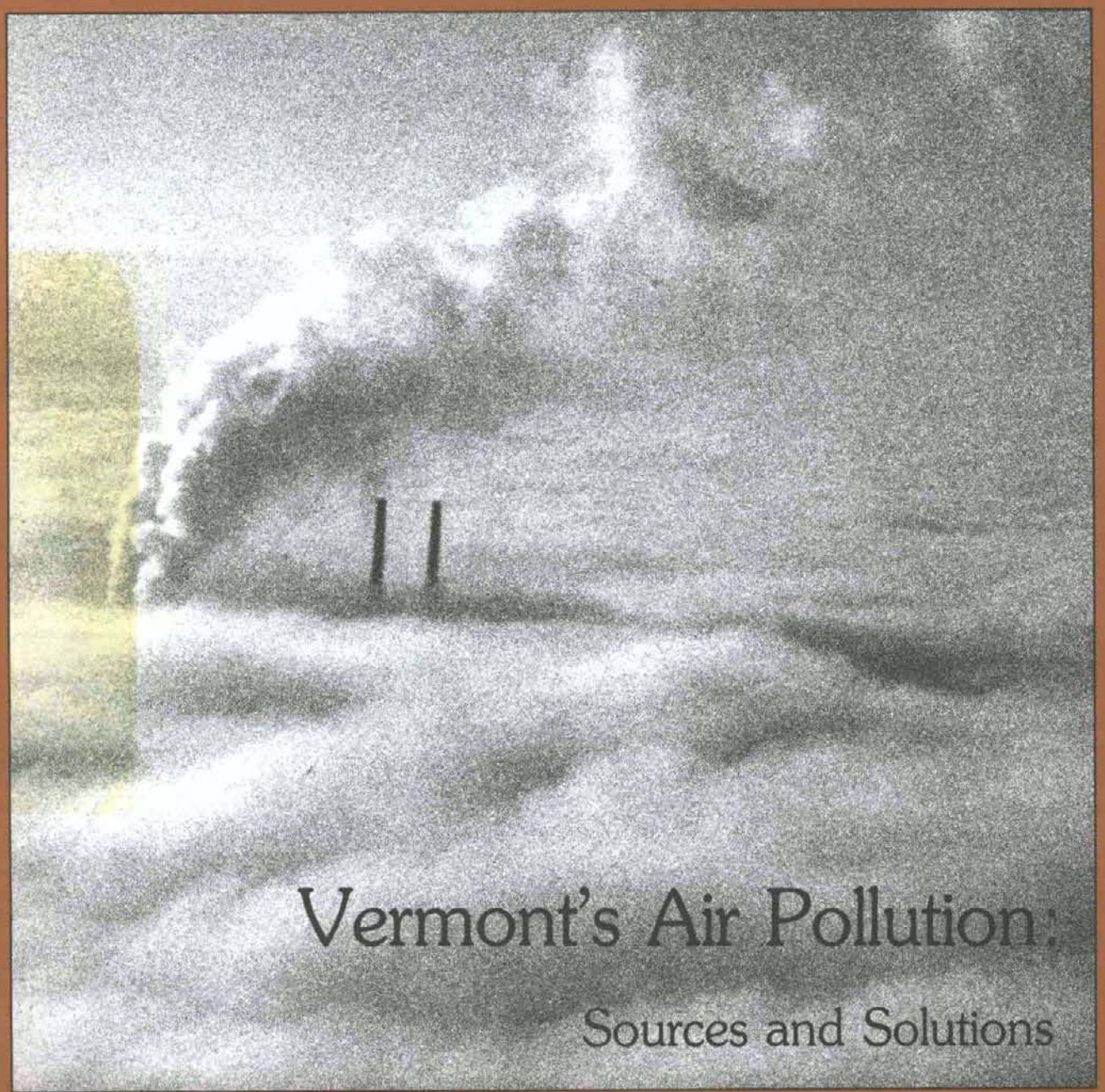
Vermont Environmental REPORT

Vermont Natural Resources Council

Summer 1987



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Vermont Environmental REPORT

Summer, 1987

Published by the Vermont Natural Resources Council

Vermont's Air Problems: Sources and Solutions

Cover photo: Much of Vermont's air pollution can be traced to emissions from midwestern "tall stacks." Photo from "A Cause for Alarm: Acid Precipitation in the Northeast," a slide presentation by Northeastern States for Coordinated Air Use Management (NESCAUM) and New England Interstate Water Pollution Control Commission (NEIWPCC).

Illustration page 4 by Sherry Frazer.

Masthead design by Laughing Bear Associates.

The Vermont Natural Resources Council is a non-profit environmental organization working to promote the wise use of Vermont's natural resources. The Council does legislative lobbying, research, and educational work on a variety of issues including forestry, agriculture, water, energy, hazardous wastes, and growth management.

VNRC is the Vermont affiliate of the National Wildlife Federation.

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FROM THE FRONT OFFICE

A Victory for Deer, A Challenge for Planning

Precedent-setting Act 250 decisions occur sporadically in Vermont. Recently such a decision was made concerning important wildlife habitat by the State Environmental Board.

That decision pitted about twenty deer and their ten acres of critical softwood cover against a proposal by Southview, Inc. to build a 33-unit second-home development on an 88-acre tract in the communities of Stratton and Jamaica. (See "Stratton Deeryard Case Remains Critical," *V.E.R.* Winter 1987.)

In 1986, the applicants had their proposal turned down on the grounds that the infusion of construction, people and pets from the development would destroy the exceptional value – both economic and ecological – of the deer habitat. Southview subsequently appealed the ruling.

The Board carefully considered this appeal, for it represented a clear opportunity to evaluate conflicting values. Criterion 8A of Act 250 states in part, "A permit will not be granted if it is demonstrated...that a development or subdivision will destroy or significantly imperil necessary wildlife habitat...." In the 6-1 ruling, the Board concluded that the loss of deer in the area would be significant to hunters, tourists, and others who associate the presence of wildlife with the Vermont way of life.

Although the town of Stratton could gain additional tax revenues from the development, there was no evidence that the town needed the revenue. Stratton, in fact, has the lowest property tax in the state, and this area of Vermont is already saturated with second homes.

What is important about this decision is that the weighing of values inherent in the Act 250 process presented no convenient alternative that satisfied both developers and the natural resource needs. According to the Board decision, other configurations of land usage could be implemented; but developers argued that the proposed changes would cut too deeply into their profit margin. As was anticipated, Southview is appealing the case. But for the time being, the deer "won" and the developers "lost."

The victory for deer is hollow, however, lacking a coherent land use planning framework. The Stratton deeryard example clearly points to the need for detailed resource information – such as on the existence of deeryards and other sensitive habitat areas – and a strong planning process that allows such areas to be recognized and protected before confrontations occur.

In order to ensure that critical deeryards exist in the future, along with other vital aspects of the environment that we value, we must begin planning for their survival in Vermont. PLANNING. It is a good word, and a good concept. Let's use it now.

Monty Fischer

R. Montgomery Fischer
VNRC Executive Director

LETTERS/VERMONT PERSPECTIVE

Dear VNRC,

Thanks for Deb Brighton's article about property tax. ["Trying to Get Money From Stones and Other Unlikely Places," *V.E.R.* Spring 1987.] I wish our lawmakers and town officers could all read it. At least some of them would really think about it.

Speaking from a farm viewpoint, it is quite frustrating to have your annual property tax bill be more than your net income for that year. And it does happen. Rebates and complicated agricultural use plans, etc. are not much help. Admitting that our system of taxation is basically wrong and changing it would really be a step toward preserving Vermont's farm and forest land.

Marlene Russell
Hinesburg

The Bears – and the Watershed – Win A Round at Parker's Gore

After almost a year and a half of hearings, appeals and lawsuits, District Environmental Commission 1 finally closed the record on Killington Limited's proposal to build a four-acre snowmaking pond at Parker's Gore. (See "What's Parker's Gore – and Why Do They Want To Save It?" *V.E.R.* Fall 1986.) The Commission denied the ski area's application on the grounds that the need for the pond was unsubstantiated. The Commission further determined that potential negative impacts to unique bear habitat in the area were unwarranted.

According to the recent decision, the pond represented one step in a much larger, as-yet-

unspecified phase of the ski area's high-elevation development. The Commission's decision reviewed the proposed pond at three levels: first, as if nothing else were planned for Parker's Gore; second, as if a larger project were being constructed; and finally, the pond in relation to the already-existing or permitted facilities which it would service, such as ski trails and snowmaking equipment.

VNRC, as an official party to the hearings, used statistics supplied by Killington on water flow and water use in order to evaluate Killington's stated need for additional water.

Citing VNRC's report in its decision, the Commission found that Killington already had ample water from three existing water withdrawal and storage points. When coupled with a planned doubling in storage capacity at Killington's Snowshed Pond, the system would yield enough water to allow round-the-clock snowmaking for five straight days at peak January usage.

The Commission emphasized throughout the twenty-two page decision that even if they had decided to grant a permit for the new pond, they would still insist that any future applications for development in the area be accompanied by comprehensive impact studies on sewage effluent, traffic, stormwater run-off, private utilities, employment and secondary growth effects, as well as mitigation plans for existing aquatic habitat, wildlife, stream flows, and scenic resources.

"VNRC has consistently maintained that large-scale development projects should be evaluated on the merits of a whole plan," said VNRC Associate Director Eric Palola.

"A review should include an evaluation of the capacity of the land and resources to handle new development, rather than a review in bits and pieces," said Palola. "The Commission's decision is noteworthy, because it clearly points to the need for cumulative impact review."

The decision was also applauded by the Friends of Parker's Gore, the Connecticut River Watershed Council, the Town of Shrewsbury, two area planning commissions, and others who opposed the development.

Nancy Bell, Director of Friends of Parker's Gore, noted "We're very happy that the Commission decided as it did. But we also have to keep in mind that this is just the first battle in a very long siege." Bell noted that it is likely that Killington will appeal this decision to the Environmental Board; and she added that her organization and area residents were also preparing for separate hearings regarding Killington's logging plans in prime bear habitat in Parker's Gore.

Copies of the decision may be obtained from VNRC at 223-2328. EP

Gravel Pit Project Crushed

VNRC, residents of Cady's Falls, and the Ten Bends homeowners' association gained a decisive victory this summer with the announcement of an Act 250 permit denial. The action denied plans by H.A. Manosh Company to enlarge an existing gravel pit on the banks of the Lamoille River.

Working jointly with local residents and property owners this summer, VNRC hired expert witnesses in the areas of water pollution, traffic design, noise pollution and land use planning to assess the impacts of the project. The result of the experts' testimony at this summer's hearings was decisive evidence for the denial of the project's Act 250 land use permit.

The project would have extracted up to 150,000 cubic yards of gravel per year, with dump trucks leaving the site approximately every three minutes. (See "Digging Up Trouble" and related articles, *V.E.R.* Winter 1987.)

Access to the site runs immediately adjacent to a commercial nursery, recreational areas on the Lamoille River and Kentfield Brook, and the residential community of Cady's Falls. Downstream from the site, a homeowners association at Ten Bends is attempting to improve fishing opportunities along a three-mile stretch of the Lamoille.

VNRC's testimony at this summer's hearings demonstrated that noise levels from constant truck traffic were enough to impair the hearing of nearby residents, that dust would affect nearby crop production, and that road conditions were unsafe for anticipated traffic demand. In addition, VNRC countered that erosion control plans for the project were inadequate and would allow excessive siltation of the Lamoille. VNRC also argued that the project did not conform to either local or regional land use plans.

An overriding concern was the fact that Manosh had violated an earlier Environmental Board ruling which allowed the company to extract up to 10,000 cubic yards of gravel per year without a permit. Manosh admitted to taking 70,000 yards in 1985, as well as to committing erosion violations that pushed silt and debris into the Lamoille. These actions finally prompted an enforcement order by the Attorney General's office early in the summer.

Residents' complaints about life beside the gravel pit have been severe. During this summer's Act 250 hearings, several townspeople testified about the effects of incessant dump truck traffic from the current pit – including several near-misses between children on bicycles and trucks – and one family even had to cut holes in the back of the house to allow ventilation from the dust.

Gravel pits and gravel are a necessary resource for many enterprises. The recent decision is a milestone in ensuring that such pits are adequately sited and operated, however, and that community standards for land use are adhered to. EP

Power to Spare Through Energy Efficiency

It's not new power plants that we need; New England can meet most of its growth in electrical demand over the next two decades through greater energy efficiency. And power supplied through increased electric efficiency costs less than half the price supplied from new power plants. These are some of the findings released this July in "Power to Spare: A Plan for Increasing New England's Competitiveness Through Energy Efficiency."

"Power to Spare" was drawn up by the New England Energy Council, a coalition of twenty-six New England organizations including VNRC. According to Leigh Seddon, Chair of VNRC's Energy Task Force, the study analyzes the potential for reducing energy waste in New England using proven, commercially-available products such as high-efficiency lights, refrigerators, and motors.

The study also identifies current obstacles to full energy efficiency, including lack of information about new technology, customers' lack of capital, and distorted market signals. According to Armond Cohen of the Boston-based Conservation Law Foundation, a co-author of the report, the New England Energy Council will be taking action to require New England utilities to design and fund cost-effective efficiency improvements in homes, businesses, and industries. The Council will also work to create financial incentives for the utilities to adopt such programs.

"Just as the old gas-guzzling cars have become more efficient, so can Vermont electricity users and producers," notes Seddon. "We're going to work hard with

regulators, utilities, and the public to reach this efficiency potential," says Seddon.

Copies of "Power to Spare" are available for $6.00 from the New England Energy Policy Council, 3 Joy Street, Boston, MA 02108. MF

VNRC Contests Ottauquechee River Reclassification

Late this spring, VNRC along with Trout Unlimited, Connecticut River Watershed Council and the North Hartland Cooperative Water System joined in opposition to a request to "reclassify" a river in southern Vermont. The request, made by the Town of Sherburne, is to change the state water quality classification of a portion of the Ottauquechee River, in order to increase the limit on sewage effluent it is able to receive.

If the request is granted, the river will be changed from its current "Class B" status (managed according to Vermont law to promote the uses of swimming, fishing and other water-contact recreation). The Ottauquechee would be downgraded to "Class C"—the lowest river classification, not suitable for fishing or other contact recreation.

The request was made to the Water Resources Board, a quasijudicial panel which is required to judge whether the existing Class B designation of the river remains in the public interest. The proposed zone on the Ottauquechee would begin just upstream from the Bridgewater town line in Sherburne.

VNRC and the other conservation groups argued during two days of hearings that the "B" classification continues to be in the best public interest, due to the high recreational usage of the river in the area of the proposed discharge, and the potential impacts on downstream ecology. Of equal concern is the potentially precedent-setting nature of a decision to reclassify here.

Class C zones are traditionally created to deal with existing polluted areas, in order to notify the public of the risk to health and to allow adequate die-off and dilution of residual pathogens and viruses.

Such reclassification has been part of Vermont's twenty year effort to restore water quality throughout the state's waterways. According to the Town of Sherburne, however, this C-zone would be used almost exclusively to provide for future development interests at Killington ski area and along the Route 4 corridor.

In testimony to the Board, the Department of Environmental Conservation stated that if pollution discharges into the Ottauquechee River were to be increased to the volume proposed, an extraordinary 7.1 miles of river would need to be reclassified as "C" in order to protect the public adequately. Such a reclassification would, according to area residents, sportspeople and conservation groups, eliminate one of the most highly-used swimming and fishing stretches of the river.

In addition, the Department indicated that the volume of wasteload under consideration is double that of any other municipal discharge currently on the Ottauquechee. During periods of low

stream flows, according to Department testimony, the new discharges could cause the river to contain as much as one-third sewage effluent.

Witnesses for the town of Sherburne emphasized that reclassification of the river was necessary to promote "cluster development" and discourage "scattered development," thus allowing for more efficient land development. Cross-examination, however, revealed that centralized sewage collection does not rely exclusively on stream reclassification.

"Any environmentally-sound disposal system can accomplish the same purpose," said Bernard Freidan, a Massachusetts land-use planner hired by the Town of Sherburne. Roughly twenty spray irrigation sites were identified at the hearings that could potentially be utilized under Vermont's 1986 water quality bill.

In testimony filed with the Board, VNRC stressed that reclassification would give little assurance that orderly development would in fact occur. Notes land use planner Virginia Farley, "Reclassification does not ensure that 'scattered development' will not occur unless deed restrictions or easements are placed on the use of land."

Several witnesses and local residents testifying for VNRC and other conservation groups detailed their fishing and swimming experiences on that stretch of the river. Local residents pointed out the high recreational usage by tourists at local swimming holes and by boaters.

The Board is currently deliberating on evidence received at the hearings and a decision is expected later this summer. The decision will significantly affect the pace of development in the upper Ottauquechee basin and the long-term quality of the entire river basin. EP

Dollars for Ducks – And A Lot of Other Wildlife

The figures are coming in, and the financial news is good for Vermont wildlife. The two bills passed in 1986 in order to raise funds for improvements in Vermont wildlife programs have far exceeded the hopes of their backers.

Vermont's non-game check-off program created a place on the state income tax form for Vermont taxpayers to contribute voluntarily toward a fund for non-game wildlife. (See "The Non-Game Check-Off," *V.E.R.* Winter 1987.) The fund is to be used for existing and new educational, research and management programs such as ongoing projects on peregrines, loons, terns, and other species.

According to Vermont Fish and Wildlife Department Information Representative Diane Jay, non-game contributions to date total over $90,000. About five percent of Vermont's eligible taxpayers contributed, and the average contribution was well above the average of other states which have a similar check-off system.

In a second wildlife-funding program, waterfowl hunters purchasing hunting licences are also required to buy a special waterfowl stamp. The stamps, as well as large prints suitable for framing, are also marketed statewide, nationally and in Canada. Funds from the stamp and print sales go toward the improvement of migratory waterfowl habitat, educational programs, and acquiring habitat land.

Over $700,000 has been raised through the waterfowl stamp and print program this year. Print and stamp sales have been particularly successful across the U.S. and Canada. Ben Day, Director of Wildlife for the Vermont Fish and Wildlife Department, notes "Vermont is one of the most financially successful first-year programs ever in the U.S. And per capita, ours is the largest revenue figure in the country."

Orders for the second Vermont waterfowl stamp and print are now being taken by the Department; the prints will be available in mid-September. SC

Vermont Forest Festival

Foresters, loggers, environmental educators, students, and all Vermonters who are interested in our state's forest resources will want to be involved in the Vermont Forest Festival, to be held October 18–24 in a variety of locations across Vermont.

Both private and public forestry organizations, including the VT Tree Farm System, VT Timber Truckers and Producers Association, VT Department of Forests, Parks and Recreation, Statewide Environmental Education Programs (SWEEP), and more, will be sponsoring events during the week.

A wood products display including a sawmill will travel throughout the state; seminars will be held on acid precipitation, and landowners will be taught to monitor their own sites for acid rain. Consulting foresters will be available to visit schools; and several forestry field trips and "open houses" are planned. A highlight of the week will be the "Lumberjack Day" fair in Barton, where aspiring lumberjacks can try their hand at pole climbing, hammer throws and more.

Look for more information in local papers, or contact the office of Charles Johnson, Chair of the Forestry Communications Council, at 244-8711. SC

Doing the Environmental Shuffle

If you're confused by names you're seeing in news articles about environmental issues, you're not alone. In fact, even some employees of the Agency of Environmental Conservation – er, that is, the Agency of Natural Resources – have confessed to having some confusion on the recent shuffling.

No, this doesn't have anything to do with the Agency's big move last fall from offices in Montpelier to their new home in the Waterbury Office Complex. *That* only changed addresses and phone numbers. The recent changes involve two new factors:

• *Organizational name changes:* As of July 1, the names – but not the functions – of two important environmental organizational entities are modified. The Department of Water Resources and Environmental Engineering, which didn't limit itself to the functions described in its name anyway, now has a more accurate title: the **Department of Environmental Conservation.**

The Department's umbrella agency, the Agency of Environmental Conservation (which also oversees the Department of Fish and Wildlife and the Department of Forests, Parks and Recreation) has taken on the more all-encompassing title of the **Agency of Natural Resources.**

• *Changes in personnel:* Several high-ranking environmental officials also changed desks this summer.

Patrick Parenteau, former EPA counsel, was pulled in from Boston to take over as Commissioner of the Vermont Department of Environmental Conservation.

Former Commissioner **Jonathan Lash** stepped up to take the position of Secretary of the Agency of Natural Resources.

Lash fills the slot of **Leonard Wilson,** who moved on to chair the Vermont Environmental Board.

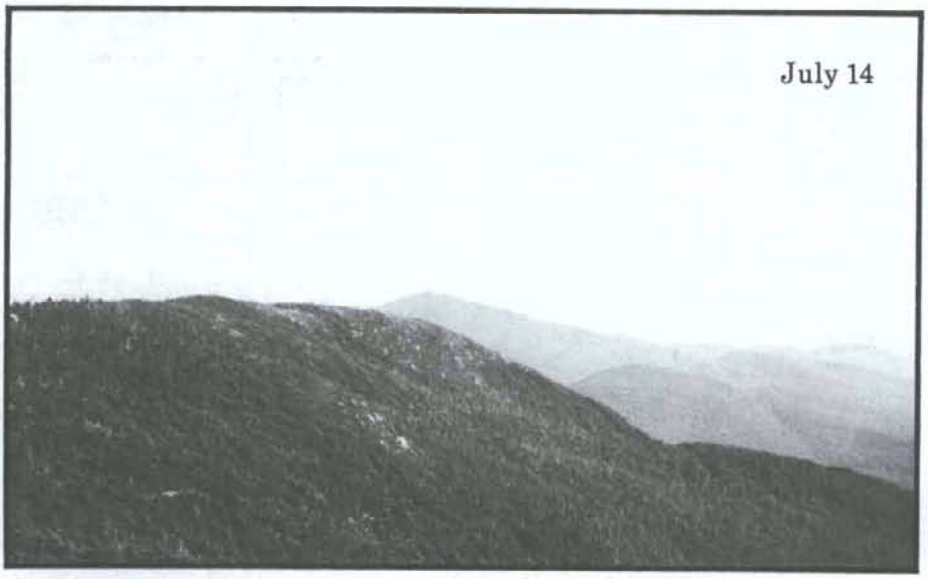
And **Darby Bradley** started it all by stepping down from his position as Environmental Board Chair to devote more time to his work as Legal Counsel for the Ottauquechee Land Trust.

Oops. One more change. The Ottauquechee Land Trust, although not connected with state government, was not to be left out of the name shuffling! As of this summer, the organization changed its name to the **Vermont Land Trust.**

Good luck keeping all of that straight. And if you get confused, just ask someone from the Agency of – er – that is, the Department... um... just ask someone from VNRC. *We* haven't changed our name! SC

What's A Perfect Day Worth?

By Richard Poirot



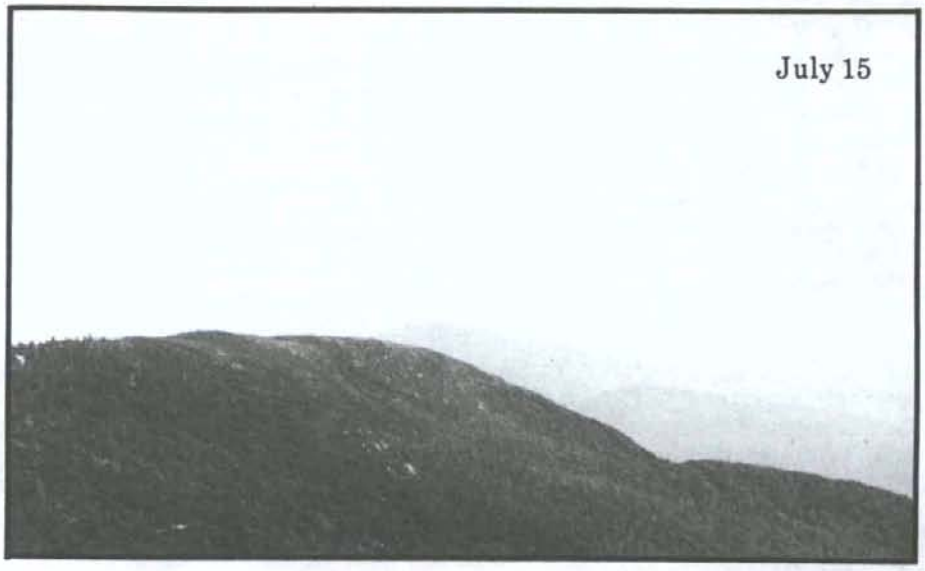
Remember the last day you spent in the Green Mountains when the air was perfectly clear? You know the kind of rare day I mean – they come only a few times in a year, and almost never on weekends.

The "unnatural" blue sky is several shades too dark and too deep, and the color holds true even as you move your eyes from straight overhead down toward the horizon (looking through progressively thicker layers of the usually-polluted lower atmosphere). Distant mountain ridges stand out as sharply as those nearby. Each fold of land, each rock, each tree stands out distinctly, providing, I suspect, too much information for our desensitized eastern sensors to handle. The resulting sensory overload does strange things to the mind, wonderful things.

For me these days are magic. I don't know if it's the stark clarity of visual images, or some deeper psychological process at work, but I'm sure I can recall every sharp detail of each of the few perfect days that I've had. The value of these days greatly exceeds that of the short term experience, as they form a sort of retirement fund in my memory bank, accumulating interest. One day when I'm too old to walk in the mountains, I shall withdraw them one at a time and examine each crystal detail over and over again.

The last time I climbed Mount Mansfield was on one of these magic days. A cold front had ripped through the night before, with swirling winds and driving rain, mixing, washing and thoroughly rinsing a 200-mile square of southwesterly air of its usual pollutant burden. The result was a doubly rare day – perfectly clear air that was also warm and remarkably calm.

Tim, Heiko and I met at 8 a.m., just below the locked gate of the Underhill State Park. Tim Scherbatskoy is Laboratory Director for the Botany Department Acid Rain Project at the University of Vermont. Heiko Liedeker is a



The four photos on these pages, taken at 24-hour intervals, show the arrival of a single sulfate episode in northern Vermont on July 14-17, 1982 – and the subsequent impairment of visibility. The pictures were taken looking south from the top of Mt. Mansfield; visible are Mt. Ellen (about 35 miles away), Camel's Hump (at center of photo, about 15 miles away), Bolton Mountain (5 miles away), and the southern ridge of Mt. Mansfield (1 mile away).

According to trace element analysis of Proctor Farm air samples and Vermont air trajectory analysis, this was a sulfate episode of distinctly mid-western origin. And in the evening of the last day of the episode, rainfall in Underhill was measured at pH 3.47, the most acidic of any rain event there of the summer.

visiting forester from Germany doing graduate work at the University. I'm an Air Quality Planner for the Vermont Department of Environmental Conservation. Our "chore" on this day was to look for possible air monitoring sites which might contribute to a better understanding of the effects of air pollution on forest health.

We started slowly and deliberately up the State Park road with serious research objectives in mind; but the perfect air quickly cast its spell upon us, and soon we became three small boys playing hookey on a day for adventure.

As we slowly gained in elevation, the not-yet-leafed-out April hardwoods allowed progressively more revealing views of the Champlain Valley and Adirondack Mountains. Eventually we came upon a large bedrock outcropping which provided the first unobstructed views to the west. Here we also noted the first and only flaw in this otherwise perfect day. Hanging tightly to the center of the Champlain Valley below was a faint but perceptible layer of brownish haze.

Nitrogen dioxide, a pollutant originating primarily from automobiles, can absorb the shortest (blue) wavelengths of visible light and cast a brownish tint on the air. On this clear day, the calm warm air aloft and the cooler air coming off the lake below had combined to form a classic springtime temperature inversion.

The inversion, acting like a thermal lid, had trapped the local pollution emissions and prevented their dispersion to the atmosphere above. Ironically, the brownish local stain is only visible when the pollutants being transported from more substantial pollution sources out of state is minimal. On days of high pollution transport, any local pollution (not to mention the local scenery) is obscured by a dense blanket of sulfate particles, originating from more polluted upwind industrial areas.

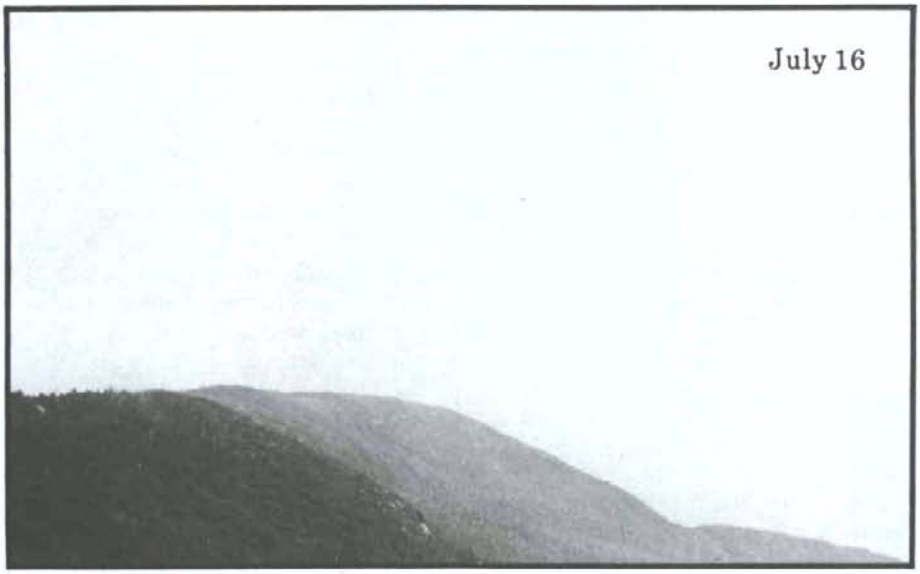
Later on this clear day, as the sun rose higher, the captive local nitrogen dioxide would react with volatile hydrocarbons (another automotive pollutant) to form ozone.

Ozone is a colorless gas which, where it occurs naturally in the stratosphere, protects us from harmful ultraviolet radiation. (Recent measurements suggest that this protective layer may be deteriorating, possibly due to our past and continuing use of chlorofluorocarbons.)

But down here in the troposphere, where we live and breathe, ozone is a human-made air pollutant which can have serious adverse effects on human health and on vegetation.

Vermont's worst ozone episodes, with transport winds from the south or southwest, come close to the federal health standard of 120 parts per billion (ppb). On this day of little or no pollution transport, our locally-produced ozone might peak in mid-afternoon at forty or fifty ppb – well below the standard, but a level that has been associated with adverse effects on certain sensitive plant species.

Above the flat-topped brown inversion layer, the Adirondacks rose with unusual clarity, as though they were five miles away, not fifty. Beneath the inversion, the eastern side of the Champlain Valley lay clearly below us like a giant unlabelled road map. After a bit of effort, Tim finally identified his house in Williston. We also located, behind a ridge of conifers, the access road to the


July 16


July 17

Figure 1

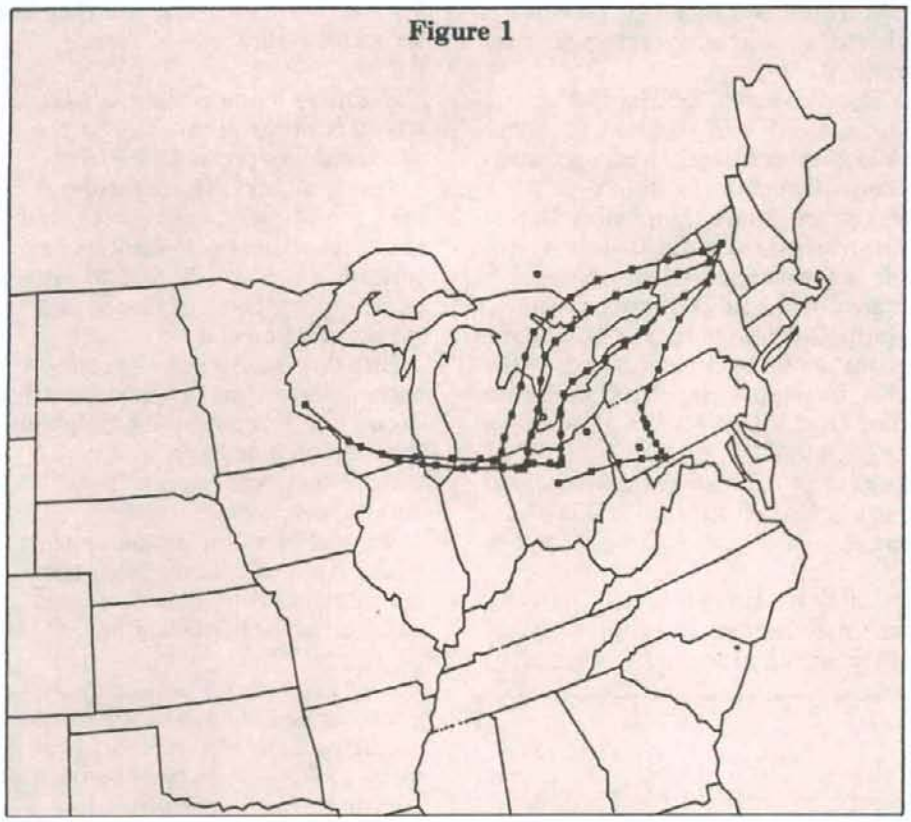


Figure 1 displays a method of estimating the origin of Vermont's sulfate pollution on the worst day of the episode photographed. These backwards air trajectories are based on upper air meteorological data and provide an estimate of the path the air mass travelled prior to arriving in northern Vermont on July 17, 1982. Midwestern sources were clearly "upwind" on this day.

buildings and extensive monitoring equipment at the Proctor Maple Research Farm, less than two miles away in Underhill.

Following Fingerprints

For the past several decades, Proctor Farm has been the site of extensive climatological and maple tree physiological measurements by the University of Vermont. More recently, the site has been utilized for measurements of acid rain and transported air pollutants. The Vermont Division of Air Pollution Control has been collecting daily aerosol samples there since 1982. We've been sending these samples to an associate, Dr. Kenneth Rahn at the University of Rhode Island, who examines them in great detail with a powerful technique known as Neutron Activation Analysis.

Certain pollution elements detectable by Neutron Activation tend to be emitted, in different proportions and by different source types, in the various regions of North America. Eastern oil burning utilities, for example, emit relatively large amounts of the element vanadium, while midwestern coal-burning utilities emit larger amounts of selenium and arsenic. The large Canadian smelters emit significant amounts of indium.

All of these source types and source regions also emit large quantities of sulfur dioxide, which is, in turn, chemically transformed in the atmosphere into sulfuric acid and other sulfate particulate matter. These sulfates may be transported for many hundreds of miles – often ending up in Vermont, where they can drastically affect our visibility and (when dissolved in rain or snow) form the principal source of unnatural acidity in our precipitation.

Dr. Rahn is currently working with seven tracer elements: manganese, vanadium, arsenic, selenium, zinc, antimony, and indium. By examining the ratios of these elements in the Underhill aerosol, he can estimate the proportionate contributions to Vermont sulfate of five different source regions: Northern New England, the East Coast, Canadian Smelters, the Upper Midwest, and the Lower Midwest.

During the summer, when the sulfate content of Vermont's air is highest (and visibility is poorest), the midwestern element "fingerprints" account for 60-70% of our sulfate. On sulfate episode days (when our visibility is truly rotten), midwestern sources can account for 85% or more of the airborne sulfate in Vermont. On this perfectly clear day, the air was virtually free of sulfate, midwestern or otherwise.

Life in the Air

Suddenly, without audible warning, a dark silhouette floated directly beneath us, not thirty feet away. Without seeming to move a feather, it passed from our field of view in a second or so. "That could have been a peregrine. That had to be a peregrine falcon!" exclaimed Heiko. "Did you see the dark hood, the pointed wings?"

I must confess to never having seen a peregrine – except of course in books, and even then, never from above. The bird clearly had a falcon shape, and it did seem larger than the more common kestrel or sparrow hawk.

But somehow I prefer to accept Heiko's first reaction – not that it was, or had to be, but that it *could* have been a peregrine. That it could have been means that the conditions were right. The widespread application of the chemical pesticides which drove the magnificent species to the verge of extinction have been lessened effectively. An entire nation has acted appropriately, with conscience, and perhaps in time. Now the diligent and dedicated attempts at reintroducing the peregrine to its native habitat are beginning to pay off. There could have been one on Mount Mansfield on that perfectly clear day.

(Continued p. 13)

Looking to the Courts for Help

Action on air pollution is maddeningly slow — and Vermont is mad enough to sue.

Susan Clark

In 1977 when Congress added Section 169A onto the Clean Air Act, they were trying to clear the air. The new section set an ambitious national goal: "The prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class 1 Federal areas [such as certain national parks and wilderness areas] which impairment results from manmade air pollution."

According to Congress, America's most scenic vistas were to be protected. But who would do the job, and how it would be accomplished, have proven to be questions that are as murky as emissions from an Ohio smokestack. Progress on the questions is maddeningly slow – and Vermonters working for clean air are mad enough to sue.

Seeing Through the Haze

Airborne sulfates and other particulates which affect "visibility" are also known to be at the root of other air pollution problems including acid rain. When 169A came out, environmentalists hailed the new "visibility amendment" as an important step toward cleaner air. But it was up to EPA – and the states with the best views – to create a way to meet this expansive goal.

EPA was to promulgate regulations to ensure "reasonable progress" toward these goals; the regulations were issued in 1980. And in addition, any state with "mandatory Class 1 Federal areas in which visibility is an important value" had to submit a plan to protect visibility in those areas.

Vermont's Lye Brook Wilderness Area in southern Vermont is one of the "mandatory Class 1 Federal areas" to be protected by 169A, and the Air Quality Division of the Vermont Agency of Natural Resources (then the Agency of Environmental Conservation) was more than happy to oblige with a protection plan. Their "Implementation Plan for the Protection of Visibility" was submitted to EPA in April of 1986.

"One of two things will become more visible as a result of this plan: either Vermont's environment, if the plan is approved – or EPA's utter disregard for meaningful visibility standards if the plan is disapproved....

"If EPA says no to our efforts, then we will have an additional, and in my judgement persuasive, argument for EPA's failure to adhere to the spirit and intent of the Clean Air Act."

Vermont Attorney General Geoffrey Amestoy on Vermont's "Implementation Plan for the Protection of Visibility"

The plan is no less ambitious than 169A itself. In addition to designating all areas of Vermont above 2500' as "sensitive areas" entitled to the same protection as the Lye Brook Wilderness, the plan calls for a seasonal ambient air sulfate quality standard of two micrograms per cubic meter – which would result in an approximate 50% reduction in Vermont's sulfate pollution problem. The plan also endorses a long-term strategy for attaining this standard, involving all 48 contiguous states and a ten million ton reduction in sulfur dioxide emissions by 1995.

"Some critics have accused us of disguising an acid rain control plan in visibility clothing," says Harold Garabedian, Acting Director of the Vermont Division of Air Pollution Control. "But the fact is that you can't improve visibility in Lye Brook without also improving visibility throughout most of eastern North America. You can't improve eastern visibility without reducing the sulfur content of eastern air. And you can't reduce that sulfur content without improving the chemistry of our precipitation and reducing human exposure to sulfur oxides, sulfate particles, and acidic aerosols."

"Visibility may not be the most important problem at stake here," admits Garabedian, "but it's a problem we understand well. We can precisely quantify cause and effect relationships. And most importantly, it's a problem that EPA is required to address under the federal Clean Air Act."

Causes and Effects

With the use of "element fingerprinting," air trajectory and other sophisticated long-range transport modelling techniques (see "What's A Perfect Day Worth?" this issue) Vermont air pollution experts demonstrate in their plan that Vermont's "visibility" air pollution problems find their begin-

nings primarily out of state. Vermont has not gotten much argument, even from EPA, on this point.

"EPA appears to agree with our technical evaluations of what affects our visibility and where it comes from," notes Jonathan Lash, Secretary of the Vermont Agency of Natural Resources. "This plan has really been put through the wringer at all levels within EPA, and we've heard from the highest levels in Washington that they consider it a major advancement in the science."

In its December 1986 proposed rule on Vermont's plan, however, EPA's proposed action was "no action" on any aspect of Vermont's plan which relates to regional haze.

"The wording of the proposed rule took us somewhat by surprise," says Lash. "It reads very much like EPA has sent us formal written invitation to litigate."

"No Action"

In its 1980 response to Section 169A of the Clean Air Act, EPA divided air pollution which causes visibility impairment into two types. "Plume blight" describes pollutants which can be traced to a single source or small group of sources. EPA's regulations concerning plume blight are fairly extensive, but do not, for the most part, relate to Vermont's air pollution situation.

Vermont's visibility plan focuses more on the second section – that dealing with widespread, homogenous "regional haze" having a multitude of sources. With the passage of 169A, EPA was required, by 1979, to promulgate regulations to assure reasonable progress toward controlling any and all visibility impairments – including both plume blight and regional haze.

But EPA's 1980 regulations only promise to address the regional haze problem in some unspecified "future phases." And in its 1986 response to Vermont's Visibility Plan, EPA states, "No action is proposed for those parts of the revisions concerning the control of regional haze... because EPA has not yet developed a national regulatory program to address regional haze."

"Congress has declared this national goal, and EPA is responsible for making it happen," says Wallace Malley, Vermont Assistant Attorney General and Chief of the Civil Law Division. "We have no choice but to rely on EPA to discharge its obligations," says Malley, "so when EPA said they would take 'no action,' Vermont had to draw the line."

"The wording of [EPA's 1986] proposed rule took us somewhat by surprise. It reads very much like EPA has sent us a formal written invitation to litigate."

Jonathan Lash, Secretary, Vermont Agency of Natural Resources

Vermont's visibility lawsuit, which was filed in the Federal Court for the District of Maine in mid-July of this year, is an attempt to "make EPA do what the statute tells them to do," says Malley. Filed by Vermont, as well as five other northeastern states and three national environmental groups, the suit demands that EPA take action on *all* visibility impairment problems, not just a select few.

More Suits Hanging

Visibility is not the only air pollution question that has brought Vermont to court action. Air quality issues go well beyond state and national borders, and Vermont has joined with environmental groups, other states, and even international alliances in attempts to get action on the issues.

Other air pollution lawsuits in which Vermont is involved include:

- A long-standing suit on interstate air pollution. Northeastern states claim that in approving Clean Air Act implementation plans of midwestern states, EPA failed to consider the effects of those states' pollution on areas downwind. The suit is pending in the Federal Court of Appeals with a decision expected in the near future.
- A suit pending in the U.S. Court of Appeals for the Washington D.C. Circuit, focusing on EPA's current "tall stacks" regulations. A group of northeastern states and environmental groups are challenging EPA's regulations which allow polluters to use tall smokestacks to disperse pollutants in order to meet local air quality standards. Eastern states argue that midwestern stack emissions severely affect downwind air quality.
- Another suit, again filed by northeastern states, which is an attempt to force EPA to set a national standard for sulfur content of air. This suit is awaiting decision in New York.
- Vermont was also party to an international suit which was turned back by the U.S. Supreme Court this June. Filed by eight northeastern states, several environmental groups, and the Canadian province of Ontario, the suit was an attempt to bind the Reagan Administration to an EPA pollution control commitment made in 1981. The Supreme Court refused to hear the case, however, on the grounds that the 1981 effort did not qualify as binding "formal action."

Advocates do not expect lawsuits to solve Vermont's air pollution questions once and for all. But to groups that for years have been trying every available method to get some action on the issues, the suits offer some hope for seeing laws and regulations properly enforced.

"There has been a lot of action in Congress recently to strengthen the Clean Air Act," notes Assistant Attorney General Malley. "But there are several provisions available *now* that are applicable to air pollution issues. The problem is that EPA has not only *failed*, but *refused* to act, as evidenced by these lawsuits."

(Continued from page 10.)

Reluctantly, we turned our backs on the Adirondacks and soon the Maple Ridge Trail ascended steeply into a boreal forest where red spruce and balsam fir were the dominant tree species. I was alarmed to note numerous brown and apparently dead branch tips on spruces, especially on the western sides of trees. According to Heiko, the symptom was "winter damage, common on red spruce at this elevation." Some researchers believe this is an entirely natural phenomenon, he said, while others believe that air pollutants may predispose the trees to this condition.

Less obvious to my untrained eye was the pale yellow spotting on the upper sides of both spruce and fir needles which Heiko pointed out to us. "We see a lot of this in Germany," he said. "Some investigators think it's caused by ozone."

Looking up towards the ridge, I saw a pair of dark shapes spiraling effortlessly upward, well above the "nose" of the mountain. Any doubt over what these thermal riders could have been was soon dispelled, as the clowning ravens abandoned their eagle imitations and began a rolling, tumbling, game of tag descent. They clearly seemed delighted with each other's company and with the perfect air.

On A Clear Day

As we reached the Mansfield ridge line at a point just south of the nose, I was at first confused, and then astounded by the vista to the east. I had expected the White Mountains in New Hampshire to be visible, but was unprepared for just how visible they were. I saw their distinctive skyline, but could not at first accept that this was the Presidential Range, some eighty miles away. Had they suddenly grown taller in the middle of the night, or simply grown tired of New Hampshire politics and taken up residence in Vermont?

I had seen the view to the east from the nose of Mount Mansfield dozens of times, and had obtained several hundred photos of this view through the volunteer assistance of three Green Mountain Club Ranger/Naturalists. The volunteers had taken daily pictures looking north, south, east and west from this site on summer days when our air monitoring equipment was running at Proctor Farm. The White Mountains were occasionally visible, in perhaps one photo out of ten, but not once in the roughly 200 days of pictures had they been as sharp and as clear as they were on this day.

The Mount Mansfield photographs (four of which are shown on these pages) were taken as part of a visibility study conducted by the Division of Air Pollution Control in response to visibility protection provisions of the federal Clean Air Act. The photos provide a graphic documentation of the air pollution/visibility cause-and-effect relationship which we were quantifying by statistical techniques.

By comparing the daily sulfate measurements from Proctor Farm with Burlington Airport observations of visual range, we learned that on summer days when it was not foggy or raining, over 85% of the variation in light extinction (visibility impairment) was caused by sulfate particles and water adsorbed onto these particles.

The effects of air pollution are often subtle, and can be difficult to quantify with confidence. The effects of sulfate on visibility are, however, an exception to this rule. We are certain that improvements

Figure 2

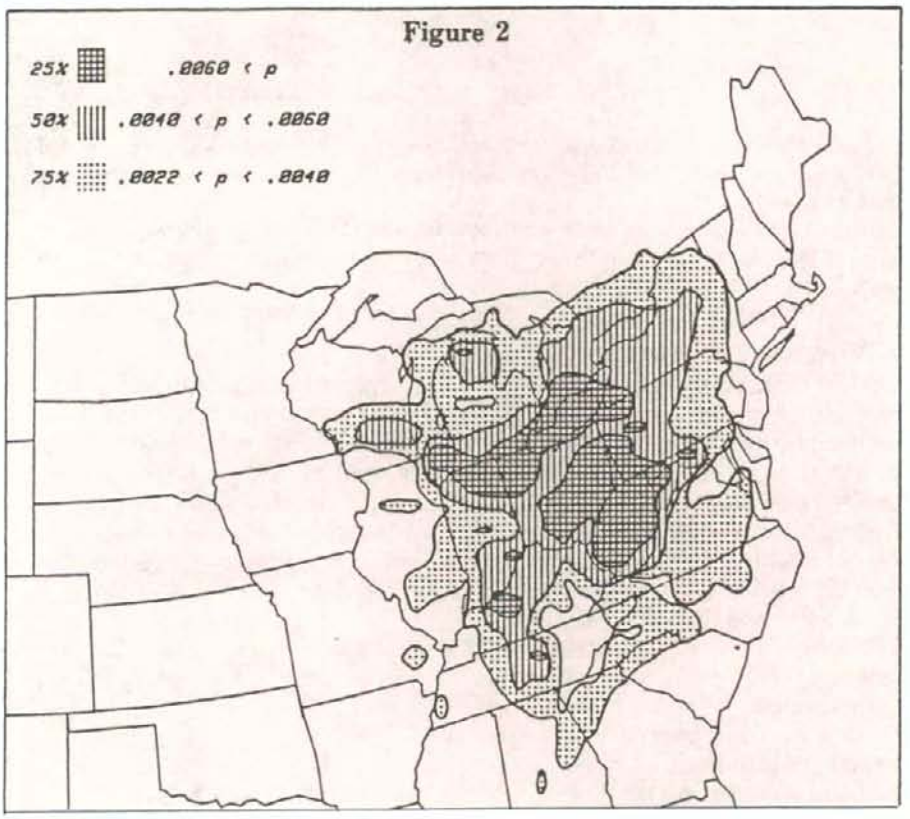


Figure 2 is based on three summers' (April-September, 1978, 1979 and 1980) air trajectories on days when Vermont sulfate was highest (and visibility poorest). This technique, known as "residence time analysis," was developed by the Division of Air Pollution Control and depicts the locations where Vermont's dirtiest air was most likely to have resided prior to arriving in Vermont. This analysis clearly implicates sources along the heavily-polluted lower Great Lakes and Ohio River Valley as most responsible for sulfate episodes in Vermont.

25% of residence time hours are contained within each separately shaded area. P=probability of residence in an 80 × 80 km square within shaded area.

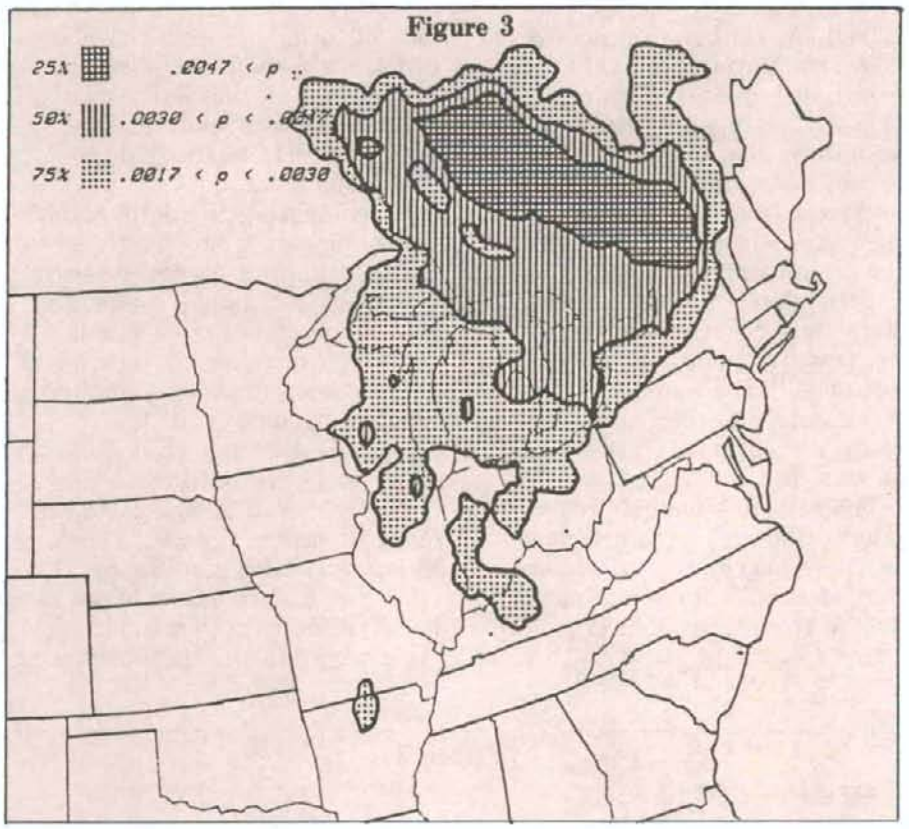


Figure 3 shows a "residence time analysis" for Vermont's cleanest, low sulfate days. On these high-visibility days, our air probably has come from areas in Canada.

25% of residence time hours are contained within each separately shaded area. P=probability of residence in an 80 × 80 km square within shaded area.

in Vermont visibility can only be achieved through substantial reductions in our ambient sulfate concentrations. And we have no doubt that reductions in Vermont sulfate can only be achieved through major reductions in sulfur emissions from upwind states.

Daily trajectory calculations such as those displayed in Figure 1 strongly confirm Dr. Rahn's "elemental fingerprints" on sulfate episode days. Figures 2 and 3 are "residence time probability" plots based on hundreds of trajectory calculations during a three-summer period.

Figure 2 shows that when Vermont's sulfate levels are very high, it is most likely that our air has previously resided over mid-western source regions. Figure 3 depicts Canadian areas as the most probable prior locations of Vermont's relatively "clean" air.

"Residence time analysis" and "elemental fingerprints" were two of the eight assessment techniques formally submitted by Vermont to the U.S. EPA in a federally-mandated visibility protection plan. But EPA's recent response to the plan – and their reluctance to regulate interstate pollution effects – have led Vermont into a new lawsuit over EPA's implementation of the federal Clean Air Act (see "Looking to the Courts for Help", this issue).

The day trip on Mount Mansfield continued, and we slowly crossed the ridge line from the nose to the chin, pausing frequently to admire the ever-changing views in all directions. As we started down the Sunset Ridge Trail from the base of the chin, the brown stain over Lake Champlain appeared much fainter then it had been at midmorning. Perhaps the inversion had "burned off," or the nitrogen dioxide had converted to ozone, or both.

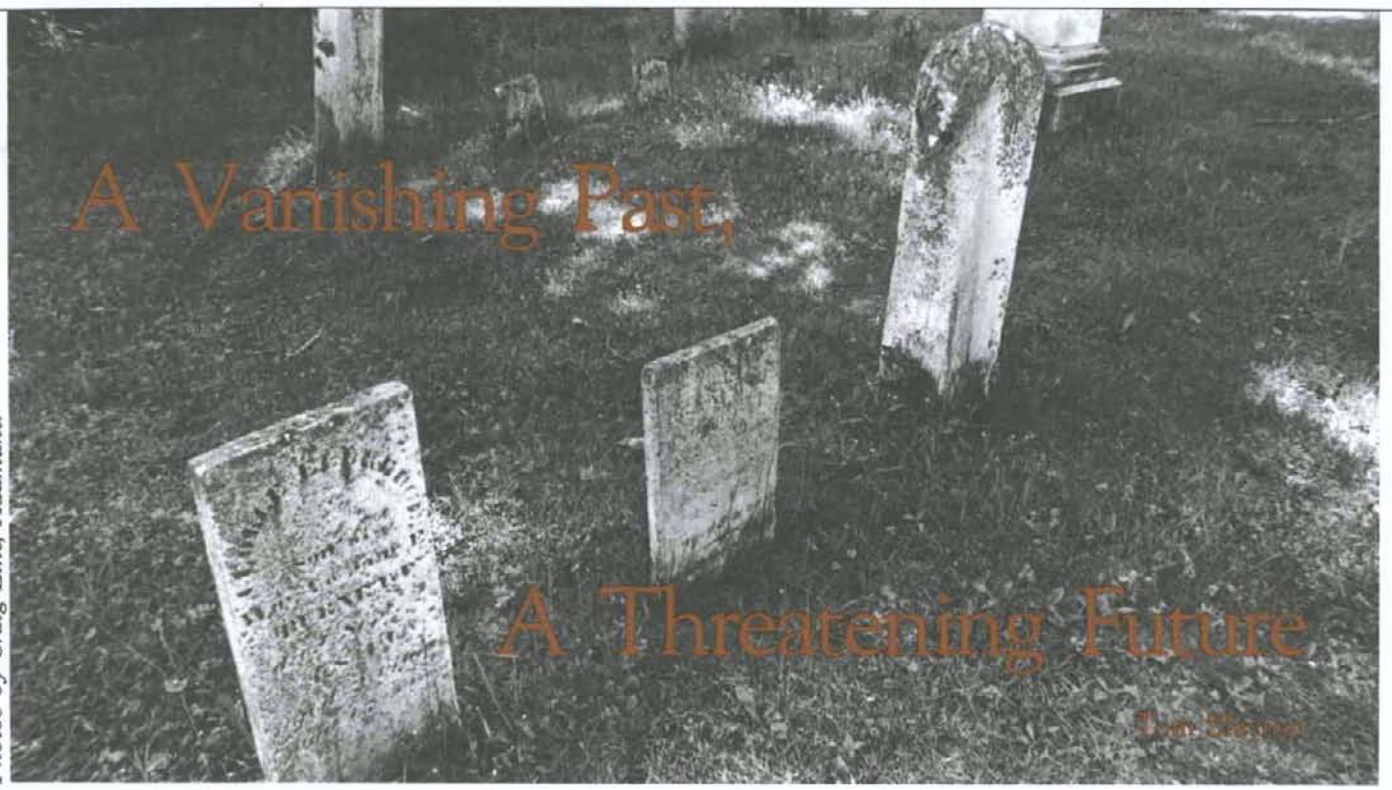
I was suddenly struck by the silence of the mountain top on a nearly windless day. Perfect silence is perhaps as rare as perfect visibility. No doubt, too much of either one would drive us all mad. But I, for one (with two small kids at home), could sure go for a little more of both.

A few yards down the trail, the silence was delightfully broken by the melody of a single bird, which Tim tentatively identified as a Bicknel's Grey Cheeked Thrush. This rare mountain thrush breeds in Vermont only in the highest elevation spruce-fir forests. I can't recall ever hearing a bird song quite so lovely or so filled with apparent joy. A hundred yards later the sound of rushing water from a Browns River tributary nearly a mile away became clearly audible, like an orchestral accompaniment at the end of the thrush cadenza.

As we finally neared the State Park Road again, I got to wondering what the hike would have been like if we had chanced on a hazy day (like July 17) instead of a perfect one. The wonderful views of the Green Mountains, the Whites, the Adirondacks would, of course, have been gone. The peregrine (or the sparrow hawk) might have still been visible – it was only thirty feet away – but surely we would have missed it, not lingering so long on our rocky perch to admire a view which wouldn't have been there.

Would the clowning ravens have been visible high above the summit? Perhaps, but would we have been looking up towards a mountain ridge we could barely see? Do ravens frolic and does the thrush sing so joyously on hazy days? Perhaps they do, and perhaps we would have missed nothing but the distant views if we had come on a hazy day. Then again, perhaps we would not have come at all.

Rich Poirot is Air Quality Planner for the Air Pollution Control Division of the Department of Environmental Conservation, Vermont Agency of Natural Resources.



A Vanishing Past, A Threatening Future

Photos by Craig Line, Adamant.

Addressing the Vermont Conference on the Environment on "Air Pollution and the Economy" at St. Johnsbury's Fairbanks Museum this spring, ***Vermont Life*** *Editor Tom Slayton referred the audience to a personal favorite of his many articles written on environmental issues. The article first appeared in the Barre-Montpelier* ***Times Argus*** *in 1983, when Slayton was Assistant Editor of that publication. Written about Slayton's sister, the story, partially reprinted below, reminds us that "There are times when Vermont's heritage is as immediate and tangible as stone. But lately, it seems, it can slip through your fingers, even as you hold it."*

Gale LeGrand has been going to the little hilltop graveyard near Montpelier Junction for more than 10 years. She likes to sit there among the quiet stones and be alone with the past.

It wasn't until last year that she realized the past that surrounded her there was disappearing.

She found the place one summer day as a young girl, out on her bike collecting bottles. Above the brushy bank beside the road she glimpsed a couple of tombstones.

She climbed the bank and found the little cemetery: a few dozen stone markers perched on a bare knuckle of land overlooking the valley. Surrounded by brushy fields yielding to forest, almost completely hidden from the dirt road below, the tiny graveyard was isolated – close to the rest of the Vermont she knew, but still separate.

She started visiting the spot regularly. No one she knew was buried there. It was just a pleasantly melancholy place to be alone, a place she regarded as partially hers, because she had found it and liked it.

Some traces of a bygone Vermont were there, cut into the stones: names, dates, verses. She liked reading them and wondering about the lives they represented.

Probably hundreds of other little cemeteries like this one are located around the state. Little more than random openings in the surrounding scrub forest, they are bypassed by the interstates and tourists and just about everyone else. No one's been buried in them recently. They exist nowadays simply as a token of respect, a polite nod that present-day Vermont gives its forebears.

Most of the headstones are marble, arranged in rough north-south rows. They have been tilted by frost and the passage of time. A few have been broken.

But more remain standing. LeGrand grew familiar with them over the years, and their legends gave her some insight into the stern life of early 19th-century Vermont.

These are not the stones of wealthy or powerful people. They are not the fine examples of folk art produced by Vermont stonecarvers like Zerubabel Collins and Samuel Dwight. They mark the final resting places of the working-class folk who settled central Vermont, as common and as important in the larger scheme of things as grass or rain.

There's the May family, whose saga is recorded on five stones near the cemetery's northeast corner. Elisha and Esther Ann May were born near the beginning of the 19th century and died toward its end, he in 1880, she in 1887. By the time they were gathered to the God of their fathers, they had seen nine of their children die.

Several died as toddlers, a couple as adults. One stone without a first name recorded the birth on Dec. 22, 1835 of a child, and the

death of the same child on Dec. 23, 1835. The baby's burial was probably near Christmas day of that year.

The inscription on Elisha and Esther May's headstones sounds almost like a sigh of relief. It notes only that they are "At Rest."

Near the stones of the May family is a stone that adds a further commentary. It memorializes the short life of a four-year-old girl named Julia. The inscription: "Here rests the little sufferer."

There are other inscriptions, many of them less sad. They document the lives of struggle and faith common to the Vermonters of a century ago.

A gently sentimental faith infuses the verse on the stone of Ezra Willey, who died in 1874: "Ezra Dear, you rest alone Our loss is thy endless gain. Yet in that higher world above, We hope to meet again...."

Inscriptions on the earliest stones in the cemetery suggest a different attitude toward death. Little of the teary sentiment of Victorian times infuses the epitaph of David, the son of Levi and Rachel Colby, who died in 1826, after living 26 years, nine months and nine days:

"Ere the Dark Earth, the Dismal Shade Has Clasped my Naked Body Round My Flesh, so delicately Fed Lies Cold and Mouldering in the Ground."

Some of the iron in the veins of Vermont's first settlers speaks in those no-nonsense lines. The attitude they convey is firmer in many ways than either the 19th century's sentimental view of death as the great release, or the 20th century's compulsive avoidance of the subject.

There is faith there, too. It is a harsher, more doctrinaire faith than is common today, but a faith for the times, nonetheless. A strict theology speaks from the stone of Jane Arbuckle, who died in 1830: "Go home, my friends, Dry up your tears, I must lie here 'Till Christ appears."

It was only recently that LeGrand began having trouble reading the inscriptions on the older stones. Dates and verses and even the names on some stones, she realized last year, had began to disappear before her eyes.

The once-smooth marble is now pitted and rough. Black streaks mar several of the most-exposed stones. LeGrand knows from first-hand observation that whatever

happened to the stones happened recently, because she has watched it.

"It was strange," she said. "One year I could read the stones. I knew they were fading, but I could read them. The next year I couldn't."

Recently she learned what caused the trouble: acid rain – rain sometimes as acidic as lemon juice, laden with the effluvium of midwestern industrial plants, blown to Vermont on the wind.

The problem is worst for marble because it is soft and alkaline. Its limey substance yields readily to the polluted rainfall. Because of industry's refusal to clean up the smokestacks of the Midwest, and the wait-and-study approach favored by the Reagan Administration, a part of Vermont's heritage is quietly washing away in every rainstorm.

To LeGrand, that fact has a very immediate meaning. It means the stones in her favorite graveyard are becoming illegible. The most tangible evidence is being erased of the lives she spend her quieter moments with over the years. It is almost incomprehensible to her that the eraser is being wielded by an industrial complex several hundred miles away.

But that sometimes seems to be what modern living is about: destroying the past for the sake of some richer, more convenient future.

"It seems not very long ago that these were in pretty good condition," she said last week. "But look at this. This is the one I was telling you about."

The marble headstone of Joseph Arbuckle, husband of the faithful Jane who lies next to him awaiting Resurrection Day, proclaims him to be "a native of Scotland." Possibly Arbuckle came to Vermont because of the political turmoil of early 19th century Scotland; possibly he came seeking work in the area's quarries.

The lengthy religious inscription on his stone might give some clue to his motivation, had it survived. But it has become illegible.

"The God of Jacob marked the path," it begins, and almost immediately is lost with the next words: "His youthful..."

So much for the saga of Joseph Arbuckle.

Similar gaps are already established in most of the other inscriptions. LeGrand copied down many of the inscriptions in a notebook, in hopes of preventing them from being lost completely. But she couldn't save all of them.

There was Deacon Seth Shaw, for example. He died in 1848 at 60 years of age. That much can still be read between the black streaks that mar the rest of his stone.

"His end was..." says the inscription.

His end was what? Peaceful? Sudden and awful? Inspiring?

LeGrand, straining to read the unreadable, finally gave up.

"His end was illegible," she said, putting her pencil and notebook away, and leaving the cemetery to fill up with snow for another winter.

Solid Waste, Waterways, Land Speculation, and More

Dana Hearn and Susan Clark

The 1987 legislative session was of record length, but it also brought a third year of exceptional success on conservation issues. In a variety of issue areas, Vermonters are already feeling the effects of this year's important new environmental legislation.

Dealing With Vermont's Garbage

Consider the extensive research and educational work done on the solid waste issue in the last two legislative sessions. Keep in mind the hefty report issued by the Governor's Solid Waste Advisory Committee. Add to that the well-publicized accounts of landfill closings and the garbage barge that couldn't find a port, and it becomes clear why the solid waste issue was clearly the top environmental legislative priority this session.

The final version of the bill, signed into law in June, mandates that the state adopt a five-year solid waste management plan by April, 1988, which will give top priority to waste reduction and reuse/recycling. The plan will also assess the nature and origin of Vermont's hazardous waste, and include recommendations on packaging and products that should be banned, taxed or collected for re-use.

Under the new law, municipalities are required to adopt plans for solid waste disposal. They are encouraged, however, to plan regionally in the process; towns that join with solid waste management districts or a regional planning commission in the planning process are eligible for state grants for up to 100% of planning costs, and 40% of construction costs (excluding landfills and incinerators).

Legislators argued that it was important that individuals take responsibility for – and bear the cost of – disposing of their own waste. In order to help initiate the program, the law provides 100% funding to municipalities for the implementation of user fee systems throughout the state for a period of one year. The user fee is required to be assessed immediately by private landfill operators; municipally owned and operated facilities have one year to switch to user-fee programs.

This user fee will be added to funds appropriated annually from the general fund, to constitute the Solid Waste Management Assistance Fund. The fund will be used for projects including: planning and constructing recycling facilities; closuring and remediating landfills causing health risks; establishing waste management pilot projects; and developing markets for recyclable materials.

Finally, the new law provides grants for up to 40% of the construction costs for facilities and equipment needed to carry out the goals of the local plans, provided that those plans are consistent with the goals of the state plans. The money may not, however, be used to construct new landfills or incinerators. Low-interest loans will be available for such facilities under a new revolving loan fund set up this year under another bill.

The new solid waste law had an unexpected backlash this summer, as some landfill operators took the opportunity to raise their rates drastically. Although landfill operators claimed that the rates were hiked in anticipation of costs of improvement

Cartoon by Tim Newcomb, reprinted from the Barre-Montpelier ***Times Argus.***

necessitated by the new law, proponents of the legislation argued that the new rates were prematurely set and disporportionately high. Landfill operators, state and municipal officials, and citizens are working throughout the summer to resolve the conflicts.

"Stepping away from our traditional 'throw-away ethic' is bound to create some inconvenience and tension," says VNRC Associate Director Eric Palola. "But the new law is an important step toward establishing healthier and more responsible patterns for disposing of our waste."

New legislation creates a Housing and Conservation Trust Fund for affordable housing and for natural areas – resources which are both threatened by Vermont's rapid growth boom.

"Outstanding Resource Waters" and More

Vermont's new rivers legislation allows Vermonters, via a public hearing and discussion process, to request the designation of the state's most valuable river segments as "Outstanding Resource Waters" (ORW's). Designation is made by the five-member Water Resources Board, and is based on cultural, ecological and recreational values.

ORW designation will serve to curtail certain hydroelectric developments, since through Congressional amendments to the 1986 Federal Power Act, any hydroelectric development proposed on an ORW-designated river is not eligible for federal PURPA subsidies. (PURPA is the Public Utilities and Regulatory Policy Act of 1978, designed to offer incentive rates of return to small power producers.) The new rivers law also ensures that no stream alterations proposed for ORW's will be permitted unless they are in keeping with the values protected by ORW designation.

But probably the most controversial section of the new rivers bill, especially as the legislative session came to a hectic close, was the bill's provisions to limit the taking of gravel from Vermont rivers. The new law allows an adjacent landowner to extract up to ten cubic yards of gravel per year from an ORW riverbed, provided that the Department of Environmental Conservation is notified. In non-ORW-designated waterways, a riparian landowner may extract up to fifty cubic yards annually, providing that the gravel is used on-premises. Commercial and municipal gravel extraction from Vermont streambeds is entirely banned.

Environmentalists, fishing groups and other rivers advocates have expressed concern about the siltation and other ecological disruptions caused by streambed gravelling (see "It's Not Just the Pits," *V.E.R.* Winter 1986). Before and during the legislative session, VNRC and other members of the Vermont Rivers Alliance researched and lobbied for new rivers legislation. The rivers bill was hard-won, and represents a significant victory for all who enjoy Vermont's waterways.

"Parcellators" Pursued

The alarming increase in Vermont land speculation was addressed head-on this legislative session through H. 383. Prompted by VNRC's 1986 report (see "Parcellizing Vermont," *V.E.R.* Fall 1986), the new legislation closed several important, widely-exploited land use and taxation loopholes.

According to Vermont law, if a parcel of land is subdivided into fewer than ten lots, Act 250 environmental review is not required. (Developers who make sure that the lots are over ten acres in size also avoid having to comply with state subdivision regulations.) Under the old law, speculators only had to be careful that their subdivision projects were not too close together; the nine-lot maximum extended to a five-mile radius around the parcel.

Under the new law, the "five-mile radius" is dramatically expanded; now, any speculator who subdivides parcel(s) into ten or more lots *within the same Environmental District* within five years is subject to Act 250 scrutiny. Since Vermont is divided into nine large Districts, the new law will be effective in bringing corporate land speculators' subdivisions under environmental review.

Also dealing a blow to previous land speculation practices is the law's stiff new Land Gains Tax schedule. Under the new law, the Land Gains Tax percentage still increases with an decrease in the time period for land holding, and also as the percentage of profit increases. The tax liability has greatly changed, however, for those who buy, subdivide, and resell land within one year – the typical time frame for corporate subdividers.

For example, if the seller of land has held the land for under four months and has, through the sale, realized a 0–99% gain, she or he will be taxed at 60% of the gain. If the gain is 100–199%, the tax rate will be 70%; if over 200% profit is realized, the tax rate will go up to 80%. Graduated rates are set in a comparable fashion for people selling land held for four to eight months, eight to twelve months, etc.

New changes in land use laws and the Land Gains Tax help put the pinch on "parcellators."

The tax is also strengthened by the elimination of interest-free deferred tax payments. In addition, the amount of deductions (such as advertising costs) that can be subtracted from the tax – some of which have run as high as 30% of selling costs – have been capped at 12%. The bill also requires the seller to sign an "Act 250 Disclosure Statement" declaring to the buyer that the land is

not being offered through deliberate avoidance of environmental review.

The rapid turnover of Vermont land with no regard for Vermont's environmental standards has resulted in large profits for corporate land speculators; and it has threatened Vermont's land and way of life. Municipal officials, farmers, foresters, sportspeople, and every citizen who values Vermont's rural areas owe thanks to legislators for their swift, decisive action against the "parcellization" of Vermont.

Housing And Conservation

The Vermont Housing and Conservation Coalition, formed last fall by low-income housing advocates and environmnetal groups including VNRC, saw its first victory this session with the passage of H.95. The new law creates the Vermont Housing and Conservation Trust Fund.

The Fund is similar to a land trust in nature. Its nine-member Board will accept proposals from community, housing and environmental groups, with the goal of securing specific properties noted for their potential to serve affordable housing needs, or for their natural resource values.

The most hotly debated issue in the new law was its funding source. Proposals ranged from a property transfer tax increase of one half of one percent, to an appropriation from the general fund. The question was solved for the time being with a $3 million outlay from this year's unexpected budget surplus. The fund will also be eligible for private donations and state funds, and additional funding mechanisms will undoubtedly be considered in the years to come.

Fixing The Leaks

Unfinished business from the 1985 underground storage tanks bill was wrapped up this session with the creation of the new Petrolium Clean-Up Fund. The Fund, created partially through incentives provided by federal Superfund amendments, was established to help small businesses such as "mom and pop stores" upgrade or retrofit their fuel storage systems to meet Vermont's newly-strengthened specifications. Because insurance for the tanks is difficult to find and tank replacement costs have soared, the new law also allows for the establishment of an insurance pool for tank owners, to cover tank owners until insurance becomes more readily available.

And Many Others

•Two new laws concerning the **Current Use** program are seen as strengthening measures for this valuable farm and forest land protection program.

H.400 sets dates for filing with listers, creates a requirement to list forest management plans with the Department of Forests, Parks and Receation, and adds two additional positions to administer the program. And H.226 prevents any municipal ordinances from conflicting with suggested Current Use program practices, except where the ordinances protect properly-zoned natural, conservation, aesthetic, or wildlife features.

•A new **pesticide** law raises the pesticide registration fee for products sold in Vermont, and expands the uses of the Pesticide Monitoring Revolving Fund to include education, research, as well as exploration of pesticide reduction strategies. The law also creates public membership seats on the Pesticide Advisory Council, and authorizes the creation of administrative penalties for violation of the pesticide laws.

•Another House-sponsored bill calls for a study of the statewide impacts of the shutdown of the **Vermont Yankee** nuclear facility. The study will address Vermont's legal authority concerning such a shutdown, and the potential effects of an early shutdown.

•The new **agricultural finance agency** law creates the revolving Agricultural Development Fund, and designates a new Vermont Agricultural Finance Authority to manage the fund.

•A new revolving loan fund was created, which municipalities will

have access to for **municipal water pollution control**, water supply, and solid waste management purposes.

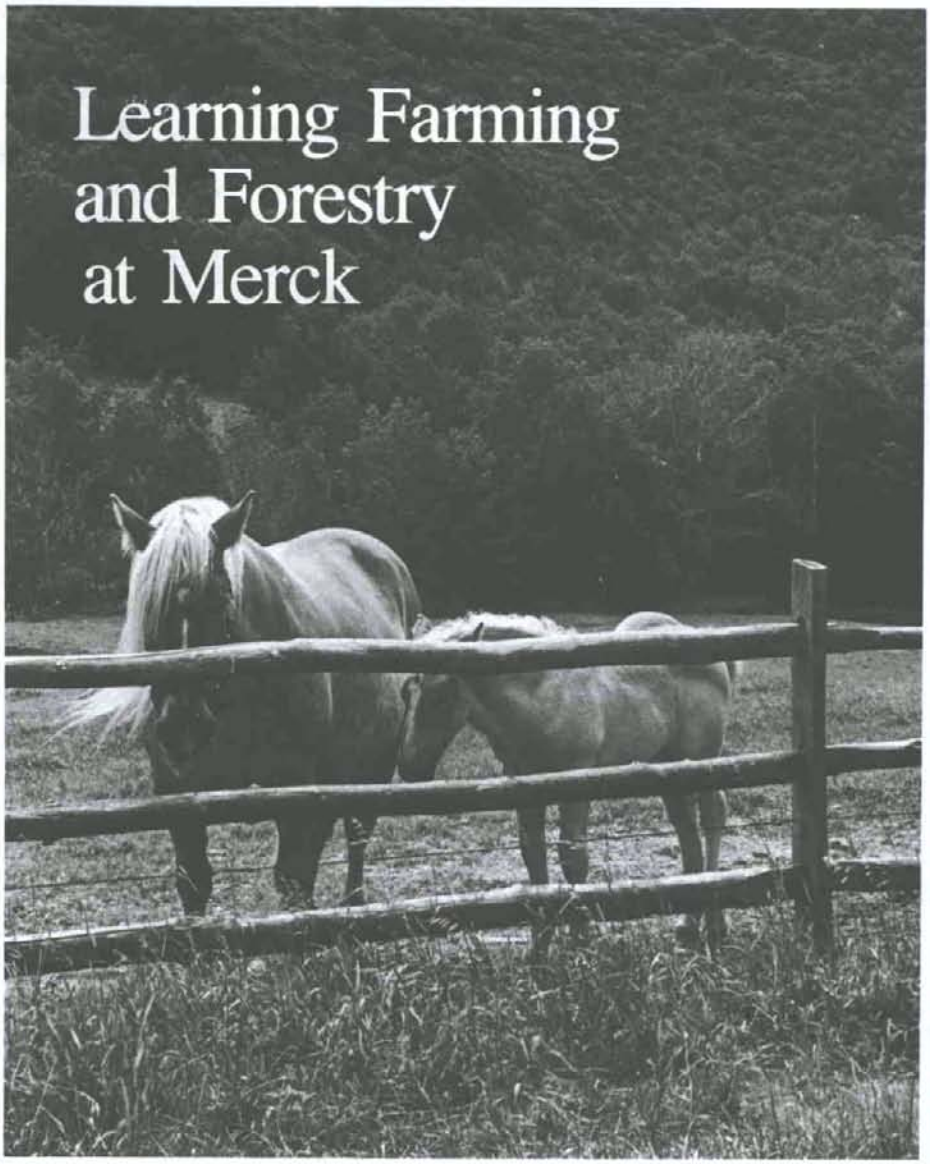
•**Hunting and fishing licence fees** were increased through H. 458, to fund ongoing programs in the Department of Fish and Wildlife.

•**Construction permit fees** were also raised, in order to speed permit processing by District Environmental Commissions.

A very full agenda and time limitations made it inevitable that some environmental bills would never make it out of the session. A bill that would have set **state energy efficiency standards** did not make the crossover deadline; and a bill addressing the **cumulative impacts of growth and development** in Vermont, although passed by the House, did not receive Senate attention. VNRC will continue to push for action in these areas, however, and such pressing issues as growth management and comprehensive land use planning will continue to be top VNRC legislative priorities.

Dana Hearn was VNRC's 1987 Red Arnold Intern, and assisted VNRC Associate Director Eric Palola this year in advocacy work.

Learning Farming and Forestry at Merck



Duncan Campbell

As part of VNRC's continuing role as a true "Council" to Vermont's conservation community, we present a series of updates from our member organizations around the state. In this issue, we hear from the Merck Forest and Farmland Center of Rupert, Vermont.

Photo above by Duncan Campbell. Four generations of Belgian draft horses can be seen at Merck, whether in the pasture, pulling the hay wagon, or pulling the sap tank for sugaring.

To understand why the Merck Forest and Farmland is unique, a person must understand what the area is and how it operates. Here are 2,700 acres of the most beautiful countryside in Vermont. Take a handful of dedicated hard-working staff members whose activities change with the seasons of the year, and overlay all this with a growing number of people eager to learn about and enjoy what is here – things that are probably missing in their day-to-day lives.

It may be seeing a lamb being born, maple syrup coming off the evaporator, or a deer leaping across an open field in the early morning mist. It might be hearing the music of a brook or the howling of a winter storm. It might be sharing a walk through the woods with a friend, the excitement of a sleigh ride with classmates, or simply experiencing the silence of sitting on top of a mountain all alone. But no matter what it is, a person rarely leaves the Merck Forest without feeling differently about himself or herself, and how she or he relates to the natural world.

Located in the southwestern corner of Vermont, the Merck Forest and Farmland Center is a unique outdoor educational center. Merck's mountainous forest and farmland lends itself to a variety of uses including maple sugaring, small-scale farming, timber management, low-impact recreation, and of course environmental education.

The land originally contained several subsistence farms which were abandoned in the early 1900s. During the '40s and '50s, George Merck purchased parcels of land from lumber companies and private individuals and established what was then called the Vermont Forest and Farmland Center. After Mr. Merck's death, the name was changed to the Merck Forest Foundation, and finally to its present name.

The purpose of the Merck Forest has always been educational. Early activities were along research and demonstration lines, including efforts to demonstrate ways to utilize marginal upland farmland. Numerous evergreen plantations were established in abandoned fields, and demonstration field plots were set up to grow various legumes and grasses.

Upon Mr. Merck's death in the late fifties, most of these projects were stopped. Since the early 1970's, however, Merck Forest's work has focused on outdoor environmental education. Over the years numerous programs have been developed, with the goal of exposing people of all ages to the importance of our natural world.

Summer Camp: For six weeks in July and August a small outdoor camp is operated at Merck. The Camp is primarily for local children, but is also open to others. Campers live in lean-to shelters and tents, cook over open fires, and spend their days explor-

ing the forest and farm. The purpose is to teach youngsters how to live outdoors comfortably, safely and in harmony with the natural world.

School Field Trips: During the early fall and throughout the spring months, school classes visit the Merck Forest from nearby Vermont and New York towns. The approach is hands-on; learning is done outdoors, and the experience is tied in with subjects the students are studying in school. A few schools choose to include overnight camping in one of Merck's lean-to areas. For many, this is the first time they have been away from home, let alone spent the night out in the "wilds," and students and teachers all come back with tall stories and a closer relationship.

Wintering: During the month of January, fifteen college students are selected to spend the month living, working and learning in the forest at Merck. They live in a small lodge located three miles from the last plowed road, and become involved in a variety of activities such as animal tracking, winter survival, igloo building, tree identification, ice cutting and woodswork. In bad weather or in the evenings, the students work on individual projects such as spinning wool, carving wood, making snowshoes, or writing.

Students must carry in all their food using skis or snowshoes, and take turns cooking, keeping the wood stoves fuelled, and carrying water. Various guest speakers visit the group and pass on their expertise in forestry, crafts, and other subjects of interest. Although not in an academic setting, students learn a great deal – not only about the natural environment, but about themselves.

Internships: Throughout the year Merck accepts a small number of interns who live and work at the forest for one to six months. Since the full-time staff operating the Merck Forest is small, these interns are an important part of the work force and find themselves doing most of the things the staff members do.

Seasonal activities include maple sugaring, gardening, caring for farm animals, shearing Christmas trees, driving draft horses, cutting firewood, and helping with the other educational programs. In many cases, these interns go on to other environmental work. In any event, they learn many new skills and develop their own feelings towards the land and its importance to humans.

Adult Programs: While most of the educational effort at Merck has been directed towards young people, we have also come to realize that adults want and need outdoor educational programs. This year a number of day trips have been scheduled dealing with wildflowers, birds, and other natural science topics; they have included strenuous mountain hikes as well as casual trail strolls. In addition to staff-led trips, there are two self-guiding nature trails and a museum open to the public throughout the year. There are plans to offer more family and adult activities as time and staff permit.

With the Merck Forest programs successful and expanding, Merck's Board of Trustees did an evaluation last fall in order to strengthen Merck's priorities and mission. One of the most important things to come out of this study was a mission statement which stated:

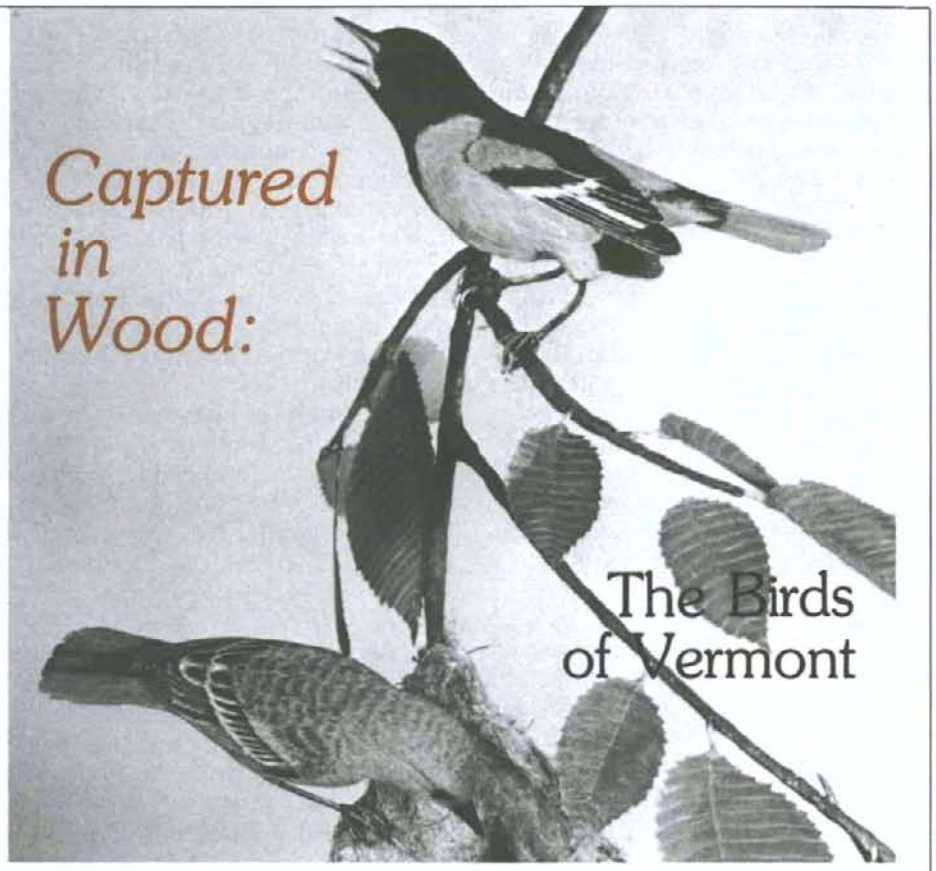
"The mission of the Merck Forest and Farmland Center is to teach the land ethic through caring for and managing the Forest, by providing educational and recreational experiences to enrich the lives of those who come here, helping them and others to become good stewards of our world."

The attending statement of values, descriptions of programs, and recommendations for improvements is a valuable guideline for future endeavors. Since its completion, committees have been formed dealing with education, forestry, farming, finances and recreation. While the overall programs of the Merck Forest is not likely to change drastically, innovations and improvements will help make the Merck Forest a more important and viable organization.

As Vermont and our world change and become more complex, places like the Merck Forest and Farmland Center become even more valuable and necessary. People must have places where they can go to find solitude, beauty and peace and where they can renew their inner spirit. They must be able to observe and learn about the natural world, its diversity, complexity and wonder. And they must have places to share with their friends and family where machines, ugliness, and pollution do not interfere. Planning at the Merck Forest is not for five years, ten years or even twenty five years; rather, it is for as long as there will be life on this planet.

Duncan Campbell is the Executive Director of the Merck Forest and Farmland Center.

Captured in Wood: The Birds of Vermont



Lou Borie

One day, when Bob Spear was eighteen, he captured a stray parakeet that had flown into the woodshed of the family farm in Colchester. The bird became a family pet, and it also became the model for Bob's first bird carving, whittled from a piece of white pine with a jackknife. That was fifty years ago and Bob Spear has been carving birds ever since. More than 200 of his bird carvings can now be seen at the Birds of Vermont Museum, recently established in Huntington to display Spear's carvings and to use them for educational purposes.

The Work of a Lifetime

Bob Spear's first bird carving opened a new dimension of natural history to Bob. A fifth-generation Vermonter, Bob was encouraged by his mother to explore the world of nature. He began to carve other species of birds, sometimes working late into the night in his shop. "I used to get the chores done and eat, and then I'd go out and work until 11 or 12 o'clock and go to sleep out there on a cot," Spear remembers.

After graduation from high school, ten years of farming, and a stint in the Navy, Spear went to work for General Electric in Burlington. During his lunch hours and spare time he carved black-capped chickadees, which he sold in area gift shops. In 1972, Spear "retired" to take the position of first full-time Director of the Green Mountain Audubon Nature Center.

As one of the Nature Center's original founders ten years earlier, Spear had become familiar with the Center's varied habitats. With the help of eager volunteers, Spear now developed the trail system further, organized field trips, and initiated programs for school children and teachers.

Spear also developed a set of bird carvings which he took to schools to illustrate his talks on Vermont's birds. He discovered that the bird carvings focused his audiences' attention beautifully – something that was difficult to achieve when he led students on bird-watching walks through the nature center.

"When you take a group of school kids out on a field trip, the birds fly overhead or you hear them sing – occasionally you get a glimpse of them nearby," Spear says. "But the kids don't really get a good look at them. The carvings are great for teaching because you can form them any way you want, and you can create a scene that would be almost impossible to see in the field." Bob's teaching techniques at the Nature Center gained him statewide recognition in 1979, when he won the Science Educator's award "for contributions to science education in Vermont."

When a collection of nests was donated to the nature center, Spear came up with the idea of creating displays with the nests and a pair of carved birds to go with them. But as the only paid staff person in an active non-profit organization, he didn't have the time to carry out his idea until he left the directorship in 1979. Since this "second retirement," Spear has been working full-time to create what would be a considerable lifetime achievement for anyone – a collection of carvings depicting 220 of Vermont's most common bird species, including some that just winter or migrate through, as well as several that are rare or extinct.

Crafting the Detail

To create the amazingly realistic displays in the museum, Bob draws on all of his many talents – as one of Vermont's most capable field naturalists, as an experienced craftsman, and as an artist. It takes between forty and one hundred hours to complete a display, which includes the male and female bird, eggs, nest, and the vegetation typical of their habitat. Spear can be found at his workbench early each morn-

Photos by Lou Borie.

Above: Northern Orioles carved by Spear on display at the Birds of Vermont Museum.

ing, his lined and tanned face reflecting the many hours he has spent outdoors observing nature.

Spear starts with a block of native Vermont basswood, and using photographs and mounted specimens as guides, he roughs out the bird's shape with carving knives and chisels. From there, most of the work is done with power tools specially designed for wood carving. A drill-like tool with ruby-tipped bits is used to contour the bird and to outline individual feathers. When the body of the bird is finished and painted, Spear fashions legs and feet out of solid wire and plumber's solder, and inserts glass eyes.

Spear's attention now turns to the display. A key component is the nest. He will often travel to distant parts of the state to locate a pair of breeding birds; he then returns later in the year, after the birds have raised their young, and carefully retrieves the nest, along with any branches, stems, leaves, or needles it is attached to. (Songbirds don't use the same nest twice, and Spear has both federal and state permits to salvage bird nests, which are protected by law.) If a bird nests in a tree cavity, as woodpeckers do, Spear tries to find a section of tree with an abandoned nesting cavity in it.

Above: Bob Spear works on the details of a new carving.

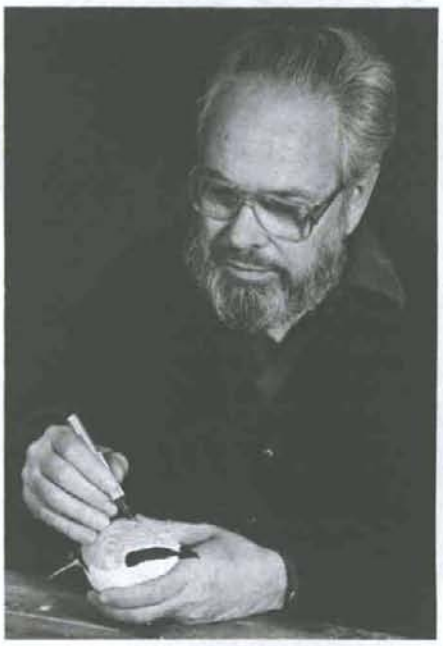
Below: Visitors enjoy the Birds of Vermont display.

Eggs for the nest are made from sections of hardwood dowels, shaped to exact dimensions and painted. Then Spear must recreate the piece of landscape where the nest was found. He makes remarkably life-like leaves and flowers using thin gauge aluminum, scribed with veins and other tiny details and then painted. For evergreens, Spear cuts an appropriate sized branch, then puts a drop of glue at the base of each needle with a hypodermic needle to hold it in place. When the needles dry out and turn brown, he sprays them green for a natural appearance.

Teaching Tools

Spear's birds seem to be frozen in time, captured at one instant of their lives in the wild. A screech owl, wings and talons extended, comes to rest on a tree limb with a just-captured beetle in its beak. A cliff swallow wheels in towards its mud nest tucked up under the eaves of a house. Further ahead a blue jay is landing with wings outspread, while its mate sits tucked close by the nest.

Each bird's pose is a combination of Bob Spear's studied field observations, hints from field guides and photographs, and the carver's singular creativity. Each is a work of art—and a practical teaching tool. Don Yaggy, a fifth grade teacher at a nearby school, takes his classes to the museum



regularly, often covering up the labels on the displays and asking the students to identify the birds using a description in a field guide.

According to Yaggi, the students are fascinated by Spear's techniques. "They're amazed at the accuracy of the carvings and also at how much time it takes to make each bird. When Bob shows them how he paints the birds and how he burns in each feather, they're very impressed. They've never spent forty hours working on a part of one project before."

And importantly, the displays "give the kids a real appreciation for the beauty of the birds and the variety of their habitats," says Yaggi. "Pictures just aren't the same." As an educational tool, notes Yaggi, "the displays offer something you just can't get out of a book."

***The Birds of Vermont Museum** was founded in 1986 to provide a permanent home for Bob Spear's carvings, and to offer educational programs based on Vermont's birds and the art of woodcarving.*

The museum is located on Sherman Hollow Road in Huntington, six miles south of the village of Richmond. For information, contact: Birds of Vermont Museum, RFD 1, Box 187, Sherman Hollow Road, Richmond, VT 05477, (802) 434-2167.

Lou Borie is a freelance writer and photographer living in Richmond.

SCSA Honors VNRC, Fischer

The Soil Conservation Society of America, a national organization which promotes "the science and art of good land use," honored both VNRC and VNRC's Executive Director R. Montgomery Fischer with awards this August.

Both VNRC and Fischer were presented with awards by the NH/VT Chapter of the SCSA last fall. This summer's awards were presented by the national organization.

VNRC was one of nine groups from across the nation selected to receive the SCSA's Merit Award. The Council was recognized for its "outstanding contributions in promoting the wise use of natural resources in Vermont."

Fischer received one of SCSA's highest awards, the Honor Award. He was commended for his service to many natural resource organizations and efforts in Vermont, most notably in issues regarding the Lake Champlain Basin.

Putting Conservation in the Constitution

"The people have a right to clean air, pure water, productive soils, and to the conservation of the natural, scenic, historic, recreational, esthetic, and economic values of the environment. America's natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the United States Government shall conserve and maintain them for the benefit of all people." With these words, the National Wildlife Federation resolved to propose an amendment to the U.S. Constitution on

environmental quality.

Dr. Jay D. Hair, President of the National Wildlife Federation, presented the idea to an enthusiastic crowd of NWF delegates at the 51st Annual Meeting this spring in Quebec City. VNRC representatives attended, as the Council is NWF's Vermont affiliate.

NWF's endorsement of the Environmental Quality Amendment is, noted Hair, only the first step. "It will take long hours and dedicated work by volunteers across our great nation to persuade two-thirds of Congress and three-quarters of the states to ratify a Constitutional amendment," said Hair.

Hair added that Americans are traditionally reluctant to amend the Constitution. In its 200-year history, the Constitution has only been amended twenty-six times – ten amendments making up the Bill of Rights.

This year's effort is not the first attempt to add an Environmental Quality Amendment to the U.S. Constitution; in fact, the idea was proposed eight times between 1968 and 1972, never surviving Congressional committees. But Dr. Hair noted that the bicentennial of the Constitution is an ideal to make the attempt again, and added, "Our time has come."

"If 'We The People' – the celebrants of the Constitution's bicentennial – are again to 'promote the general welfare,'" said Hair, "then we must apply the same vigor to our environmental problems that our forebearers used to settle the land from shore to shore."

VNRC Meets The New Yorker

We know many of our members will recognize Brookfield artist Ed Koren's distinctive style from his New Yorker magazine cartoons, one of which is reprinted below.

Some readers may be wondering about a suspicious resemblance of the "politically correct" restaurant depicted here to Montpelier's famous Horn of the Moon Cafe. Others may be asking themselves where they can get zucchini halva and some of Koren's other inspired menu suggestions. But only the most astute will notice a very "politically correct" t-shirt above the cash register. These places serve nothing but the best!

Drawing by Koren. c 1987 The New Yorker Magazine, Inc.

"I love this place—its food, its ambience, and its political goals."

CALENDAR/BULLETIN BOARD

September 1-December 15

The University of Vermont's Environmental Program will offer a three-credit Continuing Education course in **Natural Areas Management.** Topics will include site protection and restoration strategies, ethical considerations, hands-on practice of trail design and construction, developing management plans, and more. Tuesdays, 4–7 pm; weekend field trips may also be scheduled. For more information, call Rick Paradis, 656–4055.

September 12

VNRC's Annual Meeting will be held from 9:30–4:00 at Okemo Mountain Ski Area in Ludlow. Exciting field trips and workshops are planned, and members will have an opportunity to meet Patrick Parenteau, Vermont's newly appointed Commissioner of Environmental Conservation. Call VNRC at 223-2328 for more information.

September 12 and other fall dates

The Catamount Trail Association, a non-profit group working to establish an end-to-end cross-country ski trail from Massachusetts to Quebec, will hold its Annual Meeting beginning at 10 am at Mountain Meadow Lodge, Killington. With a business meeting in the morning, buffet lunch, and trail hikes in the afternoon, the meeting is an opportunity for new members to join, meet and learn about CTA projects.

CTA has also set up numerous dates and meeting sites for **trail work** crews; all are welcome to join in the efforts to create this unique ski trail. Dates range throughout October and November; bed and breakfast available at some sites.

For more information on CTA events, write CTA, P.O. Box 897, Burlington VT 05402, or call and leave your address at (802) 864-5794.

September 26

The Massachusetts Conference on Household Hazardous Waste will be held in Gardner, MA, for government officials and concerned citizens. Sponsored by the MA League of Women Voters and the MA Department of Environmental Management. For more information, contact DEM's Office at (617) 727–3260.

October 18–24

Be on the look-out for events in your community during the **Vermont Forest Festival.** See *Vermont Perspective,* this issue, for more information.

October 23–25

The Cape Cod Sea Camps in Brewster, MA will be the site of this year's **New England Environmental Education Alliance Annual Conference.** With the theme "Pushing the Limits," the conference will offer a variety of outdoor and indoor workshops for environmental educators from all over the six-state region. For more information, contact Adrian Ayson, PO Box 1015, Sturbridge MA 01566.

November 12

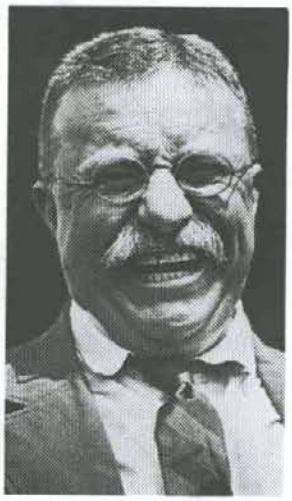
Who are the federal players in wetlands protection? What are Vermont's wetlands regulation and how are they enforced? Find out the answers to these questions and more at the full-day **Vermont Wetlands Conference** at the Woodstock Inn. Sponsored by the New England Interstate Water Pollution Control Commission. For more information, contact NEIWPCC at 85 Merrimac St., Boston MA 02114, (617) 367-8522.

New Members

VNRC is pleased to welcome the following new members who joined us between April 1 and July 1: E. Abbott, Jeffrey J. Allen, Gary and Kathy Bahlkow, Evelyn Bailey, William D. Barnes, Susan Bartlent, Marilyn Beilstein, Mark P. Biercevicz, Betsy Bourdon, Bruce & Sandy Bove, Jean D. Brigham, Barbara Brooks, Douglas Burnham, Mrs. Graham Carey, Greg Chase, Chickadee Bakery, Chittenden Bank, David Cole, Sandra Collins, J.M.C. Collins, Shaune Conant, N.E. Corning, Paul Council, Mary Crane and Paul Wieczoreck, Lawrence & Phyllis Despault, William N. Dickson, Mr. and Mrs. Rad Dike, Daniel Draper, John D. Egan, Wesley Eldred, Thomas Ericson, Mark Farrell, C. J. Frankiewicz, Mark J. Fraser, E. Ross and Frances Hanson, Mrs. Charles Hood Helmer, Lorna G. Hibberd, Bryan Higgins, Romev Hollervan, Marilyn and Stephen Holowacz, Mrs. Raymond E. Holway, Dean Hosken, Barbara and Phillip Howard, David Hylander, John Isenberg, Stephen Kimbell, Katy and Konrad Kruesi and Family, John and Brigid Kulhowvick, Larry LaClair, Virginia Lane, Michael Levine, Jon Limmer, Lintilhac Foundation, George A. Little, The Lothrop School, Iona Lopez, Mr. and Mrs. Peter S. Mallett, David Meltzer, Bill Mercia, Jean I. Merrill, Gladys Miller, Mrs. Robin Mix, Antoinette Montgomery, Michael Moore, Duncan Nash, Ann Orlov, Eleanor Ott, Town of Peacham, Susan Pedicord, Diana Peduzzi, Christine Phillips, J. Anderson Plumer c/o Highland Water Supply Association, John C. Preneta, C.M. Reed, Dory Rice, Kelton Roberts, John Rohrback, Robin Rothman, Albert E. Scherr, John Schroeder, Charles and Anne Sincerbeaux, Jeffrey Soshnick, Spring Lake Ranch Inc., Kent D. Stevenson, Mabel Twombly, Val's Market, Jo Ann Wagner, David Washburn, Edward and Polly Whitcomb, Doris L. Withrow, Lawrence B. Woolson, Cynthia M. Yerrick, Francis A. Young.

John James Audubon

Henry Ford



Teddy Roosevelt

THEY HAD TWO THINGS IN COMMON. THEY WERE AMERICA'S FIRST CONSERVATIONISTS, AND...

They were hunters.

Surprised? Don't be. America's hunters, trappers and fishermen are America's foremost conservationists.

Through his finely detailed paintings, *John James Audubon* gave us a new appreciation of American birds and other wildlife.

Henry Ford was instrumental in passing legislation to protect migratory birds and songbirds.

Teddy Roosevelt helped found Yellowstone National Park.

Today's sportsmen carry on the tradition.

They help to protect wildlife habitat. Help clean our waterways. Lobby for pollution control and wildlife conservation lands. And much more.

In fact, sportsmen have contributed over $5 billion for wildlife conservation. All other groups combined pay only a fraction of that amount.

America's sportsmen. They were, are, and always will be America's greatest conservationists.

If you'd like to learn more about conservation and sportsmen's efforts to PROTECT WHAT'S RIGHT, contact us.

Vermont Trappers Association
Old West Road
West Barnet, Vermont 05821
(802) 633-4031

S.A.V.E.
Sporting Alliance for Vermont's Environment
RR 1, Box 117-C
Danby, Vermont 05739
(802) 293-5524

PROTECT WHAT'S RIGHT

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