessment (EIA), the Corps told it that a wildlife mitigation plan would be required to meet the objections of the U.S. Fish and Wildlife Service (USFWS) and the North Carolina Wildlife Resources Commission (NCWRC). Asheboro was left to negotiate that plan with these two agencies. As a condition on its permit, the city agreed to purchase an additional 400 acres of mitigation land. The mitigation plan also included the construction of a small upstream impoundment for waterfowl and an agreement to release a stated minimum quantity of water from the reservoir at all times. The city encountered further delays when state comments on the 404 permit were requested. The Corps gave final approval in early 1980, but during the year that the project had been delayed, land requirements increased by 60 per cent and additional costs were imposed for the upstream impoundment.[2]

Chapel Hill/Carrboro. Another precedent-setting case concerns Chapel Hill, Carrboro, and their environs in Orange County. The case began in 1969 when the University of North Carolina at Chapel Hill—then the owner of water and sewer systems for that area—sought to alleviate a water shortage in its service area. With the help of an engineering consultant, the University considered fifteen alternatives for a new supply and chose a site on Cane Creek, some ten miles away. The Research Triangle Planning Commission (now the Triangle J Council of Governments) concurred in the selection of that site, and the University requested reclassification of that segment of Cane Creek. After public hearings in which little opposition to the project was expressed, the EMC reclassified the stream in 1973.

Ordered by the General Assembly in 1970 to divest itself of all of its utility holdings, the University chose to leave construction of a new reservoir to its successor, the Orange Water and Sewer Authority (OWASA), which was organized in 1976 and took over operation of the water and sewer systems in 1977. In the meantime (1976), landowners in the area organized to oppose use of Cane Creek as a reservoir. When OWASA assumed responsibility for the system, the Corps of Engineers informed it that it would need a 404 permit before it could proceed. With no definitive guidelines to follow, OWASA, with its consultant's help, prepared an environmental impact assessment in 1977 and submitted it with an application for a 404 permit to the Corps in January 1978. Simultaneously, OWASA petitioned EMC for powers of eminent domain in order to acquire land from opposing landowners. Public hearings on that request were held in the spring of 1978, and in April 1979 the EMC granted OWASA's request. The opposition group contested that decision in Wake Superior Court and later in the State Court of Appeals.

Meanwhile the Corps of Engineers requested an extensive analysis of additional information from OWASA. After OWASA declined to employ a third-party consultant, the Corps hired its own consultant to re-examine the alternative water sources. The request for new information, OWASA's response, and preparation and comment on the consultant's report took eighteen months. During that time the USFWS set forth its estimates for the mitigation lands that would have to be added to the project. In August 1979 the Corps, as the permit-granting agency, undertook to draft an environmental impact statement, a process that consumed another year. Hearings on that draft were held in September 1980, and another eleven months elapsed before the Corps awarded the permit in late July 1981. OWASA acquired a 500-acre tract of land in August 1980, and that tract— along with other conditions—became the basis for a mitigation agreement between USFWS and NCWRC concerning the 750-acre reservoir.

The same day the Corps granted the 404 permit to OWASA, the State Court of Appeals decided the case brought to it by the landowners who opposed the granting of eminent domain power to OWASA. The court, relying on its interpretation of North Carolina's Environmental Policy Act, sent the case back to EMC for review on the grounds that EMC should have written an environmental impact statement before it ruled in favor of OWASA. Never before had that requirement been imposed on a state agency in granting a permit for a local project, but neither EMC nor OWASA appealed the decision. The Division of Environmental Management is now writing a state environmental impact statement in preparation for EMC's review of the case sometime in 1982.

Thus, in the Chapel Hill-Carrboro case, the 404 process took over four years from start to finish. OWASA estimates that the process cost $85,000 in legal, engineering, and other expenses, not including expenses that would have been necessary without the process. In addition mitigation land requirements added $350,000 to the cost of the project. Effects of the Court of Appeals ruling are uncertain. It appears that construction costs have increased by 30 per cent, and financing costs have more than doubled (see the discussion later in this article).

Growth in demand

Another pressure on municipal water supplies is continued growth in demand. Exact growth figures are difficult to compile because of inconsistencies between the water service areas and the geographical units for which Census data are reported. Advance 1980 Census counts indicate that the state's population increased by 15.7 per cent during the 1970s. Growth rates in urban and nonurban counties were approximately the same over that period, but the population remains unevenly distributed. About 35 per cent of North Carolinians reside in the nine most populous counties in the Pied-

2. Regen N. Schecter, "Local Water Supply Development in North Carolina: An Overview of State and Federal Involvement and Recommendations for Improvement." Mater's thesis submitted to the Department of City and Regional Planning, The University of North Carolina at Chapel Hill, May 1980.

mont. Forty-three per cent live in the 13 counties with populations over 100,000; another 33 per cent live in 27 counties with populations between 50,000 and 100,000. Thus over 75 per cent live in the 40 most populated counties, and those counties collectively grew at an average annual rate of 1 1/2 per cent. The highest annual rates occurred in Henderson (3.2%), Orange (2.9%), Wake (2.8%), Moore (2.6%), Union (2.5%), and New Hanover (2.2%). The largest counties—Mecklenburg, Guilford, Wake, Cumberland, and Forsyth—all increased at annual rates of 1 per cent or more. When these growth rates are combined with the increasing per capita consumption of water, water use may grow by several percentage points each year. To appreciate the effect that these growth rates can have on water supplies, consider the fact that a 3 per cent annual growth rate will result in an increase of 34 per cent in 10 years and an 81 per cent increase in 20 years. A 4 per cent growth rate will yield a 48 per cent increase in 10 years and a 119 per cent increase in 20 years.

Increasing costs

As municipalities seek to meet the growing demand for water, they encounter increasing costs. Four factors contribute to these increases. First, the best locations for water supplies—those that are close to demand centers and offer high-quality water at low treatment costs—have already been developed. New sources must be acquired that are farther away and may need more rigorous (and more expensive) treatment. Associated pumping and treatment costs are higher for the newer sources. Second, inflation is running up the unit costs of construction (though those increases are partially offset by the economies of scale associated with larger systems in which fixed operating costs are shared by more customers). Third, the cost of financing new bond issues to provide the capital for these expansions has increased rapidly in recent years. Finally, environmental regulations, as illustrated earlier in this article, have added new and costly elements to water supply financing.

One indication of the magnitude of these increases is the cost-of-living index maintained by the Office of State Budget and Management. The water and sewer cost indicator included in that index is based on an annual survey of water and sewer rates to a customer who uses a standard quantity of water in several selected cities. From 1974 to 1980, the water and sewer cost indicator increased at an annual rate of 7.0 per cent; it rose 9 per cent in 1979 and 11.9 per cent in 1980 because of increased chemical costs and other factors of production.

Because the cost-of-living index is based on final rates paid by consumers, it reflects operating costs as well as construction costs (there is no special index for capital costs of constructing new water supplies). A widely used indicator for general construction in the United States is the 22-city index maintained weekly by *Engineering News Record*, or ENR (see the issue of March 19, 1981). The ENR index for Atlanta and Baltimore (the nearest cities to North Carolina that are covered by the index) has grown 8.5 per cent per year over the past decade. Like the North Carolina water and sewer cost indicator, the ENR index has also accelerated in the past three years—to an average rate of 9.0 per cent.

The spiraling costs of financing also contribute to higher water costs. Most major expansions of local water supplies are financed by tax-exempt municipal bonds. Before 1978 these bonds were sold at a stable interest rate, generally below 6 per cent. These rates began to rise in 1978; by 1980 the market was showing large fluctuations in interest rates, but the trend was still upward. Rates increased sharply in 1981. A good market indicator is the 20-city average rate represented by the Municipal Bond Buyer's Index. In January 1978 that index stood at 5.66 per cent; in September 1981 it reached a high of 13.21 per cent. To appreciate the significance of this increase, we may note that $1 million indebtedness financed by a 40-year bond at 6 per cent has an annual cost of $66,000, while that same debt at 13 per cent costs $131,000 annually. Thus the cost of financing new expansions has doubled in less than four years. Since this cost is an important factor in annual revenue requirements for water services, changes in interest rates have a direct effect on rates paid by consumers.

Reduced federal financial assistance

These difficulties of continuing growth in demand, increased cost, and increased complexities in permit requirements are occurring at a time when private and federal activities in water supply development in North Carolina are dwindling. The private sector has never played a major role in developing single-purpose water supply projects in this state, but many communities along the Catawba, Yadkin, and Dan-Roanoke rivers have benefited from multiple-purpose reservoirs built by investor-owned power companies. However, the last major projects of that type were built in the 1960s. With completion of Falls of the Neuse and B. Everett Jordan lakes (in Wake and Chatham counties, respectively) in 1982 the Corps of Engineers will have completed the key projects in its comprehensive river basin plans. Only one other federal project could be of significance to this state's urban water supplies—the proposed Randleman Reservoir near High Point, which has been authorized by Congress. The end of the large reservoir development program in North Carolina merely reflects a nationwide fact—few attractive water resource sites remain.

The Reagan administration has also taken actions that could significantly affect North Carolina's water supplies. Among these actions are elimination of the Water Resources Council (WRC), a cabinet-level agency established by the 1965 federal Water Resources Planning Act to promote coordinated federal, regional, and state water resource planning. The Administration has also withdrawn WRC's "Principles and Standards for Planning of Water and Related Land Resources," the basic benefit-cost guidelines for planning and evaluating water projects and programs, which have evolved over the past thirty years. WRC had also partly funded the North Carolina Water Resource Framework Study and basin-level plans for developing and managing the Yadkin and Cape Fear River basins.

The budget reductions for publicly owned waste treatment plants will have a more immediate and direct financial effect on local governments. Grant monies in fiscal years 1981 and 1982 were sharply reduced, and the future of the program is highly uncertain. These reductions have two important results for public water supplies. First, they will slow the progress of constructing facilities necessary to protect water supplies from upstream pollution. Second, because that program funded 75 per cent of construction costs for locally owned plants, the reductions will shift the financial burden to local

government for any new plants. While this change may (as its advocates contend) lead to greater efficiency in pollution control programs, it will reduce local government's ability to finance new water supplies and result in higher rates for users of local water and sewer services. Efficiency may increase, but it will be accompanied by sharp increases in user charges or property taxes to offset the loss of federal funds. That result will not be happily accepted by cost-conscious and politically sensitive local governments.

A suggested state response

Some of the problems presented here reflect national demographic trends, the economy, and national policy. To some extent they are beyond local and state control. But there is still ample opportunity for the state and local governments to deal with these problems and to promote more orderly and efficient development and management of public water services.

The present major needs in developing water supply are to:

(1) Identify and preserve prime sites for new water supplies from both surface and groundwater sources;
(2) Capture opportunities for regional approaches to water supply so that excess capacities can be used, thereby delaying the need to develop new sources;
(3) Promote water conservation and load management techniques to reduce peak demands and thereby postpone construction of new facilities;
(4) Reduce delays in permit processes through consolidation of multiple permit requirements, early initiation of applications, or reduced requirements for projects that conform to previously approved plans;
(5) Establish clear guidelines for designing and evaluating projects and for submitting permit applications; and
(6) Integrate water supply planning with planning for wastewater and hazardous waste management.

Reaching these objectives will require more advanced planning, earlier review of plans and permit-granting, and stronger, more systematic intervention by state government. Some regulatory requirements may also have to be adjusted, but these changes will not be addressed here. The state has already identified some opportunities for establishing regional water supplies; it has also offered financial assistance for planning and construction in response to local activities and established a regulatory program with which municipalities must comply in developing and operating their water supplies. But, whereas the state has been active in wastewater management, it has never attempted to produce a state water supply plan showing how municipalities and other large users of water intend to satisfy future needs. Where plans have been developed through local efforts, projects have been designed and evaluated on the basis of criteria that tend to vary significantly from one locale to another, and opportunities for regional solutions tend to be treated lightly if at all. In light of the recent changes and the needs that were discussed above, it would appear that some new effort at the state level could be beneficial.

In my opinion neither massive state intervention in the form of statewide water projects nor even large-scale regional authorities are necessary in North Carolina at the present time. I propose a decentralized system of water planning in which local governments are required to do the planning and implementation while the state plays a vital but limited role of providing guidance, resolving conflicts, and finally approving local plans. This approach, based on local initiative and control, is more politically acceptable than alternatives that involve state or large-scale regional planning and management, and it places planning in an effective position—near those who have to make decisions.

Two key elements highlight this proposal. First, planning at the local level would be mandatory. All municipalities and other public water suppliers that serve more than a minimum number of customers—say 5,000—would have to prepare water and waste disposal plans to respond to the needs within designated service areas over 20- to 25-year time spans. Plans would have to be updated at appropriate intervals, perhaps every ten years.

These plans would not have to be presented in great detail. The detail would be comparable with that now required in Step 1 of wastewater facility plans that a community must present in order to qualify for a construction grant under Section 201 of the federal Clean Water Act. At a minimum the plans should include:

(1) Population, industrial activities, and other factors that affect demands for water and the generation of wastewater for the areas as they now exist and as they are likely to exist over the planning period;
(2) An assessment of the ability of existing water supplies and waste management systems to meet the area's needs;
(3) Identification of alternative sources of water and new waste management systems to meet anticipated needs; and
(4) Preliminary evaluation of alternatives, including estimates of cost, financial arrangements, and environmental assessments.

In addition, the plans should identify later steps that would be necessary to implement the preferred alternative, including a schedule to acquire all necessary agreements, acquisitions, permits, and financing.

The second key element in this proposal is an active but limited role for state government, including:

(a) Designation of local planning areas and participating units of government;
(b) Development of planning guidelines and regulations;
(c) Technical and financial aid;
(d) Development of a process for resolving conflicts among local goverments;
(e) Timely approval of local plans; and
(f) Creation of incentives for the locality to implment the plans in a timely manner.

By designating planning areas and participants, state officials could make it more likely that sound plans for regional approaches would be considered. Experience in wastewater management planning suggests that the designation process itself is not a trivial exercise; there is likely to be much debate over where boundaries of planning areas are set and who is grouped with whom. But unless some process is established to at least consider promising regional solutions, political obstacles to voluntary approaches may prevail.

With its expertise and sources of information, the state should develop definitive guidelines for planning and should offer technical assistance for implementing them. Guidelines should include:

(1) Methods and basic data for projecting population, economic activity,

and related water use and waste generation within planning areas in a manner that is consistent with overall state growth;

(2) Methods for assessing the likely quantity and quality of water to be derived from existing and new sources of water;

(3) Methods for assessing the likely effect of effluents from new or existing wastewater treatment facilities;

(4) Up-to-date cost information for constructing, operating, and maintaining facilities;

(5) Methods, formats, and sources of information for environmental impact assessment; and

(6) Formats for presenting local plans.

The state also needs to develop a procedure for resolving any conflicts among local governments over new sources of water. It is inevitable that competing claims will be made on limited resources in water-short areas, and some orderly and timely process is needed to resolve those issues. Such a procedure is now being formulated by the North Carolina Office of Water Resources for processing requests and allocating water being impounded in the B. Everett Jordan Reservoir in Chatham, Orange, and Wake counties. This process could be adapted to resolve other conflicts as they arise. In doing so, it would be desirable to have requests developed on a consistent set of time scales and based on a consistent set of assumptions about future growth.

Also, it is vital that the state establish a process for the timely review, revision, and approval of local plans. State approval can greatly strengthen the hand of local governments in seeking federal permits. Present regulations governing 404 permits assume that a permit will be granted to those projects that have prior state approval, except for reasons of overriding national interest [33 Code of Federal Regulations, Part 320.4, j(4)]. Or it may be possible to combine state and federal processes; existing regulations for federal environmental impact statements urge that this be done [33 Code of Federal Regulations, Part 1500.5(h)].

There are ample precedents for this type of planning in North Carolina. For many years the state has required urbanized areas to prepare thoroughfare plans for local transportation. The experience with planning for wastewater management facilities under Section 201 of the federal Clean Water Act has been cited earlier. In fact, the proposal outlined here could incorporate Step 1 of the 201 process and may be viewed as an extension of that process to cover public water supplies.

Whether this proposal or another is adopted, changes must be made in the provisions for local governments to manage their water supplies. Rising costs, especially in construction and financing, make it necessary to increase efficiency by extending the useful range of existing facilities. The longer lead times needed to develop applications and process permits are costly for local governments. My suggestion for meeting water needs would allow local governments to maintain control over water and sewer services, and it puts planning where it ought to be—in direct support of those who must make decisions about the provision of those services.●

Disposal of Hazardous and Radioactive Wastes in North Carolina

Milton S. Heath Jr.

with comments by Dayne Brown, Robert Jansen, Joe Mavretic, Buck O'Shields, O. W. Strickland, and Alvis Turner

For years the disposal of solid wastes—garbage, rubbish, refuse, junk, industrial wastes, and the like—went virtually unnoticed. Although water and air pollution came into the national spotlight before 1970, solid waste management was left to county governments and private haulers, with little or no federal or state aid or guidance. And society showed little concern about possible relationships between solid waste dumps and the water we drink or the air we breathe.

Then began a steady effort, quietly successful in North Carolina and some other states, to upgrade local garbage and trash dumps into better-managed sanitary landfills. Commercial companies became more interested in designing and operating waste-handling facilities for industry. Terms like "recycling" and "resource recovery" crept into common parlance.

Just as these modest improvements in solid waste management were beginning to take hold, a series of incidents attracted nationwide attention to the frightening consequences of long-term neglect of hazardous wastes. Names like Love Canal and Three Mile Island became household words. North Carolinians were rudely awakened to the possible health hazards of PCBs surreptitiously dumped along miles of their state roads. Local happenings sensitized the neighbors to possible ground water contamination from landfill seepage, and the real or imagined health risks from burial of low-level radioactive wastes or temporary storage of industrial chemical wastes in transit. Before long, even the best-planned facilities for handling hazardous waste became suspect in the minds of the public. In North Carolina and elsewhere communities anxiously scurried for protection by adopting exclusionary local ordinances, whose clear message was—"not in *our* neighborhood!"

Nationally, the response to hazardous waste problems has been channeled through the long-delayed implementation of the 1976 Resource Conservation and Recovery Act (RCRA). In 1980 the federal government finally cranked up the massive RCRA program of "cradle-to-grave" manifests to trace the life history of hazardous waste residuals and to develop a framework for control of waste generators, transporters, treaters, and disposers. (Rumblings of discontent with the manifest system in the federal Office of Management and Budget raise questions about the fate of this program in the Reagan Administration.) Also, late in 1980 Congress enacted the Superfund Act (P.L. 96-510), which created a federal trust fund to help meet the cost of cleaning up inactive hazardous waste disposal sites. Revenues for the Superfund come largely from taxes on chemicals and petroleum.

At the federal level, Congress has determined that low-level radioactive waste is a state problem rather than a federal one. In doing this, it stated its intent (in the National Low-Level Radioactive Waste Policy Act) to authorize interstate compacts that would allow states to solve their mutual low-level waste problems and to exclude wastes from outside the compact region. In addition, it made various federal agencies responsible for both performing needed basic research and supporting the states in their efforts to solve disposal problems and to site needed facilities. The U.S. Nuclear Regulatory Commission, as a related effort, is now encouraging its licensees to reduce the volume of waste that

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they generate to help conserve the capacity of the three existing burial sites.

North Carolina has followed the federal lead on hazardous waste management and radiation protection with parallel state laws. In 1979, the General Assembly (1) expanded the clean-up procedures of the Oil Spill Control Act to cover spills of hazardous chemicals; (2) set up a Toxic Substances Task Force to streamline and coordinate incident-response; and (3) responding particularly to the PCB dumping, made it a felony with heavy penalties to dump unlawfully some of the most health-threatening materials.

Growing out of the work of a legislative study commission on waste disposal, a Governor's Task Force on Hazardous Waste Management (chaired by Dean Bernard Greenberg of the School of Public Health at UNC-Chapel Hill) was created in 1980 to coordinate the next stage of North Carolina's response to these issues. Two legislator-members of the Task Force, Senator Russell Walker and Representative Charles Holt, introduced and secured enactment of legislation embodying the hazardous waste management proposals of Governor Hunt and the Task Force. [N.C. Sess. Laws 1981, Ch. 704 (G.S. 130-166.16 *et seq.*)]

Key features of this legislation create a fifteen-member Waste Management Board to develop state policy and allow the Governor, on the Board's advice, to override local ordinances that seek to exclude a hazardous or low-level radioactive waste facility. It contains a blueprint for state acquisition of hazardous or low-level radioactive waste landfill sites (by condemnation if necessary) and lease-back to commercial operators, who would be responsible for damages, insurance, bonding, monitoring, and other regulatory requirements during the operating life of the landfill. Looking toward ultimate state responsibility for perpetual care, the law allows the Department of Human Resources to recoup, from operator fees, estimated costs of post-closure monitoring and care. Cities and counties where the facilities are located could levy privilege taxes on the operators in order to recover lost tax revenues, monitoring and emergency-response expenses, and other costs, subject to appeal to the new board. Incentives for the operators include rapid amortization on state income taxes and corporate franchise tax deductions.

Because policy on hazardous waste management is still being developed, no final statement of it can be given here. But the issues involved are so important that I would like to provide *Popular Government* readers with a sampling of them. To illustrate the ongoing dialogue, late in 1981 I asked five of North Carolina's leaders in the field of hazardous waste management for comments on several pertinent questions related to this subject. The five are Dayne Brown, Chief of the Radiation Protection Section, North Carolina Department of Human Resources; Robert Jansen, Senior Policy Adviser to the Governor; Representative Joe Mavretic, of the Seventh House District, who chaired a House subcommittee on the Governor's Waste Management Bill in 1981; Buck O'Shields, chairman of the New Hanover County Board of Commissioners and recently appointed chairman of the Governor's Management Board; and O. W. Strickland, head of the Solid and Hazardous Waste Branch of the North Carolina Department of Human Resources.

The remainder of this article consists of their responses to a series of questions, supplemented in a few places by the commentary of Dr. Alvis Turner, Associate Professor of Environmental Sciences and Engineering in the UNC School of Public Health.

"What is a hazardous waste? What is a low-level radioactive waste?"

For starters, I asked O.W. Strickland and Dayne Brown for some working definitions. Their answers will introduce the layman to the complexity of the problem. (I limited my inquiry concerning radioactive wastes to "low-level radioactive wastes," because this is approximately what the states have been delegated control over by the United States.)

Strickland. A waste is considered to be hazardous if it is capable of causing or significantly contributing to an increase in serious irreversible or incapacitating reversible illness. (This, plus the alternative factor of hazard to health or the environment, make up the federal and state statutory definition of "hazardous wastes.")

The following criteria can be used to determine if a waste is hazardous:

(1) Is it ignitable? (This is defined as a liquid waste with a flash point of less than 140° F. An example of this waste is spent methanol.)

(2) Is it corrosive? (This is defined as a liquid waste with a pH less than or equal to 2 or greater than or equal to 12.5. An example of this waste is spent sulfuric acid.)

(3) Is it reactive? (This is defined as a waste that is normally unstable or capable of detonation. An example of this waste is TNT which is to be discarded.)

(4) Is it toxic? (This is defined as a waste that has a high level of extractable metals or pesticides. An example would be a sludge from zinc refining.)

(5) Is it one of the following?

— A nonspecific source: A list of industrial wastes which are considered hazardous regardless of mode of generation. An example is the still bottoms from recovery of spent tetrachloroethylene.

— A specific source: A list of industrial wastes which are considered hazardous because of the process generating the waste. An example is wastewater treatment sludges from the manufacturing and processing of explosives.

— Discarded commercial chemical products, off-specification species, containers, and spill residues: A list of 361 commercial chemical products that become a hazardous waste if spilled or discarded. An example would be discarded arsenic oxide.

Brown. From a technical standpoint the term "low-level radioactive waste" is now defined only in terms of what it does not include. It does not include spent nuclear fuel, the higher level wastes from reprocessing of spent nuclear fuel, transuranic wastes (e.g., plutonium or americium) or the voluminous waste byproducts (tailings) from uranium mining and milling. Everything else is "low-level radioactive waste" and could conceivably include rather large quantities of radioactive materials.

As a practical matter, virtually all "low-level radioactive waste" that is currently being generated really lives up to what one would intuitively expect from the name itself—

—It generally contains relatively small quantities of radioactive material per unit of weight or volume;

—Frequently, radiation levels are so low that no shielding is needed in the shipping container;

—Frequently, the radiation hazard is so low that containers need not be designed to withstand hypothetical accident situations;

—Much of the waste contains so little radioactive material that it probably should not be called radioactive.

"What volumes of hazardous and low-level radioactive wastes are generated in the state?"

Strickland. Until our first annual report in March or April of 1982, any number used is only an estimate. The Federal Environmental Protection Agency estimates that North Carolina generates 1.6 million tons each year. I feel this estimate is much too high. [Author's note: The 1981 Report of the Governor's Task Force on Waste Management reported that North Carolina ranked eleventh in the nation in generating hazardous waste products—mostly from basic North Carolina industries, such as textiles, furniture, printing, paper, chemicals and agriculture.]

Brown. According to a report by the NUS Corporation (NUS-3440, Rev. 1), nearly 190,000 cubic feet of low-level radioactive wastes were generated in North Carolina during 1979, while over 2,800,000 cubic feet were generated nationally. This would rank our state as the fifth largest generator in the United States. These figures do not include wastes which are disposed of by holding them for radioactive decay to background levels. In North Carolina and the nation more than 50 per cent of all low-level radioactive waste comes from nuclear power plants and consists of:

—contaminated resins, filter sludges and evaporator residues used to remove radioactive material from plant water;

—conventional (but radioactively contaminated) industrial and laboratory trash;

—contaminated equipment;

—protective clothing.

In North Carolina the next largest component by volume comes from reactor fuel manufacturing. These wastes, while large in volume, contain extremely small quantities of uranium. The smallest component by volume comes from medical, research, and other institutions. These wastes contain very little radioactive material and consist of things such as research animal carcasses, laboratory trash, empty containers, and protective clothing.

"How *should* these wastes be disposed of?"

Most experts would agree on the answer to this question—up to a point.

Strickland. The first method is to prevent the generation of waste, if at all possible. The second step must be the reuse of all waste by recycling or the use of waste to generate energy. The third step should be to render the waste that cannot be recovered or reused to the smallest volume and in the least possible water-soluble form—for example, by incineration—and place it in a properly sited, designed, and managed hazardous waste disposal site.

[Author's note: Landfilling is the traditional method of disposal. There is another view concerning ultimate disposal, and Representative Joe Mavretic is one of its strongest proponents.]

Mavretic. There is an alternative to burying hazardous wastes. Hazardous products used by industry are manufactured *above* ground, transported *above* ground, and stored *above* ground at the plant *before* they are used. Why must they be buried *after* they are used? Above-ground storage is as safe as below-ground storage, above-ground inspection can be frequent and inexpensive while below-ground inspection is nearly impossible. Above-ground retrieval for emerging technology is less expensive. Economically, above-ground storage has high front-end costs which increase storage fees. High storage fees encourage generators to reduce their hazardous wastes. We should use high storage fees as an economic lever to reduce hazardous wastes. In my opinion, there is no compelling reason for below-ground storage at this time, and there are several good reasons for above-ground storage.

Turner. There are significant disadvantages of above-ground storage, including natural disasters such as hurricanes, tornadoes, and earthquakes; vandalism; terrorism; and the effect of ambient temperature changes on the stored chemicals.

"Where and how are our hazardous and low-level wastes (properly) disposed of now?"

Strickland. There are two commercial incinerators in North Carolina—"Caldwell Systems, Inc." and "Mitchell Systems, Inc."—that provide a method of volume reduction waste destruction that are available to waste generators.

Two chemical waste landfills—one located near Pinewood, South Carolina, operated by "SCA" and one near Emelle, Alabama, operated by Chemical Waste Management—provide service for North Carolina generators.

There are a number of incinerators out of state, including the Abco Inc. facility, located near Roebuck, South Carolina, that provide service to North Carolina.

There are a number of hazardous waste generators that treat their waste on-site to render it non-hazardous. Much waste is stored, some is being recycled.

Brown. Of the volumes of low-level radioactive wastes reported by the NUS Corporation for our state: 97 per cent was disposed of at the low-level radioactive waste burial site in South Carolina, and 3 per cent was disposed of at the site in Richland, Washington. Nationally, 79 per cent went to the South Carolina site; 13 per cent went to a site in Beatty, Nevada, and 8 per cent went to the Richland, site in Washington.

Most medical radioactive materials have such a short radioactive half-life that they can be held in storage long enough to allow nearly total decay of the radioactivity. In North Carolina nearly all such medical wastes are disposed of this way so that valuable waste disposal site capacity is not wasted.

"What is the mission of North Carolina's new Waste Management Board?"

O'Shields. The proper and safe management of hazardous and low-level readioactive waste has become one of the most crucial health, environmental, and economic issues facing North Carolina. In the past, North Carolina generators have depended upon facilities in other states to treat and dispose of their waste materials. North Carolina must now take responsibility for managing its own waste, and our state's future depends on its ability and commitment to seek an acceptable solution to this problem. North Carolina must develop a system of waste management which is flexible enough to adjust to emergencies and changing technology but is firm in its determination to prevent the generation of waste that cannot be disposed of safely. Public health and safety and the protection of the environment must be the overriding concern of this waste management system. I believe the people of this state can and will work to solve this problem for North Carolina.

"What steps are under way on a southeast regional basis to respond to these issues?"

Jansen. Unlike most states in the southeastern part of the United States, North Carolina has suitable sites for establishing disposal facilities, adequate volumes of industrial wastes to operate such facilities on an economically viable basis, and a framework of state legislation in place which enables industrial generators to properly dispose of hazardous and low-level radioactive wastes.

One of the options available to North Carolina, and indeed the most desirable plan for disposal of industrial wastes, is a comprehensive, regional plan for the management of wastes generated in this section of the country. In 1980, the Congress enacted a Low-Level Radioactive Waste Policy Act and declared the policy of the United States to be "that low-level radioactive wastes can be most safely and efficiently managed on a regional basis." This legislation authorized states to enter into compacts to provide for the establishment and operation of regional disposal facilities and authorized provisions in regional compacts for restrictions on the use of regional disposal facilities which would limit access to the disposal of wastes generated in the region (after January 1, 1986.)

Governor Hunt supports the concept of regional management of these wastes. About a year ago, his representatives met with representatives of seven other southeastern states to begin negotiating an interstate compact which would incorporate this concept. He believes that each member state should enter the compact on an equal basis and that the difficult decisions should be made by a commission composed of representatives of the member states. The commission must have authority consonant with its responsibilities, and it must be accountable for the consequences of its decisions. Negotiations have included representatives of ten states, and two other states have asked to be admitted to the conference table. The participants have met at least six times in the last year, and the dialogue is continuing. They have discovered that the interests of the individual states are more diverse and the levels of commitment more varied than they realized initially. Some already have operating facilities while others cannot offer suitable sites for future facilities; some have large volumes of wastes and others have very small quantities; only a few have enacted legislation to implement compact requirements for comprehensive management of industrial wastes. These differences have complicated the task of the negotiators and have reduced the probability of a large regional program.

The principal value of the negotiations for a regional agreement on the disposal of low-level radioactive waste is found in its significance as a prototype for agreements for regional management of other common risks. We have similar problems with the storage of spent nuclear fuel, the treatment and storage of toxic substances, and the management of hazardous liquids. If we can get a workable agreement approved by a significant group of the states, we would be able to expand the scope of the agreement to include these other hazardous wastes. But we need to remember that this is only one option available to North Carolina for the management of wastes generated within this state,

(continued on page 20)

There's Gold in That Garbage!

Steven L. Harrell

This is a success story. It's about a small town that had run out of landfill space. In dealing with that problem, the town learned how to derive energy from its municipal solid waste and pays for most of its waste disposal operation through the sale of materials recovered when the waste is burned.

Until the early seventies Salem, Virginia (population 25,000), had relied on a county landfill that it shared with the surrounding county and several other municipalities. But the site was filling up, and the town had to find another way to dispose of its solid waste. City officials became interested in a process that several municipalities across the nation had already adopted—incineration of solid waste materials. The incineration process produces steam that can be used as a source of power. Knowing that, Salem's city council approached a local industry, Mohawk Rubber Company, about becoming a partner in a project that would produce from solid waste energy that Mohawk could use in its tire-manufacturing operation. In June 1976 Mohawk agreed to supply the site (a lot adjacent to its own plant) on which the incinerator would be built and further agreed to purchase steam at a price derived from a formula based on the current cost of steam produced by burning No. 2 fuel oil.

Salem issued general obligation bonds in the amount of $2 million to be used in building the plant. Since those funds could be used for construction only, the city sought and received a $302,000 grant from the federal Economic Development Administration to be used for the actual steam-producing equipment. It then contracted with a Richmond firm to build a plant capable of processing 100 tons of municipal solid waste (MSW) per day.

The plant is a pre-engineered modular structure that took 23 months to build. It has two controlled-air combustion incinerators that burn raw garbage in a nonpolluting manner through the careful mixture of air and the gases released by the garbage. The incinerators are encased in a water-filled wall that absorbs the heat given off in combustion converting the water into steam which can be used to drive turbines for generating electricity, or go directly into pipes for heating purposes, or be used for any number of other purposes that require energy. The residual ash—inert, sterile, and odorless—is submerged in water to prevent any dust or smoke before it is trucked to a nearby city-owned landfill. The plant, with a staff of 11, produces steam for Mohawk 24 hours a day, five days a week.

But steam was not the only by-product of the disposal operation. The MSW contained not only organic wastes but also metal and glass, both of which are recyclable.

In June 1980 the Reynolds Aluminum Company contracted with Salem to remove all ferrous material, glass, and aluminum from the waste before it enters the incinerators. Reynolds agreed to pay for the installation of the equipment and maintenance costs over $1,500 annually in return for all the recovered aluminum.

Table 1

Comparative Costs of Regional Landfill and Resource Recovery Plant for Salem

	Disposal cost per ton	Annual disposal cost	Income generated FY 79-80	Net annual disposal cost FY 79-80
Regional landfill	$ 5.50[1]	$115,335 (not paid in FY 79-80)	$ 0.00	$115,335 (not paid in FY 79-80)
Resource recovery plant	$12.81[2]	$268,626	$174,036	$ 94,590
Net saving in disposal cost				$ 20,745

1. Dumping fee only; excludes labor and vehicle fuel costs.
2. Includes debt service on plant, which was $7.21 per ton.

The author is the administrative assistant to the city manager of Goldsboro, North Carolina. This article is derived from his master's thesis written for the Department of Political Science, Masters of Public Administration Program at The University of North Carolina at Chapel Hill.

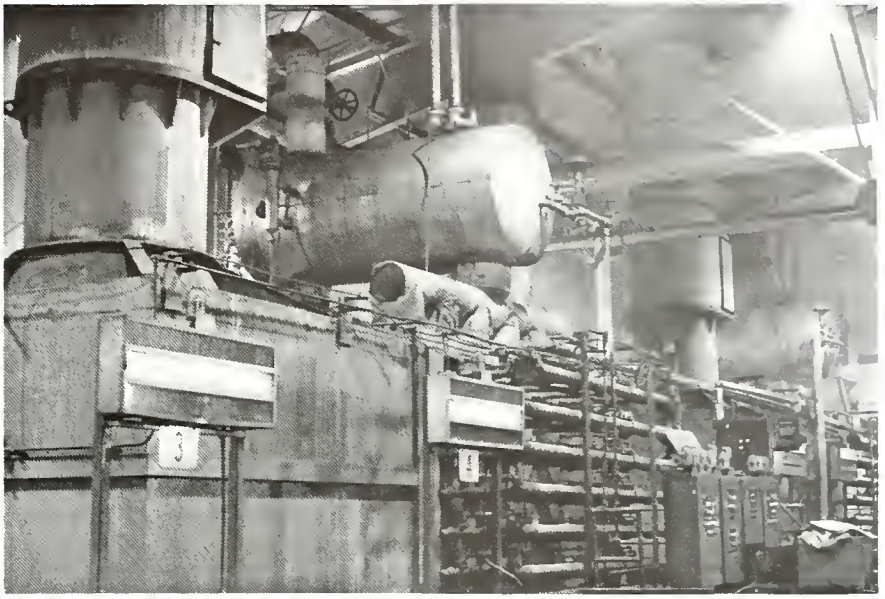
The city in return shares equally in any income from the other separable materials. Separating materials from the solid waste increases its Btu content and helps reduce plant maintenance and repair costs. The city has retained the option either to purchase Reynolds' equipment at half-price in 1985 or to wait until 1990, when the equipment automatically becomes city property.

Table 1 compares Salem's net costs for the new resource recovery process with the cost of using a regional landfill. During fiscal 1979-80, Salem processed 20,970 tons of solid waste in producing steam that was sold to Mohawk for $174,036. This conversion was accomplished at a cost of $12.81 per ton of MSW including debt service ($7.21 per ton of MSW processed). The total cost to the city that year was $268,626; the net cost of solid waste disposal, therefore, was $94,590.[1] The dumping fee for the regional landfill used by Salem (located 15 miles from the city) was $5.50 per ton (not counting labor and vehicle fuel costs); had the city used the landfill, its annual solid waste disposal cost would have been $115,335. Thus the net costs of $94,590 for Salem's resource recovery plant was $20,745 less than what the city would have paid in landfill fees. This savings would have been even larger if labor and fuel costs had been included.

Salem's system has reduced costs, creates no landfill problems, and helps preserve other more scarce fuels. As the cost of No. 2 fuel oil continues to rise, the steam sold by Salem to the Mohawk Rubber Company will increase in value, and the waste treatment plant may turn a profit for the city.

Salem's experience may encourage other municipalities to reconsider the matter of solid waste disposal. As the next article points out, we are a nation of wasters. Finding a way to conserve what we have will benefit all of us.●

1. Jane L. Hough, "Energy Recovery System Pays Off," *Nation's Cities Weekly* 3 (August 25, 1980), 5-8.



Waterwall incinerator used by Salem to burn refuse and produce steam.

Unloading refuse at Salem's resource recovery plant.

Recovering Resources from Municipal Solid Waste

Steven L. Harrell

The American economic system has produced one of the most affluent societies in the world. It also creates enormous wastes. Each year our cities produce about 180 million tons of solid wastes—better than 50 per cent of the world's waste materials. Garbage dumps cover 780 square miles of land—$5 billion worth of land, by one estimate.

Yet these "wastes" are a precious resource. Our dumps hold enough aluminum to rebuild the commercial aircraft of the United States 71 times over. They contain enough steel to rebuild Manhattan and enough glass to make 1,500 wine glasses for every man, woman, and child on the earth.[1] Furthermore, municipal solid waste (MSW) can also be used as a replenishable source of energy. Seventy per cent of this MSW can be burned to produce energy equivalent to 225 million barrels of oil per year. The remaining 30 per cent is primarily recyclable metals and glass. Using MSW as an energy source would also help many municipalities solve the problem of finding landfill space.[2]

In the past, MSW disposal methods like the use of landfills (used by most municipalities) have cost less than resource recovery systems. But as cities grow and MSW increases, landfill space will diminish. Landfills also pose pollution hazards if not properly maintained. Thus alternative methods of MSW disposal need to be explored, and some cities are already investigating them. For an example, see the story of Salem, Virginia, on page 16.

Methods of recovery

A number of towns convert MSW into an energy source by producing steam from waterwall incineration, the most commercially successful process in use today. The method is the one followed in Salem: Untreated MSW is carried into an incinerator encased in a water-filled wall. The wall absorbs the heat given off in combustion and thereby converts the water into steam.

MSW can also be converted into a dry fuel and marketed as a replacement for fossil fuels. This process begins when MSW is dumped on a rotary screen to separate large pieces of garbage from smaller pieces. The larger pieces are broken down by a shredder or hammer. A magnet lifts out the ferrous material, and the remaining MSW is carried through an air classifier, which acts like a vacuum cleaner; it sucks up the lighter pieces of garbage and leaves behind the noncombustibles, like glass and aluminum. The glass and aluminum are further separated for recovery. The light MSW can be burned as is, but it is generally "pelletized" into a uniform shape and burned as a coal substitute. (Fuel derived from MSW generally has about 40 per cent of the heating value of an equivalent amount of high-grade coal.)

A third process for converting MSW to energy is hydrolysis, or anaerobic conversion. It uses naturally occurring bacteria, like those found in a healthy person's digestive tract, to "eat" MSW and sewage as they are heated in man-made "digesters." The gas created in this process is piped off for energy use. Hydrolysis will reduce the amount of MSW and sewage by 50 per cent; the remaining material can be further burned for additional energy.[3]

Another form of hydrolysis occurs naturally in landfills. As MSW decomposes, it produces a gas that has about 50 per cent of the heating value of an equivalent amount of methane, which also occurs naturally. This landfill gas (LFG) generally goes untapped by most local governments and is allowed to disperse freely into the atmosphere. LFG can be tapped through a pipeline and used as a fuel—for everything from running an automobile engine to fueling an electric generator.[4] A landfill that receives as little as 275 tons of MSW per day can support a small LFG plant. A report by the International City Management Association in Septem-

1. D. Teresi, "Looking Down in the Dumps—for Energy," *Popular Mechanics* 152 (January 1980), 92-93.

2. Victor P. Chase, "Churning and Burning—Garbage for Power," *Mechanix Illustrated* 76 (August 1980), 71.

3. *Ibid.*, p. 73.

4. Edward J. Daley et al., "Landfill Gas: An Uptapped Resource," *Public Works, City, County and State* 111 (November 1980), 74.

ber 1981 indicates that the recovery of landfill gas is a "growth industry" in the United States—it cites 20 landfill gas recovery systems throughout the nation.[5]

Producing fuels with raw sewage or partially dried sludge reduces the volume of material deposited in landfills, thus saving landfill space and enabling municipalities to upgrade their waste treatment plants' environmental standards. At some waste treatment plants, conveyor belts run the wet sludge through a heating process that partly dries it. This sludge can then be added to MSW being processed into solid fuel (pelletized or powdered). In some cases, the dried sludge powers the sludge-drying system, thus making it more cost effective. Toronto has developed a system that processes sewage sludge into a "cake form" that is burned to produce steam for energy use (Toronto does not use MSW).[6]

Methods to recover recyclable materials like ferrous objects, aluminum, glass, and plastic are often combined with methods of converting municipal solid waste into energy, as Salem has done with the help of Reynolds Aluminum Company. Three reasons for recovering material from MSW are to conserve resources, to reduce the amount of MSW to be disposed of, and to help convert MSW into energy.[7]

Problems of recovery

Because the technology for resource recovery is usually very expensive, cities may be tempted to cut corners in establishing a waste recovery plant. This can result eventually in high operational and maintenance costs. Marginally equipped plants may not operate properly or may produce materials that do not meet market specifications, causing expensive delays and lower market prices. Municipalities must be willing to spend enough to provide their recovery plants with equipment heavy enough to prevent spills, jams, and equipment failure. Consequent increases in revenue and reduction in maintenance costs should offset the heavy initial capital outlay.

Resource recovery is a new venture for most municipal officials, and they may be apprehensive about the risks involved. Officials in communities that are contemplating such a step should thoroughly understand the volume and nature of the community's waste before the planning begins. As the process continues, any contracts they make should assure that the plant can be adapted to accommodate possible changes in waste composition. Finally, they should be willing to spend enough at the beginning to construct a plant that will operate properly and meet the present and future market specifications of the material produced.[8] If municipal officials are not confident in their understanding of the technology involved or in their marketing skills, they can contract with a private company with expertise in resource recovery to operate their system. (Even so, they should have a general knowledge of the recovery system they want before they meet with a potential contractor.)

Suggestions for planning a recovery system

Developing a reliable resource recovery system requires careful planning. Expert help will be needed in such areas as management, engineering, and law. A study should be done to collect data, set the goals of solid waste management, and outline technical concepts, management alternatives, financing, and procurement. The end product will be a set of choices integrated into an implementation plan.

The resource recovery study should be made with a task force that includes wide participation from several sectors. Its core should be public works and planning personnel, but other officials—the city manager, the finance director, and the city attorney, among others—also should be brought in. Others that may be included are local environmentalists, state officials, and possible users of recovered products. This broad participation will help to address questions and problems early, and it will serve to educate the community about the resource recovery concept.

The task force should analyze the local market to determine what recovered products can be sold. Two key factors come into the picture in this analysis. First, the industries that can use the recovered products must be identified. Second, the recovered products must command a high enough price to offset recovery costs. The market study should identify potential buyers and determine the specifications of each, the quantities they might purchase, and the prices each would pay for recovered products.

The task force may also need to consult outside experts in management, engineering, law, and finance. The consultants can provide feasibility studies, analyze the market, answer legal questions, and arrange financial packages and contract options. But their work should be addressed to specific problems; defining the planning goals and making the decisions is the responsibility of the task force.[9]

5. Mary L. Leffler and Russel E. Cummings, "The Recovery of Methane Gas from Municipal Sanitary Landfills," *Management Information Service Report* 13 (International City Management Association, September 1981), 1-9.

6. Paul DaSilva, "Toronto Turns Sludge into Energy," *Water and Wastes Engineering* 17 (August 1980), 16-18.

7. Steven J. Levy et al., "Technologies," in *Resource Recovery Plant Implementation: Guides for Municipal Officials* (U.S. Environmental Protection Agency, 1976), 8.

8. Harvey Alter, "Making Resource Recovery Economical," *Phoenix Quarterly* 3 (Fall, 1980), 7-8.

9. Alan Shilepsky et al., "Planning and Overview," in *Resource Recovery Plant Implementation: Guides for Municipal Officials* (U.S. Environmental Protection Agency, 1976), 2-4.

Conclusion

Municipal officials may believe that cities with populations under 100,000 cannot generate enough solid wastes to make resource recovery economically feasible. But as the Salem experience shows, even a small community can build a successful recovery plant. This is particularly true if the municipality can gain the cooperation of local industry in developing the plant, as Salem did.

As fossil fuel prices rise and alternative fuel sources are needed, private industry will recognize the economic benefits of resource recovery and refuse-derived fuel. If local governments are willing to move now and begin planning for resource recovery, they can assure themselves part of the revenues that private industry will surely reap from this endeavor. In addition, municipalities can take positions of leadership in this area as society comes to recognize the possibilities of solid wastes as an alternate energy source.●

Hazardous Wastes *(continued from page 15)*

and we need to continue the exploration of the alternatives to ensure the health and safety of our people.

Turner. One significant deterrent to regionalization is the question of ultimate liability. For example, if South Carolina sends wastes to a site in North Carolina and these wastes are the cause of environmental or human health damage, is North Carolina or South Carolina liable?

"How big a problem is presented by abandoned waste dumps in the United States and in North Carolina?"

Strickland. It would be impossible for me to address the problems of abandoned waste dumps on a nationwide basis (for which the principal federal response is the so-called "Superfund"). As for the problem in North Carolina, it is also not very well known. From a number of sources, we have been able to secure the location of a number of sites, many of which have been investigated while others are being evaluated. Our state has not been industrialized as long as many of the states, so we do not have as many sites as some of the states, especially in the northeastern part of the United States. Every effort should be made to locate and evaluate every site in North Carolina. Those that present a threat to the public health or the environment should be eliminated or rendered nonhazardous to public health and the environment.

North Carolina has a great responsibility to manage its hazardous waste in a way that future generations will not have to be concerned with abandoned dumps.

"What remains to be done about waste management?"

Strickland. It has been proven that if we are to have our present standard of living, it is not a choice of having or not having hazardous waste but a choice of managing the hazardous waste or not managing it.

To manage the waste, we must have management facilities. This includes volume reduction centers as well as at least one final disposal facility. So the thing that is most difficult but *must* be done is to find suitable sites and provide an educational program that will make it possible to locate hazardous waste management facilities.

Turner. I have a different view on this question. More and more data are showing that we can reduce the amount of hazardous waste we produce—without eliminating the products of industry—by modifying manufacturing processes.

Brown. So far we have moved only a small way down the path toward assured adequate low-level radioactive waste disposal, although several major and difficult steps have already been taken.

To finally resolve this problem for our state the following remains to be done:

a. Develop and adopt a regional low-level radioactive waste compact and gain congressional approval;
b. Mount an effective public information and education program designed to achieve public understanding and to dispel the myths and misinformation which create genuine, but unnecessary, public concern;
c. To the maximum possible extent, make local government and the public partners, as well as participants, in the necessary process of siting and hosting needed facilities;
d. Through fees, bonds, and other means, assure that those persons who generate the waste will bear the full cost of siting, regulating, and operating needed disposal facilities; and
e. Assure maximum use of technology which will minimize the volume of waste generated and maximize the inherent safety of disposal facilities.●

Progress and Problems in North Carolina's Juvenile Justice System

Michael Watson

The population of the state's training schools is declining, but children are still being detained in adult jails. How will the state meet the mandate that forbids that practice?

Resolving these issues will require that the cooperation demonstrated in the juvenile justice system during the last five years be continued and enhanced in the coming years.

In 1972 the North Carolina Bar Association's Penal Study Committee published a report titled *As the Twig Is Bent*.[1] That document was a ringing indictment of the state's juvenile justice system. After two years of study, the committee concluded that the juvenile justice system then in place in North Carolina was woefully inadequate to help youngsters in trouble with the law to overcome their problems and become adults who could take their place as contributors to society. In particular it questioned what was considered inappropriate confinement of children in training schools, which lacked effective programs to help these youngsters, and the rampant disorganization and lack of coordination within the juvenile justice system.

That report drew a very bleak picture of what happened to disturbed or delinquent children. Fortunately there were people ready to accept the challenge that it made, and the North Carolina juvenile justice system can claim some important accomplishments within the last decade. The agencies that provide services in the communities are better coordinated, the state's Juvenile Code has been revised, and "juvenile status offenders" (children who have committed no act that would be criminal for an adult but have engaged in "undisciplined" behavior like being truant or running away from home) are no longer sent to training schools. In addition, special attention is being given to the problems of those children most difficult to treat—violent and assaultive youngsters who may be emotionally disturbed, neurologically impaired, or mentally handicapped. This article describes the legislative and programmatic changes that have occurred over the past five years in the state's juvenile justice system.

Recent juvenile legislation and the training schools

Several pieces of legislation enacted in the 1970s greatly affected the juvenile justice system, especially the training schools. Legislation in 1971, which modified G.S. 7A-517, prohibited commitment of "undisciplined children" (status offenders) to training schools, although the juvenile court retained the power to

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1. North Carolina Penal System Study Committee, *As The Twig Is Bent* (Raleigh: North Carolina Bar Association, 1972).

commit them if they had been placed on probation and had violated probation by another "undisciplined" offense.

Chapter 929 of the 1975 Session Laws declared the General Assembly's intent to (a) reduce the number of children whom the courts committed to institutions as being delinquent, and (b) provide a comprehensive plan for developing community-based alternatives to training school commitments so that status offenders would no longer be confined in training schools (see present G.S. 7a-289.13). That legislation (effective July 1, 1978) also took away all remaining power of juvenile court judges to send status offenders to training school (see G.S. 7A-517, - 649). Thus by July 1, 1978, status offenders had disappeared from the training school population.

Now let us consider what happened to the training school population during the 1970s (see Fig. 1). The average daily population of the training schools dropped sharply after 1970—from 2,097 to 1,087 in 1974 (a decline of 48 per cent in just four years) and to 640 in 1981—a total reduction of 69.5 per cent in eleven years. Admissions also declined beginning in 1974—from 1,854 in that year to 839 in 1981 (a 55 per cent reduction). The rapid decline from 1970 to 1974 was caused not by a decrease in admissions, which remained steady, but by an increase in releases and reductions in average length of stay. Thus the 1971 legislation probably did not cause the 1970-74 drop in the training school population, because it was aimed at commitments rather than releases. The 1975 legislation, by prohibiting commitment of any status offenders beginning in 1978 *did* cause the rapid drop in training school admissions after 1978, because it banned all commitments of status offenders, who were about 35 per cent of training school admissions. That ban no doubt contributed to the continuing decline in the training school admissions (Fig. 2) at the end of the decade, although, as we have seen, the major part of the population reduction occurred before the 1975 legislation. The end of the "baby boom" also probably had an effect by slowing the growth of the teenage population.

The change in the size and character of the training school population during the 1970s had major implications for training school programs. Although the youngsters in training school declined in number, those who remained were more likely to be difficult to handle. By 1980 all of the training school youth were delinquents—that is, they had committed criminal acts. Thus removing status offenders increased the proportion of seriously disturbed and dangerous youth. In 1981, officials classified about 30 per cent of the training school youngsters as potential members of the "Willie M." class,

Figure 1

Average Daily Population
of North Carolina Training Schools,
FY 1967-81

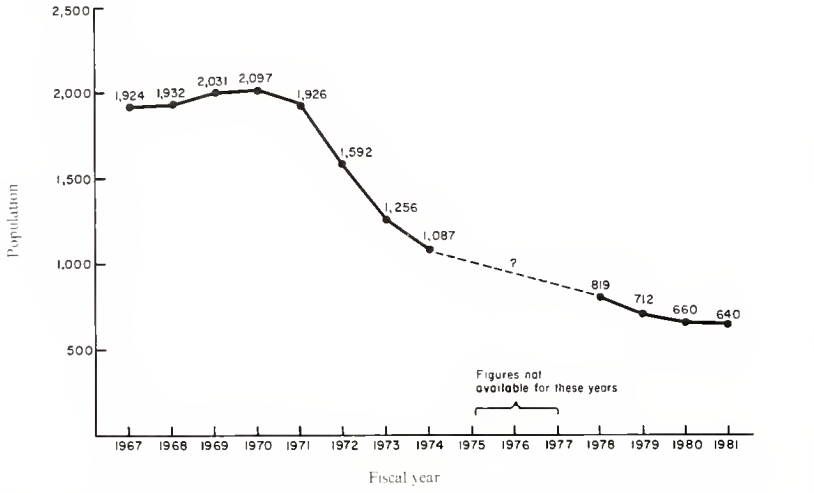
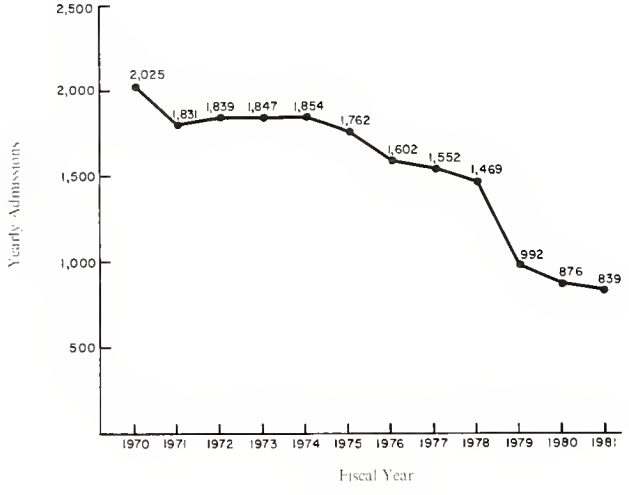


Figure 2

Yearly Admissions
to North Carolina Training Schools,
FY 1970-81



which has recently been the subject of litigation. ("Willie M." children are those who exhibit assaultive or aggressive behavior and are diagnosed as having emotional disturbances, mental retardation, or neurological impairment; see the article by Robert D. McDonnell and William P. Pope in the Winter 1982 issue of *Popular Government*.) The changing nature of the training school population is shown by the fact that assaults by students on the staff have increased dramatically, and security for both staff and students is a growing concern.

The removal of status offenders has also reduced the number of females and whites in the training school population, because a high percentage of status offenders were female or white, or both. Furthermore, the decrease in the number of females committed makes it more difficult and less efficient to operate training school programs on a coeducational basis.

Revision of the Juvenile Code

Another improvement in the juvenile justice system was the the new Juvenile Code, which went into effect on January 1, 1980. The Code resulted from the extensive work of the Juvenile Code Revision Committee, created in 1977 by the General Assembly as an adjunct of the Governor's Crime Commission. Composed of citizens, juvenile court judges, and legislators, the committee held public hearings and studied suggested revisions in the Juvenile Code over an eighteen-month period. On the basis of that committee's work, the 1979 General Assembly adopted a new juvenile code (now G.S. Chapter 7A, Subchapter XI) that: (1) clearly defined the criteria for placing a juvenile in secure detention (G.S. 7A-574); (2) encouraged the use of community-based alternatives rather than training school (G.S. 7A-646); and (3) listed ten acceptable alternatives in dealing with delinquent children. These alternatives include such community-based dispositions as the payment of restitution, performance of supervised community service, probation, and placement in a community-based nonresidential or residential program. The final dispositional alternative, to be employed only after all available community alternatives have been exhausted or deemed inappropriate, is commitment to a training school. Thus the new Juvenile Code is another step in the direction taken by the 1975 legislation toward using of community-based programs rather than training schools.

The growth of community-based alternatives

During the past five years the concept of a community-based treatment system for troubled children in North Carolina has moved from a progressive statement of legislative intent in 1975 to a reality. Legislative appropriations and federal funds have permitted the Community-Based Alternatives program (CBA) of the Division of Youth Services (in the Department of Human Resources) to fund 264 programs in 99 counties.

Since its inception in 1977, the CBA program has established an enviable track record. Funding for it has expanded from $250,000 in fiscal year (FY) 76-77 to $4.5 million for FY 81-82, plus approximately $2.5 million in local funds and $1.5 million from the federal Office of Juvenile Justice and Delinquency Prevention. This money enabled the number of CBA programs to expand—the 264 programs in 1981 are up from 135 programs funded during 1977-78. The number of children served by these programs each year has also risen from 9,891 in FY 77-78 to over 32,000 in FY 80-81.

The CBA Program represents a partnership among state and local governments and many private agencies whose objective is to develop youth services at the local level. Since the summer of 1977, the program has established 99 county-level interagency task forces whose membership (appointed by the county commissioners in the respective counties) includes over 1,200 local human services professionals and concerned citizens. Each of these groups makes recommendations to its board of commissioners concerning the types of programs most suitable for the youngsters in that county. The commissioners decide how to spend the CBA money on the basis of those recommendations.

These programs can be classified under three general categories: (a) school-related programs (77), which are composed of in-school suspension programs (that is, the suspended student spends the period of suspension in school and receives instruction, but in isolation from his regular classes), alternative classes, and alternative schools; (b) nonresidential treatment programs (88), which include treatment alternatives like counseling programs, adult volunteer programs, and recreation progrms; and (c) residential treatment programs (99), which range from such short-term placement alternatives as emergency shelter care programs to longer intensive treatment programs like specialized foster care and group homes.

Evaluations of these programs clearly indicate the positive results they have had on the children and the communities that they serve. The overall results of the last two years for which data are available appear in Table 1. These data, which compare the years shown with each youth's last year before entering the program, indicate that these programs have significantly reduced court referrals, school suspensions, and training school commitments for the children served.

Schools that receive CBA funds are required to supply baseline data on the key variables listed below. At the end of each school year the figures for these variables are compared with the figures for the base year. Table 2 shows the results for FY 79-80 for the school units that receive CBA funds: CBA-funded school-related programs have helped to reduce expulsions, suspensions, dropouts, and court referrals for the school systems they serve.

Table 1

Effect of Community-Based Alternatives on the Juvenile System, 1978-80

	FY 78-79	FY 79-80
Court referrals	reduced* 47.5%	reduced* 45.8%
School suspensions	reduced* 12.6%	reduced* 37.7%
Training school commitments	reduced* 17.2%	reduced* 16.6%

*Compared with each youth's last year before entering program.

Positive Youth Development

Since early 1980, the CBA program has undertaken to carry out a second task mandated by the General Assembly—setting up a statewide effort to prevent delinquency. This effort has taken several forms. First, the Division of Youth Serv-

Table 2

Effect of Community-Based Alternatives on Punishment Rates within Schools with CBA Funding

	Base year	FY 79-80	Decrease	% Decrease
School expulsions	157	107	50	31.2%
School suspensions	6,871	2,653	4,218	61.3
School dropouts	1,918	1,175	743	38.7
Referrals by school to court	369	146	223	60.4

Base year is each school's last year before entering program.

ices appointed a statewide Delinquency Prevention Committee composed of representatives from all segments of the juvenile justice community. In 1981 the committee selected the Positive Youth Development (PYD) process, which was adopted by the Division of Youth Services as a vehicle for achieving its delinquency prevention goals. PYD stresses the need to involve citizens, particularly young ones, in an effort to change the conditions within their communities that contribute to juvenile delinquency. One state-level and four regional training programs have been held to train community representatives in the concepts of PYD and techniques for achieving community involvement, and pilot projects using the PYD process will be held in eight communities across the state.

Institutional programs

Significant progress has been made in the five training schools operated by the Division of Youth Services (DYS). The following are examples:

1. An *improved treatment program* at four of the Division's five training schools. A unique treatment program is being designed at C. A. Dillon School. In this program a child progresses toward release by earning points for appropriate behavior. The program stresses the child's responsibility for his actions and seeks to provide a structured system of incentives to encourage appropriate behavior.

2. The program *stabilized* the average length of stay for children in the Division institutions at 7.5 to 9.0 months, and it provides the child with a consistent treatment program that moves from an initial orientation and assessment phase to prerelease planning.

3. *An improved living environment* within the training schools. Funds have been reallocated to buy furniture and recreational equipment.

4. *A better academic program.* The Division has now received Level 1 Accreditation from the Department of Public Instruction.

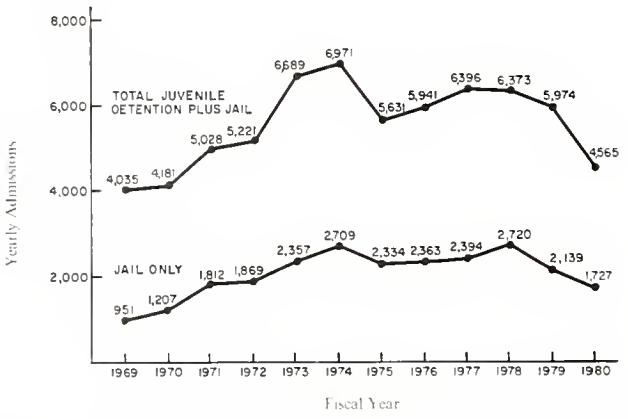
5. A few *specialized treatment programs* designed to meet the needs of special populations in the institutions. They include: (a) A new treatment program at C. A. Dillon Training School at Butner for aggressive, emotionally disturbed children. Experts designed the program using existing resources. Getting it under way represents a cooperative effort between Youth Services and the staff at the Wright School in Durham; and (b) Project Crossroads, a program for developmentally disabled children at Dillon School. Both programs are designed to meet the treatment needs of the aggressive, multi-problem *Willie M.* type of child.

Juvenile detention services

State law (G.S. 7A-576) allows juveniles whom the court decides must be detained pending the outcome of their case to be held either in a separate juvenile detention facility or, if no such facility is available, in a "holdover facility"—i.e., a portion of a local (primarily adult) jail reserved for juveniles that meets statutory standards. After June 30, 1983, detention in jail holdover facilities will be illegal. During the past five years DYS has sought to expand the capacity and use of juvenile detention facilities as an alternative to local jails. The Division administers the only state-operated juvenile detention center (in Cumberland County). Designed to be a model, this facility serves a surrounding region of twelve counties. To increase the use of existing locally operated juvenile detention centers, DYS subsidizes county detention facilities that agree to provide detention services to surrounding counties. To date, five counties have entered into state subsidized agreements with thirty-six neighboring counties for use of their juvenile detention facilities.

Figure 3

Yearly Admissions to Juvenile Detention Facilities and Jails, FY 1969-80



After considerable increase in the 1970s, the number of youngsters placed in juvenile detention facilities and jails has recently declined (see Fig. 3), dropping 29 per cent from 1977 to 1980. The number placed in "holdover facilities" has followed the same pattern as the total juvenile jail population, declining by 37 per cent from 1978 to 1980. These sharp reductions probably result from the state's program of subsidizing the detention facilities in counties that make their facilities available to other counties and from increased CBA funding for such nonsecure alternatives to detention as emergency shelter care.

Although the number of children detained in jails has continued to drop (from 1,727 in 1980 to approximately 1,500 in 1981), it is still substantial, mainly because there are only eight licensed juvenile detention facilities in the whole state (see Fig. 4). Of these, five operate under the state detention subsidy program, one is a state-operated regional detention facility, and the remaining two are funded and operated by counties that provide services to a limited number of surrounding counties under local agreements. (Figure 4 shows the area served by each facility.) *The rural eastern and northwestern counties have almost no access to juvenile detention facilities.* These facilities are not geographically dispersed, and the more remote counties find it difficult and costly to transport children to a center located a hundred or more miles away. As a result, many of them are forced to use holdover facilities in local jails.

A "Catch 22" situation exists in regard to the eight licensed juvenile detention facilities. Badly needed as adequate detention facilities are, because they are not geographically distributed across the state, these facilities are being used at only 38 per cent of capacity—which inevitably drives up the per-child cost of detention. (See Table 3.)

Table 3

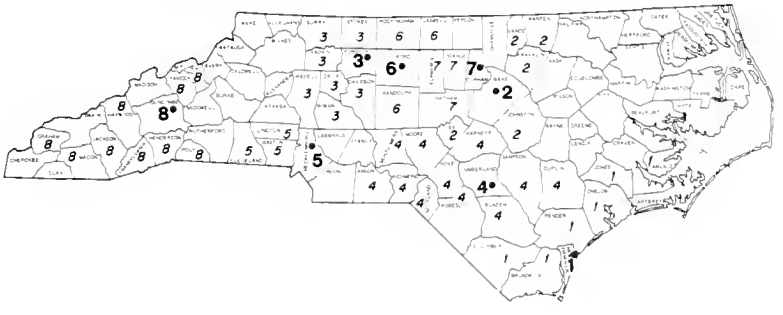
Juvenile Detention Center Usage Rates
January-December 1981

Facility	No. Beds	Average Daily Pop.	Usage Rate
Juvenile Services Center (Cumberland)	18	7.99	44%
Buncombe County Juvenile Detention Home	14	2.17	15
Gatling Juvenile Diagnostic Center (Mecklenburg)	30	13.80	46
Forsyth County Youth Center	17	7.86	46
Guilford County Juvenile Detention Home	24	8.74	36
Durham County Youth Home	16	2.60	16
Wake County Juvenile Detention Home	14	9.14	65
Lower Cape Fear Juvenile Services Center (New Hanover)	18	4.36	24
Total	**151**	**56.66**	

1. Usage Rate = Average Daily Populations ÷ Number of Beds

Figure 4

Juvenile Detention Facilities and Areas They Serve



*Indicates county in which facility is located

1. Lower Cape Fear Juvenile Services Center
2. Wake County Juvenile Detention Home
3. Forsyth County Youth Home
4. Juvenile Services Center
5. Gatling Juvenile Diagnostic Center
6. Guilford County Juvenile Detention Home
7. Durham County Youth Home
8. Buncombe County Juvenile Detention Home

An analysis of the dispositions of children released from holdover facilities during 1980 says something about whether these children *needed* secure jail detention. For example, during 1980 approximately 70 per cent of the jailed children later went to some sort of nonsecure placement; most were released either to their parents' custody or into their community after an appearance in district court, and others were returned to the custody of foster homes operated by local departments of social services or placed in community-based residential programs. Only about 30 per cent of the children who left jails were placed in some other type of institution; approximately half of these were sent to DYS training schools, and the rest were transferred to another jail, to a juvenile detention facility, or to prison.

Is jail detention really necessary, when most of the children are soon released to a nonsecure setting? The data suggest that many of these children are in jail simply because there is no acceptable alternative (i.e., emergency shelter care). This contention seems to be supported by the relatively short average stay for children in jail—3.7 days (in 1980), compared with 8.9 days for those held in juvenile detention facilities (during calendar year 1981).

Data for FY 1980-81 indicate that children were placed in jails in 76 counties. Thirty-four of these counties, each

CBA-funded group home.

Students involved in recreation program at C. A. Dillon School, Butner.

Treatment team meeting for Project Crossroads at Dillon School. The program provides treatment for developmentally disabled children.

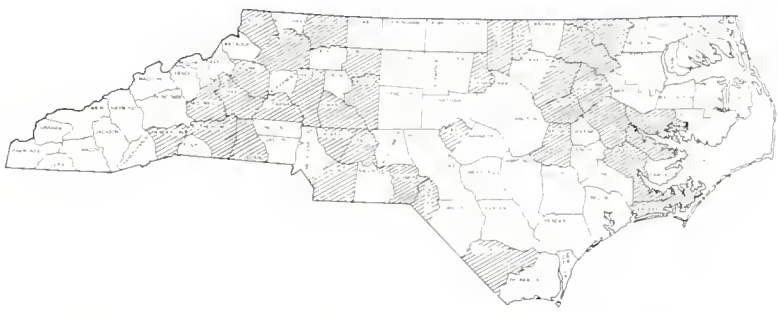
Students participating in a remedial reading program at Dillon School.

CBA-funded program, Hillcrest Project, Asheville, N.C.
Recreation / Delinquency Prevention Project—band, drill team, sports teams, parent effectiveness training.

Students have their eyes checked as part of the initial assessment that each student receives upon admission to training school.

Figure 5

North Carolina Counties Jailing 20 or More Children, FY 80-81



1. These 34 counties jailed a total of 1,358 children or 84.1 per cent of the total number jailed in FY 80-81

2. It should be noted that 13 of the counties participate in some form of agreement that should provide them access to a regional juvenile detention center. These counties are: Henderson, Cleveland, Richmond, Scotland, Columbus, Surry, Forsyth, Davidson, Rowan, Iredell, Durham, Vance, and Lee.

of which detained 20 or more children, account for about 84 per cent of the children jailed (see Figure 5). These 34 counties are primarily eastern and northwestern rural counties that lack convenient access to juvenile detention facilities. But apparently not all counties fully use the juvenile detention facilities available to them: 37.4 per cent of the children jailed in FY 1980-81 were in the 55 counties that have access to juvenile detention services through a regional detention agreement.

To deal with the problem of children in jail, DYS has convened a task force representing many elements of the juvenile justice community that will study the issue and make recommendations about resolving it.

Future issues

Despite recent progress, the state faces a number of issues related to the juvenile justice system. They clearly illustrate the continuing need within the juvenile justice system for communication and coordination among its various elements.[2]

Program funding. Both institutional and community-based programs within the DYS are faced with large reductions in federal funds that threaten the progress of the previous five years. State appropriations have steadily increased over the years, but recent events in Washington may place at least part of that support in jeopardy. For example, the state has recently lost federal Law Enforcement Assistance Administration funds for juvenile justice that amount to $1.6 to $1.8 million per year, and it may lose $1.5 million in Office of Juvenile Justice and Delinquency Prevention funds. Furthermore, it is expected that federal Social Security Act Title XX funds (a portion of which were spent on community-based residential programs) will be cut 20 to 30 per cent. As a result, state, local, and private resources will be hard put to support the existing community treatment network at even its present level.

The Division's institutional programs face a similar future for the same reason. For example, continuing reductions in the Division's Elementary and Secondary Act (ESEA) Title I allocation threaten the remedial math and reading instruction at the training schools. Cuts in Title XX funds may put an end to the Division's Wilderness Camping Program at the Juvenile Evaluation Center and the program for emotionally disturbed children at Samarkand Manor. And other cuts in federal funding threaten the services to exceptional children.

Removal of children from jails. In North Carolina about 1,500 children are detained each year in jails. These facilities lack the educational programs, psychological services, and trained child-care staff provided by juvenile detention facilities. After July 1, 1983, state law (G.S. 7A-576) will forbid detention of children in adult jails. This provision is further supported by the state's acceptance of funds under the federal Juvenile Justice and Delinquency Prevention Act, whose provisions mandate the removal of juveniles from adult jails. Given the state's limited resources and the fact that a large majority of the children placed in adult jails are in counties that lack access to a regional juvenile detention facility, this issue presents the state with a difficult, complex problem.

Special populations in the juvenile justice system. State and local officials are attempting to meet the needs of the special populations within the juvenile justice system. The state's involvement in the *Willie M.* class action suit is one such example. Identifying and developing treatment plans for the approximately 1,400 children nominated as potential members of that class has required extraordinary cooperation and information-sharing among the elements of the juvenile justice system.

Delinquency prevention efforts. With limited resources, an effective statewide delinquency prevention program seems critical. The foundation for such an effort can be found in the delinquency prevention efforts currently under way in those areas that use the Positive Youth Development Model. We may hope that this delinquency prevention model that is being tested in the eight pilot counties can be incorporated elsewhere.

Resolving these issues will require that the cooperation demonstrated in the juvenile justice system during the last five years be continued and enhanced in the coming years.●

2. Many of these issues are discussed in Mason P. Thomas's article entitled "Juvenile Justice in North Carolina—Issues for the Eighties," *Popular Government* 45, no. 3 (Winter 1980), 19-24.

Appraising the Performance of North Carolina Teachers

Betsy Caudle Lowman

Will the Performance Appraisal Plan to evaluate teachers regularly really help to improve the quality of education in North Carolina? Is it even practicable?

In 1980 the North Carolina General Assembly enacted legislation, now called the Performance Appraisal Plan (PAP), designed to improve the quality of the state's teachers. One section of the law called for a statewide system to appraise the performance of teachers and principals; the other established a committee to devise incentives for good teaching. The plan provides some encouraging and appealing ways of fostering a better educational system, but it also presents problems; inevitably it has encountered opposition.

The Performance Appraisal legislation is a product of a widespread—and justified—concern over the declining quality of public education. Average college board scores have dropped, and employers complain that high schools grant diplomas to illiterate students who are untrainable for existing jobs. Discipline problems, even serious crimes, occur daily in schools, even in this state. Since the early sixties the quality of the public school experience has deteriorated even with increased federal and state spending for public education.

In recent years the nature of this popular concern has begun to shift. The first step in North Carolina came with the legislative requirement (enacted in 1978) that students pass minimum competency tests before they can receive a high school diploma. At first competency testing drew heavy criticism but is now accepted by most citizens as a higher percentage of students pass each year. At the same time, many parents of elementary school students have expressed a desire for "back to basics" reading, writing, and arithmetic.

Now public attention is moving from the learners to those responsible for their instruction—teachers and (to a lesser extent) principals. This logical progression of interest from student to teacher has been augmented by two facts. First, a declining birth rate has created an oversupply of teachers for the first time in several decades, so that school administrators have more choice in hiring and replacing teachers.[1] Second, a reduction in federal funds for education has forced school boards to trim all but the essential programs and personnel; when reductions in a teaching staff must be made, everyone wants to keep the very best teachers.

Present information suggests that the quality of teachers in North Carolina schools has been declining for some time. Between 1973 and 1979, the scores of graduates of North Carolina's teacher training program on the National Teachers' Examination (NTE) dropped significantly.[2] Among the graduates the *less* capable are *more* often hired,[3] and those who leave the field after a few years generally have higher NTE scores than those who remain.[4] It is not surprising that General Assembly members are concerned about teacher quality.

North Carolina legislators are not alone in their concern for teacher quality. More than half the states have increased their requirements for teacher certifica-

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1. B. T. Wilkins, "Despite a 7-year Drop in Education Majors, Teaching Jobs Still Tight," NEA Reports, *Chronicle of Higher Education* 20 (July 7, 1980), 8.

2. P. S. Schlechty and V. S. Vance, "Do Academically Able Teachers Leave Education? The North Carolina Case," *Phi Delta Kappan* 63(2) (October 1981), 106-12.

3. *Ibid.*

4. W. T. Weaver, "In Search of Quality: The Need for Talent in Teaching," *Phi Delta Kappan* 61 (September 1979), 29-32.

tion.[5] Several states have passed laws aimed at improving teacher training, evaluating teacher performance, or both.[6]

For example, in 1980 the Oklahoma legislature passed bills to (1) raise the standards for admission to colleges of education, (2) require competency examinations in relevant subject-matter areas before graduation from a teacher training program, (3) mandate a year's teaching internship before certification (the fourth college year), (4) require monitoring of new teachers' performance, and (5) provide continuing education for certified teachers. The legislators also provided an additional stipend for each experienced teacher who worked with teacher-interns. Teachers, administrators, and parents assumed joint responsibility for staff development of fully certified teachers. Teachers who did not comply with the requirements could be denied raises or new contracts.

In 1979 South Carolina mandated testing to insure that prospective teachers have basic reading, writing, and mathematical skills and competence in the subject they teach. The student-teaching internship was to be extended to a full semester (the former period was six weeks). Provisional teachers (first year) were to be observed three times a year, annual-contract teachers (second to fifth years) twice a year, and continuing-contract teachers "periodically." Remedial programs were mandated at all three teaching levels.

In the late 1970s teaching staff in Massachusetts had to be cut substantially because of recession and out-of-state migration. In 1978 the state legislature provided that performance-based layoff criteria were to operate uniformly across the state—a policy that indicates concern for quality of education even if its basic purpose was to insure fairness in layoff decisions.

Before the recent surge of interest in teacher competency, most states required only a minimum NTE score and graduation from an approved teacher training program for initial certification. Since it was introduced in 1940, the NTE has been used by every state in the nation to insure that persons trained as teachers in different institutions in various parts of the country have comparable skills. (The North Carolina State Board of Education adopted a minimum NTE score as part of its standards for certification in 1964.)[7] NTE scores have been found to correlate with measures of general intelligence and college grades but not with ratings of teacher performance,[8] which leads some to question the test's usefulness.

In 1979 the University of North Carolina's Board of Governors and the State Board of Education began studies of teacher training programs. As a result, programs were either discontinued or curtailed on several campuses of the University system.[9] A Liaison Committee formed by the two boards also called for a Quality Assurance Program (QAP) under which college students would be required to demonstrate acceptable proficiency in writing, English literature, fine arts, social studies, mathematics, and science before they could be admitted to a teacher education program. Baccalaureate teacher candidates would be required to pass an examination that measures specific teacher competencies for provisional certification. Full certification beyond the first three years of teaching would depend on still another review. Other aspects of the proposed program include early college counseling, an extended student-teaching experience, and technical assistance to and close scrutiny of the provisionally certified teacher. (See the articles by Kinnard White and William Pope in the Winter 1982 issue of *Popular Government*.)

The Quality Assurance Program is intended to improve the quality of teachers as they enter the profession. Now, in the 1980 PAP legislation, the North Carolina General Assembly has provided that once a person is certified as a beginning teacher in this state his performance is to be evaluated at regular intervals throughout his career.

North Carolina's teacher tenure law (G.S. 115C-325) provides that certified teachers as defined in that law may obtain "career status"(i.e., tenure) after they have served three consecutive years in one school system. A decision by the school board not to reappoint a probationary (nontenured) teacher must be communicated to him at least 30 work days before the end of the employment period. The board may choose not to reappoint "for any cause it deems sufficient," as long as the action is not "arbitrary, capricious, discriminatory or for personal or political reasons." A tenured teacher may be dismissed or demoted only for certain reasons—which include inadequate performance, immorality, other stated transgressions, decreased enrollment, district reorganization, and decreased funding. A teacher who has been dismissed, demoted, or not reappointed has certain protective rights, which include a review by his peers and a hearing before the local board of education.

The tenure law says that in judging a career teacher's performance, evaluators must consider reports prepared according to the local school unit's published policy and any published standards of performance that the local board has adopted. Failure to notify a career teacher that his performance is inadequate is conclusive evidence that his performance is satisfactory, according to the law.

In other words, appointment and evaluation of teachers has been the exclusive purview of the local board, which has based its decisions on its own criteria and methods. Now that framework has been changed by G.S. 115C-326, which created the Performance Appraisal Program. That law says that the State Board of Education, in consultation with the local boards, is to develop uniform standards and criteria to be used in annual evaluations of professional public school employees—although the local boards may use their own additional criteria. The State Board of Education is responsible for establishing PAP and insuring that local boards comply with it. PAP is being developed by the Department of Public Instruction (DPI), which has obtained suggestions from teachers, principals, superintendents, school board chairmen, and local advisory groups. It also ob-

5. T. R. McDaniel, "South Carolina's Education Improvement Act: Portent of the Super School Board," *Phi Delta Kappan* 63, no. 2 (October 1981), 117-19.

6. B. O. Smith, "Pedagogical Education: How about Reform?" *Phi Delta Kappan* 62, no. 2 (October 1980), 87-90.

7. Conversation with Mr. James Valsame of the North Carolina Department of Public Instruction. Also see J. A. Thacker, "A Study of the Relationship Between Principals' Estimates of Teaching Efficiency and Score on the NTE, Academic Averages and Supervisors' Estimates of Potential of Selected Teachers in N.C." Unpublished doctoral dissertation, The University of North Carolina at Chapel Hill, 1974.

8. T. J. Quick, B. J. Witten, and Weinberg, "Reviews of the Validity of the NTE," *Review of Educational Research* 43, no. 1 (Winter 1973), 89-113.

9. "The Quality Assurance Program" (Chapel Hill, N.C.: School of Education, The University of North Carolina at Chapel Hill, October 1981).

tained information from a random sample of teachers and principals across the state about how performance appraisals should be conducted.

DPI has prepared a PAP Procedural Manual which specifies that teachers must be evaluated annually by their principal (or someone designated by the principal); principals must be evaluated by the superintendent or his designee. Criteria for the evaluations were adopted by the State Board. They consist of detailed performance indicators that are based on job descriptions developed earlier by a consultant employed by the General Assembly.

The Manual specifies how and when evaluations will be performed. When the school year begins, all personnel subject to review must be given a copy of their job description and a copy of the criteria to be used in evaluating them. Classroom observations and the evaluations themselves must be scheduled in advance with the teacher and must occur between the second and eighth months of school; evaluations of principals follow a similar but later schedule. Those being evaluated are entitled to learn the results of the evaluation and to comment on it: the evaluation is placed in their personnel file. One or more conferences between the evaluator and the person being evaluated may be held, at the evaluator's discretion, before a final evaluation is submitted to the superintendent.

Teachers will be rated on how well they perform in six areas. They must (1) "insure effective instruction and management" by identifying students' strengths and weaknesses and forming teaching objectives and strategies; (2) have command of their subject by keeping abreast of current research and matching subject matter to student interests and needs; (3) be able to use appropriate instructional methods—grouping, instructional media, and classroom volunteers; (5) be good managers, set up their classroom efficiently, and monitor individual achievement; (6) behave in a professional manner, in establishing rapport with students and parents, and obeying laws, rules, and regulations. Performance in each of the six areas will be measured by four to six questions or items.

Principals are to be evaluated, on the basis of a similar scale, according to how well they (1) provide instructional leadership; (2) administer noninstructional programs; (3) use effective management skills; (4) promote effective staff relationships, good relationships with students, and effective relationships with the community; (5) administer the fiscal affairs of the school; and (6) adhere to professional ethics.

The PAP Manual says that annual evaluation should clarify the expectations held for teachers and principals, improve communication, provide positive feedback to teachers, identify improvements needed in their work, and offer suggestions and opportunities for job improvement. The information generated can help local boards determine satisfactory training and improvement requirements and can be used to plan staff development activities at the school, district, and state levels and to help teacher training institutions plan their curricula.

PAP is being tested in 24 school units across the state during the 1981-82 school year. Using the preliminary forms designed by DPI, each unit is to evaluate all teachers and principals and return the forms along with comments on the procedure to DPI. During the testing period, the evaluations will not be used in actual decisions affecting teachers but will be used (without identification) for statistical analysis of the questionnaire. According to the Procedural Manual, DPI hopes to develop adequate evaluation forms during the first year of pilot testing. Over the next two or three years it plans to develop performance norms for principals and teachers and standards for "adequate performance."

The law requires that each school unit use PAP, but the local unit has some options. It can determine what role the PAP ratings will have in placing, promoting, and dismissing teachers and principals and in establishing tenure. Each local system will decide who will do the evaluations and when. Local boards can also decide whether to use statistical data collected for the whole state to establish local norms and whether to supplement the statewide criteria with their own criteria.

The General Assembly also created a Personnel Administration Commission, consisting of nine members appointed by the Governor (G.S. 115C-327 through -329). Its purpose is to advise the Governor and the State Board of Education on how "to encourage the development of employees with a high degree of necessary skills and to stimulate a high degree of employee morale." To achieve this, the Commission must consider "proper compensation, salary and benefits" and "other personnel matters . . . ." This language suggests that the General Assembly had pay incentives in mind. The Personnel Administration Commission has met several times but has not yet issued any statements about its deliberations or activities. More information about its activities should be available soon.

To summarize: Concerned about the quality of teaching in public schools, the General Assembly has required the State Board to establish a uniform statewide system—the Performance Appraisal Program—for evaluating all teachers and principals annually, and it has established a Personnel Commission to identify incentives to encourage teaching excellence. The Department of Public Instruction has developed a proposal, in the form of a PAP Procedural Manual, and is now testing the system.

In my opinion, the statewide evaluation of teachers' performance according to consistent standards is very desirable, and the state's effort to establish an evaluation system is potentially a major advance in educational quality. But there may be some problems in implementing the system.

The first problem I see is that the instrument now proposed in the new PAP Procedural Manual for measuring principals' and teachers' performance is so vague that it will be difficult to use effectively. For example, principals are to be evaluated on whether they "respect the dignity and worth of students, staff and parents." How can this value be demonstrated in behavioral terms? How often is it to be observed? How is the evaluator, who is to sample the principal's behavior but once, expected to judge a trait like respectfulness, which may be exercised infrequently?

Evaluators are asked to check whether the person being evaluated "exceeds standards," "meets standards," or "does not meet standards." Whose standards? The school's, or the system's, or the state's? No guidelines are given along with the evaluation materials. An argument can be made that "standards" should be left ambiguous because they vary by community, but this position defeats one of

the intended purposes of the PAP—to develop a uniformly high quality of teaching across the state.

Educational researchers have been working for a least twenty years on ways to measure effective teaching. (Just defining good teaching is a major hurdle.) Dozens of forms and systems are available—from video-tape analysis to personality inventories. In addition, many states have already launched evaluation programs for public school employees and have spent several years developing rating methods for this specific purpose. Granted that all previous attempts to measure teaching effectiveness may be flawed, DPI's present effort seems to be "reinventing the wheel" without particular success. For the taxpayers of North Carolina, the process of test development will be very expensive tinkering. A less expensive method would be to simply collect data on an established rating form for several years to establish state norms.

A second problem in implementing the PAP may be the potential conflict between the Quality Assurance Plan (QAP) mentioned at the beginning of this article and PAP. PAP is concerned with evaluating both probationary and tenured teachers. QAP is concerned with the training and certification of teachers before they are tenured. The two efforts overlap in regard to probationary teachers.

At present, certification of a new teacher is a one-step process. Essentially, the State Board issues a provisional certificate after the teacher has completed the required courses and achieved the minimum NTE score [although by statute (G.S. 115C-296 and -297) the certificate must also be approved by a local school administrator]. This occurs before the new teacher begins his or her first teaching job.

The proposed Quality Assurance Plan[10] would make certification a two-step process: the first step would be an "initial [provisional] certification" when the teacher completed formal professional education, and the second step would be a "continuing certification" at some point during the three-year probationary (pretenure) period of employment. The proposed plan includes a support system to help the initially certified teacher progress toward continuing certification, plus a performance review by a local team that eventually leads to a decision by the State Board to grant or deny continuing certification. This review process in the proposed QAP program would overlap with the PAP evaluation of probationary teachers, so that a teacher *could* be granted continuing certification but denied tenure.

PAP and QAP also may conflict with regard to improving the skills of probationary teachers. QAP recommends using technical assistance teams that operate out of regional education centers to help new teachers strengthen their skills. But in present law (G.S. 115C-300) and practice, in-service training is treated as the responsibility of *local* school systems. PAP as now proposed seems to continue that practice.

Furthermore, PAP may be difficult to apply to tenured teachers, especially those with many years on the job. A teacher's longevity in a particular school may make it difficult for a principal to evaluate him or her honestly. The teacher may be a relative or a friend—or even the principal's former teacher!

PAP is intended to insure that adequate teaching performance is achieved and maintained. But there is a tendency within the school context to rate every teacher the same—to have "all swans and no ducks"—when evaluations are made. Local officials are responsible for administering PAP. The data to be gathered by the DPI over the next several years will indicate whether these officials have really been discriminating in their evaluations.

And money may be a problem. The statistical analysis and the design of forms needed for PAP will be costly. The Personnel Commission may suggest salary incentives for excellence in teaching, but it may be difficult to find money for these purposes at a time when most governments are trying to reduce expenditures.

Will PAP be implemented in North Carolina? Will it work as intended? The experience of other states offers some clues. In South Carolina,[11] routine teacher evaluation has not yet been enacted because of opposition to the proposed system. Teachers' organizations opposed the evaluations very strongly, and training institutions were alarmed about laws that altered their traditional operations. Blacks were concerned that any testing would eliminate disproportionate numbers of black teachers. Meanwhile, the task force established to develop the examinations and to oversee implementation is not functioning.

The Oklahoma teacher evaluation plan, which went into effect on January 30, 1982, received substantial opposition at legislative hearings in 1979. It was passed primarily because teacher salary increases were made dependent on its passage.[12] After the initial uproar, support for the measure has grown among administrators and teacher educators as they work together to develop procedures and programs. Still, many teachers remain resistant to or uneasy about the plan.

Two years ago S. M. Johnson studied the Massachussetts performance appraisal policies in four roughly equivalent suburban school systems over the course of two years.[13] In two systems, school administrators simply refused to evaluate tenured staff, maintaining that it was unnecessary and that the instruments to be used were inadequate. In the other two, teacher evaluation had been practiced for a number of years, and the law was obeyed. Still, the school systems laid off only a few teachers for poor performance; most teachers were rated equally, and layoffs were decided on the basis of seniority.

Commenting on the Massachusetts policies, Johnson concluded that the strength of teacher unions limited the effectiveness of the new teacher evaluation procedures. She also felt that requiring principals to evaluate teachers conflicted sharply with what they saw as their major role—supporting teachers. She suggested that principals be asked instead to rate their teachers as "superb," "in between," and "poor"and that a system-wide committee of administrators make hiring decisions on the basis of these ratings and other system needs.[14]

Teachers' unions (like the American Federation of Teachers) have strongly opposed any effort that threatens the job

(continued on page 43)

10. *Ibid.*

11. McDaniel, "South Carolina's Education Improvement Act," pp. 117-119.

12. P. F. Keine and B. Wisniewski, "Bill 1706: A Forward Step for Oklahoma," *Phi Delta Kappan* 63, no. 2 (October 1981), 115-17.

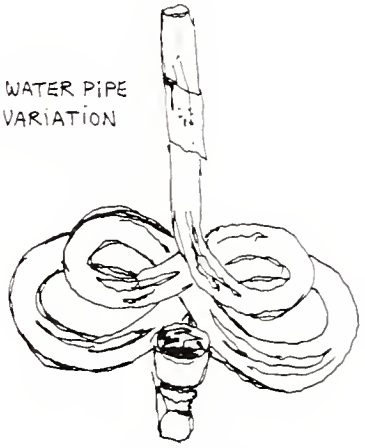
13. S. M. Johnson, "Performance-based Staff Layoffs in the Public Schools: Implementation and Outcomes," *Harvard Educational Review* 50 (May 1980), 214-33.

14. *Ibid.*

North Carolina's New Drug Paraphernalia Law

Ben F. Loeb, Jr.

The new laws against the sale of items intended to be used with controlled substances raise constitutional issues and will be hard to enforce.



October 1, 1981, was the effective date of North Carolina's Drug Paraphernalia Act. This law, which added a new Article 5B to General Statutes Chapter 90, is based on (but is not identical to) the Model Drug Paraphernalia Act prepared by the Drug Enforcement Administration of the United States Department of Justice. Similar legislation has been enacted by at least 20 other states, as well as many cities, and it has been repeatedly challenged in court on constitutional grounds. Other states with laws based on the Model Act include Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Louisiana, Maine, Maryland, Nebraska, Nevada, New Jersey, New Mexico, New York, Oklahoma, Pennsylvania, Texas, and Washington. The purpose of these acts is to prohibit sales of drug paraphernalia by retailers; but in North Carolina, as elsewhere, persons charged with the illegal possession of drugs are also being charged with the possession of paraphernalia.

The author is an Institute of Government faculty member whose fields include drug law.

Definition

North Carolina's act defines "drug paraphernalia" very broadly to include all equipment, products, and materials of any kind that are used to facilitate or are intended or designed to facilitate violations of the Controlled Substances Act, including (1) planting, cultivating, manufacturing, producing, testing, packaging, storing, and concealing controlled substances; and (2) injecting or otherwise introducing controlled substances into the body. This definition [G.S. 90-113.21(a)] includes, but is not limited to:

(1) Kits for planting, cultivating, or harvesting any species of a plant that is a controlled substance or from which a controlled substance can be derived;
(2) Kits for manufacturing, processing, or preparing controlled substances;
(3) Devices for increasing the potency of any plant that is a controlled substance;
(4) Testing equipment for identifying or analyzing the strength or purity of controlled substances;

Marijuana Paraphernalia

(5) Scales and balances for weighing these substances;
(6) Dilutants and adulterants for mixing with controlled substances;
(7) Separation gins for removing seeds from (or otherwise cleaning) marijuana;
(8) Blenders, containers, spoons, or mixing devices for compounding controlled substances;
(9) Capsules or other containers for packaging small quantities of controlled substances;
(10) Containers for storing or concealing controlled substances;
(11) Hypodermic needles or other objects for injecting controlled substances into the body;
(12) Objects for ingesting, inhaling or otherwise introducing marijuana, cocaine, hashish, or hashish oil into the body, including water pipes, roach clips, carburetor tubes, and many other devices.

Of course most of the items listed above also have legitimate uses that do not violate the law, and when thus used, they do not constitute drug paraphernalia. For this reason the new act sets out a list of factors that, along with other evidence, may be considered in determining whether an item constitutes drug paraphernalia. New G.S. 90-113.21(b) lists these factors:

—Statements by the owner or person in control of the object concerning its use;
—Prior convictions of the owner or person in control of the object for violations of the Controlled Substances Act;
—Proximity of the object to a violation of the Controlled Substances Act;
—The proximity of the object to a controlled subtance;
—The existence of any residue of a controlled substance on the object;
—The proximity of the object to other drug paraphernalia;
—Instructions provided with the object concerning its use;
—Descriptive materials accompanying the object explaining its use;
—Advertising concerning its use;
—The manner in which the object is displayed for sale;
—Whether the owner, or anyone in control of the object, is a legitimate supplier of like items (such as a seller of tobacco products);
—Possible legitimate uses of the object;
—Expert testimony concerning its use;
—The intent of the object's owner to deliver it to persons who he knows or reasonably should know intend to use it to facilitate violations of the Controlled Substances Act.

Also, the fact that many otherwise legitimate businesses—like tobacco stores and convenience stores—are selling items used to take, smoke, or ingest drugs raises difficult legal issues. For example, regular cigarette paper sold by a grocery store probably does not constitute drug paraphernalia. But paper of a different size and texture with a marijuana leaf printed on it might well constitute paraphernalia, especially if sold by a "head shop" (a store that sells primarily paraphernalia).

Offenses

The new act contains three separate sections setting forth violations, and each section carries a different criminal pen-

alty. G.S. 90-113.22 makes it unlawful for any person (1) to knowingly use, or possess with intent to use, drug paraphernalia to plant, cultivate, manufacture, compound, test, package, store, or conceal a controlled substance that is unlawful to possess; or (2) to inject, ingest, inhale, or otherwise introduce into the body a controlled substance that is unlawful to possess. A violation of this section is a misdemeanor, punishable by a fine of not more than $500, imprisonment for not more than one year, or both.

G.S. 90-113.23 makes it unlawful for any person to deliver, possess with intent to deliver, or manufacture with intent to deliver drug paraphernalia knowing that it will be (a) used to plant, harvest, manufacture, test, package, store, or conceal a controlled substance that is unlawful to possess, or (b) used to inject, ingest, inhale, or otherwise introduce into the body a controlled substance that is unlawful to possess. The delivery, possession with intent to deliver, or manufacture, with intent to deliver of each separate and distinct item of drug paraphernalia is a separate offense. Violation of this section is a misdemeanor punishable by a fine of not less than $1,000, imprisonment for not more than two years, or both.

The third offense section (G.S. 90-113.24) makes it unlawful to purchase or otherwise procure an advertisement in any newspaper, magazine, handbill, or other publication, or to purchase an advertisement on a billboard or other outdoor display, when the person knows that the ad's purpose is to promote the sale of objects designed or intended for use as drug paraphernalia. A violation of this provision is a misdemeanor punishable by a fine of not more than $500, imprisonment for not more than six months, or both.

Federal cases

As noted above, several states and municipalities have enacted drug paraphernalia acts similar to the one suggested by the Drug Enforcement Administration. The constitutionality of these acts has been repeatedly challenged in the federal and state courts, which have rendered very different and inconsistent opinions. A few of these cases will be discussed below.

In the litigation concerning drug paraphernalia laws, a common complaint has been that they are either "vague" or "overbroad" (or both) and therefore unconstitutional. Some explanation of the constitutional meaning of these phrases is needed. A statute is unconstitutionally *vague* if it prohibits some sort of conduct without giving persons of common intelligence fair notice of who is covered by the prohibition and exactly what conduct is prohibited. Fundamental fairness (which is part of the "due process" guarantee of the Fourteenth Amendment), as well as a proper regard for not interfering with constitutionally protected freedoms, requires that persons not be compelled to guess—at their peril—what a statute means and how it applies. If the statute is not clear as to what it prohibits and who is affected, arrests, prosecutions, and convictions made pursuant to it may become arbitrary and erratic—that is, the "vague" statute may leave too much discretion to police, prosecutors, and judges to decide just what it means. A statute is unconstitutionally *overbroad* if it prohibits or makes criminal any conduct that is protected by the Constitution. Thus, although the statute may not be vague, it is overbroad if its prohibition applies to protected freedoms.

Casbah, Inc. v. Thone. The leading case upholding the constitutionality of a drug paraphernalia act is probably *Casbah, Inc. v. Thone* [651 F.2nd 551 (Eighth Cir. 1981)]. In that case a Nebraska statute, which has wording very similar to the North Carolina statute, was challenged on the grounds that it was unconstitutionally vague and overbroad in violation of the due process clause of the Fourteenth Amendment to the United States Constitution. A federal appeals court (the Eighth Circuit) found the entire act constitutional. The court prefaced its opinion on the Nebraska statute by noting that due process has two requirements: (1) that laws provide notice to the ordinary person of what is prohibited, and (2) that they provide standards to law enforcement officials to prevent arbitrary and discriminatory enforcement. The wholesale distributors and retail merchants who challenged the Nebraska statute contended that the act would permit prosecution of a seller or manufacturer of an innocent item (like a spoon) if the buyer intended to use the item with controlled substances. But the court found that a fair reading of the statute as a whole indicated that the intent referred to was that of the person alleged to have violated the statute, and the act adequately defined the mental state required to render an item drug paraphernalia. In other words, the fact that the buyer intended to use the object purchased to violate the controlled substances law would not put the seller in violation of the law. The court also found that the fact that the list of items that constituted drug paraphernalia included numerous innocent items did not make the list vague and overbroad, because no item is "drug paraphernalia" without an intent to use it with controlled substances.

The Nebraska merchants also challenged provisions that made it unlawful for a person to deliver drug paraphernalia either knowing that it would be used for illegal purposes or under circumstances in which *he reasonably should know* that it would be used illegally. (This particular language does not appear in the "delivery" section of the North Carolina act [G.S. 90-113.23], which requires that before the law is violated the person who delivers the paraphernalia must *actually know* that it will be used for illegal purposes.) But the appellate court upheld these provisions, noting that similar wording is contained in numerous criminal statutes and does not render them unconstitutionally vague.

Finally, the merchants attacked the Nebraska act on First Amendment (free speech) grounds because it prohibits advertising that promotes the sale of objects designed or intended for use as drug paraphernalia. While admitting that the issue was close, the appeals court concluded that the advertising prohibition was constitutional. It gave these reasons:

Seed Separator

(1) The prohibition affects only commercial speech;
(2) The speech affected by the statute directly promotes illegal activity;
(3) The overbreadth doctrine does not apply to commercial speech to the same extent as it does to noncommercial speech.

Record Revolution v. Parma et al. While the Eighth Circuit Court of Appeals had no problem in finding a drug paraphernalia law constitutional, the Sixth Circuit Court found differently. In *Record Revolution No. 6, Inc., v. City of Parma et al.* [638 F.2d 916 (1980)], merchants in the Ohio cities of Parma, Lakewood, and North Olmstead challenged the constitutionality of municipal ordinances prohibiting the use, sale, and manufacture of drug paraphernalia. The trial court sustained the constitutionality of the ordinances after severing (deleting) certain phrases and construing the meaning and scope of other language. The plaintiffs appealed, alleging that parts of the ordinances were vague and overbroad and violated their constitutional rights to both free speech and due process. The ordinances in question were based almost verbatim on the Model Act drafted by the Drug Enforcement Administration.

The Sixth Circuit Court of Appeals quoted with apparent approval from introductory notes to the Model Act, which indicated that the availability of drug paraphernalia has reached epidemic levels, that an entire industry has developed that promotes and glamorizes the illegal use of drugs by adults and children alike, and that sales of drug paraphernalia may total $3 billion a year. The court also quoted from a statement by a deputy assistant United States Attorney General that outlawing the open advertisement and sale of drug paraphernalia will send a clear message to impressionable adolescents and others that society does not condone the use of illegal drugs.

Then the court noted that the Model Act uses three techniques to define "drug paraphernalia." First, the act uses the phrase "used, intended for use, or designed for use." Second, it lists by way of example a number of objects that could be drug paraphernalia. And third, it sets forth numerous factors to be considered in determining whether an object is drug paraphernalia.

The court further noted (a) that the due process clause includes the doctrines of void-for-vagueness and overbreadth; (b) that the void-for-vagueness doctrine requires that any statute give persons of common intelligence fair notice of exactly what conduct is illegal; and (c) that the overbreadth doctrine prohibits a statute from making innocent or constitutionally protected conduct a criminal offense (the harm from an overbroad statute being that it has a "chilling effect on" [stifles] otherwise lawful conduct).

Regarding the Ohio drug paraphernalia ordinances, the appeals court was particularly concerned about the problem of *transferred intent* that would infringe on due process by not giving the defendant proper notice of the items defined as drug paraphernalia and by convicting the defendant for another person's intent or misdeeds. For example, if a purchaser uses an ordinary tobacco pipe to smoke marijuana, do the Ohio ordinances permit the seller to be convicted on the basis of the purchaser's use? Or if the manufacturer designed a special pipe to be used for hashish and the purchaser used the pipe for that purpose, do the ordinances permit the seller, who lacks such intent and did not use the special pipe himself, to be convicted on the basis of the manufacturer's intent and the purchaser's use? The court concluded that while the words "used" and "intended for use" were not vague or overbroad, the phrase "designed for use" was both vague and overbroad because items constituting drug paraphernalia are not uniquely designed for illegal use.

The three Ohio cities' ordinances not only made it unlawful for a person to deliver or possess with intent to deliver drug paraphernalia, but also made it unlawful for him to deliver or possess it if he *has reason to know* that the object will be illegally used. The Sixth Circuit also found this "reason to know" standard vague and overbroad. (As noted before, this wording is not in the corresponding section of the North Carolina statute.)

Finally, the plaintiffs contended that the Ohio ordinances' prohibition of advertising that promotes the use or sale of paraphernalia unnecessarily infringes on the First Amendment right of free speech. On the other hand, attorneys for the Ohio cities argued that the prohibition of advertising was constitutional, because only the advertising of illegal activity was pro-

Cocaine Paraphernalia

scribed. The Sixth Circuit found that the ordinances could infringe on protected speech because: (1) they could be enforced against advertisers or publishers who place advertisements in printed media that circulate in other cities that do not prohibit the use or sale of drug paraphernalia; and (2) they could prevent the residents of the three cities that adopted the ordinances from receiving information about the availability of items in other cities.

In light of these conclusions, the Sixth Circuit remanded (returned) the case to the trial court for issuance of a permanent injunction prohibiting enforcement of the three Ohio drug paraphernalia ordinances.

From the above discussion, it is obvious that two federal courts of appeal have reached completely different conclusions as to the constitutionality of almost identical language. The *Casbah* case is being appealed to the United States Supreme Court [50 U.S.L.W. 3157, Aug. 8, 1981]. The *Record Revolution* case has already been appealed to the High Court, which set the Sixth Circuit decision aside and sent the case back for further consideration in light of amendments to Ohio's law [49 U.S.L.W. 3882, May 26, 1981]. To further complicate matters, the Seventh Circuit Court of Appeals later found a municipal drug paraphernalia ordinance to be unconstitutional [*Flipside, Etc. v. Village of Hoffman Estates*, 639 F.2d 373 (1981)], while the Tenth Circuit Court upheld Colorado's paraphernalia act [*Hejira Corp. v. McFarlane*,—F.2d—(1981)]. [The *Hoffman Estates* case went to the U.S. Supreme Court, which found the ordinance constitutional [30 C.R.L. 3079, March 3, 1982].

State court decisions

The state courts, in attempting to determine the constitutionality of drug paraphernalia laws, disagree as much as the federal courts. A town in California adopted an ordinance prohibiting the owner or manager of a business that sells or displays any device or paraphernalia for smoking or injecting marijuana, hashish, PCP, or other controlled substance from allowing a person under 18 on the premises unless accompanied by a parent or legal guardian. The trial court enjoined enforcement of the ordinance. The primary challenge to the ordinance was on the familiar grounds of vagueness and overbroadness and on violation of the right to free speech and expression. The California Court of Appeals found the ordinance constitutional [*Music Plus Four v. Barnet*, 170 Cal. Rptr. 419 (1980)].

The Oregon Court of Appeals reached a different conclusion in *Gaffey v. Babb* [624 P.2d 616 (1981)]. In that case, the owner of an admitted "head shop" brought action to enjoin enforcement of a drug paraphernalia ordinance adopted by the City of Brookings, Oregon. The ordinance made it unlawful for any person knowingly to manufacture, deliver, or sell drug paraphernalia or to possess drug paraphernalia with the intent to manufacture, deliver, or sell it. The trial court held the ordinance constitutional, and the head shop owner appealed. The appeals court found the ordinance to be unconstitutional because of vagueness and thus violative of due process. The court stated that "the definition of drug paraphernalia in the ordinance offers no

clear standard by which a person of common understanding could determine what items fall within its prohibition. The law enforcement agencies, the courts and juries are not supplied a sufficient standard to guard against arbitrary or *ad hoc* enforcement."

The North Carolina case

The North Carolina Drug Paraphernalia Act, which became effective on October 1, 1981, was challenged on September 29, 1981, in the Wake County Superior Court. The court issued a temporary restraining order against enforcement of the act pending a hearing for preliminary injunctive relief [*Adam's Apple Distributing Co., et al. v. State of North Carolina*, Wake County Superior Court, 81 CVS 7375].

The plaintiffs challenged the constitutionality of the act on numerous grounds. For example, they contended that:

(1) The definition of "drug paraphernalia" in the North Carolina act is vague and overbroad, in violation of due process standards.

(2) The act creates permissive inferences in violation of due process standards by allowing the factors listed in G.S. 90-113.21(b) to be considered evidence of guilt.

(3) The act restricts speech protected by the First Amendment.

A hearing on the preliminary injunction was held on October 14, 1981, after both sides had stipulated (agreed on) the facts and filed exhaustive briefs. After lengthy arguments by counsel, Judge Edwin S. Preston, Jr., concluded that the "plaintiffs had failed to demonstrate that they would probably succeed on the merits of their claim that the North Carolina Drug Paraphernalia Act was unconstitutional on its face or as applied to plaintiffs." He denied the the preliminary injunction and dissolved the temporary restraining order. As of this date, there have been no further proceedings in this case.

Following this decision, law enforcement agencies started making arrests to enforce the law, with the result that head shops closed and drug paraphernalia sales declined (*Raleigh News and Observer*, December 25, 1981).

Conclusion

The drug paraphernalia acts based on the U.S. Drug Enforcement Administration's Model Act (including North Carolina's) will be extremely difficult to enforce against retail establishments. By their terms no item meets the definition of "drug paraphernalia" unless it is intended or designed to facilitate violations of the Controlled Substances Act. For example, a hypodermic needle purchased for medical purposes is not drug paraphernalia, but the same needle purchased for the purpose of injecting an illegal drug constitutes drug paraphernalia. Many items are legal or illegal depending on their use. Liquor purchased in an ABC store for the purpose of consumption is perfectly legal, but the same liquor purchased (by a bootlegger) for purpose of resale is illegal. Still, in either case, whether legal or not, liquor is liquor. But the Drug Paraphernalia Act provides that items sold with the intent that they will be used in connection with drug use *ipso facto* are drug paraphernalia.

With all of its unavoidable imperfections, the North Carolina Act still constitutes a desirable, if weak, weapon in the fight against the illegal drug trade. As pointed out in the *Record Revolution* case, sales of drug paraphernalia may be as high nationally as $3 billion a year. The paraphernalia acts, if they eventually pass constitutional muster, could have the beneficial effect of preventing legitimate businesses from facilitating, as well as profiting from, the illegal drug trade. ●

The North Carolina Involuntary Commitment Law in Practice—

A Courtroom Study

Virginia Aldigé Hiday

Since 1973 North Carolina law has provided that before a person can be involuntarily committed (committed without his consent) to a mental hospital, it must be proved by clear, cogent, and convincing evidence that he is dangerous to himself or others and mentally ill. (See the article by Stevens H. Clarke on page 44, which describes the history and present status of the involuntary commitment law.) Being "dangerous to himself" includes being unable to provide for one's basic needs for food, clothing, and shelter.[1] But whether a person is dangerous is often difficult to decide—as two of the following cases indicate.

Emma was a middle-aged single woman who lived in a small house in a rural community with her father, a wheelchair patient with a heart condition. She had once been hospitalized for paranoid schizophrenia but had been living at home while she received treatment from the community mental health center. Emma recently stopped taking her medication. Then one day she assaulted her father with her fists and nails. Bruised and cut, he suffered a heart attack. Emma said that the devil got into his body and she was trying to hurt the devil. Was Emma dangerous?

How about Joe? Joe was 18, and he lived with his divorced mother in a trailer on the outskirts of a western North Carolina town. He spent most of the day around the house, sleeping or listening to rock music, but he sometimes visited a car garage where he once worked. He did not eat properly or regularly and often stayed awake much of the night listening to rock records. He and his mother often argued over the music, which disturbed her sleep. He had been in a mental hospital three times in recent years and was currently receiving treatment at the community mental health center. He did not go to his last appointment at the center because, he said, he did not have transportation. Joe had once been diagnosed as a schizophrenic, but the doctors had recently diagnosed him as manic and had changed his medication. They now wanted the court to commit him until the new medicine took effect.

Then there is Henry, an elderly widower who lived with his divorced daughter and her four children. Slightly senile, he could no longer work outside the house. Most of the time he was quiet, but on occasion he became cantankerous. He argued with his daughter about being more strict with her children and making them do more work around the house. One day Henry was raking leaves in the backyard. His ten-year-old grandson, told to sweep the driveway, was playing instead. Henry approached him, shaking the rake and threatening to punish him. But he did not strike or harm the child. The daughter, who was expecting house guests the following week, petitioned to have Henry committed. Was he dangerous?

Probably the best guide to a person's future behavior—though far from perfect—is his past behavior; this is documented by both scientific studies[2] and

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1. N.C. GEN. STAT. §§ 122-58.2, -58.3 (Cum. Supp. 1977).

2. Studies of psychiatric predictions of dangerousness show them to be woefully inaccurate. Psychiatrists tend to overpredict dangerousness and are often biased in their predictions. *Clinical*

our common sense and experience. State laws now generally require evidence of past dangerous behavior before it can be decided that a mentally ill person should be committed. The U.S. Supreme Court, as Clarke's article explains, has recently held that it is unconstitutional to commit a mentally ill person who is not dangerous without his consent merely to hold him in custody (although the Court has not said whether such a person could be committed for the purpose of a genuine treatment).

When North Carolina reformed its involuntary commitment statute in 1973 to require that it be shown that a person is dangerous to himself or others before he can be committed, it also required certain procedures to determine dangerousness constitutionally, including notice to the respondent (this is the legal term for a person whose commitment is sought), counsel, a hearing in district court, cross-examination of witnesses, appeal, and regular review. Because of these procedures, all of which are required by the due process clause in the U.S. Constitution, a belief has spread among the public and mental health professionals that it is very difficult to commit a mentally ill person who is dangerous—a belief that has little basis in fact. Although commitment is more difficult than it used to be, it is not difficult to commit a person whose past behavior indicates that he is dangerous. Unfortunately, many people who are not dangerous are committed because of a general public apprehension about mentally ill persons.[3]

To gain information about how civil comitment works in practice and to study the difficulty of committing a dangerous person, two members of our research team sat as observers in 414 commitment hearings in North Carolina courtrooms between March and September 1979. The respondents were all people who were alleged to be mentally ill and were living in the community—they did not include inebriates, retarded persons, and mentally ill persons who were to be recommitted. About 80 per cent of the hearings studied were in courts located in the four state mental hospitals to which most respondents are taken for observation and evaluation before their hearings. The other 20 per cent of the hearings took place in a district court either in the county where the respondent was being held in a local mental health center or private facility or in the county where the petition originated (if the respondent requested a change of venue).

Methods used in the study

To obtain data on evidence of dangerousness and difficulty of commitment, we used a checklist to code the testimony of witnesses who described the behavior that led to the petition to commit the respective respondents. We determined upon five factors in the respondent's alleged behavior that would serve as measures of dangerousness:

(1) The type of alleged behavior—(we labeled the various types as "physical attack," "threat of physical attack with some action," "threat of attack without any action," "attack on property," and "unintentional harm");
(2) When the behavior occurred (how many days elapsed between the alleged behavior and the petition and between the petition and the hearing);
(3) The potential harmfulness of the alleged behavior as shown by either the weapon used (such as a knife) or other means used (such as wandering about so as to endanger oneself);
(4) How often the alleged behavior occurred; and
(5) The object of the behavior—the respondent himself, other people, or both himself and others.

The first four indicators were chosen because federal courts have stated that before the respondent may be considered dangerous, his act, attempt, or threat must be recent, the harm must be substantial, and the future harm must be likely.[4] (Since the study was completed, the North Carolina General Assembly has incorporated these same ideas into the statutory definition of "dangerousness to himself or others."[5])

As to type of behavior (the first indicator), we included "physical attack," "threat with some action," and "threat without action" because they place people in actual or potential danger of injury or loss of life. In this analysis, physical attack means any assault, even if the assault was checked when it began. Threat with some action excludes threats with attempts at physical harm but includes threats accompanied by any action that might permit the threat to be carried out later—like threatening suicide and then buying a gun. Threat with no action includes any statement of future action that might kill or injure another—such as stating an intent to shoot someone. "Attack on property,"[6] like chopping up a chair with an ax or throwing a set of dishes on the floor one by one—was included as a fourth type of dangerous behavior because it suggests irrationality and loss of self-control. Such an action could easily make others fear that this violent behavior might be turned against them. "Unintentional harm" included actions (like wandering down the middle of a busy highway or pouring gasoline on a stove) that could endanger the respondent or other people.

Aspects of the Violent Individual, Task Force Report 8 American Psychiatric Association, 1974); J. Monahan, *The Clinical Prediction of Violent Behavior* (Rockville, Md.: NIMH, Center for Studies of Crime and Delinquency, 1981), U.S.D.H.H.S. No. (ADM), pp. 81-912; H. J. Steadman and J. J. Cocozza, *Careers of the Criminally Insane* (Lexington, Mass., Lexington Books, 1974). The American Psychiatrist Association has stated in two court cases that psychiatrists have no expertise in predicting dangerousness, and it has called for members of the profession to avoid conclusory judgments on dangerousness. T. P. Wise, "Where the Public Peril Begins: A Survey of Psychotherapists to Determine the Effects of 'Tarasoff,'" *Stanford Law Review* 31 (November 1978), 165-90; *Clinical Aspects of the Violent Individual*, Task Force Report 8 American Psychiatric Association, 1974).

3. J. Fracchia, D. Canale, E. Cambridge, E. Ruest, and C. Sheppard, "Public Views of Exmental Patients," *Psychological Reports* 28 (April 1976), 495-98; J. C. Nunnally, *Popular Conceptions of Mental Health* (New York: Holt, Rinehart, and Winston, 1961); P. D. O'Mohony, "Attitudes to the Mentally Ill," *Social Psychiatry* 14 (April 1979), 95-105; Rabkin, "Opinions About Mental Illness," *Psychological Bulletin* 77 (March, 1972), 153-71; S. A. Shah, "Some Interactions of Law and Mental Health in the Handling of Social Deviance," *Catholic University Law Review* 23 (Summer, 1974), 674-719; Steadman and Cocozza, *Careers of the Criminally Insane*.

4. Lessard v. Schmidt, 379 F. Supp. 1367, 1379 (E.D. Wis. 1974); Lynch v. Baxley 386 F. Supp. 387 (N.D. Ala. 1974); Millard v. Harris, 406 F.2d 964 (1968); and Cross v. Harris, 418 F.2d 1095 (1969).

5. N.C. GEN. STAT. § 122-58.2(1).

6. Attack on property is not included as a dangerous behavior in the definition of dangerousness in the North Carolina statute.

We used evidence of weapons or other means of inflicting harm, rather than evidence of actual harm inflicted by the respondent's acts, as an indicator because little or no actual physical harm occurred in the majority of cases studied. When respondents took harmful action, apparently they usually stopped—either on their own or because other people intervened—before much damage was done.

Since hearings often involved several witnesses who testified about more than one episode of behavior, all witnesses were counted equally in examining testimony in a case. The categories used to classify behavior were comprehensive, but they were not mutually exclusive because witnesses could differ in their testimony about whether a dangerous act occurred or whether a respondent engaged in more than one dangerous act. For instance, one witness could say that the respondent threatened to beat up someone while a second witness testified that he was a very gentle person who never threatened harm.

Results of the study

Table 1 shows the number of cases in which testimony about a respondent's behavior reported that he had shown one of the first four indicators of dangerousness. Such reports were made in about three-fifths of the cases—that is, in 240 out of 414 cases. In order of frequency, the dangerous behaviors reported were (1) threats both with and without some action to execute them, (2) physical attacks, (3) unintentional harm, and (4) property attack.

In about 80 per cent of the cases testimony was given about frequency, or recency, or use of a weapon. But in only 55.3 per cent of the cases was evidence given of all three elements. And even when all three elements were included in the testimony, the level at which they were present in the respondent's behavior did not always pass the threshold to an area that represents immediate dangerousness. For example, in only 44.7 per cent of the 240 cases in which dangerous behavior was alleged did the reported incident occur within one week before the petition or between the petition and the hearing. And in the cases that were recent, only 17.6 per cent of the incidents occurred more than once, and less than 50 per cent involved use of a weapon or an instrument that could inflict serious harm—such as a gun, knife, drug, fire, hands, or fists.

The most striking finding is that in all of the remaining cases (42 per cent, or 174 cases), there was no eyewitness testimony that the respondent had engaged in dangerous behavior. One might wonder why commitment proceedings were initiated against these 174 people.

—In 12.6 per cent of these cases, witnesses testified that the respondents' behavior, while not harmful, was annoying or bizarre and disrupted the life of family members or others close to them. In another 17.2 per cent of the cases, the testimony was that the respondent had merely behaved unconventionally—i.e., had not eaten properly or had not slept at night.

—In some cases, the testimony about dangerous behavior was merely hearsay evidence, and therefore was ruled inadmissible. It was not uncommon for families or nursing home staffs to send only one person to speak for all who sought to commit the respondent. Frequently that witness had no direct knowledge of the

Table 1

The Relationship Between Commitment Decisions and Testimony Concerning Respondents' Behavior

Behavior	Number alleged**	Percentage committed	Percentage released	Percentage assigned to alternative treatment
Physical attack alleged	113	71.7%	20.4%	8.0%
Frequency testimony present	99	70.7	21.2	8.1
Recency testimony present	96	72.9	18.8	8.3
Weapon testimony present	95	69.5	22.1	8.4
Threat with action alleged	47	61.7	29.8	8.5
Frequency testimony present	41	56.1	34.1	9.8
Recency testimony present	35	54.3	34.3	11.4
Weapon testimony present	35	65.7	24.2	11.4
Threat without action alleged	102	65.7	29.4	4.9
Frequency testimony present	79	64.6	30.4	5.1
Recency testimony present	76	67.1	27.6	5.3
Weapon testimony present	35	54.3	40.0	5.7
Unintentional harm alleged	90	66.7	26.7	6.7
Frequency testimony present	70	70.0	21.4	8.6
Recency testimony present	57	73.7	19.3	7.0
Weapon testimony present	82	68.3	24.4	7.3
Property attack alleged	55	72.7	18.2	9.1
Frequency testimony present	44	81.8	13.6	4.6
Recency testimony present	37	75.7	16.2	8.1
Weapon testimony present	41	75.6	14.6	9.8
N of cases with testimony alleging dangerous behavior*	240	66.3	26.7	7.1
N of cases with all testimony denying dangerous behavior*	23	39.1	60.9	0.0
N of cases with no mention of dangerous behavior*	151	34.4	61.6	4.6
Total N	**414**	**53.1**	**41.3**	**5.6**

*Dangerous behavior means one of the five types listed above (physical attack, threat of attack with action, threat without action, unintentional harm, and attack on property).

**Frequencies total more than 100 per cent because behavior categories are not mutually exclusive.

respondent's alleged dangerous behavior, so his testimony was excluded by the court.

—In some cases the only dangerous behavior mentioned was in the psychiatrist's affidavit, which the respondent's counsel had already accepted without question. Psychiatric reports of dangerousness were brief and often contained only the psychiatrist's conclusions or were based on hearsay (what someone who did not appear as a witness had said to the psychiatrist).

—In some cases a single witness, generally a family member, testified that he wanted the respondent to come home or that he thought the respondent was not dangerous at present. When this happened, the courts often discharged the respondent without hearing further evidence.

—In some cases, the behavior described was neither dangerous nor annoying.

—Finally, in some cases, no evidence of *any* dangerous behavior was presented, and only conclusions were given.

Table 2 shows, by type and recency of the behavior, against whom dangerous behavior was directed. Testimony concerning dangerous behavior was presented in 240 cases out of the total of 414 cases. In 46.3 per cent (111) of these 240 cases, the alleged dangerous behavior was directed at the respondent himself rather than against others. In the remaining 53.8 per cent (129) of the cases, the alleged dangerous behavior was directed against others or, rarely, against both self and others. The actions directed against others were usually attacks and threats, while the actions against the respondent himself tended to be of the unintentional-harm type, like wandering down the middle of a busy highway.

Table 2

Proportion of Respondents Committed, by Object and Type of Alleged Dangerous Behavior, Recency, and Frequency

Type of alleged behavior*	All cases		"Recent"** cases		"Recent" recurrent"*** cases	
	N	Percentage committed	N	Percentage committed	N	Percentage committed
Physical Attack						
Self	17	52.9%	11	54.5%	5	80.0%
Other	91	75.8	63	82.6	23	87.0
Both	5	60.0	5	60.0	3	66.7
	113		79		31	
Threat with action						
Self	3	66.7	1	0.0	0	—
Other	41	61.0	27	59.3	6	50.0
Both	3	66.7	0	—	0	—
	47		28		6	
Threat without action						
Self	5	60.0	9	66.7	1	100.0
Other	76	65.8	46	71.8	13	69.2
Both	11	72.7	3	66.7	1	100.0
	92		58		15	
Unintentional harm						
Self	81	70.4	45	80.0	21	85.7
Other	2	0.0	0	—	0	—
Both	7	42.9	5	40.0	3	66.7
	90		50		24	

*Behavior categories are not mutually exclusive

**"Recent" cases were those in which testimony indicated that the allegedly dangerous behavior occurred within one week of the petition or between the petition and hearing.

***"Recent recurrent" cases were those involving testimony that the allegedly recent dangerous behavior had occurred more than once.

How difficult is it to commit someone?

Once testimony had been presented, how often were respondents committed? Again, this testimony involved only allegations, many of which did not meet the level of clear, cogent, and convincing proof of dangerousness that the law requires before someone may be committed.[7] For instance, testimony by two witnesses might conflict. One witness might claim that the respondent tried to jump out of a speeding car while another equally credible witness might testify that the respondent accidentally bumped the door handle and almost fell out of the car.

In the 240 cases in which testimony was presented that alleged one or more types of dangerous behavior, the overwhelming majority of respondents (66.3 per cent) were committed. The highest commitment rates came in cases in which testimony was presented of property attack (72.7 per cent) or of physical attack (71.7 per cent). The lowest commitment rates came in cases in which testimony of threats was given—65.7 per cent when action to execute the threats was taken, and 61.7 per cent when no action was taken.

The commitment rates were higher in cases in which testimony showed that the dangerous behavior either (a) had occurred within one week before the petition or between the petition and the hearing, or (b) had occurred more than once (see Table 2). Surprisingly, evidence that the respondent had used a weapon or other instrument made no consistent difference in commitments, though respondents were somewhat more likely to be committed if their conduct was directed at others than if it was directed only at themselves (see Table 2). Perhaps the courts

7. N.C. GEN. STAT. § 122-58.7(i) (1977 Cum. Supp.).

considered dangerousness to others as somewhat more serious than dangerousness to self.

How about the 174 cases in which *no* testimony of dangerous behavior was presented? The court committed the respondent in 39.1 per cent of cases in which the only testimony *denied* any dangerous behavior and committed the respondent in 34.4 per cent of cases in which there was no testimony either alleging or denying dangerous behavior.

Why were some respondents not committed when there *was* testimony of dangerous behavior, especially if it was recent, recurrent, and serious? One reason is that the evidence may not have reached the level of proof statutorily required for commitment—"clear, cogent, and convincing." Another reason is that sometimes the psychiatrist testified that the respondent was no longer dangerous or could be treated outside the hospital—perhaps because the respondent had become stabilized on medication. In 6.4 per cent of cases with evidence of dangerous behavior, the psychiatrist recommended either release or a less restrictive alternative to commitment, such as outpatient treatment in a community mental health center. A third reason was that in some cases the respondent's counsel persuaded the court that special circumstances had caused his client's unusual behavior that the respondent was no longer dangerous, or that he could obtain adequate help outside a mental hospital. The court assigned 7.1 per cent of the respondents with evidence of dangerous behavior to a treatment other than hospitalization and released 26.7 per cent. Often the court informally agreed to an alternative treatment but did not formally write it in the court order. At times neither the psychiatrist nor respondent's counsel recommended an alternative to involuntary hospitalization but the judge actively sought it in questioning witnesses himself.

Thus we see that the courts based their decisions not only on testimony that the respondent was dangerous before or while he was in custody (and could be assumed to be mentally ill), but also on evidence of his dangerousness at the time of the hearing and on the availability of alternatives to involuntary hospitalization.

What about the 59 respondents who, without any evidence of dangerous behavior, were committed? For 23.8 per cent of these, there was evidence of nondangerous but deviant behavior—such as pouring stove-heated water on plants, being nude in the house, and running around and bumping into things. Such behavior can be annoying and disruptive, but it is not dangerous by the definitions used here. Given the public's fear of the mentally ill, it is not surprising that relatives of these respondents became apprehensive, interpreted their behavior as dangerous, and began commitment proceedings. Relatives of respondents who had been previously dangerous may have regarded their peculiar behavior as a first step toward becoming dangerous again—and perhaps they were right. The court, having learned of a respondent's past dangerousness, may have decided not to wait for a dangerous act to occur and ordered commitment.

In 151 cases no eyewitness testimony on dangerous behavior was presented as evidence. In 90 per cent of these cases the psychiatrist's affidavit had mentioned one of the five indicators of dangerous behavior used in this paper. The statute allows such statements to be admitted as evidence if the respondent's counsel does not wish to cross-examine the psychiatrist. Seldom (in only 4.2 per cent of all cases) did the counsel challenge the psychiatrist's indications of dangerousness in his affidavit, even though in 10.1 per cent of the cases these affidavits did not set forth the facts indicating dangerousness that are legally required before a person may be committed.

At the state mental hospitals, where an attorney spends full time representing respondents in civil commitment cases and psychiatrists can easily be called to court, the lawyer often did not wish to have the psychiatrist testify. The respondent's lawyer had already talked to the psychiatrist or a staff member and either (1) knew that his testimony would be identical to what he wrote in the affidavit and wished to spare the psychiatrist unnecessary bother; or (2) knew that he would give evidence even more damaging to the respondent and wanted to keep the more damaging facts out of evidence.

In hearings not held in state mental hospitals, counsel tended simply to concede the points made in the physician's affidavit. Both counsel and judge tended to accept the medical affidavit as evidence of dangerousness without question. Perhaps most reports were accurate and nothing would be gained by questioning the psychiatrist in court; but we will never know. The attorneys' general failure to interview psychiatrists, petitioners, or other witnesses before court hearings and their frequent failure to interview respondents[8] left the court with no means to judge the accuracy of the statements made. Also, because they only briefly examined the respondents and the respondents usually did not exhibit dangerous behavior during the examination, psychiatrists were evidently accepting other persons' opinions or observations regarding dangerousness. Thus in accepting the psychiatric affidavit as evidence of dangerousness, the court was often accepting the word of someone other than the psychiatrist.

Discussion

The data collected from testimony in court hearings do not support the widely held belief that it is difficult to commit a mentally ill person who is dangerous. They also do not support the belief that respondents in involuntary commitment proceedings are violently dangerous to society. Instead, they indicate just the opposite. (1) Most mentally ill respondents in initial involuntary commitment hearings do not seem, on the basis of the testimony introduced, to be violently dangerous to society; and (2) when testimony of dangerousness is introduced most mentally ill respondents are committed. Furthermore, the data indicate that a significant proportion of persons are committed even though there is no testimony of any dangerous behavior.

Some respondents were released even though testimony of dangerousness (in some cases, recent, recurrent, and serious dangerousness) was presented. Generally these persons were stabilized on medication. If they stopped taking their medication, their psychiatric symptoms would reappear and they might become dangerous again. Close follow-up of these released respondents in the community to assure continuation of their medication would go far to alleviate the problem of recurring dangerousness. Unfortunately, an effective follow-up system does not exist in most North Carolina counties. If there were civil court commitment personnel equivalent to criminal court probation officers, effective follow-up would

8. For a full discussion of counsel's role in civil commitment in North Carolina, see V. A. Hiday, "The Attorney's Role in Civil Commitment," *North Carolina Law Review* 60 (forthcoming).

be possible. Such personnel could be responsible for investigating community alternatives, informing the court of their investigations, explaining the court's findings and decisions to mental health centers, checking on respondents' conformance with outpatient treatment, and reporting respondents' progress to the court.

Emma, Joe, and Henry described at the beginning of this article exemplify the statistical findings of this study. The court released Henry after it found no evidence that he was dangerous. Both Emma and Joe were committed to involuntary hospitalization. For Emma, the court found clear evidence that she physically assaulted her father. For Joe, his mother—the only witness who alleged his dangerousness—stated that he threatened her, but she also testified that he never said he would kill or hurt her in any way. Therefore evidence of Joe's dangerousness was not clear.

North Carolina's involuntary commitment procedure requires meeting a standard of dangerousness and following an adversarial procedure. This procedure is designed to protect everyone from the possible abuse of the state's power. If a member of the community believes, on the basis of direct observation, that a person is really dangerous to himself or others and should be committed, he may file a commitment petition, but the petition may not be effective unless he takes the time to appear in court and testify—which may be difficult. The petitioner may be a friend or relative of the respondent and thus may feel guilty about testifying "against" him. Also, the petitioner may have a low income, and traveling to a state mental hospital often means lost wages and transportation expenses. (In fact, it is a sign of respect for our legal system that so many petitioners and witnesses *do* testify in court despite the difficulties involved.) But if the petitioner and other community members with reliable knowledge of the respondent's dangerous behavior do not go to court and the court then releases the respondent, they may become convinced that "legal red tape" is to blame, when in fact the respondent is released because it would be unfair to commit him without clear and convincing evidence that he is dangerous. ●

Appraising Teachers *(continued from page 31)*

security of its members. In some states, unions have effectively stalled legislation aimed at improving teacher performance.[15] Though the union movement is not as strong in North Carolina as elsewhere, the North Carolina Education Association would endorse the Liaison Committee Report on the proposed Quality Assurance Plan *only* if the recommendation that teachers who supervise student teachers and provisionally certified teachers receive extra pay was eliminated. North Carolina teachers' unions have also criticized evaluation proposals that might reduce representation of minority groups in teaching staffs.

Will judicial review make PAP difficult to use? For example, will the courts intervene if teachers are fired for inadequate performance? Recent reviews of court decisions elsewhere suggest that they will not.[16] Until now, at least, the judicial system has carefully avoided deciding questions of teacher competency, usually ruling that teacher performance is best judged by local education professionals. But if the courts do intervene, PAP may help to support a disputed dismissal of a teacher because it will supply a written record of compliance with due process procedures: it is only fair to give a teacher notice that he is not meeting expectations. Such communication may reduce the unpleasantness of interpersonal relationships during a difficult time and may prevent bitter legal altercations later. Documentation of the problems and the steps taken to address them creates hard evidence of good intent in the event of judicial proceedings. PAP would supply this documentation annually.

In conclusion, the Performance Appraisal Program represents a strong desire by legislators to improve the quality of teaching in the state and thereby the quality of education for all children. The program coincides with other governmental efforts to improve teacher education (QAP) and to recognize excellence in the teaching field (the Personnel Commission). The proposed evaluation methods need much improvement that may be accomplished over the next several years. The important question now is whether the evaluation process will be used honestly by the education establishment to recognize superior performance and improve or eliminate poor performance. ●

15. J. L. Fiewald, "Tenure: Another Sacred Cow about to Bite Dust," *Phi Delta Kappan* 60 (September 1979), 50-52.

16. J. P. Mahone, "Giving Reasons for Terminating Employees," *National Association of Secondary School Principals' Bulletin* 63 (December 1979), 35-42; R. J. Munnelly, "Dealing with Teacher Incompetence: Supervision and Evaluation in a Due Process Framework," *Contemporary Education* 50 (Summer 1979), 221-25.

Recent History of North Carolina's Involuntary Commitment Law

Stevens H. Clarke

This article supplies a legal and historic context for the article by Virginia Hiday elsewhere in this issue concerning court hearings for involuntary commitment (commitment without the person's consent) to a mental hospital. Her article asks what sort of proof that the person is dangerous is required, in practice, before such a commitment can be made. This article outlines changes in North Carolina's involuntary commitment statute since 1973 that have affected not only what must be proved before someone can be committed but also how it must be proved.

Before turning to North Carolina legislation, let's briefly consider an important constitutional question. Does a person have to be proved *dangerous* before he can be committed to a mental hospital against his will? The United States Supreme Court has never answered this question, but it came close in its 1975 decision of *O'Connor v. Donaldson* [422 U.S. 563, 95 S.Ct. 2486, 45 L.Ed. 2d 396]. Donaldson had been committed involuntarily to a Florida state mental hospital in 1957, where he remained for 15 years, because his father thought that he was suffering from "delusions." A county judge found that he was suffering from "paranoid schizophrenia" and committed him for "care, maintenance, and treatment" under a Florida law that has since been repealed. There was no evidence that he had been dangerous to himself or anyone else before he was committed, nor was there any such evidence during his fifteen years of hospitalization, during which he behaved peaceably and repeatedly asked to be released. He had earned his own living for fourteen years before his commitment, and as soon as he was released (on a court order), he obtained what the U.S. Supreme Court called "a responsible job in hotel administration." Donaldson sued O'Connor, the hospital superintendent, for damages under the Federal Civil Rights Act (42 U.S. Code § 1983). The jury found—and the Supreme Court emphasized—that: (1) Donaldson was dangerous neither to himself nor to others; and (2) he had not actually received treatment during his hospitalization. (O'Connor contended that Donaldson had received "milieu therapy," but the evidence showed that this term was just a euphemism for simple confinement in the mental hospital.) The jury found that Donaldson's civil rights had been violated and awarded him damages. When the case eventually reached the Supreme Court, the Court set the judgment aside and returned it to the federal district court, suggesting that O'Connor had an additional "good faith" defense that the jury had not been instructed to consider. But the Court held that a "nondangerous" person cannot constitutionally be involuntarily committed when he is simply held in custody without any treatment. It said:

> . . . a State cannot constitutionally confine without more [i.e., without more than mere custody] a nondangerous individual who is capable of surviving safely in freedom by himself or with the help of willing and responsible family members or friends.

The Court did not decide two issues not presented by the facts in Donaldson's case: (1) whether an involuntarily committed *dangerous* person has a right to treatment; and (2) whether a *nondangerous* mentally ill person may be involuntarily committed for the purpose of treatment. With these constitutional issues still undecided, the states have a good deal of room for legal maneuvering concerning involuntary commitment procedures and the type of care provided to committed persons.

In 1973, the North Carolina General Assembly enacted legislation providing comprehensive and stringent procedural protection for people alleged to be mentally ill. Since 1973 it has gradually moved away from that extreme position, retaining much more procedural protection than existed before 1973 but making it somewhat less difficult to commit such people. The 1973 legislation may have stemmed partly from the widespread concern for the civil rights of all people (e.g., the handicapped, the elderly) during the 1960s and early '70s, and it also resulted

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from the attention drawn to the problem of involuntary commitments by the case of one young woman, whom we will call Jane Doe, who was seventeen when her case began in 1969.

In 1969, the law [G.S. 122-60 through -65.5 (1964)] authorized the clerk of superior court to detain an allegedly mentally ill person in a mental hospital for further examination if "some reliable person having knowledge of the facts" filed an affidavit saying that the person "is in need of observation or admission in a hospital for the mentally ill or inebriate . . . ." The clerk of superior court in Durham County committed Ms. Doe to Umstead State Mental Hospital on April 14, 1969, on the basis of a physician's affidavit alleging that she was suicidal or homicidal (the affidavit did not say which).

Later that same day at Umstead Hospital, two physicians (one of whom had filed the first affidavit) examined Ms. Doe; they stated in a signed affidavit that she was suffering from mental illness or inebriacy and should be admitted to a mental hospital. The next step required by the law at that time was "an informal hearing" by a clerk of court, with notice to be given to the allegedly mentally ill person (known legally as the "respondent"). On April 28, 1969, Ms. Doe received written notice of a hearing at Umstead Hospital, and fifty minutes later the hearing was held. No attorney represented her. The only evidence that the clerk of superior court, who acted as hearing officer, saw was (1) the affidavits already mentioned, plus another affidavit by a social worker simply saying that Ms. Doe needed to be admitted; and (2) an unsigned statement by a physician that Ms. Doe had had sexual intercourse with several people "in the community" causing vaginal bleeding that endangered her health, had previously been in mental institutions for about three years, did not use alcohol or drugs, and had never attempted or threatened homicide or suicide. *There was no evidence indicating any violent, destructive, or suicidal behavior on her part or that she could not take care of herself.* Nevertheless, the clerk found that Ms. Doe needed treatment and ordered her hospitalized for 180 days. The following October the hospital superintendent recommended that she remain; in November she waived her right to contest her commitment, and the clerk committed her "for a minimum necessary period according to law."

Three years later, in 1972, a habeas corpus petition was filed for Ms. Doe (she was still in the hospital) in superior court. The judge ordered her released. He said that the procedure by which she had been committed had deprived her of liberty without her constitutional right to due process of law. Due process had been denied because she had not had adequate notice of the hearing, had not been represented by counsel or able to present witnesses in her behalf, and had not had hearings by a judicial officer at all stages of the procedure that could result in deprivation of her liberty. In 1973, the State Court of Appeals upheld the judge's decision. It said that the involuntary commitment procedure was unconstitutional but did not identify any specific flaws in the statute, noting that the General Assembly had (by then) already rewritten it extensively. The State Supreme Court affirmed the Court of Appeals' decision without an opinion. [*See In re Doe*, 18 N.C. App. 560 (1973), *aff'd*, 283 N.C. 753 (1974).]

In 1973, anticipating the Court of Appeals' decision, the General Assembly made the procedure for involuntary commitment to a state mental hospital much stricter [N.C. Sess. Laws 1973, Ch. 726; G.S. Ch. 122, Art. 5A (1974)]. The new law provided that before a person could be involuntarily committed, he had to be either (a) "violent and of imminent danger to himself or others," or (b) "gravely disabled"—which was defined as "unable because of mental illness or inebriety to provide for basic personal needs for food, clothing, or shelter." (It seems very doubtful that the evidence introduced in Jane Doe's hearing would have satisfied either of these criteria.) The 1973 legislation authorized only two methods of involuntary commitment to a state mental hospital, both of which required a decision by a law enforcement officer. (1) A law enforcement officer could take a person into custody to have him examined by a physician within 24 hours, but only if he or a physician first decided "by reason of the commission of overt acts" that the person was either "violent and of imminent danger to himself or others" or "gravely disabled." If a physician stated in writing—on the basis of "overt acts"—that the person met either of the criteria, the officer could then take the person immediately before a magistrate for a hearing (magistrates are the lowest-ranking judicial officers in the North Carolina court system). (2) In an emergency a law enforcement officer could take a person into custody and bring him immediately to a magistrate if the officer had reasonable grounds, based on the person's "overt acts," to believe that the person was "violent and of imminent danger to himself or others and that the delay of obtaining a medical examination would likely endanger life or property."

The next step established by the 1973 legislation also required that the respondent receive a hearing before a magistrate. If the magistrate found that the respondent met either of the criteria for commitment, he was to order the officer to take the person to a mental hospital pending a hearing before a district court judge; otherwise he was to order the person released. (If the officer had used the emergency method of taking the person into custody, a slightly different procedure was followed.) The magistrate's order had to "contain findings of fact which specify the overt acts" on which the magistrate's finding was based. When he arrived at the hospital, the respondent was to be examined by a physician within 24 hours and released unless the physician stated in writing that the person met either of the commitment criteria. Within ten days after being taken into custody, the respondent was entitled to a hearing by a district court judge to determine—on the basis of evidence of "overt acts"—whether he met one of the criteria. He was also entitled to 48 hours' advance notice of the hearing, to be represented by an attorney, and to have an attorney appointed at state expense if he was indigent. (The right to counsel was a major change in the commitment procedure—although as Virginia Hiday's article suggests, lawyers do not seem to play as vigorous an adversary role in commitment proceedings as in other kinds of proceedings.) If the judge found that the person met one of the criteria, he could commit him again for up to 90 days. The person could then appeal to the superior court for a hearing de novo (i.e., all over again from scratch) and had a right to a jury trial of the issue. Another district court hearing was to be held every 120 days thereafter, while the mental hospital kept the respondent, who was to receive fifteen days' notice and a right to an attorney at each hearing.

The 1973 legislation suddenly imposed very substantial burdens on the courts and those who sought to have a person

Mental Hospital Population Trends During a Decade of Legislative Change

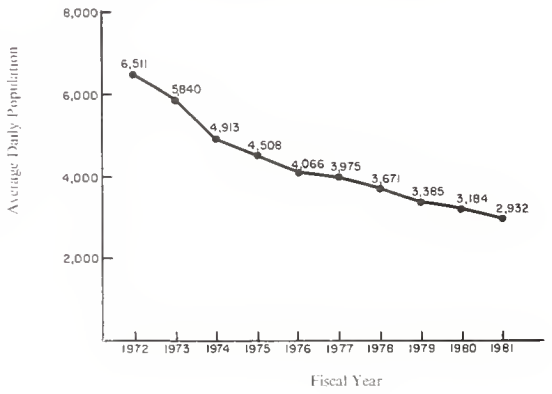
During the 1970s North Carolina's legal restrictions on involuntary commitment sharply tightened and then gradually eased somewhat. What was happening in the meantime to the population of the four state mental hospitals? The average daily population declined—from 6,511 in fiscal 1972 to 2,932 in fiscal 1981, a reduction of 55 per cent (see Fig 1). Most of this decrease (38 per cent) occurred from 1972 to 1976, when major legislative changes were occurring.

What happened to admissions and discharges during the 1972-1981 period? Total annual admissions rose somewhat and then declined to about where they began (see Fig. 2). This total takes into account new admissions (persons admitted to the hospitals for the first time), readmissions (persons who have been treated before), and deaths of patients (deaths decreased from 743 in 1972 to 189 in 1981). New admissions (not shown on the graph) declined—with almost no interruption—from 6,352 in 1972 to 4,347 in 1981, a reduction of 32 per cent. But annual *readmissions* followed a different trend. Beginning at 7,929 in 1972, readmissions increased to the range of 10,000 to 11,000 per year during the period 1974-80 and then declined in 1981 to 8,898. Thus from 1972 to 1981, the trend was to admit fewer new patients but to readmit more former patients.

From 1972 to 1975 discharges exceeded admissions—especially in 1973 and 1974, the years of greatest legislative change (see Fig. 2). By 1976 discharges had declined and were tracking admissions, so that from 1976 to 1981 the two remained almost equal. Thus, in simple terms, there were two reasons for the drop in total mental patient population from 1972 to 1981: (1) Early in the period, discharges greatly increased and exceeded admissions; and (2) later, admissions and readmissions decreased, especially new admissions.

Figure 1

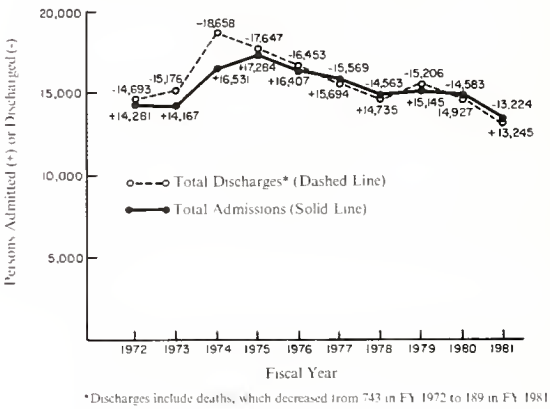
Average Daily Population of North Carolina State Mental Hospitals, FY 1972-81



Source: *FY 1981 Annual Statistical Report*, Division of Mental Health, Mental Retardation and Substance Abuse Services, North Carolina Department of Human Resources

Figure 2

Admissions to and Discharges from North Carolina State Mental Hospitals, FY 1972-81



Source: *FY 1981 Annual Statistical Report*, Division of Mental Health, Mental Retardation, and Substance Abuse Services, North Carolina Department of Human Resources

committed. Some of the most burdensome requirements were (1) proof by evidence of "overt acts" of dangerousness or "grave disability"; (2) the substitution by the magistrate and district court judge for the clerk of superior court, who had formerly conducted commitment proceedings; (3) the respondent's right to counsel; (4) a ten-day deadline for the first district court hearing; and (5) a rehearing every 120 days after the initial commitment.[1]

In 1974, because of urgent complaints from court personnel, the General Assembly revised its 1973 legislation [N.C. Sess. Laws 1973, 2d sess., Ch. 1408; G.S. 122, Ch. 122, Art. 5A (1975 Supp.)]. The criteria for commitment to a state hospital were relaxed slightly: Before he could be committed, a person had to be both "imminently dangerous to himself or others" and "mentally ill." "Dangerous to himself" was defined to include the former notion of "grave disability"—i.e., the inability to provide for one's basic needs for food, clothing, or shelter. (In 1977 the legislature authorized commitment if the person was both mentally retarded and imminently dangerous to others because of a "behavior disorder.") An important change made in 1974 was that proof of "overt acts" was no longer necessary; all that was required was proof of "facts" that would support a finding that the respondent met the commitment criteria. The 1974 legislation allowed commitment proceedings to be started by any person with relevant knowledge (the 1973 legislation proved that only a law enforcement officer could initiate such an action), who could simply file an affidavit with either a magistrate or a clerk of superior court. Furthermore, in an emergency, if a law enforcement officer decided that a person met the commitment criteria and also was violent and required restraint and a magistrate or clerk agreed, the officer could be authorized by the magistrate or clerk to take the person immediately to a mental hospital, bypassing initial examination by a physician.

Under the 1974 legislation, if the magistrate or clerk decided that the person met the commitment criteria, he was to issue an order directing a law enforcement officer to take the person to a community health center or a local physician for an examination. The 1973 requirement that findings of fact be given in writing for this initial decision was dropped. The physician was to examine the person within twenty-four hours, and, if the physician found that the person met the commitment criteria, the law enforcement officer was to take him immediately to a state mental hospital (or to a community mental health facility, if one was available). The physician's findings "and the facts on which they are based" were to be in writing and filed with the clerk of superior court. At the mental hospital, the respondent was to be examined by a second physician, who could either release him or keep him in the hospital; but in either case the person was to receive a district court hearing within ten days after he was taken into custody. The respondent and his attorney were to have 48 hours' notice. The hearing was to be in either the hospital or the judge's chambers. If the district court judge did not find that the person met the commitment criteria "by clear, cogent, and convincing evidence," he was to order his release. The person had the right to counsel and if he was indigent a right to counsel appointed by the state. Like the 1973 statutes, the 1974 law required that the district court "record the facts which support its findings." If the judge found that the respondent met the criteria, he could commit him to a mental hospital for up to 90 days. The respondent could appeal on the record of the hearing to the State Court of Appeals, but he no longer had a right (which the 1973 legislation had provided) to an entirely new hearing by a jury in superior court. When the 90 days were up, a rehearing similar to the first one had to be held in order to keep the person in the hospital for up to 180 days more; thereafter, rehearings had to be held annually until the respondent was released. (The 1973 legislation had required rehearings every 120 days.)[2]

In reading Virginia Hiday's article about how commitment proceedings work in practice, the reader should remember that *the 1974 legislation just described continued in effect without any relevant changes during the time Dr. Hiday made her observations.* On October 1, 1979, after the Hiday study was completed, a third revision of the commitment statute went into effect and remains in effect today [N.C. Sess. Laws 1979, Ch. 915; G.S. Ch. 122, Art. 5A, (1981)]. Like its 1974 predecessor, the 1979 revision was intended to make commitments less difficult to obtain. The 1979 legislation, like the 1974 law, requires that a person be found both "mentally ill" and "dangerous to himself or others" (or both mentally retarded and dangerous to others because of a behavior disorder) before he can be committed. It drops the earlier requirement that dangerousness be "imminent," and provides a much more detailed—but not necessarily clearer—definition of "dangerous."

A person is considered "dangerous to himself" if any of the following are found: (1) he has attempted or threatened suicide and there is a reasonable probability of suicide unless he is committed; (2) he has mutilated himself or attempted to mutilate himself and there is a reasonable probability of serious self-multilation unless he is committed; and (3) he would be unable—without the help he would get in a mental hospital—to "exercise self-control, judgment, and discretion in the conduct of his daily responsibilities and social relations, or to satisfy his need for nourishment, personal or medical care, shelter, or self-protection, and safety" *and* would likely suffer "serious physical debilitation" soon unless committed. With regard to the last situation, the 1979 legislation provides that "grossly irrational" or "grossly inappropriate" behavior or "actions which the person is unable to control," "or other evidence of severely impaired insight and judgment" creates a prima facie inference that the person is unable to care for himself.

A person is considered "dangerous to others" if (1) he has within the recent past inflicted or attempted or threatened to inflict serious bodily harm on someone else or has created a substantial risk of such harm, *and* (2) "there is a reasonable probability that such conduct will be repeated."

Another important 1979 change was that the Attorney General must now employ four full-time attorneys to represent "the State's interest" at commitment hearings. The law does not define "the State's interest," but the result in practice will probably be to provide counsel, in all hearings in state mental hospitals, to the *petitioner*—i.e., to the person who seeks

1. C. E. Hinsdale, "The Courts," 39 *Popular Government* 16 (May 1973).

2. C. E. Hinsdale, "Commitment of the Mentally Ill," *North Carolina Legislation 1974* (Chapel Hill: Institute of Government, 1974), 41.

commitment, who is often a relative of the respondent. (Formerly, under various versions of the law since 1973, the petitioner was sometimes, but not always, represented by a district attorney and later by a "special advocate.") The commitment proceeding is similar to what the 1974 legislation provided except that the district court, in its hearing within ten days after a person is taken into custody, must specifically make a finding as to whether appropriate outpatient treatment is available. The 1979 legislation also requires that the same procedure be followed for commitment to both state and private mental hospitals (formerly, a person could be committed to a private mental hospital without due process).

An observer of the process leading up to the 1979 legislation made these comments:

> When the General Assembly of 1973 rewrote the state's laws that allow mentally disabled adults and children to be committed to state psychiatric hospitals against their will, it attempted to strike a balance between competing interests—the state's in placing into confinement and treating a person who is dangerous to himself or others, and the individual's in remaining free of commitment.... In hearings in 1978 before the Mental Health Study Commission, many mental health professionals, law enforcement officers, and mental health patient advocates contended that, under pre-1979 law, commitments were too difficult to obtain. They pointed out that the standard of "imminent danger" was very narrow, usually difficult to prove, or vague. They also argued that because the *petitioner* did not have the right to state-paid counsel and usually did not have the means to employ counsel (although the respondent always had court-appointed or special counsel), the hearings favored the respondent and resulted in setting free too many people who should have been committed" [Emphasis added].[3]

Dr. Hiday's article presents a different point of view on this question. She suggests, on the basis of data collected under the pre-1979 law, that commitments were *not* too difficult to obtain. The reader will have to make up his or her own mind. It does seem clear that there is disagreement about the proper balance between the state's interest and the respondent's interest, and there probably always will be. The swings of the procedural rights pendulum during the 1970s, as the foregoing discussion of North Carolina's legislative changes shows, reflect this continuing disagreement. ●

3. H. R. Turnbull, *The Law and the Mentally Handicapped in North Carolina*, 2d ed. (Chapel Hill: Institute of Government, 1979), pp. 5-1, 5-2.

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