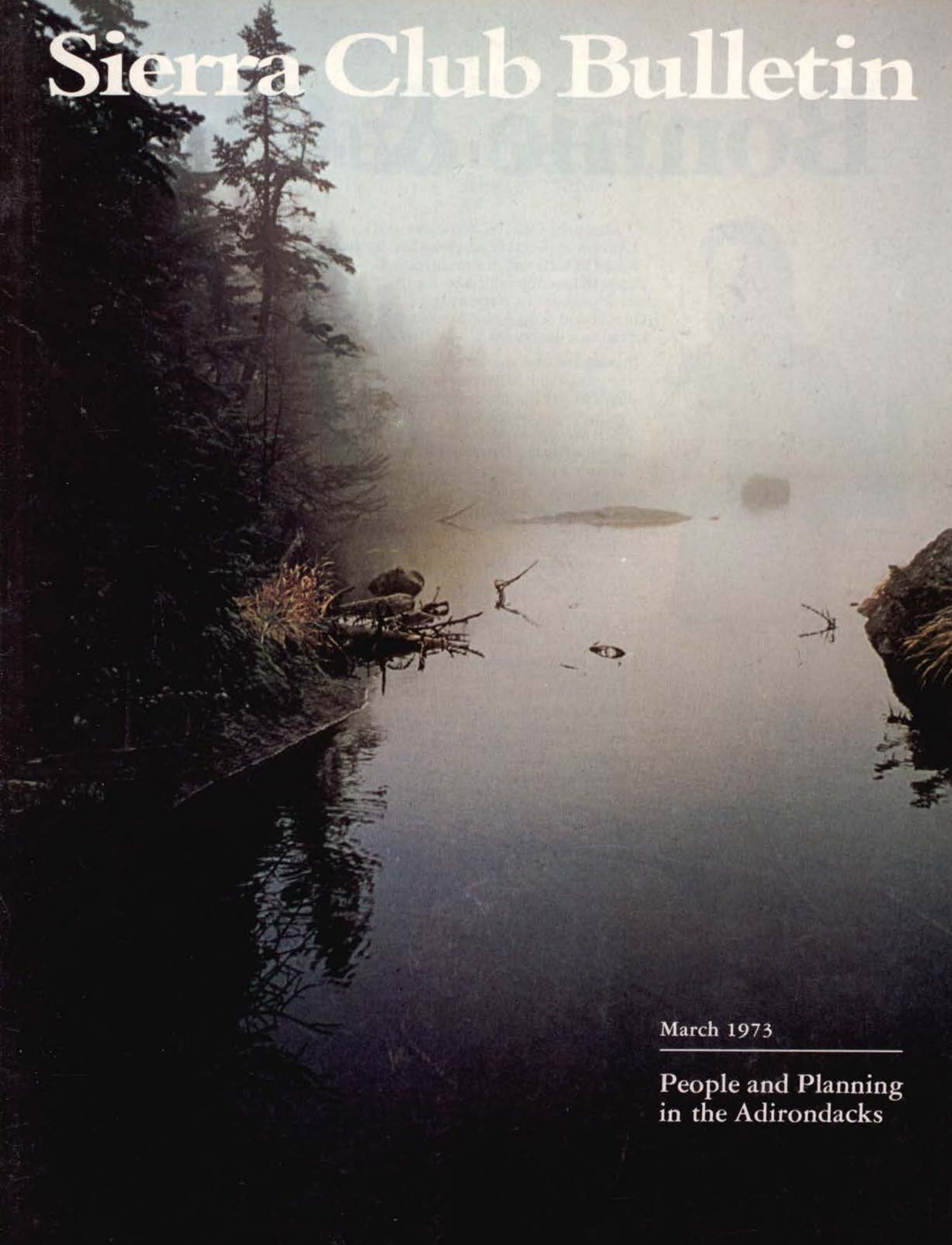
Sierra Club Bulletin



March 1973

People and Planning in the Adirondacks

Bonnie & Clod

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Sierra Club Bulletin

MARCH 1973 / VOLUME 58 / NUMBER 3

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Cover: ***Of the many moods of Adirondack Park, largest wild area left east of the Mississippi, photographer Robert Perron brings us one: a misty morning at Tear Lake.***

Credits

Page 4 (top): Gary Landorf; page 4 (bottom): George Davis; pages 5 and 8: Clyde H. Smith; page 7: Eliot Porter; pages 11, 12, 13: Jack Korn; page 15: Steve Johnson; page 21: K. D. Botts; page 23 (top): John Trimble; pages 23 (bottom) and 24: Susan Landor; pages 25 and 28: Bob Waterman; pages 26 and 27: Bruce Barnbaum.

Founded in 1892, the Sierra Club works in the United States and other countries to restore the quality of the natural environment and to maintain the integrity of ecosystems. Educating the public to understand and support these objectives is a basic part of the club's program. All are invited to participate in its activities, which include programs to "...study, explore, and enjoy wildlands."

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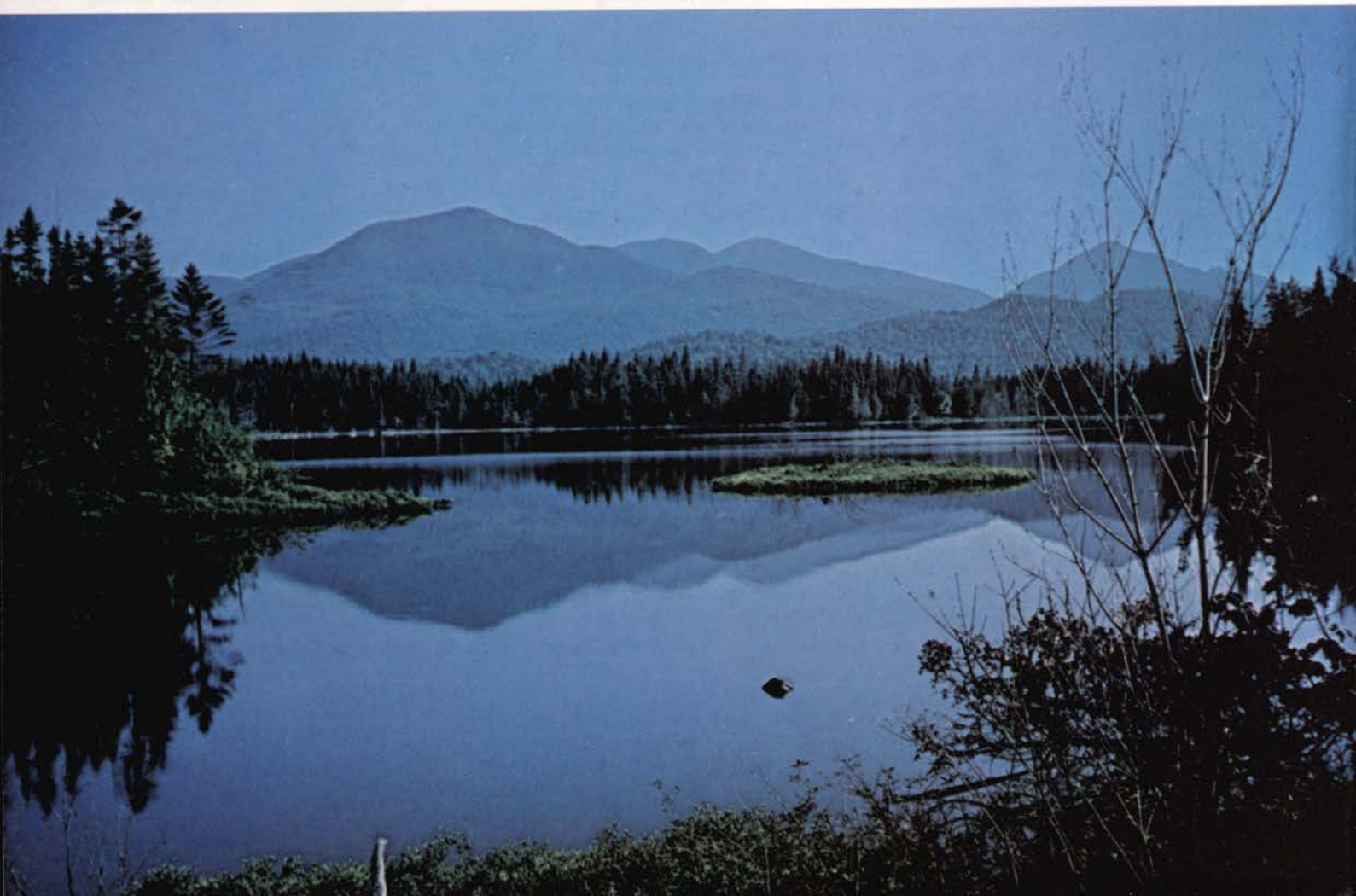


People and Planning in the Adirondacks

PAUL SCHAEFER

THE ADIRONDACK PARK in northern New York contains the largest wilderness east of the Mississippi River, of which 2.3 million acres of state-owned forest preserve are protected by a "forever wild" provision in the state constitution. These lands are managed by the Department of Environmental Conservation under a master plan prepared by the Adirondack Park Agency and approved last summer by Governor Rockefeller.

Much of the park, however, remains in private ownership, and though 80 percent of the private lands is now devoted to open-space uses—lumbering, game preserves, private estates, and farms—pressures for development are increasing, and traditional land-use patterns are beginning to change. The rapid increase in recreational developments that has afflicted many areas in the nation is now beginning in the Adirondacks. What happens to the private lands, of course, will directly affect the public lands because the two are everywhere interspersed in a crazy-quilt pattern. Air pollution, sewage problems, traffic snarls, and overuse of wilderness areas are potential problems that must be faced now.

Whether the Adirondack wilderness remains intact or whether it suffers the same chaotic commercialization as the Poconos and southern Catskills will be decided in the next few months by the New York state legislature, which is now considering a comprehensive land-use plan prepared by the Adirondack Park Agency for the 3.7 million acres of privately held lands in the park. The future of the Adirondacks depends on whether the legislature approves, modifies, rejects, or delays action on this plan.

The Adirondack Park was established in 1894 by the New York State Constitutional Convention in response to the wholesale lumbering of the Adirondack forests. The convention decreed that the state-owned lands in this vast expanse of mountains and woods "shall be forever kept as wild forest lands."

For three-quarters of a century, the public lands remained more or less inviolate, and the population in the private sector remained nearly stable. Then, in the 1960's, the picture began to change. Interstate 87 (the Northway) was completed between Albany and the Canadian border, and suddenly, the Adirondacks were an easy day's drive for 55 million residents of the northeast seaboard. Easier access, combined with the increasing affluence and leisure of many metropolitan area residents, gave new impetus to the old yearning to own

Paul Schaefer is vice president of the Association for the Protection of the Adirondacks.

"a piece of the Adirondacks."

In 1967, a proposal to convert a portion of the Adirondacks into a national park was presented to Governor Rockefeller. Opposition to the proposal was nearly unanimous, but the issue served an important purpose in focusing public attention on the problems of the Adirondacks. Penetrating questions were asked about park policy. Attention was directed to the old estates that were being carved up into subdivisions, to the proliferating amusement parks (spawned by such successes as Santa's Workshop, Frontier Town, Land of Make-Believe, and 1000 Animals) and to spreading strip developments around villages.

It was also evident that the state-owned forest preserve was changing. Intensive human use of certain areas, particularly the growing number of summer hikers in the High Peaks region, was causing local deterioration of the resource. At the same time, new fire roads and "emergency" telephone lines appeared, indicating that the forest preserve might be suffering from too much, rather than too little, management.

Governor Rockefeller responded in 1968 by appointing a 13-man Temporary Study Commission on the Future of the Adirondacks. The commission's findings and recommendations were published two years later in a report that stands as a classic of its kind: thorough, graphic, readable, with a compellingly clear warning whose urgency could not be missed.

"The report was proof of the frightening vulnerability of the Adirondack Park," explained George D. Davis, a staff ecologist with the commission and now assistant director for natural resources planning of the Adirondack Park Agency.

"For example, we discovered that one percent of the park's landowners own more than 50 percent of the private lands. Thus the actions of a very few could critically alter the character of the park. The private owner of a lovely Adirondack shoreline property could, if he liked, build on its shores a movie theater or an amusement center or a trailer park. More important, he or his heirs, who may be concerned with inheritance taxes, would be free to sell the shorefront to developers, to be broken up into small building lots."

In response to the commission's recommendations, the New York legislature in 1971 created the Adirondack Park Agency and instructed it to (1) prepare a master plan for the Adirondack's state-owned forest preserve, (2) prepare a land-use and development plan for the private lands for approval by the governor and the legislature, and (3) meanwhile regulate all development of private lands that might have a detrimental effect on the park.

The agency's first product was a master plan for management of the park's public lands that emphasized the preservation of wilderness values. Now in effect, this plan designates 15 areas of forest preserve—a total of almost one million acres—as wilderness. Motorized access and equipment are already prohibited, and most interior ranger stations, roads, and fire towers will be phased out by 1975. The master plan designates some 75,000 acres as "primitive" and specifies that these lands also be managed as wilderness. Some primitive lands may later be upgraded to wilderness status. The third and largest land category specified in the plan is "wild forest," which encompasses 1.2 million acres where a variety of outdoor recreational activity is permitted.

Far more complex and controversial is the proposal presently confronting the state legislature: the land-use and development plan for the private sector. This plan, which has been strongly opposed by many local residents, began with an inventory of natural resources: soils, slopes, elevations, water resources, and unique physical features such as gorges, waterfalls, and distinctive rock formations. Also studied were strictly human factors such as local economic conditions and needs, existing land-use patterns, and anticipated population growth.

> "... opposition to land-use planning ... from park residents has been fierce."

A less tangible yet vital consideration was the need to preserve the open space in the park. Public ownership of the forest preserve, and the public interest in protecting these lands from encroachment by uncontrolled growth, influenced most planning decisions.

The agency's preliminary plan, which went through a series of stormy public hearings in the 12 Adirondack counties in January, established six types of land-use areas. Most restrictive is the "resource management" classification, covering 53 percent (nearly two million acres) of the private lands, much of which is now devoted to lumber production or agricultural uses. Development here would be limited to ten dwellings per square mile, with precise density arrangements to be decided by local governments.

Another million acres are designated for "rural use," where 65 buildings per square mile are permitted. (In all classifications, a cluster rather than grid pattern of development will be encouraged.) All projects having "regional impact," as specifically defined for each land-use category, will be subject to agency review and approval.

Most of the park's anticipated growth is directed to the remaining 13 percent of the private lands where the environmental consequences of development would be minimal. In the least restrictive classification, called "urban hamlet," which applies to the principal villages, such as Lake Placid and Saranac Lake, guidelines for development are almost entirely at the discretion of local governments.

Governor Rockefeller solidly supports the agency's plan for the private Adirondacks lands. So, it seems, do most residents of New York state. Having approved a $1.2-billion environmental bond issue in November by an amazing 2-to-1 vote, New Yorkers seem to be in no mood to see their Adirondack Park Forest Preserve reduced to a vast suburb of second homes.

Yet opposition to land-use planning in the Adirondacks, which has come almost exclusively from park residents, has been fierce. "At first, nearly everyone, developers included, rallied round the concept of land-use planning," said George D. Davis. "But as soon as people realized that it would restrict their own property rights, enthusiasm suddenly cooled." Adirondack legislators initially tried to block creation of the planning agency and may now exert a disproportionate influence on the fate of the pending private-lands proposal.

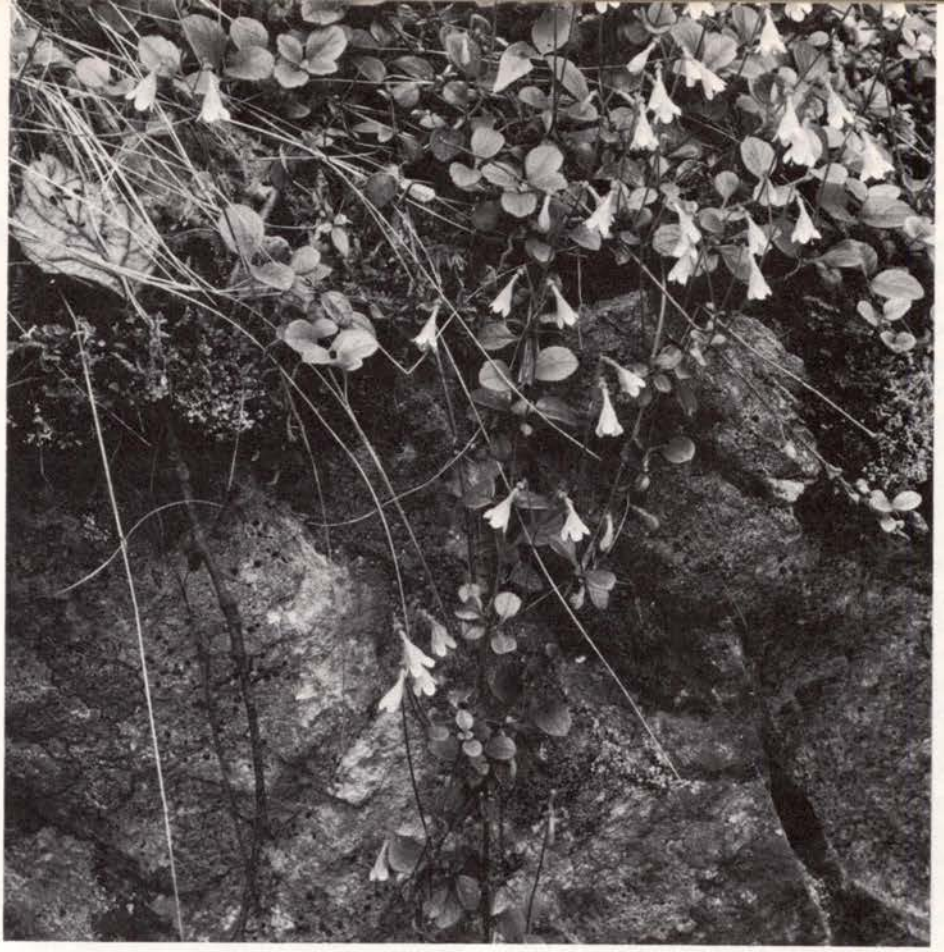
During the public hearings, local residents expressed fear that the plan would stifle economic growth and reduce Adirondack residents to the

status of an "endangered species." Cries of "land-grab," "erosion of home rule," "government takeover," "violation of constitutional rights," and "economic discrimination" were common. Conservationists supporting the plan—most conspicuously the Sierra Club (referred to as the "Sierra Club *of California*" by the local press), the Adirondack Mountain Club, and editorial writers of the *New York Times*—have been denounced as "do gooders" and "bird watchers" bent on turning the park into a playground for the rich.

Undeniably, some objections to regional growth controls reflect a genuine concern by Adirondack residents over the economic future of this chronically depressed region. Economically, if not geographically, the Adirondacks are part of Appalachia. Per-capita income is among the lowest in the state. Welfare spending is proportionately higher in some Adirondack counties than in New York City. Winter unemployment exceeds 25 percent in some areas.

An important premise of regional planning for the Adirondacks is that protection of the park's wild, scenic landscape makes good financial as well as environmental sense. Tourism, always a mainstay of the Adirondack economy, must inevitably increase as population, income, and leisure increase, and as the need to occasionally escape from asphalt and air pollution becomes increasingly felt. The Adirondacks' most valuable asset will continue to be their unspoiled natural beauty. These points and others were discussed in testimony submitted by the Sierra Club at the last and longest (nearly eight hours) hearing at Saranac Lake on January 20. Nine speakers, all of them vehemently opposed to the plan, preceded Ted Hullar, chairman of the Club's Atlantic chapter.

"The mixture of land uses provides the basis for economic strength of the Adirondack region," Hullar declared. "The land is so vast that it can contain a diversity of activities, ranging from recreational use of wilderness areas to the growing and harvesting of trees, from residential life in small villages and towns to light industry compatible with the natural resources of the region. We believe this diversity of uses must be retained and encouraged. However, *we do not believe* that the residential second-home business on a vast scale is compatible either with the land of the Adirondacks . . . or with real economic strength in the region."



The statement was met by stunned silence from some, by outright derision from others.

While expressing general support for the plan, the Club recommended more stringent restrictions for certain areas, more flexibility in others, an expanded definition of "regional projects," tighter shoreline and strip-development controls, and more adequate provision for public hearings and participation of "aggrieved parties" in later land-use decisions.

The Club also stressed the need for compensation, in the form of tax relief, for landowners whose development rights would be severely limited.

Following the hearings, the plan underwent substantial revision. The detailed changes were not completed at this writing, but it is known that the general structure and intent of the plan remains the same.

Some of the loudest complaints about the plan are prompted by real-estate interests, including out-of-state developers and paper companies with vast forest holdings in the park. For them, the unsullied Adirondacks are a gold mine, and the gold comes from the development and sale of second-home subdivisions. As might be expected, various limitations and standards proposed by the Adirondack Park Agency are not at all to their liking.

Of the 89 Adirondack towns, only 19 now have local land-use regulations, and most of these are patterned after high-density urban and suburban models. One town alone is zoned to accommodate a potential population of 640,000. This town's present population center numbers 6,500. If all Adirondack towns were to adopt the type of zoning common to these 19 communities, a total theoretical population for the Adirondacks of 20 million would be possible. These people, their houses, and all the public and private facilities to serve them would be scattered indiscriminately throughout the private lands of the park.

The agency's plan does not, as some critics have charged, seek to halt all development and "lock up" the park. Under the plan, the current, peak resident population of 200,000 could increase to 1.2 million. But this growth would be directed in such a

way that its effect on the park's natural environment would be minimal.

The specter of uncontrolled growth has become disturbingly real with the recent appearance in the Adirondacks of two highly ambitious second-home developers. Horizon Corporation, a land-sales company based in Tucson, Arizona, has purchased 24,300 acres for $2.3 million from Northern Lumber Company in Colton, a town in the northwest corner of the park. Horizon's plan to establish a 9,000-home community, with a potential population exceeding 30,000, has even caused concern among local residents, many of whom are associated with colleges in nearby Canton and Potsdam. The debate centers on economic as well as ecological questions. Horizon's supporters claim that the proposed development would create new jobs and broaden the local tax base. Skeptics cite the experience of Vermont, where unregulated development has not only devoured the landscape, but caused property taxes to rise sharply. In Vermont, most of the new jobs, including almost all of the best ones, have gone to outsiders. Like most developers now eyeing the Adirondacks, Horizon is keeping a low profile until the legislature acts on the agency's plan.

Another imminent development should the plan fail to pass this year is Luis Paparazzo's Ton-da-Lay. Paparazzo, a Connecticut developer, has purchased 18,500 acres near the town of Altamont for his 4,000-to-8,000-unit project. Paparazzo paid the hitherto unheard-of price of $100 an acre for this large tract of wild, forested land. The Ton-da-Lay proposal is currently the subject of public hearings by the Department of Environmental Conservation, which is considering the total environmental impact of the project. The Sierra Club is a principal intervenor in the proceedings.

The danger is clear; the public interest is evident. This interest now needs to be translated into action. New Yorkers must write their state legislators urging approval of the plan in this session—there can be no weakening of the bill and no delay. If it is successfully stalled for a year, as opponents hope, irreparable damage could be done to the park.

Letters from Americans everywhere to Nelson A. Rockefeller, praising the governor for his stand and urging him to press ever harder for enactment of the plan, will also make a difference. By making ourselves heard now in Albany, we will help to write a new chapter in New York's long and enlightened record of preserving the Adirondack wilderness.

"The Adirondacks are truly unique," George Davis observed recently. "Where else can the attributes of Colorado, Minnesota, and Vermont be found in one place? It is the diversity of vegetation, animals, landforms, and waterways that really distinguishes the Adirondack Park. Any single factor, such as alpine meadows or canoe waters, may be outshone by other parks in this country, but no park that I know can offer so wide a range of quality experience."

The idea of environmentally sensitive land-use planning on a regional or state level is not new, and some planners, such as Ian McHarg, have been doing it for years. Hawaii has had statewide growth controls since 1961, and Vermont may adopt a similar land-use and development plan this year. California, Delaware, Maine, Massachusetts, Minnesota, and Florida—to name a few—have already embarked upon various forms of regional land-use planning. What is unusual and particularly appealing about such planning for the Adirondacks is that it can be implemented before—not after—a lot of unguided development has occurred.

Lake George Village epitomizes the skewed values that would litter natural wilderness with synthetic playlands dedicated to separating the tourist from his dollar.

National Wilderness on the Line

A STAFF REPORT

THE U.S. FOREST SERVICE announced in 1967 that it was going to inventory roadless areas in the national forests for the purpose of identifying those lands deserving further study for possible inclusion in the National Wilderness Preservation System. Little was accomplished, however, until 1971, when the service began the inventory in earnest. Despite this four-year delay, the original deadline for completion of the inventory—spring 1973—was not extended. So the Forest Service decided to do in only two years what it had originally set aside six to accomplish. It is not surprising, then, that the inventory has been inadequate in several respects.

But it was completed on time. On January 18 of this year, Forest Service Chief John McGuire produced a tentative list of 235 roadless areas, totaling 11 million acres, that the service had selected for further study. McGuire said a final list of study areas would be released sometime after a 90-day period for public comment.

Conservationists are unhappy with the tentative list because it omits many outstanding wilderness areas and because the process by which the list was made was haphazard and subjective. Absent from the list are such areas as Carson-Iceberg in California (133,000 acres), Kalmiopsis extensions in Oregon (250,000 acres, of which only 17,000 are recommended), Hoodoo Divide in Montana (200,000 acres, of which only 75,484 are recommended), Pioneer Range in Montana (150,000 acres), Weitas in Idaho (196,000 acres), High Uintas additions in Utah (122,000 acres), and Golden Trout in California (260,000 acres, of which only 130,000 are recommended).

The review process began with an inventory by regional Forest Service officials of all roadless areas within the national forests that were 5,000 acres or larger, or less than 5,000 acres if adjacent to existing wilderness and primitive areas. The foresters designated 1,448 areas, totaling 56 million acres, but conservationists claim that thousands of acres of roadless tracts were overlooked in the process. For example, tracts were mysteriously divided into separate areas even when they were contiguous to each other. The result of such an

arbitrary designation of boundaries was the exclusion of many areas under 5,000 acres that could have been included in larger units.

Many more areas were excluded from the inventory because they shared in common fine old-growth forests, which the Forest Service and timber industry are loath to see designated as wilderness. Not including them leaves unprotected millions of acres of virgin forests. A rough estimate of the potential annual timber yield on the 1,448 roadless areas amounts to 2.3 billion board feet, about 17 percent of the annual allowable cut of 13.6 billion board feet. Had the Forest Service elected to study all the roadless areas, it would have had to reduce the annual allowable cut to 11.3 billion board feet. By reducing the number of tentative study areas to 235 (only 20 percent of the total inventory) and omitting areas with high timber volume, the Forest Service acknowledges that wilderness studies will reduce the annual cut by only two percent. The tentative study list released last January is, in effect, a "woodless area inventory."

From the 1,448 roadless areas included in the inventory, regional foresters selected 181 to be added to the 61 areas already under study that adjoin primitive areas. Of the total 242 areas, seven were subsequently deleted from the tentative list.

The process used to weed out 80 percent of the roadless lands included in the inventory was always subjective, often unfair, and sometimes arbitrary. Roadless areas had to pass three separate tests in order to qualify for inclusion on the tentative list. First they had to be of high quality, but this was decided by regional foresters according to a numerical rating system so capricious that the fate of an area could have well hung on a passing mood. (One area in California that straddles two regions—Carson-Iceberg—was rated 102 by one and 168 by the other, out of a possible 200 points. The typical break-off point for inclusion on the tentative list was around 155. Carson-Iceberg didn't make it.) Second, an area had to have received support at a set of public meetings held after the inventory was taken, but before the tentative-list selections were made. In other words, the fate of 56 million acres of wilderness hinged as much as anything on the number of bodies various factions could stuff into the hearing rooms. Third, the areas had to be sufficiently devoid of trees and minerals to rate a low "economic-impact" score, which was determined through a so-called economic analysis that toted up the market value of timber and mineral resources without estimating the short-term costs of developing them or the long-term costs to the land and to taxpayers.

Many existing wilderness areas and

Continued on page 24

A Land-use Failure

Cheap Coal and Hollow Promises

WILLIAM GREENBURG

William Greenburg, former science news editor for the Nashville Tennessean, *is now a Professional Journalism Fellow at Stanford University. His 1971 series on strip mining (with photographer Jack Korn) was nominated for the Pulitzer Prize.*

OVER HALF the nation's annual production of 600 million tons of coal is accounted for today by strip mining—and this proportion seems certain to rise as the economy of huge earth-moving machines outpaces the comparatively Lilliputian method of deep mining. At the same time, the economies of strip mining are making the improved technology and safety of deep mining increasingly marginal expenditures. Thus it becomes ever more logical to feed our burgeoning energy industry with strip-mined coal. For strip mining is cheap—so long as we do not count all of the costs.

The unaccounted cost of strip mining as it is usually practiced in America is the cost of reclaiming the ravaged land, restoring it to something like its original condition. So far, only a small fraction of the cost of reclamation has been paid by the strip miners. Of the 1.6 million acres of the eastern United States that the TVA reported strip-mined as of 1970, something like half had been reclaimed "according to present state laws." In the same year, the Department of the Interior reported only slightly more than one million acres of unreclaimed strip mines.

If the area unreclaimed were the only issue, we would simply be dealing with a minor national disgrace. The major disgrace, which shows every sign of becoming truly American in its scale, is the feeble effort to truly restore the lands "reclaimed." When we do reclaim strip mines, we spend about ten percent of what the British or the Germans spend per acre. Beyond this point, there is serious question as to whether effective reclamation is even possible in many cases, particularly in the most affected regions of Appalachia. Indeed, by no means enough is really known about reclamation of strip mines to produce accurate estimates as to the cost of fully reclaiming many lands. Perhaps our strip miners and the governmental agencies guarding the public interest in the land do not even want to know too much about the cost of reclamation; in any event, there has been little weighing of the costs of high profits to miners and low costs to such public services as TVA against the long-term costs of degraded land.

THE AGING Andrew Johnson Hotel in Knoxville, Tennessee, has been the site of many smoke-filled rooms where political deals have been made. On that cold Sunday night in February, 1972, politics in the usual sense was not going on. But, without a doubt, it was politics as usual.

The meeting at the Andrew Johnson was for the benefit of the Subcommittee on Mines and Mining of the Interior and Insular Affairs Committee of the U.S. Senate. The subcommittee was considering strip-mining legislation, and chairman Frank Moss (D. Utah) and Senator Henry Bellmon (R. Oklahoma) were to be briefed before a two-day helicopter trip through the eastern sections of Tennessee and Kentucky to get a first-hand look at coal strip mining in a mountain region of Appalachia. Mary Jane Due, chief counsel for the subcommittee, said that the Sunday night meeting, open to the press and interested parties, was to present nothing more than an outline of the trip and background about areas to be visited.

The meeting that night was anything but a neutral briefing. It was, instead, a full-blown presentation by TVA on strip mining and reclamation. Al Currey, an official of TVA's Forestry, Fisheries, and Upland Wildlife Division, detailed (complete with color slides) a reclamation project on a mountain above Wartburg, the seat of rural Morgan County, Tennessee This 34-acre site was strip mined for coal in 1956, then abandoned until TVA embarked on a reclamation program in 1963. During Currey's presentation, he peppered his remarks with the expression, "We are still out to school on this one."

Currey and the reclamation officer with him were "still out to school on" some salient matters regarding strip mining, among them scalping, highwall reduction, and final grading on a mountain, or "contour" strip mining.

Scalping consists of denuding the hillside directly below a contour mine before mining operations begin. Proponents of scalping contend that the denuded surface allows for better adhesion of the spoil material deposited over the side of the mountain. Those who oppose scalping claim that the natural cover on the mountain provides a better surface for stabilizing spoil. The real question, however, is whether any spoil material should be deposited—or dumped, as is usually the case—over the mountainside at all.

Highwall reduction means doing away with the vertical wall left when a

strip-mining site is cut out of the side of a mountain. Highwalls can run to more than 100 feet high. Many methods have been proposed to eliminate or at least reduce the highwall, which is unsightly to say the least. Federal studies have suggested reducing the highwall from the top as well as from the bottom. Reducing the highwall from the top could mean pushing earth with a bulldozer to create fill against the wall. Where soil conditions do not permit such a method, or where solid rock is involved, blasting has been suggested. Opponents to such highwall reduction claim it would only create more instability.

Final grading of mined-out mountain strip mines is related to highwall reduction. TVA advocates what is the most common practice whenever anything is done at all—grading spoil gently down toward the highwall. This leaves a mound running around the mountain and a ditch between the mound and the highwall. The Georgia V ditch, as it is called, is supposed to enhance controlled water runoff. In a report on TVA's involvement with strip mining, the General Accounting Office chided TVA for advocating this method. The GAC recommended the method used in Pennsylvania of grading up toward the highwall. But Pennsylvania strip-mining terrain is not like that of central Appalachia, where there is a great deal of rock but little soil. Those who oppose grading up toward the higwall say all that is being done is to create another unstable slope, particularly after blasting to get at the coal has created a mixture of rock, soil, clay, and shale.

Besides the points Currey acknowledged were still matters of debate concerning how to conduct mountain stripping and achieve reclamation, there was much more he did not tell the senators.

In 1956, when the area in Morgan County was stripped, the equipment was not so huge as it is today, and the damage was not so great. Moreover, the highwalls were not nearly so high. In a separate interview conducted at a different time from the Sunday night meeting, another TVA official, Charles Gouffon, said: "The highwall [on the Morgan County site] wasn't too high. It was mined back in the 50's when the equipment was a lot smaller. The highwall was about 20 to 35 feet." Gouffon said that the cost of reclamation was from $200 to $225 an acre.

"In justice to that cost," he said, "we worked in cold weather with inexperienced labor." Otherwise, he implies, the cost would have been even lower.

Don Todd, a science teacher at Morgan County High School, and a former strip-mine operator, now active in the anti-strip mining movement, was not so charitable regarding TVA's Morgan County reclamation project: "The TVA project in Morgan County was on the Jellico seam of coal. This is a low sulphur, high quality seam of coal, and it is a real small seam. The stripping was all first cut. They never got far enough into the hill to get black silt and minerals. It was all yellow clay and yellow shale that was thrown over the side. This stuff is easier to work with, and it is not really as acid as it is back in the mountain. The highwall was not as high as they are today and there was still enough soil left to work with."

During the helicopter tour the next day, the strip-mine site of the Long Pit operation in Campbell County, Tennessee, was visited. Long Pit is the name used by the Long Construction Company, one of Tennessee's road-building firms. Long Pit operated in a mountain region on land owned by Koppers Company of Pittsburgh. The coal rights to the property were purchased by TVA in 1962. A. B. Long, a company executive, was asked by this reporter if his company had personnel trained in mining engineering, geology, agronomy, forestry, or hydrology. He replied that there were no such personnel, and that TVA supplied all such expertise, while his firm was concerned, mainly, with moving earth.

The Long Pit contract is a special one with TVA, calling for everything necessary to be done for stability and reclamation of the land, with a profit added. All other TVA coal contracts are awarded through competitive bidding. Despite the special contract, the Long mining site was riddled with landslides.

In the spring of 1972, TVA began another program on the Long site. This is a pilot strip-mining project to determine if the "ultimate" in reclamation can be achieved. The program will also determine the cost of such an operation and the relationship of the cost to the profitability of mountain strip mining. A TVA official said in December of 1972 that data are not yet available from the Long Pit pilot program.

Reclamation of land that has been area strip mined is supposed to be a different matter. The basic theory behind area strip-mine reclamation is a simple one. The material covering the coal is stripped off and separated according to strata. After the coal is extracted, the overburden is replaced in its proper order with top soil, if any, placed on top.

Area strip-mine reclamation appears to be working, but not in the United States. The land subjected to area strip mining in this country is often described as resembling the surface of the moon. From the air it looks like a wash board with long trenches of coal and ridges of spoil.

Alten Grandt, reclamation director for Peabody Coal, said that the Black Mesa program in New Mexico, active for about two years, needs four years to get good reclamation. Grandt said that there have not been enough long trench-like cuts to produce enough spoil to work with. "I need three ridges of spoil to effect good reclamation," Grandt said in an interview at the Black Mesa site. Grandt said it is important to separate spoil where there is a great deal of sulphur-bearing material to be buried to save valuable top soil. He added, however, that the terrain on Black Mesa is different because there is a very thin layer of sandy top material. Just below, he said, is hard rock. He said that this situation does not permit the soil to hold water and it just runs off. He added that a mixture of the spoil with the sandy layer will act as a sponge to hold the water. He said also that the shale mixed with the top layer of sand will be a better material for plants from the "nutrient aspect."

WHILE WE WAIT to see if Peabody's reclamation will work, experience in Europe demonstrates that area strip mining can be successful—at a price. A Sierra Club study describes strip mining practices in Great Britain. There strip mining is governed by strict laws enforced by agencies of the central government that participate in the operation every step of the way. The overall regulatory authority for strip mining is called the Opencast (the name given to strip mining in Britain), an arm of the National Coal Board.

The study observed that reclamation is divided into two activities. Restoration is the process that goes hand in hand with the actual extraction of coal and consists of separating the soil and other strata, replacing it after coal is extracted, and grading. Rehabilitation is the process of nursing the terrain back into shape according to a five-year plan.

When mining operations start, topsoil and subsoil are removed, separated, and put aside. In areas where no soil is present, soil-making materials, such as sand and clay, are put aside to be used in surface restoration. Subsurface strata are then removed from a box-type excavation and put aside. Any acidic material adhering to the coal is scraped off by bulldozers and placed in the bottom of the pit to be buried. The report said that at no time are explosives used because they are considered uneconomical and in-

tolerable to the public. During mining operations, surface water is diverted around the site. As the coal is mined, backfilling of overburden material follows.

After all the coal is out, bulldozers level, grade, and contour the replaced overburden. Stones are then removed, and the highwall left from the bottom of the last trench is graded at a steep angle over a relief of 40 to 50 feet to stabilize the area in a minimum space. A scraper then replaces the top soil, which is immediately cultivated to maintain a loose surface. If wet weather causes problems, affected areas are stripped and graded again.

At this point, the rehabilitation phase takes over and is supervised by specialized agricultural or forestry personnel. "Only rarely is a site restored to industrial development," the report said. During the rehabilitation phase, the area is fertilized and limed as needed. In some instances, controlled grazing and farming are allowed.

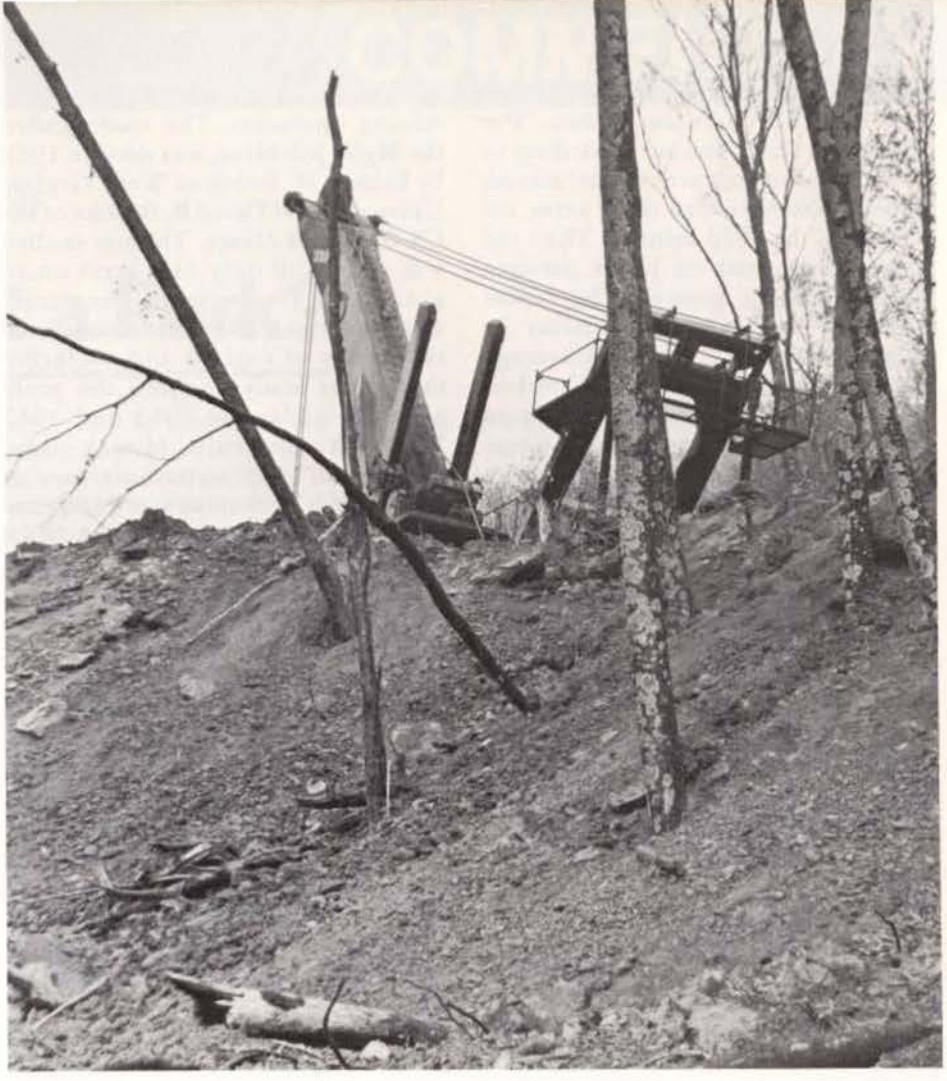
Most of the sites are used for agriculture, while some are restored to forestry. The study said that the areas going back to forestry are generally of poorer quality, probably having no subsoil or topsoil. At the South Wales strip-mining sites, heavy rainfall of 60 to 80 inches a year has made forestry reclamation difficult. "Of the more than 120,000 acres restored under rehabilitation by the Opencast, only 2,300 acres have been restored to forestry since 1958," the study said.

The British experience appears to show that even with strict regulation, planning, and less formidable terrain than in Appalachia, it is difficult to restore forest lands. In Appalachia, the costs and difficulties are much greater, but the commitment is much less. Overburden is not separated, it is, rather, blasted as far as possible, as one Kentucky strip-mining inspector put it. Despite silt dams, controlling runoff from a mountain that has been torn up is difficult to achieve.

The Sierra Club study quotes one British strip-mining official as saying, "The problems that exist in the United States are very much greater than those in this country."

But another official said, "Many American visitors have come to our area, and they didn't seem to be interested in anything but winning the coal."

Perhaps the key to the success of European reclamation is to be found in West Germany, which has probably the most widely acclaimed reclamation program in the world.



A study of West German strip mining was done by Edmund Nephew of Oak Ridge National Laboratory. Nephew observed that the mining is done on flat terrain covered by the "richest, most fertile, farm country of Germany." His report continued: "Probably the most compelling reason for farmland restoration is the prevailing conviction that to allow valuable soil to be irrevocably destroyed by a strictly temporary land use—mining—would represent extreme folly."

The price tag for West German reclamation is $3,000 to $4,500 an acre. The Sierra Club study of Great Britain said that the average cost of restoration is $3,537.50 an acre, and the average cost of rehabilitation is $410, for a total of $3,947.50. In Great Britain, the study said, these costs range up to $6,192 for restoration and $443.50 for rehabilitation, for a total of $6,635 an acre. The study said that on a cost-per-ton basis the average for restoration is $1.18 and rehabilitation is 17 cents, for a total of $1.35. This ranged up to $3.56 for restoration and 27 cents for rehabilitation, for a total of $3.83.

Nephew estimated in his West German study that based on a coal density of 1,800 tons per acre-foot and a recovery factor of 80 percent, the yield of a typical three-foot Appalachian coal seam is about 4,300 tons per acre. From this he estimated that $6,000 an acre could theoretically be spent on land reclamation.

TVA said in its 1963 study that contour strip mining in east Tennessee, where seams range from 18 to 60 inches, yields from 2,400 to 8,100 tons per acre at 90 percent recovery. In western Kentucky, where several seams may total 15 feet, stripping may yield in excess of 20,000 tons.

TVA reported that in Wise County, Virginia, a mountain strip-mining

region, the average gross value of coal per "disturbed" acre was $9,000. "Per disturbed acre" means, according to TVA, that for each acre of coal mined, approximately two to three acres are "affected" by strip mining. Then the value of the coal on just a per-acre basis would be greater. The report said that in Mulenberg County in western Kentucky the 1963 average gross value per acre (not disturbed acre) was $18,000. TVA has updated the western Kentucky figure to a gross value of $60,000 an acre. No update was made for the Wise County figure and TVA officials said they could give no reason why.

The 1963 TVA report quotes the following reclamation costs: "Tree planting costs range from $15 to $35 an acre, and the minimum grading required by state law may add as much as $45 (per acre). Total cost estimates vary from a low of $45 an acre in Virginia to $70 an acre in Illinois (an area strip mining region). The per acre cost most commonly quoted is $50.

"If more than minimum grading is required for the development of pasture, costs are estimated at $150 to $250 an acre. Complete leveling in Indiana (area strip mining) has cost as much as $1,000 an acre.

"The above costs apply generally to area stripping. If we assume here that coal seams average three feet in thickness, then production would be about 5,000 tons per acre. Assuming further that reclamation cost is $50 an acre, the cost per ton of coal is one cent."

TVA has since updated its reclamation cost estimate to $500 an acre for area strip mining, and $250 an acre for contour strip mining.

Testifying at Senate strip mining hearings in November, 1971, R. W. Hatch, president of Hanna Coal, which engages in area strip mining in Ohio, said that his company's records show that over the years reclamation costs have averaged $460 an acre. He said this ranged from $200 an acre to $1,800 an acre. Hatch said he knew of a job where the soil was put back in the proper order that cost $5,000 an acre. William Guckert, Pennsylvania's strip-mining control officer, said reclamation costs in his state run between $70 and $250 an acre.

Reclamation cost estimates vary widely because we have so little experience in the field, and there is only one known published study analyzing the costs and profitability of a strip mining operation. The study, called the Myles Job Mine, was done in 1968 by Samuel M. Brock of West Virginia University and David B. Brooks of the US Bureau of Mines. The site studied was an area of only 11.6 acres on an abandoned 41-acre farm. The terrain was moderately sloped and contained two seams of coal 40 and 44 inches thick. The study analyzed the profit and cost under the 1963 and 1967 West Virginia Strip Mining laws. Under the 1963 statute the cost of grading the 11.6 acres was $585, and under the 1967 law the cost was $845. Revegetating cost for the 11.6 acres under the 1963 law was $406 and under the 1967 law it was $791. The change in the law caused the net profit in the operation to drop from $51,195 to $50,591. Although this study suggests that reclamation may not be so prohibitively expensive as some have claimed, it must be remembered that the West Virginia cost guidelines are woefully low, the nature of the terrain was fairly suitable for reclamation, and the profit per acre was good. Reclamation costs for poorer seams of coal on steeper slopes would be much higher.

Mountain strip-mining reclamation projects acclaimed by the coal industry also tell an interesting price story —one the industry chooses to ignore.

The Norton Elementary School, which opened in 1971 in Wise County, was built on a mountain strip mine site. The cost of reclamation on the 27-acre plot, not including the cost of the school building, was about $219,000, or $8,100 an acre. The Appalachian Regional Commission paid $164,325 and the state paid $54,775.

Jellico is a small community that straddles the Tennessee-Kentucky border in the coal fields. Land on the Tennessee side was area stripped. After it had been abandoned, it was decided that the land be reclaimed as a park. The project called for no improvements of the area other than blending the spoil into the surrounding terrain. Even so the cost to do this on the 300-acre site was $323,000. The Appalachian Regional Commission contributed 75 percent of the cost, and the State of Tennessee contributed 25 percent.

Reclamation—real reclamation—of strip mines is expensive under the best of circumstances. In this country the promise of reclamation has been a cheapskate mockery: where reclamation is practical our mining operators have somehow managed to spend a fraction of what it costs the English and the Germans to put their lands back in order; significantly, where reclamation may not even be possible —in mountain contour mines—even less is spent to repair the scars of what amounts to a casual, one-time raid on the riches of the land.

Reclamation cost figures reveal a great deal about restoring strip mined land to a healthy condition. But the most revealing observations of strip mining reclamation come from the people who live closest to it.

One of these people is Senator Howard H. Baker, Jr. (R.-Tenn.). Baker is the executor of a 40,000-acre estate not far from his home in Scott County, Tennessee. His father, the late congressman, had a one-ninth management interest in the property, which had been strip mined over the years. In an interview during the summer of 1971, Baker called strip mining an "abomination." He said it was destroying Appalachia's last asset, its great beauty. "Quite frankly I've never really seen any good reclamation," Baker said.

Baker's neighbors and constituents in the east Tennessee coal field echo his sentiments.

"There used to be a lot of hardwoods in this country, but now you may be able to find a pine twig or two in those strip mined areas," said 68-year-old Joe Angel of Jellico.

"I've seen some of their so-called reclamation and a mountain goat couldn't even stand on it," said Paul King, a deep miner from the White Oak Community. "They throw out some grass seed and everytime it rains you can see some green. When the sun comes out, it dies."

But perhaps the person who has come closest of all in assessing what reclamation really is, is the Governor of Tennessee, Winnfield Dunn, a man who has not shown much enthusiasm for controlling the strip mining industry in his state.

During a confrontation in his office in the spring of 1972 by a group of angry mountain people who had come to Nashville to lobby for the abolition of strip mining, Dunn was asked, "Governor, how do you reclaim a mountain?" He replied, "I really don't know. I'm not an expert on that. You'll have to ask God."

Sellout in San Francisco

Why Not Rent a Park?

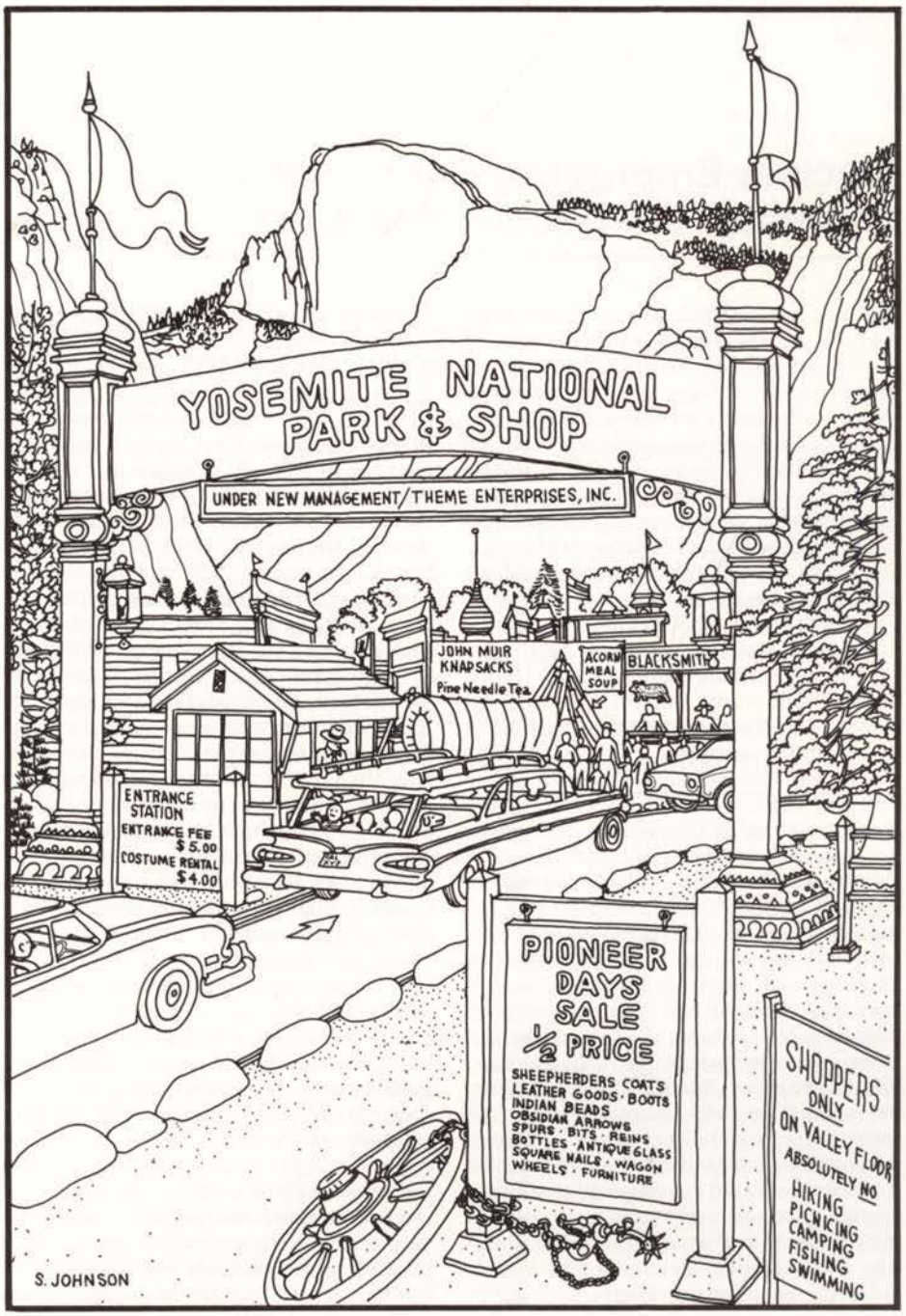
IN THEIR ATTEMPT to take over a Forest Service wildlife refuge at Mineral King, the folks from Disney may have aimed too low. For if officials of the California state park system and entrepreneurs of a California corporation called Theme Events get their way, the precedent will be set for Disney-like operations to just rent out whole parks. In other words, maybe Disney should have tried to lease Yosemite itself. Fantastic? Not to a model modern park manager who is out to serve the people and turn a buck for the system.

At this moment, there is a draft contract under consideration between a carnival operator (high class, to be sure) and the California Department of Parks and Recreation to turn the San Francisco Maritime State Historic Park into a "concession" during the height of the San Francisco tourist season. Theme Events would operate an "Old San Francisco Waterfront Fair and Nautical Exposition," which would not only dominate the park, but also the ticket booth. At the moment, it appears that the price of admission would be revised upward from 75 cents to $2.50. Thus, the visitor who came to see an historic park not only would have to pay a concessionaire to even get in, but then would have the opportunity to run a gauntlet of sub-concessions featuring such goodies as "model ships (in bottle is possible)," "lorgnettes," and "flags with 31 stars" (to quote from the prospectus).

The San Francisco Maritime State Park, located at Aquatic Park in San Francisco, represents one of the best examples of historical and professional restoration in the world. The park itself stands at the exact place where the millions of tourists who visit San Francisco each year first experience that grand new conception, the Golden Gate National Recreation Area. This is the junction of natural history and social history—and this is the point at which the state parks people want to trade off a serious presentation for a carnival.

Theme Events is a California phenomenon based on the imagination and energy of Ron and Phyllis Patterson. Starting with highly successful summer shows in Northern and Southern California—the Renaissance Pleasure Faires — the Pattersons have branched out with their Dickens Christmas Fair in San Francisco and now look toward even greener fields.

Theme Events is basically in business to promote the sale of whatever products the public may be tempted to buy. The most sinister implication of this idea for California's parks—or all parks, for that matter—is suggested in the wording of the state legislature in 1955, when it set up the Maritime Park, which dedicated historic ships "to be perpetually preserved and displayed in a manner comparable to that of the other historic landmarks and buildings in California."



The necessities of a commercial operation intrude, as one might well imagine, upon the imperatives of an authentic park. As of this writing, the San Francisco Maritime Museum, certainly the only institutional authority competent to assess the validity of the Theme Events scheme, has not been invited to take any substantial role in guiding the project. The state historian on the project itself, asked by his district park superiors to analyze the Theme Events show, found the detailed proposal riddled with anachronisms. The California ships anchored in the park relate to the peak years of West Coast shipbuilding and shipping—around the turn of the century. The Theme Events enterprise, however, relates to Gold Rush times more than any other, for the simple reason that this period is more "colorful."

But the precise quality or purpose of Theme Event's program is a detail. The overriding consideration is the principle involved in even dealing with such details. Synthetic entertainments have their obvious place in our society, but they have no place in that part of our natural or urban environment which we have set aside for the refreshment of our souls or the stimulation of our intellects. If the public demands downhill skiing, snowmobiles, trail bikes, and carnivals, then it will no doubt get them one way or another. But there is no reason that such demands must be accommodated by our parks systems. California often sets standards—in our parks system as elsewhere—that tend to be reflected sooner or later throughout the nation. Let us hope that leasing parks will not become a new precedent.

Roger Olmsted

Nuclear Emergency Core Cooling Systems: the Debate Heats Up

For years, the Atomic Energy Commission (AEC) and the electric utility companies have been assuring us that nuclear power plants present virtually no hazard to public health and safety. They have acted as though nuclear-reactor technology were a mastered art—like baking bread or making sewing machines—for which all the important fundamentals were known. The appalling truth is that several crucial aspects of reactor operation are still open to wonder and debate, even among scientists and engineers employed by the AEC. Yet there are now 29 operable nuclear power plants and many more under construction in the United States, with safety features based on inadequate computer models and untested theoretical assumptions.

The weakest element among the safety features appears to be the emergency core cooling system (ECCS), which was designed to prevent overheating of the fuel core in case of a sudden loss of coolant in the reactor through, say, a ruptured water pipe or broken valve. The ECCS is intended to forestall this disaster by flooding or spraying the fuel core with additional water immediately after the loss of original coolant. Should it fail to do so, the fuel rods would melt, releasing radioactive materials from the reactor vessel. The AEC has consistently maintained in public statements that the emergency core cooling system is entirely adequate to do the job, but the commission's confidence is based not on actual tests of the system, but on performance predictions derived from mathematical computer models. The ECCS has never been tested under full-scale operating conditions.

Simulated tests of the ECCS, using small laboratory-size models, were conducted at the National Reactor Testing Station in Idaho in late 1970, but the system failed miserably. Emergency cooling water was prevented from cooling the fuel rods by an unexpected build-up of steam that had not been anticipated by existing computer codes. As a result, the AEC early in 1971 asked Aerojet Nuclear, its chief industrial consultant, to review the "state of the art" regarding the emergency core cooling system. Aerojet's conclusions were shocking and ominous. The report identified 28 areas of knowledge where further information was needed. In six areas the techniques for gathering information were missing entirely. In the rest, the current status of knowledge was rated as "incomplete, preliminary, unverified, inaccurate, or uncertain." Despite the frightening implications of this report, the Division of Reactor Development and Technology withheld it from the AEC's licensing division, which makes day-to-day decisions affecting the future of nuclear power in this country.

The review was to have been used by a special AEC task force set up in late 1970 to establish "interim criteria" governing the operation of nuclear power plants. New guidelines had become necessary because of growing apprehension in the AEC over the reliability of the ECCS, doubts which had reached a climax with the system's failure in the simulated tests in Idaho. But the cry for ever more power and the AEC's unwillingness to slow down its development program resulted in a completely inadequate set of interim criteria that, oddly enough, pretty much corresponded to what the electric utility companies were doing already. Stephen H. Hanauer, the task force chief, even admitted later to having never read Aerojet Nuclear's damning review.

The interim criteria became effective in June, 1971. By then, however, environmentalists and scientists outside the AEC had become aware of the problems plaguing the emergency core cooling systems and were beginning to pressure the AEC. Faced with this opposition and with a growing expression of concern by scientists and engineers within the AEC, then chairman, James Schlesinger, scheduled a public hearing for January, 1972, to review the commission's interim criteria. This hearing, which was to have lasted only two or three months, is still going on. The AEC probably had hoped to make a quick bow to public interest and then carry on as before, but it was frustrated by the Consolidated National Intervenors, a consortium of 60 environmental groups (including the Sierra Club), and the Union of Concerned Scientists, a Harvard/MIT group that showed up to provide the Intervenors with technical expertise. Together, they have shown, as Robert Gillette said in an article in the May 5, 1972, issue of *Science* that "the AEC's own administrative safeguards are in as questionable shape as the reactors it licenses." As a result, the interim criteria have been completely discredited, and the self-assured complacency with which the AEC has traditionally conducted its business may be permanently shattered.

Early in the course of the hearing, it became apparent that many nuclear reactor safety experts on the AEC staff and in the several national laboratories (especially Oak Ridge) were concerned about the reliability of the emergency core cooling system. In a letter to Chairman Schlesinger, which the AEC released only after the Intervenors had threatened a freedom-of-information suit, Alvin M. Weinberg, director of the Oak Ridge National Laboratory, expressed a "basic distrust" of ECCS computer codes, "especially where the calculations have not been checked by full-scale experiments." He also objected to the establishment of operating criteria without having first consulted the safety experts at the national laboratories. In another letter, William Cottrell, also at Oak Ridge, criticized the interim criteria and pointed out the "wide gaps in our knowledge."

These misgivings were echoed by Phillip L. Rittenhouse, a safety expert from Oak Ridge. Speaking for 28 colleagues at Oak Ridge who shared his strong reservations about the reliability of the emergency cooling system, Rittenhouse said, "These people have too many reservations . . . shared too generally, for me to pass off."

These reservations partly concerned the reliability of the computer codes from which predictions about actual ECCS performance

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WASHINGTON REPORT

The Budget and the Environment

In his special message to Congress, President Nixon proclaimed that "We are well on the way to winning the war against environmental degradation." But examination of his 1974 budget for funding this warfare raises profound questions about continuing the voyage without paying the fare.

Since his projected spending of $268.7 billion during the coming fiscal year is designed to reduce or terminate more than 100 federal programs, it is inevitable that the budget ax would strike environmental and natural resource programs. Preceded as it was by impoundment of some $6 billion Congress already had appropriated for use this year, the extent of the budget-cutting damage is difficult to assess. Some of the impounded money will carry over to fiscal 1974.

Details have emerged which indicate hard times for programs dear to environmentalists, such as the Land and Water Conservation Fund. Mr. Nixon slashed the budget requests from $300 million to $55.2 million, reducing to zero the "new" money needed for land acquisition by the National Park Service, Forest Service and Bureau of Sport Fisheries and Wildlife. Of the $55.2 million approved by the President, $50 million will go to the states for park development.

Fund impoundment has reduced the budgetary process to a shell-game of sorts. The Land and Water Conservation Fund situation is a good example. Because money has not been spent at the authorized rate in past years, some $239 million will be carried over to fiscal 1974. Thus, although no new money will be available for buying needed parkland and refuges, the Park, Forest and Wildlife services will share in using up these carryover funds, assuming that the Office of Management and Budget gives final approval.

What it all means, of course, is that programs for acquiring the land to protect scenic, recreation, and wildlife values will be stretched out over many, many years. Meanwhile, land prices will escalate and scenic areas will deteriorate. The National Park Service alone has a backlog of $324 million needed to purchase presently authorized park areas. Another $400 million is anticipated in additional proposals, such as Florida's big Cypress National Water Preserve, which has Mr. Nixon's personal endorsement.

Money in the Land and Water Conservation Fund accumulates in the US Treasury at the rate of $300 million per year. It comes from sale of surplus property, motorboat fuel tax, entrance fees, and the lion's share from oil lease revenues off outer continental shelf lands. It cannot be used for other purposes. The fund has great potential for curbing environmental degradation; but the funding pipeline will dry up after 1974 unless Congress overrides the President's refusal to move ahead.

Other significant omissions exist in the Nixon budget. Last year the President signed into law the Coastal Zone Management Act which called for an appropriation request of $48 million to implement it. There is no mention of it in the budget, although $20 million is requested for a new national land-use program which Congress has yet to approve. Likewise, funds were eliminated for the $10 million water bank program which reimburses owners of wetlands that maintain habitat for migratory waterfowl.

About $6.9 billion will be available in the current year and in fiscal 1974 for construction of municipal waste treatment plants—a considerable sum, indeed—but less than half the amount Congress authorized. House Speaker Carl Albert was quick to respond to this presidential cutback. In a nationwide address, Albert said "The President's action means that now we will not be able to move quickly to purify the water you and I and our children will use. We will be losing precious months and maybe years—time we cannot afford to waste."

Outcome of the battle over the environmental budget will not be determined for many months. Congress can go ahead and appropriate increased amounts. The President can continue to veto appropriation bills exceeding his requests, or impound the money if his veto is overriden.

Is this the prudent way to resolve our nation's environmental problems?

W. Lloyd Tupling

CAPITOL NEWS

Alaska pipeline stopped by US Court decision

The trans-Alaska oil pipeline has been held up once again, this time by the United States District Court in Washington, D.C., which on February 9 denied a construction permit to Alyeska Pipeline Service Company because its requested rights-of-way exceed those authorized by the 1920 Mineral Leasing Act. Unless the Supreme Court overturns this decision—which everyone considers unlikely—construction will have to wait for Congressional amendment of existing statutes, because existing right-of-way limits are insufficient for modern pipeline facilities.

The court's ruling surprised both supporters and opponents of the proposed pipeline since the court had been expected to rule on the basis of environmental impact arguments raised by the three environmental groups who sought to obtain an injunction against issuance of the permit. The court, however, ignored these arguments in its decision. So even if Congress extends the right-of-way limitation, opponents of the pipeline will still be able to return for a ruling based on environmental issues. Consequently, pipeline construction will probably be delayed for many years—if it happens at all.

Speaking for the Sierra Club, Dr. Edgar Wayburn called the court's decision "a clear rebuff to the oil companies," which "provides us all with a fresh opportunity to plan wisely for the great lands of Alaska, allowing for proper development while protecting its fragile environment."

Even prior to the court's decision, Alyeska Pipeline Service Company, builder of the proposed pipeline, experienced its first oil spill at its testing facility at the University of Alaska in Fairbanks. Some 280 gallons of fuel spilled on the ground when a workman failed to completely close a valve.

Utilities change tune on power-plant siting

Utility industry spokesmen in Washington, D.C., have recently changed their tune about the desirability of power-plant-siting legislation. Originally, the utilities had prodded the Nixon Administration to seek legislation that would speed up the process by which prospective power-plant sites are approved in order to circumvent what they had claimed to be costly delays resulting from objections by environmentalists. But now, fearing that site planning might be taken from their hands entirely, the utility companies are claiming that they are no longer having trouble putting their power plants where they want them.

As originally proposed, the Administration's siting legislation was to have had something for both environmentalists and utility companies. The utilities would have

EDITORIALS

Highway Fund Reforms

"A COUNTRY THAT RUNS on oil can't afford to run out," cries the American Petroleum Institute in ads blanketing the nation. It is a pity we don't have the money to buy ads to point out a corollary that is just as true: "Such a country can't afford to run around wasting any." But the oil companies are hell-bent to have us burn up our basic stock of petroleum as fast as possible. And of course this waste is caused preeminently by the private automobile, which profligately consumes the better share of the world's oil resources as if there were no tomorrow.

All of this would seem to be pretty obvious, but here we are—draining America first, exploiting the fragile Arctic before we know what we are doing, choking on gas fumes in the cities, lacing our countryside with concrete, and bringing too many people to the edge of what little backcountry we have left. So many problems can be traced back to this source: the energy crisis, the Alaska pipeline, offshore drilling, oil shale development, resistance to compliance with the Clean Air Act, disruption of neighborhoods and rural areas, and overuse of wildlands. As long as people keep pouring their material dreams into the automobile as a symbol of the better life, these problems are bound to get worse.

It is time to change the symbolism, for the auto now brings us a worse life rather than a better one. Unrestricted freedom in personal transport, full mobility, frequent styling changes, oversized and inefficient vehicles, and planned obsolescence all have their price, and it is too high. Ultimately, the price is exhausted resources, ravaged wild places, unbreathable air, cities either severed by freeways or choked with congestion, and a poorer, more limited future.

As we change the symbolism, we should look to defining a proper place for the private automobile and then devise public programs to put it in its place. This, of course, is what was begun with the effort to reform the Highway Trust Fund. The 92nd Congress, however, failed to make the basic reform: apparently the relationship between the auto and environmental quality was not so obvious as it seemed. Those who are making a renewed effort in the 93rd Congress to make gas-tax monies available for mass transit urgently need our support. This campaign will soon be at a crucial stage (see the January, 1973, *Sierra Club Bulletin* for background), but it is also part of a long-term effort which must be pursued at both federal and state levels, as the accompanying editorial explains. It may take a while to change the deepest habits of the 20th century, but the prospects for a better life by the time we reach the 21st depend on our success in doing so.

Siphoning the Gas Tax

In 1895 the Bureau of Highways recommended that California build 4,500 miles of highway "to get us out of the mud." From that relatively small beginning grew California's extensive highway network, its population of over 12 million cars, its billion dollar-a-year highway trust fund and a host of environmental problems, including lethal smog and urban sprawl. Now, the automobile dominates our lives, causing 80 percent of our air pollution and utilizing one-third of the space in our cities. Its loyal servant, the highway trust fund, renders ineffective almost any attempt to plan meaningful alternative or complementary transportation systems. In short, though mud is no longer the problem, we are still bogged down.

Why? Because Article XXVI of the state constitution mandates spending the gas tax money in the state highway trust fund exclusively for highway purposes. With a guarantee of money to build almost whatever they want, the highwaymen are truly in the driver's seat. This forces an abdication of local and regional transportation planning because money to fund alternative modes of travel is generally unavailable from other tax sources. The exclusive emphasis on auto traffic leaves cities and whole metropolitan regions unable to control their basic shape or character—which is determined for them by the helter-skelter developer of urban sprawl, following wherever highways lead him. Our urban problems grow worse as the vicious cycle of roads—cars—gas taxes—roads continues.

The rationale for earmarking gas taxes exclusively for highways never was sound. It proceeds on the false assumption that to achieve equity, funds derived from present highway users must be spent to provide benefits to future highway users. But today's motorist is never asked whether next time

Continued on page 30

had to announce intended plant sites well in advance, but the process of approval would have been sped up. Environmentalists, however, have been pushing for greater public participation in the planning process, and the possibility of success probably caused the utilities' surprising retreat from their original position. As it is now, none of the proposed siting bills is expected to make it out of committee.

The Commerce Department's puzzlement over this situation seemed apparent in a recent memo to the Office of Management and Budget. "Industry representatives," it wrote, "are unable to identify any fossil fuel or nuclear plants now being delayed because of a siting problem. There has been a considerable change in circumstances, or at least of our perception of circumstances, since the Administration first proposed power-plant-siting legislation."

Volpe won't fund Overton Park Highway

Secretary of Transportation John Volpe has decided not to supply federal funds for the construction of the controversial Overton Park Highway. The federal government was to supply 90 percent of the money for the project.

"I cannot find, as the statute requires, and as interpreted by the court, that there are no prudent and feasible alternatives to the use of park land," said Volpe, "nor that the broader environmental protection objectives of the National Environmental Protection Act and the Federal Aid to Highways Act have been met, nor that the existing proposal would comply with Federal Highway Administration noise standards."

The Overton Park case, which has been in federal courts for more than a decade, has been described as a model case that federal officials believe may determine the fate of other controversial highway projects.

The issue is not dead, however. Memphis Mayor Wyeth Chandler said he is hopeful the highway will be built through Overton Park, "even if it has to be built with state and local funds."

Pan Am and TWA won't buy Concorde

Pan American World Airways and Trans World Airlines announced that they will not buy any Concorde supersonic passenger planes. Pan Am said Concorde's drawbacks include less range and payload and higher operating costs than current jets.

Shortly after Pan Am and TWA's announcements, an ad hoc panel of the Environmental Studies Board of the National Academy of Sciences and National Academy of Engineering released a study reveal-

ing potential ill effects on human health that might result from SSTs. SST exhausts at high altitudes would reduce ozone in the stratosphere, thus permitting ultraviolet radiation to reach the earth's surface. The panel estimated a five-percent decrease in ozone concentration would intensify ultraviolet radiation by 26 percent and cause 8,000 more skin cancer cases each year.

The Nixon Administration has encouraged American SST supporters by writing $42.1 million for it into the fiscal 1974 budget.

Pan Am and TWA had held 13 options to buy Concordes. At one point the Concorde had 74 options from 16 airlines. Currently, ten airlines hold a total of 43 options. It is estimated that 300 Concordes would have to be sold for its producers to break even on both research and production.

NEWS VIEW

Oil and plastics befoul Atlantic

Government researchers recently dipped their nets into the Atlantic Ocean hoping to collect marine samples, only to come up with tar and polystyrene instead. One survey ship for the National Oceanic and Atmospheric Administration reported that 75 percent of the time its nets were befouled by oil clumps so thick they extruded through the mesh "like spaghetti."

"We were very much surprised at the extent of the contamination," said Kenneth Sherman of Rhode Island, who coordinated the survey. NOAA calculated that at least 665,000 square miles of ocean were covered with floating oil, tar, and plastic. The oil pollution was so thick, said NOAA, that the three research ships that cruised the Atlantic last summer had trouble collecting samples at all.

The cruises were made in July and August, 1972, to assess distribution of fish eggs and larvae. Subsequent laboratory analyses revealed that more than half the plankton samples collected from surface waters had been oil-contaminated.

Dr. James N. Butler, a professor of chemistry at Harvard University, believes that the oil and tar slicks in this area have come from crude oil sludge rather than refined petroleum products. "Sightings of tar at sea were almost negligible off the Atlantic coast until 1968," Dr. Butler told the *New York Times*. The Suez Canal had closed in 1967 and tanker traffic had been diverted around Africa. Sludge pumped overboard by tankers purging their tanks off Africa was carried by currents to the Bahamas, where the heaviest concentrations were discovered by NOAA last summer.

Dr. Butler called the accumulation of plastics more puzzling. The plastics were formed into sheets, beads, balls, discs, bubbles with holes in them, and what appeared to be wrapping paper commonly used in the kitchen.

NOAA reported the heaviest concentration of plastic debris off the coast of New England.

Nobody wants Ross Dam—but nobody will stop it

Almost nobody, it seems, now wants to see British Columbia's upper Skagit River Valley flooded. But nobody so far has called a halt to the project.

If the Seattle City Light Company's 122.5-foot extension of the Ross Dam were proposed today, it would undoubtedly be rejected. But money has already been spent—$8 to $10 million—and whoever stops the project may have to pay the costs.

"That valley is a unique asset," said Seattle's Mayor Wes Uhlman. "It can't be replaced once it is lost." But the mayor refused the request of five city councilmen to call a moratorium and halt spending on the project pending negotiations with the British Columbia government.

Seattle leased the Canadian land, which the dam extension would flood, in 1967. The public first caught wind of the project in 1969 when preliminary clearing was begun. The public outcry was so strong that the Canadian government announced there would be no extension of the dam. Premier Dave Barrett of British Columbia and Canadian federal environmental administrator Jack Davis have said flatly that the proposed dam extension will not occur.

Apparently the city of Seattle wants the Canadians to breach the contract if anyone is to do it. That might mean that Seattle could recover the money invested in the dam, plus some damages.

Meanwhile, the Ross Committee, composed of the Sierra Club and others, is preparing for the Federal Power Commission hearings on the dam scheduled in Washington, D.C., later this year.

Conservationists urge immediate purchase of Golden Gate lands

California legislators have joined Dr. Edgar Wayburn, chairman of People for a Golden Gate National Recreation Area, in urging early acquisition of private lands for the coastal park.

Congressman William Mailliard announced February 5 he would make a personal appeal to President Nixon, urging no delay in the purchase of the 16,000 acres. State Senators John Tunney and Alan

Cranston also are working for earliest possible asquisition.

Dr. Wayburn called the private lands yet to be acquired, "the key to a real park," and, "urge[d] everyone to write to the President to see that the funds are made available in this year's budget."

Mailliard noted that when the park was being established last year, the Administration said "it intended to purchase the land within the first three years." The Department of Interior does not expect to have money to purchase any of the private property in the next 18 months.

Environmentalists fear mistakes made in delaying acquisition of lands for Point Reyes National Seashore may be repeated with Golden Gate National Recreation Area.

Gassing in Los Angeles

Public reaction in Los Angeles to the Environmental Protection Agency's proposed 80-percent cut in car travel in Los Angeles by May, 1965, has been mixed, reports Bob Jensen, the letters-to-the-editor man at the *Los Angeles Times*. "A lot of people express agreement," says Jensen, "but they always qualify it.

"It's hard to say people accept gas rationing," continues Jensen, and some have been "very violently opposed" to it. "But people are certainly very concerned about the quality of the air."

Club sues to see redwood logging study

Will Redwood National Park ultimately be ruined by logging in the watersheds around the park? The Sierra Club filed suit January 30 in San Francisco to find out.

The suit, filed under the Freedom of Information Act, asks for release of an Interior Department study done last year in response to the Club's claim that offsite logging practices are seriously damaging the park's trees, soil, and water.

The Club had given official notice on January 8 that it would sue if the study were kept secret. "Whether or not they will comply before being forced to is the big question," commented Dr. Edgar Wayburn, chairman of the Club's Redwoods Task Force.

Nuclear power plant springs a leak

In January, the Palisades nuclear power plant at South Haven, Michigan, sprang a leak, but the Consumers Power Company tried to hide it. The leak was minor, but forced the company to close the plant.

The leak marks yet another example of unanticipated safety problems with nuclear reactors. Environmentalists are especially concerned because Consumers did not choose to make the problem public. Knowledge of the leak finally reached the Michigan press after the plant had been closed down for well over a week.

The Palisades plant's operating license was challenged by the Sierra Club and other environmental groups in 1970, but the intervention was settled after Consumers agreed to install a radioactive waste disposal system that would virtually eliminate contamination of the environment near the plant site.

The Palisades plant was still closed down as of February 13.

REGIONAL REPS REPORT

Midwest: Shifting Sands in the Great Lakes

Geologists who speculate on the future form of our coastal landscapes in the event of a melting of the polar icecaps are getting a taste of things to come on the Great Lakes this year. High waters, compounded by the works of man, are causing tremendous erosion problems on all of the lakes, with natural dunes and subdivisions being swept into the lakes with equal helplessness.

Basically, the problem is one of too much rain. The lakes have always been subject to periodic high and low water phases, since precipitation varies over the watershed in a roughly cyclical pattern. To take Lake Erie as an example, the record low water mark was 567.5 feet above sea level in February, 1936, with the all-time high being 572.8 feet in May, 1952, a range of 5.3 feet. The effect of five vertical feet of water on gently sloping beaches is obvious: banks that are high and dry during low water periods are pounded by the waves at high water. At the present time, we are faced with record and near-record seasonal highs, with every indication that spring rains and runoff will cause the all-time record, absolute high water marks to be broken in the next few months.

Ordinarily, this would not seem to be a matter of great concern: the shorelines are in a constant state of gradual erosion, and the beaches have fluctuated since the retreat of the glaciers. Under the present condition, however, shoreline erosion caused by the battering of high-water storm waves has become the hottest issue on the Great Lakes. This is principally for two reasons.

First, the fragile nature of beaches, dunes, and banks has not been taken into account as development has proceeded in the area. Houses and other structures, many built during periods of low water, crowd the shorelines much too closely, and in many cases these have not only lost their yards, but have tumbled down the banks. Thus there is now an economic cost to the shoreline erosion that is unprecedented.

Second, man's own works are contributing to the severity of the problem. Normally, beaches are in a constant flux of depletion and replenishment as the currents transport sand along the shore. Breakwaters, jetties, outfalls, and other structures that break the current cause a permanent disruption of this lateral movement of sand, so that downcurrent beaches continue to become depleted through storm wave action, but have lost the replenishing supply of sand from upstream. Once the beach washes away, there is no protection for the dunes or banks that lie behind. These then crumble at truly alarming rates.

One example is the spectacular dune area at the south end of Lake Michigan. These huge sand deposits have been protected from landward destruction by their inclusion in the Indiana Dunes National Lakeshore, but man is continuing to assault them from the sea. The harbor breakwater upcurrent at Michigan City, Indiana, has apparently reduced normal beach replenishment drastically, and as a result, in places, the dunes are being carved back at a rate of 15 feet per year.

All of this has caused a tremendous hue and cry throughout the Great Lakes Basin, all the way from the various congressional

delegations down through local property owners associations. There appear to be four general approaches possible to solve the problem: constructing shoreline protection structures, eliminating man-made restraints to sand movement, artificially manipulating lake levels through controlling inflows and outflows, and waiting for the rain to stop.

The Corps of Engineers has seized upon the first of these alternatives, and recently announced the implementation of Project Foresight. This hastily developed program appears at the present time to be little more than a public relations campaign, conducted for some inscrutable purpose. Corps personnel have distributed empty bags to bewildered Ohio property owners, to be filled with sand and placed along beaches so as to harden the beaches with a kind of temporary pavement, an approach that holds slightly less promise than Canute's instruction for the tide to recede. In the longer run, the corps may be planning on building groins, revetments, gabions, and all the other gimmicks that have actually contributed to beach erosion elsewhere, but it is clearly too late to do this in time for next spring's flood waters, and even the corps concedes that such devices are probably uneconomical in most cases.

Unfortunately, there appears to be little movement to force changes in the man-made structures leading to beach depletion. In the case of the Indiana dunes, for example, the corps and even the National Park Service (theoretically the guardian of the area) have shown a pronounced disinclination to support independent studies that might implicate the Michigan City breakwater and other structures. Industrial facilities with disrupting structures will evidently pay no costs for the havoc they cause: Commonwealth Edison's generally disastrous Zion Nuclear Power Plant north of Chicago has converted the Illinois Beach State Park to the Illinois Beachless State Park, but no public officials are attempting to clamp down. Senator Adlai Stevenson has introduced a resolution calling for study of the effects of man-made structures on beach erosion, but this approach strikes most observers as being weak and ineffective.

There are a variety of schemes for reducing lake levels themselves. Lake Superior and Lake Ontario are partially controllable through dams at their outlets, and tinkering here has been suggested. However, it is impossible to please everyone: holding back water in Lake Superior would ease the situation on the lower lakes somewhat, but at the expense of Lake Superior itself, while increasing the flow out of Lake Ontario could cause flooding downstream on the St. Lawrence River. Furthermore, increasing the flow out of Ontario would have no effect on the upper lakes because of the drop between Erie and Ontario along the Niagara River.

There are two relatively minor diversions of water into Lake Superior from Canadian rivers that naturally flow into Hudson Bay, but though closing off this source of water has been suggested, it is generally felt that the impact would be minimal. Strong pressure has been put on the Corps of Engineers and the city of Chicago to increase the outflow of the Chicago and Illinois river system at the south end of Lake Michigan, the only outlet from the lakes system besides the St. Lawrence. This solution would violate the maximum diversion level set by the Supreme Court, however, and in any event the increased outflow would be so minor in proportion to the lakes' huge volumes as to have virtually no practical significance.

A long-term study sponsored by the International Joint Commission is investigating the practicability of manipulation of lake levels. Ironically, this study was commenced in 1964, a year of extraordinarily low levels, and has had as its principal thrust the raising of low-level minimums, which are important for navigation interests, rather than the reduction of high levels. It is perhaps fortunate for the future of the lakes that problems of topography, immense water volumes, and enormous expense make it quite unlikely that large-scale manipulation of the unregulated lakes—Erie, Huron, and Michigan—will ever come about.

The final answer to the erosion problem is to wait for the rain to stop. It is to be hoped that we are learning a lesson from our present experience: beaches and shorelines are simply a class of floodplain and should be managed as such. There is currently discussion in several states, particularly Ohio, that the lands presently or potentially endangered by high waters should be placed in public ownership, or at least zoned against development. Such acquisition and planning would have major additional benefits in terms of esthetic and public use as well.

Although vigorous action is required to stop the contributing erosion factor of badly planned structures such as the Michigan City breakwater, hopefully the current hysterical call for action will die down before the corps moves in with a futile program of structural remedies that would do more harm than good. For ultimately we must start to recognize that the Great Lakes are bigger than we are, and that we must learn to accommodate ourselves to their natural whims.

Jonathan Ela

COMING EVENT

October 6-7, 1973

The Thirteenth Biennial
Wilderness Conference
in
Boulder, Colorado

For announcement of program, speakers, theme and registration form, see forthcoming *Bulletin* article.

REGIONAL REPS REPORT

Northwest: A Personal Retrospective

I have spent a great deal of time in public print in the last six years, hammering away at the twin issues of wilderness and forestry, and how they affect the Northwest. I have not done this because I think other issues are less important; on the contrary, the Northwest office has probably spent at least as much time on urban problems, energy, transportation, and air and water pollution as on these two other issues.

But there is something else: a feeling of urgency and of immediacy that has perhaps characterized the wilderness-forestry issue for the Northwest, more than the others. And there is a sense, too, of uniqueness: it is our beautiful forest places, our great glacier-hung peaks, the mighty, clear rivers and the vast mountain ranges that the Northwest can give to the nation above all else—if they remain safe. And the fact that they are not safe, that they are continually assaulted and threatened by the economic interests that dominate the politics of the Northwest, is the reason that it has seemed so important for us to educate conservationists elsewhere about what is at stake and what can be lost, to call on them for help to save what is their heritage as well. For it cannot be done by Northwesterners alone.

This sense of urgency and immediacy, coupled with the feeling that it is necessary to appeal to the rest of the nation to help save Northwest places, was brought home most vividly to me during the days of the final battle over the ill-famed National Timber Supply Act in early 1970. If that bill, pushed by the timber lobby, had passed, it would have amounted to a rapid liquidation of most of the remaining virgin forests in our national forest system. Many Northwesterners, knowing what was at stake for the places they knew and loved, were active leaders in the fight; but most Northwest politicians went just the other way, following the bidding of the timber industry. Thus, we appealed to eastern and midwestern congressmen to save the West, and they did. I remember sitting in the House gallery, watching the final vote being taken, my heart in my mouth, knowing what places were at stake. I saw western congressman after western congressman rise up to denounce the "meddlers from the East" who were daring to interfere with their sacred prerogatives to help the timber industry destroy the lands on which they themselves had lived. And I thought of Bernard De Voto's words, "The West against itself," as the same sad tale of Westerners voting to destroy the West and Easterners voting to save it. That is why it is important for persons outside of the Northwest to know what is at stake, and what may soon be lost without outside help.

On January 18, the Forest Service made its tentative recommendations for protecting or opening to logging the 20 million acres of superb de facto wilderness in the four Northwest states. Those who care about wilderness in the Northwest were once again "had." The Forest Service in effect recommended protection for only a fraction of the areas that should be protected. "Eighty-five percent for the timber industry and the miners, and 15 percent for the recreationists and those who love wilderness," they said in effect; and that is what they did to us. For us, wilderness once again —and perhaps for the very last time—becomes the major battleground in the Northwest. And once more, it is important that those elsewhere who love and care about all that is beautiful and magnificent in this nation's heritage learn more of what is at stake. The great forests, the ice-pure rivers, the great peaks of the Northwest wilderness belong to all of us.

I have now left the Northwest to assume a new post as Washington, D.C., representative for the Sierra Club. While I look forward very much to the excitement and challenge of this new job, I regret having to leave the Northwest. It has been six years now since I became the Northwest representative; and for me, the work was an honor and privilege. It was my honor to work to keep the Northwest clean and beautiful and my privilege to be associated with our dedicated volunteers to save the places that we care about.

It has also been my love for the forests and the mountains, for the great silences of the Northwest. But even more, it has been my love for the people whom I have come to know and work with. And it is they who have truly given of themselves, who have suffered and loved, who have worked long hours in conservation's behalf. These people and their love have made it all possible. They are the only reason we win our battles, and I have been lucky enough to be a part of it.

Now, wherever I go, the Northwest for me will always be a symbol both of the land and of a way of life that must be protected at all cost.

Brock Evans

A Different Kind of Outing

LAST SUMMER, volunteers, armed with picks, shovels, trashbags, and other equipment, backpacked into several wilderness areas to repair damaged trails, clean up campsites, and pick up litter, combining the pleasure of an outing with the satisfaction of leaving the wilderness in better shape than they found it. These trail-maintenance and cleanup trips are sponsored by the Sierra Club Service Trips Subcommittee, which has conducted 76 such outings since 1958. Last year 360 volunteers participated in the program. In 1973, 19 outings are scheduled and 600 volunteers are expected.

Service trips provide personal satisfaction and fun to participants and valuable assistance to understaffed government agencies that administer wilderness areas. Eroded or footworn trails need repair; trails must sometimes be rerouted to take the pressure off overused areas; litter in camps and along trails must be gathered and carried out of the wilderness. Forest Service personnel in charge of the Selway-Bitterroot Wilderness in Idaho are so pleased with the work of past service-trip crews that they have offered to supply food for the 1973 trip. Thus the trips promote good relations between the Sierra Club and various public agencies responsible for wilderness maintenance. The trips also have dramatized the need for campers and hikers to pack their refuse out with them, instead of burying it, as was once common.

The service trip program is funded by the Sierra Club Foundation and administered by the Service Trip Subcommittee chairman, with the assistance of trip leaders, cooks, and other volunteers. Originally restricted to the Sierra Nevada, the service trip program now schedules outings throughout the country. Volunteers have worked in such diverse habitats as beaches, river banks, deserts, forests, meadows, and mountain passes. Even the Grand Canyon has been policed by service trip crews.

The service trip program offers two kinds of trips: the cleanup party and the trail-maintenance crew. Clean-

up parties perform wilderness housekeeping chores. The first four cleanup trips accumulated over 15 tons of refuse, and a 1970 trip collected enough litter to fill 124 burlap bags. Other trips have catalogued their finds and have notified companies whose products were most prominently scattered about the wilderness, but these efforts have not been especially successful in cutting down the amount of trash. A more recent attack on the problem is the Action Roadhead Cleanup projects, in which small teams spend two weeks in an area trying to educate campers and hikers about litter. The trash collected is prominently displayed for people to see and ponder over and is then carried off to be recycled.

First conceived in 1962, trail-maintenance crews work under government foremen to make trails safer and to minimize their impact on surrounding terrain. A trail crew might reroute a path around a meadow, eliminate switchback cuts, install water bars, or remove dangerous rocks. John Stanley, field director of the Sierra Club's Wilderness Impact Study, is developing strategies for replanting meadow trails, a possible project for future maintenance trips.

Both kinds of service trip permit as much time for fun and exploration as for hard work. Hiking, fishing, meditating, and nature study are as much a part of the service trip experience as picking up litter or rerouting a trail. Everyone participates in communal chores about camp, and the small size of most crews encourages a friendly, informal atmosphere.

The service trip program is continually reviewed for the relevance and usefulness of each project, and new projects are being planned. Bruce Kingsley, the new Service Trips Subcommittee chairman, is beginning his tenure with two promising programs. The Olympic Sherpa Project proposes to cut down the use of helicopters in Olympic National Park by using the backs of Sierra Club members to carry supplies into wilderness outposts. A second program will place service trip representatives on other Club outings in order to inform participants about the service trip projects. An experimental project will begin this spring to study the feasibility of removing more than 600 wrecked airplanes in the Sierra. A service trip crew will ride an Army helicopter into the wilderness in order to remove a 3.5-ton pile of recyclable wreckage.

If you would like to spend an inexpensive week or two in the wilderness, performing a valuable service as well as having fun, consult the Outing *Bulletin* for a service trip that appeals to you. Your time and labor will be rewarded.

Wilderness (*Continued*)

parks would not have passed these three tests. It is indefensible that wilderness areas should undergo such rigorous examination while lands are designated for mineral or timber development by fiat, and it is inexcusable that the Forest Service has not revealed the complete numerical data for the areas excluded from the tentative study list. Meaningful public participation in such bureaucratic decision-making consists, in part, of having access to relevant facts before decisions are made, not, as the Forest Service seems to think, in an informal plebiscite conducted in partial ignorance.

The 235 study areas on the tentative list comprise, at best, only 12 to 15 percent of the lands deserving further study, but they will be welcome additions to the wilderness system. Fortunately, the areas excluded from the tentative list are not necessarily lost. Efforts will be made to secure their inclusion on the final study list, and failing that, to find other ways by which these lands will receive the consideration they deserve. In the meantime, they are better protected than before thanks to the Sierra Club's recent de facto wilderness suit, which resulted in the Forest Service's agreeing to submit NEPA impact statements prior to any development of these lands.

Inclusion of an area on the final list will not guarantee that it will eventually be included in the system, but its chances will be good. At the very least, an area included on the final list will probably be closed to all development for at least ten years. For this reason alone it is important that all tentatively designated areas be retained on the final list. Public support for an area will be crucial to its survival, particularly if it comes from people who know the area well and know why it deserves official wilderness status. Forest Service Chief John McGuire will consider all public statements submitted to his office by April 18, 1973.

What Trackless Desert?

THE SOUTHERN CALIFORNIA DESERT is immense. It stretches from just north of Death Valley south to the Mexican border, and from California's southern inland ranges east to Arizona and Nevada. It consists of two distinct deserts, the Mohave to the north and the smaller Colorado in the extreme southeast corner of the state. Most of the Mohave is "high desert" averaging 2,000 to 5,000 feet in elevation. The Colorado Desert is almost entirely "low desert," with elevations around the Salton Sea falling below sea level. Together, the two regions total more than 16 million acres. Yet despite its immensity, its lack of water, and its scorching summer temperatures, this region has become a playground for some 11 million residents of Southern California, who are now loving it to death. Unlike mountains, forests, and other areas of a more humid climate where nature repairs environmental damage relatively quickly, the clean, dry climate of the desert preserves its scars almost indefinitely. The scars on the Mohave and Colorado are beginning to multiply almost as fast as the cattle grazers, rock-hounds, hunters, miners, land developers, artifact collectors, and off-road vehicle buffs who visit the desert each year. Centuries-old petroglyphs have been chipped or dynamited from their rock faces and carried home to grace mantelpieces of collectors. Spectacular sand dunes, hundreds of feet high, are wearing down under a lace-work of dune buggy and motorcycle tracks. Proposed archeological sites have been broken up, often unknowingly, sometimes callously, by off-road vehicle riders, or raided by pot hunters. Rare desert shrubs, trees, and cacti have been crushed or removed. Desert animals have been killed or collected, and their habitats have been disturbed. Cliffs and other rock surfaces have been autographed with spray paint.

Depletion and pollution of water sources have led to the reduction in numbers of such endangered species as the bighorn sheep, desert tortoise, and tiny desert pupfish. Private property—buildings, fences, vehicles—is shot at or burned by vandals. Government agencies often contribute to the destruction by building roads and sophisticated campsites in areas that otherwise would be wilderness.

The agency officially responsible for dealing with desert problems is the Bureau of Land Management (BLM), whose role has shifted in recent years from one of putting desert lands to their most economically profitable use to one of protecting them and determining their best popular use. This shift from economics to people (BLM's

Donald R. Murchie is reporter and city editor for the Beverly Hills Courier.

Riverside district office calls the policy "people management") has advanced rapidly on paper, but its implementation is still stymied by lack of money and authority. Meanwhile, as BLM inches along, the problem continues to grow.

In late 1967, the bureau, concerned about human impact on the Mohave and Colorado deserts, began developing its California Desert Program to guide future development and protect existing desert resources. Unfortunately, due to insufficient funding, BLM, as of the end of 1972, still had only eight rangers to cover the entire desert complex, none of them with the enforcement power to arrest violators.

Executive Order 11644, President Nixon's directive of February, 1972, establishing policies and procedures for the use of off-road vehicles and requiring permits for off-road races, became effective last August, but BLM, as recently as late January of this year, still hadn't received from Washington the regulations needed to enforce it. Early last December, the El Cajon Valley Motorcycle Club declared that "the public lands should be free" and challenged E.O. 11644 by conducting a race for 250 cyclists in an archeologically rich area, ten miles west of El Centro in the Colorado Desert. An injunction sought by BLM to stop the race was denied in federal court, so all the agency could do was sit back and watch the dust clouds rise.

Fortunately, the race route just missed some important archeological sites, but it did cut directly through an ancient oyster bed of significant geological interest, an action that should have constituted a violation of the Antiquities Act of 1906. But the act is difficult to enforce in the desert.

A professional archeologist must endure more red tape to get permission from the government to work a given site than does a motorcyclist to get permission to ride over it.

On January 24, 1973, the BLM and the Motorcycle Club agreed on a statement in which the club agreed to pay the required recreation-use fee of $224 for the race, to comply with BLM special land-use requirements in future races as a condition of the club being restored to good standing, and to rehabilitate the desert surface on lands which were damaged by the race. Those who know the desert are rather amused by the concept of rehabilitating the thin crust of earth known as desert pavement. Only time can accomplish that feat.

BLM *is* making significant progress in one area: education. The Riverside district office has taken its Desert Study Program presentation to the public schools and has appeared before a number of desert-user groups—conservationists, the Audubon Society, landowners, ORV clubs, museum associations, and the like—with slide shows. In the near future it will set up a manned waystation near Barstow, in the Mohave Desert, to provide information on the values and perils of the desert. Last fall, BLM began compiling a new set of aerial photos to increase its knowledge of the desert and is working with various user-groups to assemble information for a huge volume of overlay maps. Each overlay will feature a particular aspect of desert life and activity—vegetation, mineral content, recreation use, military activity, utility lines, types and locations of abuse. This technique should prove useful for other American desert regions where research is needed. Meanwhile, despite its studies, plans, and good intentions, BLM is still handcuffed by inadequate funding and lack of authority to enforce land-management decisions.

But there is hope. Pending in Congress this spring are several bills aimed directly at the California desert problem and at least one pertaining to national environmental controls on federal lands. Senate Bill 63, the California Desert Management Act, authored by California Senators Alan Cranston and John Tunney, identifies the desert as an irreplaceable resource threatened by misuse, establishes a California Desert National Conservation Area, and provides for a long-range management program. The act includes guidelines for the acquisition

of privately held lands, through exchange and direct purchase. (Private owners include individual and corporate mining claimants, the Southern Pacific Railway, and ranchers.) One of BLM's major headaches is consolidation of the checkerboard pattern of private and public desert-land ownership Congress devised a century ago. If passed, S. 63 would authorize $28.6 million for its implementation; however, an appropriations bill will be needed to make the funds available.

The measure would be strengthened somewhat by changes recommended to Senator Cranston by the Sierra Club's Angeles Chapter. Cranston has indicated he would write these in following public hearings on the legislation, which may be held in Southern California this spring.

Action on a companion bill introduced by California Representative Jerry L. Pettis, H.R. 890, is pending in the House. This bill and the Cranston-Tunney bill were first introduced in previous sessions of Congress. Another Southern California congressman, Bob Mathias, is expected to introduce a desert bill similar to Pettis's this session.

Legislation by Senator Henry M. Jackson (D-Wash.), S. 424, the National Resource Land Management Act, would overhaul the basic statutes governing the BLM nationally by repealing most of the obsolete land-disposal laws and by giving the BLM a basic new charter to stay in business and manage its lands to protect and secure the many values they contain. Seven old laws relating specifically to the desert would be repealed, and BLM would enjoy sufficient authority to properly manage its desert holdings.

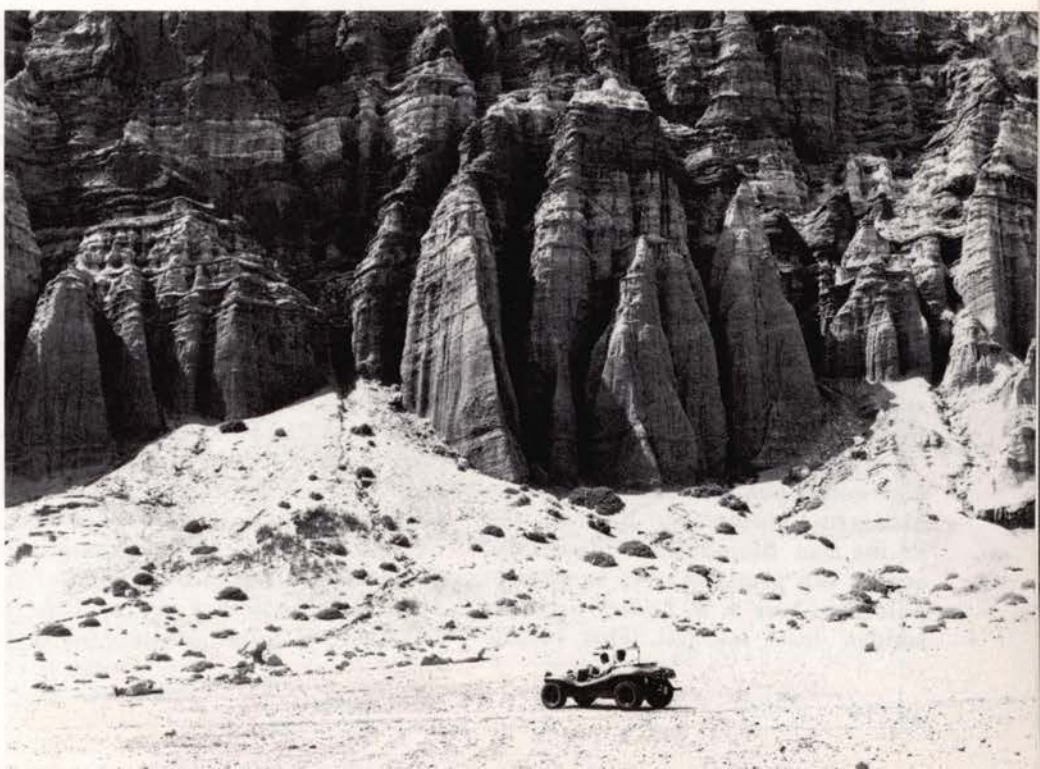
Contrary to claims of some recreationists and ORV enthusiasts, such laws do not express efforts by elitist conservationists to "close off" the Southern California desert. Rather, they are designed to specify for the first time rules governing desert resources and to provide a temporary moratorium on certain activities until proper impact studies can be made. Ultimately there may be some desert set aside for dune buggy riders and motorcyclists. Perhaps ORV racing enthusiasts will be content with those chunks of desert that have already been beaten to death.

Few, if any, of Southern California's ORV drivers want to upset the ecology of the desert, and many groups have started anti-litter campaigns to clean up after their rallies. But an articulate young spokesman for a motorcycle club, invited to a recent meeting of the Angeles Chapter's desert conservation subcommittee, admitted that the cyclist, zipping across the sands in a cross-desert race, does not give special consideration to the fate of fauna and flora en route. "We do try to avoid hitting things, but mainly for the cyclist's safety," he said. Asked why Southern California ORV riders wouldn't be content using only the commercial race courses in urban areas (there are several in and near Los Angeles), the spokesman said the urban courses get run down quickly and then are "no fun" to ride on.Thus, the ORV user, like almost everyone else drawn to the desert, finds something special about it and quickly learns that present laws place few controls on his activity there.

Concerned about the deepening crisis in the desert, the Sierra Club's desert conservation subcommittee initiated a crash study project of its own two years ago. The project centers around field trips into certain desert areas that, because of their unique character, are deemed worth protecting. To date there have been over 65 such trips, each led by a pair of Club members, assisted in most instances by a local BLM ranger and a specialist in some field such as archeology, geology, or botany. The trips generally attract between 15 and 20 Club members and several non-Club members. The latter are especially welcome, for the more the alarm can be sounded on the outside, the louder the public outcry.

Color slides record outstanding scenery and striking flora, and black-and-white prints document problem areas such as erosion, littering, vandalism, and hazards such as open shafts and wells. During campfire rap sessions on location, the BLM representative fields questions from the audience, then reviews his own difficult role as moderator between conservationists who want to limit the impact on the area under study and ORV enthusiasts, rockhounds, and others who want unrestricted use of it. Local residents, such as ranchers, squatters, and "old timers," also provide good background material for the studies. Most are cooperative and interested in the projects.

Because of the many dirt roads accessible to ordinary two-wheel-drive vehicles, the Club's desert study trips are car-camps, not pack-ins. However, most trips include a half day or more of easy hiking to local zones of special interest. For example, a recent trip to the ruins of Fort Piute, a 19th-century government installation about 28 miles northwest of Needles, included a two-mile walk up one of the Mohave's few year-round live streams—a beautiful flowing oasis that will surely be polluted to death if measures aren't



taken soon to preserve it.

In May, 1972, Interior Secretary Rogers C. B. Morton formally designated 19 areas of the Mohave and Colorado deserts as multiple-use recreation lands: Imperial Sand Dunes, Trona Pinnacles, Old Woman Mountains, Eastern Mohave, Turtle Mountains, Afton Canyon, Fort Piute, Kingston Peak, Chuckwalla, Chuckwalla Lily, Picacho, Whipple Mountains, Santa Rosa Mountains, Bighorn-Whitewater, Rodman Mountains, Yuha Desert, Calico Mountains, Mecca Hills, and Grapevine Canyon.

These regions, as varied as they are scattered, offer wildflowers of many varieties, ancient oyster-strewn lake beds (now dry), snow-capped peaks, earthquake fault zones, the loftiest sand dunes in the Western Hemisphere, bighorn sheep sanctuaries, deep red-rocked canyons, and wagon-wheel ruts left by settlers and preserved for over a century by the dry desert climate.

Of special interest to archeologists and anthropologists are the Calico Mountains northeast of Barstow, site of the San Bernardino County Museum's dig presided over by anthropologist Louis S. B. Leakey until his sudden death last fall. This excavation, within earshot of the revving engines of desert cyclists, is a treasury of information on Pleistocene man in America.

While the Sierra Club and other conservation groups are glad to see the 19 unique areas officially recognized at long last, in some instances the designation as "primitive" or "wilderness" area would have been more appropriate than "recreational."

One purpose of the Club's desert study trips is to pass on accumulated data to BLM so that the bureau can refine its Desert Study Program. Some areas, such as the Amargosa River Valley near Death Valley and the Orocopia Mountains near Salton Sea might never have been included in the BLM schedule had the bureau not received special background information and a nudge from the Angeles chapter's desert conservation subcommittee and the desert pupfish committee.

A second and more scholarly purpose of the Sierra Club study is the preparation of material for a series of desert symposiums. The first of these was held on the Riverside campus of the University of California in March, 1972. The second is set for June 9, 1973, at the same location. In each case, programs based on the different study trips are presented to small audiences in classrooms equipped with slide projectors, photos, maps, and well-informed Sierra Club lecturers. The symposium format also includes speeches and conservation films for the general audience.

One film, by Santa Barbara photographer George Anderson, is a frankly emotional but eloquent account of what man's machinery is doing to the Mohave and Colorado deserts. Juxtaposing the noisy and destructive chaos of a cross-desert motorcycle race with close-ups of delicate cactus blossoms, Anderson punctuates his movie with soft rock and folk music and his own lively, cynical commentary. The film has raised the hackles of many off-road vehicle users, but Anderson says it has also partially converted a few of them.

Perhaps nowhere in America is there to be found a greater feeling of repose and endless space than in the deserts of the Southwest. Here, it seems, the air is freshest, the stars brightest, the nights quietest. Here, as naturalist-philosopher Joseph Wood Krutch put it in his essay, *The Desert Year*, "Nature does not frown . . . she smiles invitingly."

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Editorial (*Continued*)

he'd rather try the train, or something else. Many, of course, now use the highways simply for lack of any alternative.

Proponents of earmarking gas-tax funds pretend the motorist has no obligation to help solve problems created by the automobile itself. They overlook that the present system actually confers a tremendous subsidy upon motorists because the community in general carries the burden of its external diseconomies. That burden is particularly difficult in air pollution emergencies where, without transportation alternatives, effective economic or political action is impossible. Smog alerts in Los Angeles now serve mainly to increase general anxiety, not to reduce the problem.

California's failure to meet its federal obligations to plan a way out of its air pollution problems led to the recent EPA threat to impose gas rationing in the Los Angeles Basin. The reason: proposed control of vehicle exhaust emissions alone cannot put the new federal ambient air standards within reach, even barring any significant increase in the population of automobiles. Therefore, shifting to other transportation alternatives is the only reasonable way out. Conservation of energy resources will also require transportation systems more efficient than the automobile.

How can we change models? Only by breaking the gas-tax fund to divert some of its resources to other transportation modes. This was attempted in California during 1970 when the Proposition 18 referendum to amend Article XXVI went down to defeat before a grossly misleading but heavily financed campaign by oil companies and highway builders. Since then, in both 1971 and 1972, ACA 16, authored by Assemblyman John Foran and adopting the proposed language of the Constitution Revision Commission for amendment of Article XXVI, has come within a few senate votes of the two-thirds majority necessary to provide the public another chance to vote on this critical issue.

Public sentiment in favor of diverting gas taxes is clearly on the rise. Just last fall, Congress came close to opening the federal gas-tax fund. Cracks are beginning to appear in our once concrete-solid opposition. Several major oil companies have announced their defections from the highway lobby. Some contractors and labor unions have begun to see personal advantage, plus considerable public benefit, in building transit systems instead of more highways. *Los Angeles Times* editorials regularly stress the need for gas-tax diversion.

The Sierra Club, the Tuberculosis and Respiratory Disease Association of California, and the organization marking their alliance, Californians Against Smog, are determined to put ACA 16 or its equivalent on the next general ballot, preferably as a referendum. If necessary, the California chapters are prepared to go the initiative route, as in the recently successful coast-protection fight.

If we must do it, the gathering of signatures for this purpose will be a stupendous job—even larger than for the coast initiative, since this time we will be amending the Constitution itself. But it will be worth the extra trouble. To open the highway trust fund would provide greater conservation benefits than realization of almost any other single legislative goal. It would encourage similar efforts to open the federal gas-tax fund, and those of other states. It would provide the state legislature a unique opportunity to coordinate all transportation policy through deliberative and integrated planning, free from the disabilities that now hamper rival, separately funded, single-purpose agencies. Achieving control of transportation policy would in turn make land-use planning easier.

In summary, solutions for the problems of automobile-produced air pollution and urban sprawl are essentially institutional, not technical. Opening the trust fund is the next essential step forward. Let's make 1973 the year of the big model change.

PHILLIP S. BERRY
Vice President for Legal Affairs

Nuclear Safety (*Continued*)

are derived. The AEC has claimed that the technical assumptions on which these codes are based are suitably "conservative," that is, make plenty of allowances for error. Yet G. Norman Lauben, a nuclear engineer with AEC, testified at the hearing that if an assumed value involving heat transfer were off by a relatively small amount, the ECCS might be unable to prevent a major breach of the reactor shield.

Lauben's point was underscored by Cyril G. Lawson, an expert on core cooling problems at Oak Ridge: "The assertion is that conservative assumptions are made where possible, and this is true," he said. "But there are some areas where, in my opinion, we don't know whether the assumption we are making is conservative or not because we don't know what is occurring physically."

The case against the ECCS was strengthened by testimony from two AEC staff members, Morris Rosen, formerly head of the systems performance branch of the Division of Reactor Standards, and his assistant, Robert J. Colmar. In June, 1971, Rosen and Colmar had urged task force chairman Stephen Hanauer to strengthen the interim criteria. Hanauer chose to ignore their recommendations. During the hearing, Rosen and Colmar said that their doubts had magnified since the previous June. In an 80-page critique, Rosen charged that "undeniably serious gaps" exist in our knowledge of ECCS performance and criticized the AEC regulatory staff for ignoring the advice of the many technical experts available to it. "Margins of safety once thought to exist do not," Rosen said, "and yet reactor levels continue to increase, resulting in an even more tenuous situation,"

The danger is of awesome magnitude: if the ECCS does not work, a loss-of-coolant accident could cause death and injury from radioactive poisoning as far as 100 miles from the reactor site, depending on weather conditions at the time. The AEC describes such an accident as being "extremely remote," but as nuclear power plants proliferate, the likelihood of such an accident will increase. Should one occur, all the AEC's conservatisms and consolations will not help. Yet because the AEC, the electric utilities, and the reactor manufacturers do not want to impede their development programs, we are asked to tolerate a back-up safety system that has never proven itself. Even now, more power plants are being licensed and planned—including an offshore reactor for New Jersey—and the administration is pushing ahead with plans for a fast-breeder reactor, which will present additional safety problems.

Nor does all this take into account several other major safety problems involved with nuclear power generation, including recent fuel rod malfunctions, the problem of transporting and storing long-lived, highly poisonous reactor fuels and radioactive wastes, security problems, natural disasters, and thermal pollution—all this so we can keep doubling our power consumption every decade. The ongoing nuclear safety hearing has for the first time focused public attention on the risks we take in our insatiable quest for power. The question now is: are these risks worth taking?

Steve Whitney

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