

BLACK ROCK FOREST PAPERS

THE ISSUES IN THE STORM KING CONTROVERSY

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On September 27th, 1962, the New York Times carried a story on the front page about a great new hydro-electric plant to be built near Storm King Mountain in Cornwall, New York. This plant would be built by Consolidated Edison, and would be the largest private hydro-electric plant in the world; the third largest of all. The plant would be for pumped storage, to meet peak load demands of the New York metropolitan region. The principle is simple enough. Demands for electric power vary greatly within each twenty-four-hour period. In New York City, the range can be between about one-and-one-half million kilowatts at five in the morning, up to five million kilowatts at five the same afternoon. Generating capacity must be installed sufficient to meet the greatest loads of each day, however short the peak load may be in time. Thus, each day much of the capacity of generating plants is unused, and the inputs of thermal energy vary with the needs for power. This variation makes it difficult to trim fires, and to operate thermal plants efficiently. Much of the smoke generated by steam generating plants comes from the addition of fuel to boost power production as the load demand builds. Con Edison now burns one-third of all the fuel used in New York City.

Thermal plants run most efficiently and with least smoke if they can be operated at a constant level of output, close to full capacity. But electricity cannot be stored. The principle of pumped storage is to use the surplus power generated in off-peak hours to pump water uphill. During the peak-load hours, the water can be released back downhill, to generate electricity by spinning the pumps in the opposite direction. Electricity thus can be used to store its own generative potential. Under such a plan, New York's power might be supplied by installed thermal capacity for eighty percent or so of daily peak load - all of which would run full blast, all the time. At night and early in the day, the power needed for electricity in the City would be far less than eighty percent of peak - and the extra power would pump water uphill. During peak hours - afternoon and evening - the water rushing down again would provide the power needed above that supplied by the steadily-spinning generators in the thermal plants.

The logic is appealing

A pumped storage plant requires a location where water can be held at two levels, vertically as far apart as possible, and horizontally reasonably close. The obvious place to look for such a site was in the Hudson Highlands, fifty miles from the city, where the Hudson cuts through a spur of the Appalachian Mountain chain. Ridges of very hard rock fall abruptly into the river, and hold between them valleys one thousand feet above tide level. Engineers found two possible sites on the Northern edge of the Highlands: one at Storm King, and one at Breakneck Mountain, just across the Hudson. Consolidated Edison chose the first, and left the second to be developed at some time in the future by the utility serving the locality: Central Hudson Gas & Electric Corporation.

The site selected, Con Edison's engineers had proceeded with plans. The Times story included a summary of these. A reservoir would be built in a lofty valley back of

Storm King by erecting dikes between the highest rocky masses. From here, a forty-foot tunnel would be sunk to sea level, one thousand feet below, then a horizontal tunnel would connect this with a pumping station at the river's edge. Power would flow to and from this station over high-tension wires, which would swing first in a great arc over the Hudson, hung from a great tower built on either side of this fjord-like bit of the river. The wires would continue overland, hanging from towers which would march over two suburban counties to an existing switching station at Millwood, New York.

The principle sounds valid to a layman; the details seemed just as sensible to the engineers. This is written nearly three years later - and no construction has begun. Why not? Will the project ever be built? What happened after September 27th, 1962? What can be inferred from these happenings?

I was as startled as anyone when I read the New York Times that morning. I called at the headquarters of Con Edison promptly at nine, and expressed my interest. I was treated courteously, and given a map which indicated the outlines of the new reservoir for river water to be pumped uphill at night, the route of the great tunnel, and the site for the power house. This latter was at the Southern edge of the promontory made by Storm King's intrusion into the tidal estuary that is the Hudson River at this point. I knew from its location that the station was placed on lands held by the Commissioners of the Palisades Interstate Park Commission. The tunnel, moreover, would be under Park land for much of its length.

The entire project lay within the township of Cornwall, part of Orange County, New York. For all its proximity to New York City, the community of Cornwall has maintained a remarkable insulation from the larger society - an insulation provided, chiefly, by the great barrier of the Highlands.

Cornwall is one of the very oldest summer resorts for New York City. There remains a cleavage between "the locals" and the rusticators who began coming here over a century ago. Some of these have been permanent residents for a generation or so; some are still weekend and summer visitors, as I am, but all are differentiated by points of view derived from their connections with New York City. Most live high on a spur of Storm King, with great views over the Hudson Valley to the North. This group is known to the villagers as "The People On The Mountain". Locals and mountain people live in separate worlds. They fraternize very little. Locals are proud of their small-town life. They tend to disparage the city, and the minorities associated with it. I could say a lot about the social dynamics of Cornwall, but it has all been much better said by Arthur J. Vidich and Joseph Bensman in their Small Town In a Mass Society (Doubleday, 1960), about another town-village society in upper New York State.

Con Edison had prepared for the public announcement of its project with care. Local officials of Cornwall were let in on the secret at the last minute. Since Con Edison is a private corporation, all its property would be taxable - and the local officials got the point at once. Their jubilation was unrestrained. The total cost of the project was announced, first, as one hundred fifteen million dollars. Later estimates raised this to over one hundred and fifty million. This was several times the entire assessed valuation of all property in Cornwall. There was some talk, for a few days, of cancellation of all taxes levied by local authorities. This was soon corrected to talk of all the new public conveniences which could be built at no addition to the tax rate; a new school, a village

hall, and so on. Local people were exultant; the news was simply too good to be true. Opponents of the project were dared to show themselves. None did, at first.

The amenities of the Hudson have been watched over for about thirty years by a genteel group of ladies and a few of their husbands, organized as the Hudson River Conservation Society. Membership for the entire length of the river has varied between two and three hundred persons. Con Edison was missing no tricks: a past president of this organization was the mother-in-law of a high Con Edison official. This lady fought Con Edison's case at the first Directors' meeting of the Society following the announcement. She insisted that the vital nature of the project over-rode any incidental effect on natural beauty. The consensus of the Society's Board was that a project of this size could not be stopped, but that its details could be altered to minimize damage to scenery.

The site of the proposed installation is one of the most spectacularly beautiful spots in Eastern North America. The Appalachians rather peter out in Pennsylvania, but throw out an arm that nearly reaches Connecticut. Where this arm is cut through by the gorge of the pre-glacial Hudson River, the durable old granite presses close to the river on both sides. Glaciers of the Pleistocene dumped clay at the Northern foot of the upland, providing the town of Cornwall with level farmland, and one high moraine for the Mountain peoples' homes. The glacier then proceeded to strip the ridge-tops bare of soil and loose stone. They were bare in 1609 when the Half Moon sailed into the bay now named for Newburgh, and her mate recorded the view of Storm King in his diary. They are bare today, with a fuzzy catch of hardy plants creeping up the crevices. The high valleys between the ridges are made of the same rock, but accumulations of leaves and some detritus from above have provided a little thin soil. This soil supported scratchy farming in a few spots up to the start of this century. Mostly the uplands have been used for cordwood and for sporadic hunting.

The Highlands were an essential in Washington's strategy during the Revolution. After Yorktown, with the British still in New York, Washington bivouacked his Continentals at Temple Hill, just north of Storm King. Here they could march quickly to block a sortie from New York, cross the river promptly to repel an attack on Boston, or move behind the highlands to face any threat in the South. Easton, Pennsylvania, was Washington's supply base; his supply lines safely covered by the mountain mass.

Half a century later, the United States Navy sought a source of butter which would remain sweet on voyages through the tropics. They found it in Orange County, and loaded at Cornwall, in the shadow of the mountain they called Butter Hill. The name persists on many maps, and on the brass Coast and Geodetic marker at the highest peak of Storm King. The name of the mountain was changed late in the Nineteenth Century, while romanticism was in flower.

Storm King figures in many prints by Currier and Ives. The Highlands were made much of by writers such as N. P. Willis, who collected American scenes into a book widely distributed in his time. America's first home-grown group of artists became known as the Hudson River School, though they specialized on up-stream pastoral scenes rather than in the Highlands proper.

The Hudson gorge is beautiful because of the great masses of rock which advance on the river from each side. It is a moving experience to see the great river slip between its headlands, towards its deepest spot, just off West Point. It is moving to think

of the time it took the river to cut through this block of granite. Such great natural phenomena remind us of the age of the earth, of the forces of nature, and of the punity of man.

Any great natural phenomenon has a special meaning for persons who behold it. For many of us, this meaning is positive, personal, and beyond articulate expression. It is something we treasure, something dear to us; something whose preservation is important to us.

The site of the proposed reservoir contained not a single home. It contains nothing of economic significance except a small reservoir used by the village of Cornwall. Hikers pass through the area, over a trail maintained by a member club of the New York - New Jersey Trail Conference. This leads from the top of Storm King to the look-outs and the ponds of Black Rock Forest, a tract owned by Harvard University and used for research in forestry. A dirt road that once connected Cornwall with West Point wanders through the site, kept passable only as far as the entrance to Harvard's property. This road and the trail can easily be rerouted. The reservoir itself will be visible from no natural viewing-point in the area.

Great towers to carry heavy cables across the river just at its most beautiful point would desecrate a spot known and loved by millions of people. This would be a tragedy.

The actual pumping station would be dwarfed by the great bulk of the mountain, and would be sited below the existing scar of the Old Storm King Highway, carved from the Highlands nearly fifty years ago. The site would be hemmed in by this highway, the Hudson River, and the Catskill Aqueduct, which right there plunges under the Hudson in a great siphon. The plant is designed to be largely under water level, and does not, in my opinion, in itself constitute a major blemish on the beauties of the scene. The high-tension lines marching on their tall towers across Putnam and Westchester Counties clearly would constitute a nuisance for the homes and the towns they would pass. Many alternate routes were possible, however, and there seemed to be nothing in this area that could not be negotiated reasonably.

Careful as it was in planning its announcement, Con Edison missed one trick. It had sited its pumping station on land belonging to a State park. It had planned its tunnels to pass under State park land. It had neglected to confer with the responsible officials.

A. Kenneth Morgan, Director of Palisades Interstate Park, is besieged by requests to divert land from Park purposes. He is adamant in his opposition, and has been successful in resisting encroachments from many directions. He is a reasonable man, though, quite committed to the notion of multiple use of land where this is possible without conflict. His allegiance is to his Commissioners, and to the ideal of providing outdoor recreation for the urban millions of New York. Eight million persons each year actively use the facilities provided by Mr. Morgan.

The pumping station was quickly whisked off Park land, and moved around Storm King to a site on the first adjacent private land, incidentally wholly within the taxing authority of the Village of Cornwall, adding to local howls of glee. The new location of the plant still requires that the tunnel pass under Park land, but there would be no intrusion upon the surface of this land. Special permission still is required from the Commissioners to dig the tunnel.

The enormity of Con Edison's proposal was stunning. The Cornwall community stood to reap a great tax windfall, and refused to listen to questions, let alone criticism. There wasn't much criticism to listen to, at first - and this is one of the most significant facts of the case. There was a lot of talk, of course, and some of the more imaginative local officials claimed credit for "bringing Con Ed to Cornwall". The first serious comment came from persons appalled by the blight on the landscape which the great towers and their cables would perpetrate. The President of the Hudson River Conservation Society at the time was William Osborn of Garrison, a consulting engineer who had worked in copper for many years. He dug up facts concerning new technologies of underwater cables, and presented them to Con Edison. He implied that his Society would not attack the project as a whole, but would seek adjustments only in details such as this. He established a relationship of mutual respect with Con Edison officials, but received no promises. Success of the entire project still rested upon permission to tunnel under Park lands. The great tower on the West bank would largely negate the grandeur of the views from Storm King - hence vitiate the usefulness of this segment of the State park. It is reasonable to believe that Kenneth Morgan made such an observation to Con Edison. At this writing, Con Edison still has not received permission to do its tunneling, but neither has it been turned down.

On January 29th, 1963, Con Edison announced that due to new technology, it was possible to use submarine cables and dispense with the great towers and the cables across the river, although the change would add six million dollars to the cost of the project. On the same day, Con Edison filed a formal application with the Federal Power Commission in Washington for a license to proceed with construction of the pumped storage project.

March 12, 1963, the Federal Power Commission issued a public notice of Case No. 2338, Application of Consolidated Edison Company of New York to build a pumped storage project. Interested persons were given until April 29th to file intentions to appear. This notice was published in the Federal Register in Washington, and in a newspaper in Goshen, seat of Orange County, New York. This newspaper is read rarely in Cornwall, and presumably never in Putnam or Westchester Counties.

In May, Consolidated Edison held its regular annual stockholders' meeting. The occasion was enlivened by distribution of a handsome Annual Report. Here much was made of the Cornwall project. An artist's impression was a prominent feature. Storm King was eviscerated; the great mountain had become a platform for the harsh shapes and hard lines of mechanical modern times. The artist had envisaged the great mass of granite cut like a cheese, with huge electrical machinery standing about in the excavation. The artist had allowed his imagination to carry him away. Copies of his work were carried away by the stockholders, reproductions were made and further distributed by persons who had not previously been active in opposing the project. By publishing this one bit of artistic license, Con Ed had laid the powder train that threatened everything. But powder trains take time to burn.

At its regular annual meeting in June, 1963, the Hudson River Conservation Society duly approved its President's suggestion that the organization refrain from attacking the Con Edison project directly, but instead try to elicit the utility's cooperation in making the installation as little injurious as possible.

On September 13th, Con Edison filed an amended application with the Federal Power Commission. The Commission made no change in its rules for filing intentions to appear.

On January 22nd, 1964, fifteen months after the initial announcement in the Times, the FPC announced a date for public hearings, and announced the procedures which would be followed.

February 6th, 1964, the FPC received a petition from an objector, requesting permission to appear at the hearings. It was now nearly ten months past the date announced for filing intentions to appear; no other objectors had filed. The issue of the high towers had been settled over a year before. The objector--come--lately carried the title Scenic Hudson Conservation Conference. It constituted a joint effort of Nature Conservancy, Inc., an organization in Washington devoted to saving specially attractive bits of real estate, and the New York - New Jersey Trail Conference, the coordinating agency for hiking clubs in the New York metropolitan region. Chief strategist of the new group was Dr. Walter Boardman, Director of Nature Conservancy. His efforts to date had been aimed chiefly at saving swamps notable for bird populations, and redwood groves in California. President of the new group - and by far its most energetic promoter - was Leopold Rothschild, the long-time president of the Trail Conference. The Con Edison project threatened no form of life in any way that could be considered serious, and it would inconvenience hikers hardly at all. But as will develop later, something more than identifiable interests was involved.

On February 16th the FPC granted Scenic Hudson's petition to intervene, and on March 5th, 1964, public hearings opened on schedule in the General Services Building, 441 G. Street, Washington, D. C.

Con Edison went into the hearings confidently, expecting no serious opposition. The company had imported local officials of Cornwall to speak their pieces. This the hearing examiner refused to permit; he insisted that the officials speak for their communities, not for the utility. Nevertheless, the prepared statements read into the record by Cornwall's officials were identical in wording with some testimony of Con Edison officials, and apparently had been run off on the same mimeograph machine. Favorable testimony abounded.

Scenic Hudson was represented by a former FPC Commissioner, Dale C. Doty. Informal statements were accepted from several other persons who had made their way to the hearing room obviously without any idea of the rules of the proceeding. Most of these felt strongly about overhead power lines in Putnam and Westchester Counties. There was no chance fully to present evidence in support of Scenic Hudson's contention that the Con Edison project should be forbidden for its effects on natural beauty. The Hearing Examiner stated that the Commission was considering technical considerations and economic justification. The implication seemed clear that matters of beauty had nothing to do with the case. As the long day dragged on, the hearing-room filled with silent watchers. The powder train was burning.

On March 11th, 1964, the FPC's hearing examiner announced that the project would have no significant effect on natural beauty. Six days later Con Edison publicly asked the FPC to hurry up with its license. But ever since the hearings, telephone calls and letters - even callers in person - had been besieging the FPC offices in

Washington. Commissioners said that there had never been such public interest in a case before them. On March 27th they ordered further hearings for the 4th of May. Here again, Con Edison seemed to have the upper hand.

Early in June, Leopold Rothschild convened a strategy meeting in the headquarters of the Audubon Society in New York City. There were present representatives of each of the major conservation organizations in the area. Two of those present had helped defeat the proposal to place New York's newest airport in Great Swamp in New Jersey. Great Swamp is now a federally-controlled wild-life refuge.

Rothschild waxed eloquent at this meeting. He said that this project must be stopped or else the entire Hudson Valley would be industrialized and future expansion of park land would forever be impossible. He spoke of the great number of sites that could be taken for pumped storage development (there have never been more than two). He flatly rejected compromise, and called upon everyone to do battle. Funds were needed; an office was to be opened; an executive secretary would be hired.

Later in June, President Osborn rose to preside over the annual meeting of the ladies and the few gentlemen of the Hudson River Conservation Society. His agenda was short; the meeting would be routine. The good engineer found himself facing a membership in revolt. Ladies in their enthusiasm threw Roberts' Rules of Order out the French windows of the Highland Country Club. Motion piled on motion, and vote on vote, in total disarray. The group succeeded in one thing only: in expressing its disagreement with the placid policy of cooperating with Consolidated Edison. The group wanted blood - it wanted the whole project killed. The meeting ended with a weak promise to send postcard ballots to the membership, asking for a vote on overruling the resolution of a year earlier. A few weeks later, the results in, the Directors of the Hudson River Conservation Society voted to oppose flatly Consolidated Edison's project at Storm King. The President privately expressed his discomfiture.

In March 1965, Con Edison received its license from the FPC to proceed with construction. Nothing happened. By then, two serious lawsuits threatened the proposal. One was brought by persons in Cornwall, on the grounds that their water-supply was threatened. The other was an action brought by the Scenic Hudson Preservation Conference. Its strategy was to petition the FPC for reopened hearings on the grounds that correct facts had not been adduced, then to seek cancellation of the license. This denied, the Conference would proceed to seek an injunction in the courts to halt construction on the grounds that the hearing records were incomplete and misleading. These suits may seem to a layman to be flimsy devices for gaining time - but they succeeded in stopping Con Edison cold.

Con Edison's plans, laid so carefully, had gang seriously a-gley. There was no logical reason why this should have happened. The total of interests seriously affected would seem to have been slight. Yet enough people had become interested in some degree in the vague objective of "saving Storm King" that the great utility found its plans stalled. This interest - held so widely by so many people - is generally summarized as "the conservation movement". This is a uniquely American phenomenon. It is a movement without central direction, without highly identifiable national interest-groups, yet a movement able to inspire many people to action merely by claiming that a familiar natural beauty has been endangered.

The conservation movement, as I see it, is composed of a belief, an ethic, and a value. The Storm King controversy provides an opportunity to look at these components.

The basic belief of the conservation movement is that there isn't enough to go around. This belief is rooted in John Locke's "niggardliness of nature", and takes force from the dire predictions of Malthus. It is highly compatible with the Protestant ethic, and with the virtues of thrift and saving. The basic notion is that natural resources of the world are limited, some are being lost forever, and population is increasing all the while. Beliefs have a power to satisfy which is quite independent of their capacity for validation. Most of the conclusions of the extreme conservationists regarding natural resources in our time have been proved to be without foundation. Either the facts are contrary to the assumptions, or the facts simply fail to exist to justify the assumptions. *It is the power of this basic belief that is important, not its validity. Saving natural resources becomes the ideal; just saving them, untouched. Affection and interest become attached to the natural resources themselves, not to the persons who might like to use them.

The save-everything conservationists had two claims on Storm King; they underscored them in their lawsuits. One was the existing drinking-water reservoir which would be displaced by the new installation. Water is critically scarce, they said; this water could never be replaced in quality or in cost. Second and more important was the unique natural beauty of the Hudson Gorge, of which Storm King constitutes the Western shoulder. Even with cables under the river, said the True Believers, this project would ruin the view irreparably. "Save Storm King" was the cry with which they let the welkin ring, though Storm King's beauty was no longer really in danger.

Ever since the Hoosac Mills case upset the original AAA program of the New Deal, "conservation" has been a word to conjure with in agricultural politics in the United States. Serious economists have explored the concept, as have agile politicians. Common sense has replaced much of the romance of the term. One immediate result of analysis was the idea that any resource is defined by its uses, and that any resource may have several uses. One of these uses may require that the resource be left absolutely undisturbed - as the hard-core conservationists insisted Storm King should be left. But, said the economists, what makes this use more holy than others? Are the people who enjoy this use more sanctified than those who enjoy the resource only in some transformation? How are incompatible uses to be harmonized in the case of a single resource; such as Storm King and its immediate environs?

The price system can mediate only between uses which can be expressed in monetary terms - and certainly the usefulness of Storm King to the conservationists is hard to express in dollar values. In the absence of such a mediating tool, there must be an ethic. I have called it the ethic of conservation. Before we discuss it, let us run down the specific uses which are known to exist in the Storm King area.

1. Natural beauty. This use of the resource is clear; it involves leaving the place alone. People who enjoy this use are those who look at the Hudson Gorge, and the many others who just like to know it is there, unsullied.

*Cf. Joseph L. Fisher and Neal Potter, World Prospects for Natural Resources. Baltimore: Johns Hopkins Press, 1964.

2. Peak-load electric power generation for the New York metropolitan region. This need is clear; whether there are other sources that might as well be exploited is a technical matter. Let us assume that Con Edison's technicians are correct in their estimation that peak-load power can be obtained more cheaply from the Storm King site than from any other. This tells us, only, that this site is best for this purpose. This does not tell us whether this purpose should take priority over any other.

One consideration is the effect this use of the land will have on reducing air pollution in New York City. As mentioned before, Con Edison uses one third of all fossil fuel burned in the New York area - and much of this is used daily for the firing-up to meet peak loads. By permitting the efficient and minimally smoky operation of the thermal plants, the smokeless pumped-storage plant would make a very great contribution to better air for the City.

3. New Yorkers' opportunities for outdoor recreation. Palisades Interstate Park already is overflowing with New Yorkers seeking a day in the country, a hike, or a place to picnic. Walking is a European hobby rather than an American one; New York's European heritage brings out walkers in droves. The Bear Mountain section of the Park is a particular favorite with United Nations personnel.

The Storm King Section of Palisades Park has never been developed, since it has lacked access to public highways. Con Edison has announced plans to buy land sufficient to permit this access - and thus greatly to enhance the recreational opportunities at Storm King itself.

4. Water supply for the town and village of Cornwall. Water is taken now from two small reservoirs owned by the Village, and from three others leased from Harvard University's Black Rock Forest. Con Edison's project would displace one reservoir owned by the Village. In exchange, Con Edison has agreed to pay all costs of establishing a substitute water system using wells within the town limits, and tapping the Catskill aqueduct. Here again money provides a simple standard of choice: Con Edison is responsible for all costs of obtaining at least the volume of water it would remove from local uses. The new supply would have to be of the same quality as the water withdrawn, of course, which again is translatable into terms of cost.

At this point the Village authorities allowed their enthusiasm to carry themselves a bit too far. They saw a chance to achieve a secondary objective, using water as the means. They planned to bar all members of the public from large areas of Black Rock Forest on the grounds that this was necessary to preserve the sanitation of their water. An unspoken but very real reason was that they hoped to exclude from these reaches of their community just those persons for whom Palisades Interstate Park was established: city people looking for outdoor recreation.

5. Persons affected directly by the new construction. There were no homes in the area planned for the reservoir. There were nine in the area planned for the pumping station. All nine owners negotiated sales with Con Edison, and were bought out. Prices were significantly above what normally might have been expected. Condemnation was never necessary, though its use was bruited about as an additional inducement to the home-owners to sell out and move.

The lasting impact of planned construction is across the Hudson in Putnam and Westchester Counties. This involves the great power lines - towers and looping wires - which will march across wooded land, homes and villages, marring the view in many places even far from the actual right-of-way. The difficulty of establishing damages has added bitterness to the objections of the property-owners in this region. Their motive has been to kill the entire project, as a means to avoid the blight of the power-lines. Here the damage is personal and private, rather than something affecting the public generally.

Persons living on Cornwall's moraine, the "Mountain People", felt that something deeply personal was being taken from them. None owned any of the real estate directly involved, though years before their families had purchased the land for the doomed reservoir, and had given it to the Village as a public service. Members of these old-established families had been accustomed to strolling in the woods near the reservoir, knew the region's wildflowers and birds, and thought of the high valley as an extension of their homes. Their objections were couched in terms of the sanctity of water-supplies, or the sanctity of Storm King itself. None was willing to admit that the force of the blow came simply from change in a part of the environment that had been taken for granted throughout their lives.

6. Tax benefits to the village and town of Cornwall. Here again results can be expressed in money. Benefits can be calculated, and also additional costs of public services required by the project. The plant will have its own fire and police protection, and the staff - about sixteen - constitutes no threat to the local school population. Cornwall stands to reap an incredible windfall, whatever it does with the proceeds. Actual reduction of taxes seldom occurs in such a situation: town fathers have a way of finding deferred projects enough to absorb all new income. But there will be a concrete benefit, if only in dampening the tendency of Cornwall's taxes to rise. For persons with low and fixed incomes, the upward creep of taxes each year constitutes a serious erosion of status. To halt this erosion good people might even countenance trafficking with the Devil, let alone disposing of a little natural beauty.

Within Cornwall, the project's proponents and its opponents were divided so deeply, by issues never clear even to themselves, that rational argument soon was displaced by bitter recriminations.

7. A surprised participant with an interest in the outcome of the issue is Harvard University. Harvard's Black Rock Forest, a tract of 3,700 acres, lies atop the Highland mass, directly southwest of Storm King. A small part of Harvard's lands would be needed for the project -- all for the uphill reservoir. Harvard's lands include one natural and four artificial ponds. All the artificial ponds are used for water-supply of adjacent communities - three by Cornwall. Harvard holds the land for research in forestry, but has always kept it open for hikers, picnickers, and nature-lovers in general. Harvard soon found itself in the spotlight - would the University cooperate with Con Edison and sell the needed bit of land? Or would it stand with the conservationists and oppose the whole project? Many of the conservationists are Harvard alumni. It was easy for all conservationists to drape their views in science, and to claim that Harvard's research undertakings in all of Black Rock Forest were a sanctified interest which should be held inviolable.

Harvard had accepted the Black Rock Forest as part of a gift in trust for the purpose of advancing research in forestry. Would Harvard further this research best by

selling the entire tract and using the funds to send foresters all over the world - wherever a problem existed? Or should the University fight to keep the tract inviolate, as guardian of its trust? Would the University be liable to suit - or to a damaged public image - if it failed to protect the status quo of its acreage? Harvard's interest in the Con Edison matter was not obvious to the public, but it is an element in the final resolution of the case. Let us denote this interest as Harvard's Black Rock Forest Quandary.

Here we have seven interests in the Storm King region, each valid, each with its adherents, and each with its denigrators advocating some other interest instead. I propose that we look to the conservation ethic for help in deciding how these interests should be ranked, and to what degree each should be given its way.

Let us begin by considering the notion, "resource". I have suggested earlier that a resource is defined by its uses to people. A resource is anything that has any use to anyone. People are the greatest resources of all: people are useful in many ways. But people are resources of a special kind - individual people have autonomy; they can decide for themselves to whom they wish to be useful. It is only over uses of non-human resources that we can find arguments to pick. Fortunately, there are plenty of non-human resources. Some occur naturally - land, water, beautiful days, stars to navigate by. Others have been made from natural resources - these we call products. A product is a resource just to the extent that it is useful. Some of our most vital resources have been made up out of thin air - using no natural resources at all. These are the artifacts of human minds: the inventions comprising what we call culture. Here are religious systems, ways of life, ethical standards, systems of government, technical knowledge, ideas of the good, the true, and the beautiful. Culture is a resource that is not limited; it can be reproduced indefinitely without increase in cost.

Of all resources, those least useful a priori are those which occur naturally. A tree must be cut into lumber really to be useful; coal must be mined; hydropower potential must be harnessed. Conservationists are on intrinsically weak ground in devoting themselves to saving natural resources. A far stronger case could be made for the vital need of saving cultural resources - and of further propagating them. Such a delicate structure is representative democracy! Many are the threats to a system of government as apparently secure as our own. Here, I submit, is the proper vineyard for the labors of those who are concerned over the disappearance of good things.

Most resources can be used for more than one purpose, and for the same purpose by more than one person. If every use of every person can be expressed in money terms, then the man offering the highest price will get the resource for whatever his use will be. This requires the existence of a market, and to assure fairness, this requires that all owners of resources of this kind, and all persons desiring to purchase use of this resource, can gain access to the market freely to buy or to sell.

We know that many resources cannot be bought and sold in markets. There is no market for unsullied Storm King Mountains. There is no market for clean air in New York City. There is no market for democratic governments. These values have to be asserted by bodies politic, which in their wisdom decide that certain intangibles are worth foregoing something else to have.

The cost of anything, traded in a market or not, is ultimately measured by the value of the next best thing foregone. The cost of a car is the alternative satisfactions

the buyer gives up; satisfactions he could have had for the same amount of money. The cost of a Storm King kept inviolate from a public utility is the higher cost of peak-load electricity obtained from the next best locality, modified by such side-effects as the differential in smoke pumped into the New York City air.

The conservation ethic requires that for each resource, every user should have a hearing - and that the award go to the use, or to the combination of uses, which the community considers best in toto. If uses of a resource are already disposed of by the workings of a market, then all is well and good. But whenever socially important, intangibles occur, there must be a judgment made through a political process. In this judgment monetized values have their places, but so do values which are unmonetizable. Multiple-use potentials do not constitute zero-sum games. One allocation of uses of a complex resource is almost certainly better than another allocation. The aim is to find the best possible combination. To do this, three caveats must be followed:

- a. All interested persons should be heard;
- b. The best total disposition should be sought;
- c. Anyone suffering a net loss due to a change in uses, should be compensated from the new and larger total of satisfactions. Calculation of the benefit arising from a change in uses of a resource must be discounted by these compensations due.

A careful application of the conservation ethic would assure that the costs implicit in any use of a resource be born by the user. Thus ideally the factory responsible for the pollution of a stream would be required to assume the costs of repairing the damage visited on all persons downstream. By the same token, no fictional costs should be permitted. It is theoretically possible that pollution of a stream bothers nobody at all down that way - and in such a case, the factory should be allowed to get away with it, not penalized on principle.

Space itself is a very great resource - we all use it more than we realize. Space permits many factories to dissipate waste material - in the soil, in the air, in water, or just on the ground in dumps - at low cost. Space offers the same opportunities for fishermen, campers, picnickers, and other casual visitors to the outdoors. Unless such dissipation of waste constitutes an identifiable cost to someone else who uses the space, there are no grounds for objection.

For me, outdoor space is my living room - and I like to see it free of trash accordingly. Not everyone agrees with me. Use of the outdoors as a public dump is permissible until those for whom the outdoors is something else can achieve enactment of the ordinances and the appropriations necessary to establish and to maintain trail signs, trash barrels, and devices for persuading others to use them properly.

A conservation movement such as ours could exist only in a Western society. Its existence, and that it is a deep-flowing stream in our national consciousness, has been illustrated by the slow but mushroom growth of opposition to the Con Edison plant at Storm King. The root meanings of the conservation movement; the values deeply held by the persons who feel stirred by the issues - are never as simple or as

logical as they usually are made to appear. The term "conservation" itself is a rationalization of something much deeper and broader. This I call the conservation value, and I define it as celebration of life.

The conservation value is rooted in the self-perception of individuals in our society, in their perceptions of the world around them, and in the exercise of their imagination. Self-perception, to me, is a person's way of seeing himself in time and in space, and the use he makes of these variables.

The Western ethic of independent, autonomous, responsible individuals is unique. Of the world's peoples, there are not very many who join us in adhering to it. Adherence has its own strains and demands, and needs for compensations.

In our society, the happy individual is the one who feels himself in control of his own fate, knowing enough about his environment to predict behavior he cannot control, and ready always to make what adjustments seem best to him. The secure ego is the one which knows itself, in its place in its world. The secure person knows the ropes; he distinguishes between himself, other persons, other living creatures, and inanimate objects. He takes satisfaction in expressing his own personality, to its fullest potential, in all dimensions. He recognizes himself as a biological unit, and he knows the general course of his own life process. He accepts the need at each stage of life to recreate some of the satisfactions of earlier years - hence the great importance of water in recreation, and the fun people have in it.

The well-adjusted person sees himself in space and in time. He appreciates each variable for its meanings, and for its opportunities. Space implies expression, freedom, opportunity for action, a place to yell, scream, and run. Time implies growth and mortality, responsibility and an opportunity for accomplishment.

Self-perception is built partly upon our own experiences with the world around us as we have lived and grown, and partly on the activity of our own imaginations as we have filled in areas for which we have had no learning from experience. We all supplement what we know, with what we imagine. The wise individual looks all around him, and attempts to validate his ideas by contacting reality everywhere, full circle. None of us can be completely autonomous; each of us always remains tied by dependent strings in some directions. We all have beliefs which are held so deeply, or which are so important to us, or are so unquestioned, that we never check them against reality, or even discuss them with anyone. In Western society, these taboo areas are minimal. Western man is rational, questioning, and pragmatic. He accepts the fact of his own independent existence, and he respects all other lives as good things in themselves, particularly human lives.

None of us is a paragon; each of us has strivings for autonomy in the Western tradition, and the countervailing tendency to flee freedom into dependence. This is the price of freedom: an emotional demand for its opposite. We all feel it, in some degree, at some times. In some persons the struggle works out as self-perception with blinders on. Such individuals are unwilling or unable to examine wide sectors of their own relation to reality. Some fill the sectors with revealed truth, others with the products of their imaginations. The key factor is an unwillingness to question what is accepted. Such persons tend to associate with others with similar patterns of acceptance, and often accept an authoritarian statement of truth for their blind areas. In extreme instances, individuals find devices for reinforcing their imaginative constructions - among

these are the drug addicts. Persons of this pattern of thought are not willing freely to discuss with other citizens questions of the general good; they prefer to press their cases with other weapons. They tend to be unable to treat ideas as objects to be discussed rationally, and used when practical. Because they cannot argue their cases logically and openly, they are forced to find devils among their opponents.

Western man projects his own sense of well-being to the world around him. He respects the independence of others. He knows the feeling of satisfaction that comes from his own fullest expression of all his biological potentials. He likes to see the same in the living things about him. This, I think, is the root of Western feeling of love of nature: enjoying the idea that every living thing can express itself freely towards its fullest potential, wherever it finds itself.

Everything that we find beautiful in nature, I submit, can be in some way related to a feeling in ourselves: the challenge of a great rocky wall, the delicacy of the structure of a wildflower's petal, the grace of a mammal's movement, the flight of birds, the exciting harmonies of colors and sounds in nature. All these exist apart from ourselves, and apart from any system of control other than the interactions of the independent and autonomous existences of all the lives involved.

We project to the world around us our own delight in development and our own aversions to control. There is something of this in Dr. Albert Schweitzer's "Reverence For Life". I accept the phrase, but not all his schema that underlies it.

We like to know that life exists: that bees buzz, birds fly, plants grow, animals abound - whether we are there or not. Great familiar places we like to think of as going on forever. Knowing that the great good places continue to exist, is among the satisfactions of our lives.

The conservation value is rooted in American character, as part of Western personality. Also part of American society are those persons who feel the pull of the value, but who are unable to treat it as part of a larger perception of self and of reality outside. There are many satisfactions in the field of nature which are very deeply appealing, and which can act as sirens, attracting the sensitive to a degree of commitment which is crippling. There are the far-out "conservation addicts", ready to do battle with any change in what they believe to be natural environment, undisturbed by human touch.*

There is a much larger group, more properly called "the conservationists", who have recognized the dangers of the siren call, and accordingly have hidden their feelings under apparently hard-boiled rationalizations. We have now a great body of folklore of conservation - ideas which are propounded and repeated, but which cannot stand rigorous examination.

Prominent in the folklore of conservation are these notions:**

* See Footnote Page 15.

** I am indebted to Professor Hugh M. Raup of Harvard University for delineating many of these ideas.

That there is everywhere a "balance of nature" which if disturbed, will cause natural associations to fall apart in a calamitous fashion. There has been a parallel folklore in economics - the "invisible hand" first described by Francis Bowen in Boston in 1859. This, if left undisturbed by man, would so regulate all prices that prosperity would prevail. Each idea, however, gratifying emotionally, is quite impossible to sustain by looking at the facts. Elements of a natural environment, like prices in an economy, are always in a dynamic relationship one to all others - and any change always results in multiple and reciprocal responses. Further, some change is always happening.

The notion of "climax" associations of living things, toward which change is trending. Since the major parameters themselves are changing, no stable climax is ever possible, and no concept of moving climaxes helps in analysis of the present. There is nothing to such ideas except further evidence of man's endless search for intellectual rest. Science tolerates uncertainties; tired minds seek escape from them.

The idea that an association of living things - such as a forest - has a life of its own, as an organism, above and apart from the total of the organisms that comprise it. This is reminiscent of primitive peoples' endowing their hills with life, and finding deities in every large natural phenomenon around them.

One could go on at length: mentioning the proclivity to discover cycles in all sorts of places for which there is no statistical support for the hypothesis; or George Perkins Marsh's idea that a marvelous stability existed in "the original state", such as in a "primeval forest". A final bit of folklore, from the hardboiled world of business, is the idea that it is better to own a resource (such as land) than to rent it; that there is a difference between ownership of a resource, and holding as good a claim to the stream of services from it.

The conservationists need not go to such lengths. All they need to justify their position is to say how they like things to be. The conservation value is simple, direct, and honorable - even if seldom asserted. Let us not forget, however, that of all the resources we have, the most fragile - the most in need of loving preservation - are our cultural resources. The great value of our culture is that it gives freedom of expression to so many persons. Freedom is a value, for us; let us conserve particularly the ways of life which make this value effective. Of all things that we like, and that we seek to protect, let us put man at the head of the list.

* The sort of thinking which I have suggested is a retreat from the ideal of Western personality has strong similarities with Piaget's description of the egocentric and non-communicating thought of the child. Drawing upon Piaget, one might suggest that the ideal issue to appeal to the emotional sensitivities of the general public in the cause of conservation would involve these elements: wide scale, long-distance views, preservation of early social relations, non-threatening and evocative shapes, colors and textures; motion suggesting freedom; curving and graceful lines, preferably related to a horizontal water line; emphasis on the observer's power over environmental elements, and most of all, recognition of something familiar, and the suggestion of dire effects of a change in the familiar. Every one of these elements, it seems to me, is present in the Storm King case.

Conservationists should be exemplars of American culture. They are free to express their values, and to seek support from the public generally in their implementation. Conservationists are free to bargain in the market for the great good places that mean so much to so many of us; they are free to argue their cause in public hearings and on the hustings. A good case, fairly presented and well argued, will draw wide public support.

The original struggle against Con Edison's license was an example of the conservation ethic becoming applied by the general society, erratically, inefficiently, without an established procedure. Con Edison stated its case simply in terms of efficiency: dollars and cents for electric power. Cornwall jumped through a hoop at the prospect of the tax windfall. Quiet negotiation killed the high towers, which certainly would have disfigured the view, without threatening the project as a whole. Con Edison's Annual Report for 1962 burst the hornet's nest of conservationists. The clamor the extremists set up reached the ears of the larger society, and struck a responsive chord. This chord was the conservation value: that nature and living things are good, and should not be disturbed more than necessary. The facts were never made clear; the charge that Storm King was in danger was enough to start the upsurge. Con Edison's project was endangered.

The elections of 1964, and the Supreme Court's reapportionment decision, had nothing whatsoever to do with the Con Edison proposal. These events did, however, lead to agonizing reappraisal among New York Republicans. Their party was in need of fresh blood, and fresh ideas. Saving the Hudson was a flag that could be carried - a flag, moreover, that might otherwise be picked up by the Democrats at the national level. Thus Con Edison's project led to its greatest lasting effect of all - politicians at state and national levels began competing for the honor of saving the amenities of the river. Neither group, incidentally, suggested that the Con Edison plant should be stopped; saving the river assumed that the plant would be built; the saving would be from then on.

It looks now as if the public will win this struggle, rather than any one of the participants. Critical in this process has been the element of time. There has been time for groups to be heard, and for pressures to build up. I can see an ideal solution of the Storm King controversy, in these terms:

The plant build by Con Edison as planned, properly landscaped, and the power lines in Putnam and Westchester counties so disposed as to cause minimal damage. Millions of city people seeking outdoor recreation would have many acres added to the Storm King Section of Palisades Park - with great hikes, views, water-resources, and picnic-spots. Even the bird lovers would benefit - Con Edison's uphill reservoir will be ice-free throughout the year, and should become a famous spot for seeing winter residents and migrating shorebirds and waterfowl.

New York would benefit from the economies of lower-cost peak load power, reduced air pollution, and enhanced outdoor recreational facilities. Cornwall would get its tax benefits. Before these benefits are distributed, however, there should be full compensation paid to all persons in Putnam and Westchester counties who suffer from the final location of power-lines. Such compensation is an unavoidable cost of the project. It has been said that there can be no gains without pains; unless the gains exceed the pains, and offset them, there cannot be said to be any gain at all.

The plant as planned constitutes no significant blight upon the natural beauty of Storm King and the Hudson River shorelines. No special consideration need be shown the persons who argued otherwise. It was the opposition they built up, however, which led to the final resolution. Furious action by the small number of far-out conservationists aroused the interest of the general population and held the question open long enough for a fair concensus to be achieved. The extremists may be gratified by this evidence that in a democracy, everyone counts; everything anyone says has some effect. The far-out conservationists might find in this some solace for the loss of their idea of the balance of nature.

The final disposition of Storm King will be made by the common sense of the general public, acting through the normal channels of political discourse.

There is a term to describe a person who enjoys everything in the out-of-doors; a person who thinks of himself in no way as a specialist. The term is nearly forgotten nowadays. It is "naturalist". I think that this term best summarizes Western man's attitude to nature, and I would like to see it used again.

All that is needed for enjoyment of outdoor environment is some space around the man. It doesn't have to be limitless, romantic space as implied in our tradition of exploration, and of the Old West. What is needed is all-around freedom, absence of restrictions, and the presence of natural environment. "The poet finds something ridiculous in his delight until he is out of sight of men", said Emerson.

The old-time naturalist was a happy man. He made no claim to be a geologist, or botanist, or ornithologist, or biologist. He was never in the outdoors to make a living; his source of security rested elsewhere. He wore the all-covering clothes of his day; the heavy boots and leggings, shirt, tie, jacket, and broad-brimmed hat. This gave him pockets enough for the essentials of his avocation: looking-glass, notebook, and room to carry whatever he might be collecting. The naturalist always had something creative to do: he acted on his environment, he studied it; he loved it because he could learn about it. He never worried about being a "real" scientist. For him, what he was doing was fun.

Our environment is becoming increasingly social, and human, rather than natural and non-human. The person who can find relaxation and enjoyment in the totality of the natural environment is well suited to good citizenship in the social world. In either case, the standards of success, and of enjoyment, are to look all around, and to learn about all there is around us. The more we can understand, the less will we be prone merely to judge. As we learn the futility of bounties for "vermin", so will we appreciate the blindness in persecuting unpopular minorities.

Many years ago in India a civil servant named Hume built up a great collection of bird skins, eggs, and nests. His collection of field notes was the greatest ever made. His hobby was deeply satisfying, and his work of great scientific importance. Hume returned to England on leave, one year, and on his return to Simla discovered his entire collection stolen. It never was recovered. The thief knew his loot had value, but had not the wit to realize that the value was not transferable into cash. Hume was distraught, but turned to botany. He had made a great collection of plants by the time his days came to an end. But Hume is remembered best for quite another adventure

in conservation. He sought to interest Indians in the ways of democracy. The little group he organized for this purpose continues to today. Its name is the Congress Party. I can't think of a better example of conservation and Western man.

September 1, 1965