simple way for everybody to understand what the targets were." Not only did it attack the academic budget problem frontally, but it accomplished a second chore which the previous commission had neglected: it educated the professors and students about the budget process and its problems.

Hester himself is immensely proud of the task force's formulations and insists that its plan to balance the budget by academic 1974–75 will be carried out. What will happen if the plan fails?, he was asked. "It won't." Projections of enrollment and income have been wrong in the past—how can NYU be sure the task force projections are any better? "Our estimates are extremely conservative," he says.

NYU may indeed recover its financial health someday, but the greatest penny-pinching is yet to come. The task force anticipated that even with cutbacks, the 1972–73 school year would leave the university with a $14 million deficit, but 1973–74 will be the hardest. By 1973–74 the Bronx campus will have gone. The number of full positions on faculty payrolls throughout NYU will be 214 fewer, and other retrenchments will be put in operation to cut the deficit to $7 million. With a similar Herculean effort beginning in the autumn of 1974, NYU should have reduced its deficit to zero by the spring of 1975. All of this assuming no new, special help. "The events of the past year or so . . . clearly show that no one in the world outside is at hand waiting to save us," said the report.

However, some observers at NYU and outside of it believe that rescuing NYU financially may not equal rescuing it in academic terms. In building undergraduate living space on the Bronx campus, in bolstering engineering and science, in putting a central library near Washington Square, Hester projected the concept of a general, urban university. But enrollment trends suggest that the market for such a place is changing. Moreover, many of the schools will not be able to float on their own bottoms, and will probably sink. In academic terms, then, NYU may not emerge from the crisis as the same place it was before. As the task force report says: "Money, if not a sufficient condition for high-quality education, is a necessary condition." Indeed, great wealth has for so long been considered necessary for academic quality that one wonders if a really good university can also be really poor.

Many observers of NYU are gravely pessimistic despite the present aura of tight-lipped determination. Everyone interviewed seemed to have their pet alternative future for NYU. One faculty member held that NYU inevitably will become absorbed into the city university system, and at that time, in retrospect, all of Hester's retrenching of the last few years will appear to have been destructive back-pedaling. A less likely alternative is absorption into the state system. Still another possibility would be some cooperative arrangement with either public system; in return for some financial support, NYU could open some facilities and programs to students enrolled at other schools.

If the current mood persists, the university may eventually achieve happiness—at least in Mr. Micawber's terms.

—DEBORAH SHAPLEY

Los Alamos: 30 Years after, Life Begins in Earnest

Los Alamos. After several years of clandestine existence, Los Alamos, New Mexico, gained instant fame in the closing days of World War II as the birthplace of the atomic bomb. Now, a little more than a quarter century after its public debut, the "atomic city" still has about it a slightly exotic aura that attracts a growing number of tourists. But in the intervening years, the town and the Atomic Energy Commission (AEC) laboratory located here have grown and changed in many respects.

The Los Alamos Scientific Laboratory is a unique institution, and a second article will report on its role as one of the nation's premier weapons facilities and on efforts to broaden its scientific scope. The present article will consider, from the perspective of one who grew up in Los Alamos, how the laboratory and its needs have shaped the town's character and still control its destiny.

Los Alamos was the last of the "secret cities" of the wartime Manhattan project to open its gates and the last to be transferred to public ownership. And, although some vestiges of earlier times remain, especially in the community's adherence to a way of life and to ways of thinking shaped in those earlier years, old patterns are gradually giving way to new generations and a sense of a more permanent existence.

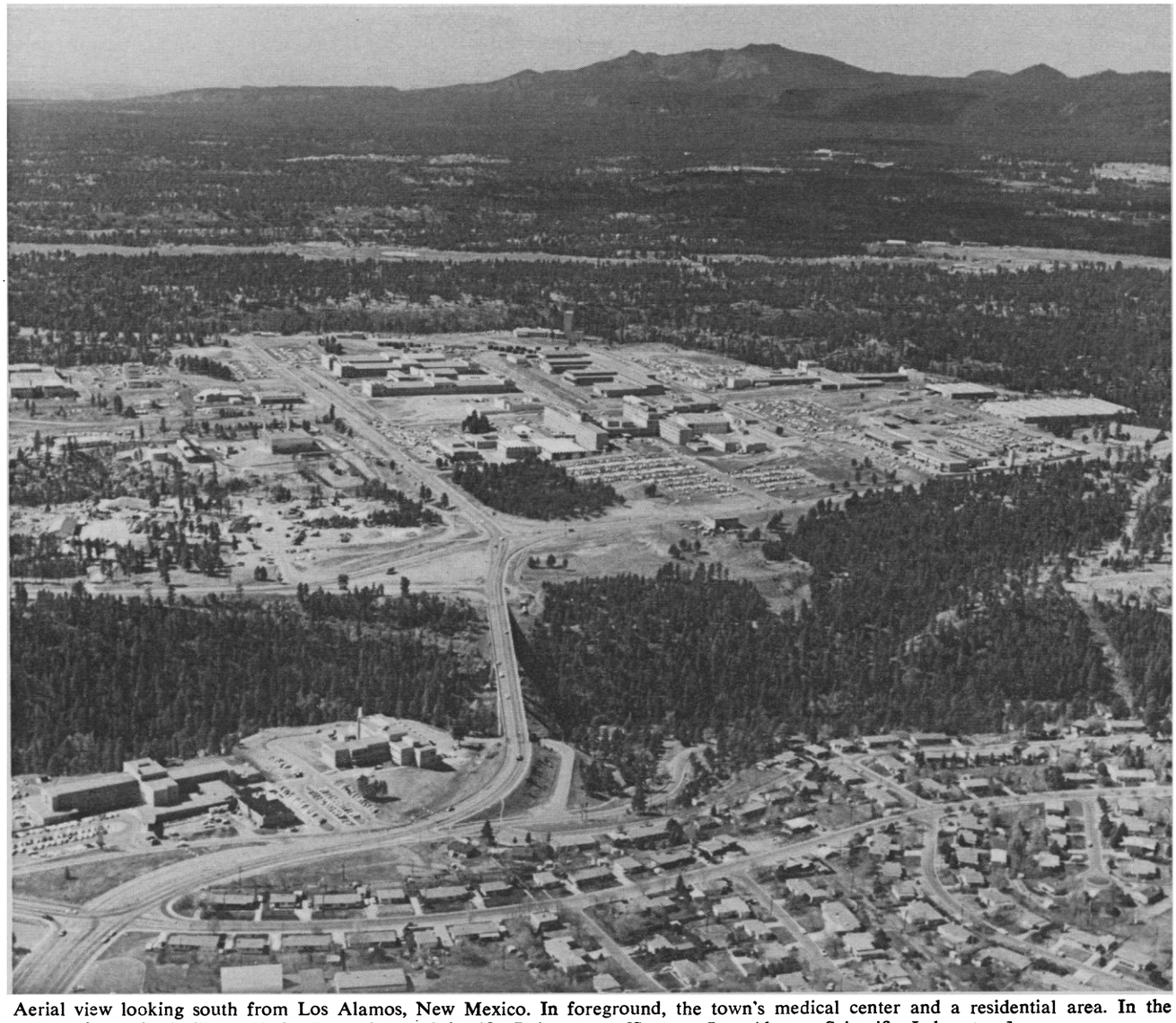
Perched on a high plateau at the eastern edge of the Jemez mountains in north-central New Mexico, Los Alamos has a spectacular setting. From the western edge of town, heavily forested slopes of pine and aspen rise to 11,000 feet. A precipitous drop from the mesas at the eastern edge of town leads to the Rio Grande River Valley. The view across the valley is of the Sangre de Cristo mountains, whose bluish hue changes, especially with a winter's sunrise, to the crimson that accounts for their name. The air is surpassingly clear, and the climate dry and warm, although the winters are severe enough to provide heavy snowfall and excellent skiing on slopes above the town. And, as J. Robert Oppenheimer noted while summering in the area in the late 1930's, the townsite is so physically isolated, cut off by the mountains, mesas, and canyons, that even the 20 miles to the nearest town of Espanola seem a long way.

When Oppenheimer was faced with finding a place for a laboratory in which to design and assemble the world's first atomic weapons, he chose the site on the Pajarito Plateau that was then (in 1942) occupied by the Los Alamos Ranch School for boys. The new laboratory, known only as Project-Y, and a community that rapidly grew to several thousand sprang up in hastily constructed and often makeshift buildings around what is now the community center. Despite primitive living conditions and tight security (residents were not allowed personal contact with friends or relatives nor permitted

to travel more than 100 miles from Los Alamos, and, until 1945, only three phone lines connected the town with the outside world), the gifted group of scientists assembled under Oppenheimer's direction carried out their tasks with high morale. Some of the participants, quite a number of whom are still at Los Alamos, remember the experience as "an intellectual idyll, a community bound together with a sense of purpose."

What was it like to live in a "closed" city which in the early postwar years was still ringed with high fences and patrolled on its outer fringes by mounted guards? Surprisingly, the experience was not as odious as it might seem, despite a secretive atmosphere and physical facilities that were undeniably "government issue" in appearance. The guards, gates, and passes were casually taken for granted and did not greatly interfere with hiking, camping, and the other homegrown activities that were of necessity popular in a town with one movie theater and little else in the way of commercial entertainment. The enforced similarity of the housing—all of which, in a given neighborhood, was built to a single design, differing only in the number of bedrooms and the color—was not nearly as disturbing to residents as it was to visitors, who often complained of losing their way because one street looked like another. Paychecks arrived bearing the name of the University of California, the contractor for the laboratory, but for roof repairs and nearly everything else, it was another AEC contractor, the Zia Company, on which everything depended. Life in Los Alamos, although undeniably small-town and complicated by security precautions, as well as by the privations of government ownership and control of the town, was comparable to that in many research and academic communities.

With the passage of years, the primitive facilities and the social isolation of Los Alamos gave way gradually to a more modern existence. A major event in the town's history occurred in 1957 when the security barriers were removed and the town "opened" so that passes were no longer required except to enter the laboratories themselves. In a referendum, a majority of the residents had opposed opening the town for fear of being overrun by salesmen, petty thieves, tourists, or other imagined dangers of the "outside" world, but



Aerial view looking south from Los Alamos, New Mexico. In foreground, the town's medical center and a residential area. In the center, the main facilities of the Los Alamos Scientific Laboratory. [Source: Los Alamos Scientific Laboratory]

in fact life without the walls was not qualitatively different. What had been the guardhouse at the town's main gate metamorphosed easily into a restaurant; the old gray laboratory buildings downtown were eventually torn down and replaced by new laboratories on mesas to the south, separated from the town by one or more of the great canyons that split the plateau; and the security posters ("Idle talk can cause tragedy—are your lips sealed?") that used to adorn even the entrance to the Safeway gave way to more conventional decor. Nonetheless, there was, and remains, some unspoken agreement, a silent consensus, not to dwell upon the weapons work that progressed steadily out on the south mesas or upon the fact that this peaceful community existed for one reason—to conduct research on the most potent armaments man has ever devised.

To all appearances, Los Alamos is now a more cosmopolitan place than it was during the 1950's, connected to the outside world by more frequent visitors and by a well-used airport crowded with private planes. With the sale of homes and commercial properties in the main townsite to private individuals, beginning in 1963, and the transfer of administrative authority to local government in 1967, the town has undergone a substantial facelifting.

The town has grown from its wartime population of several thousand to its present size of 12,000 in the original townsite, plus an additional 4,000 persons who live in the "suburb" of White Rock on a neighboring mesa. Although the town is now beginning to grow older and to develop a substantial retired population, school-age children still account for about a third of the population.

Nearly one out of every four residents works at the laboratory, including both husband and wife in many families. The laboratory thus dominates the town economically and socially, although less now than in the past, when housing and all municipal services were controlled by the AEC and hence, effectively, by the laboratory director. Among the laboratory's 4000 employees are 1700 professionals, including 1100 with advanced degrees, giving the town an educational makeup comparable to that of a university town, which it in some ways resembles.

Among its concerns are those of any community—education, drugs, crime—but Los Alamos is far better off economically than most company towns that must survive on a limited tax base. Under a 10-year contract with the county government, the AEC subsidizes some community services, providing roughly the difference between what the county can raise and what it must spend to provide services comparable to those previously furnished by the AEC. Payments under the contract, now in its fifth year, amounted last year to about $1 million, or 37 percent of the county's general governmental expenditures. Efforts to attract light industry that might provide additional tax revenues have never worked out, apparently largely

Briefing

Science Shuffle

The recent reshuffling of key officials for the second-term Nixon Administration could signal not only changed leadership for the next 4 years, but a serious try at major government reorganization with implications for science and technology.

As of early this week, informed sources were saying that two key science agencies could be "where the action is" in the probable forthcoming science shuffle: the Atomic Energy Commission (AEC) and the National Oceanic and Atmospheric Administration (NOAA). In addition, some White House offices, notably the Office of Science and Technology, the National Aeronautics and Space Council, and the Council on Environmental Quality could be affected by the President's statement last week that the "largest" personnel cuts would be made in the White House staff, which had "grown like Topsy."

The White House is likely to suggest that some AEC activities be transferred, notably the civilian nuclear power and nonnuclear sources of energy programs, perhaps including Plowshare, to some other organization with overall responsibility for a national energy program. The Administration is expected to unveil such a policy within the next few months, and it is now rumored that lead agency responsbility for its execution will go to the Department of the Interior, or an expanded version of it, called the Department of Natural Resources (DNR)—not to the AEC.

Also possible to move under Interior's or DNR's purview is NOAA, which, after considerable infighting, was placed in the Department of Commerce upon its establishment in 1970. This likelihood is consistent with past Presidential reorganization schemes, all of which have moved NOAA away from Commerce and combined it with other environmental research units such as the U.S. Geological Survey.

The Office of Science and Technology, the Council on Environmental Quality, and the National Aeronautics and Space Council all could be affected by forthcoming White House cuts, which look as though they will be of the big federal agencies. The new, streamlined Nixon White House looks as though it will have a drastically reduced staff reporting through fewer channels to key aides such as John Erlichmann and George Shultz. Hence, specialty groups such as the Office of Science and Technology are likely to suffer personnel cuts. As to the fates of science adviser Edward E. David, Jr., and technology opportunities chief William M. Magruder, so far, there are only rumors.

As the Camp David strategist continues to shake up the lineup for the second term, it might come as some consolation to government scientists that past Nixon reorganization schemes (they all must be passed, in some form or other, by Congress) have all had a strong, three-pronged role for science and technology. Under the various versions of the DNR have been clumped environmental, geophysical, and energy research; under various departments of human resources, the efforts in health, occupational safety, and education; under the department of economic affairs are materials research industrial processes standards, and innovation encouragement and technical information dispersal. In the February 1972 plan outlined by the Office of Management and Budget, for example, the proposed DNR included an assistant secretary for research and development. At present, Interior has no such high-ranking science officer. Federal science will be quite differently administered by the time all this is over.—D.S.

because of the town's isolation and the resulting transportation problems, and county officials anticipate that some sort of AEC subsidy will continue to be needed.

A similar subsidy arrangement exists for the town's school system, whose physical facilities were donated to the community by the AEC. The Los Alamos schools are among the best in the state, replete with open classrooms, team teaching, and other innovative techniques, and they send between 75 and 80 percent of their high school graduates on to college. For 3 years in a row, Los Alamos High School students have done exceedingly well in the international science fair, perhaps not surprisingly, but they have also done well in national French language competitions. Radical politics do not seem to have attracted much student attention here, and school officials cite with pride, and some relief, examples of student participation in more conventional political activities and in environmental causes.

Contemporary problems have come to Los Alamos, however, and heroin and other drugs are readily available. Drug use is a subject of some official concern, and both the county and the school system now have drug rehabilitation programs. But the use of hard drugs appears to be declining, and privately there is considerable tolerance, although not approval, of marijuana use and other aspects of youth's countercultural life-styles—the location of the town's drug "market," for example, is common knowledge, even among adults.

Housing and zoning questions are also major issues in the community. There has never been enough housing to satisfy the demand, and much of the "temporary" wartime housing remained in use well into the 1960's. Even today there is something of a shortage, especially for those at the low end of the wage scale—many of whom are Mexican-Americans—who cannot afford to buy or rent in Los Alamos and who must commute from neighboring towns.

The scarcity of housing has been aggravated by an influx of residents who are not employed in Los Alamos—something that was not possible when the AEC controlled housing. Some of these "reverse commuters," apparently attracted by the town's low crime rate and scenic qualities, work as far away as Santa Fe, 35 miles to the southeast. As the town ages, substantial numbers of laboratory employees are beginning to retire but not to move away, thus making housing for their replacements at the laboratory hard to come by.

Housing is in fact at the root of a major dispute between the laboratory administration and many of the town's residents. The laboratory's recruiting and its plans for growth are feeling the housing pinch. Laboratory director Harold Agnew claims he could fill 300 houses immediately if they were available, and he has been at some pains to persuade (or, as some of his more vociferous critics would have it, to coerce) the county government to take action. There is, however, a substantial antigrowth faction within the town which adheres to the tradition that Los Alamos is "just the right size" and which fears that expansion would destroy the community's charm. In the most recent municipal elections, the pro-expansion faction appears to have gained the upper hand on the seven-member county council, although the town has little real control over its destiny, since nearly all of the surrounding land is controlled by the AEC. Several new ventures, including high-density apartments and the release of some federally held land for private housing, appear to be in the works.

Divergent Interests?

Some resident observers note a growing divergence of interest between the town's scientific professionals and those in service jobs or other nonsalaried occupations. The complaint seems to be that the nonprofessionals, occupied with Kiwanis and other activities, are no longer interested in the laboratory and its mission, with the result—according to some old-timers among the professional class—that the earlier idyll of a close-knit intellectual community has been spoiled. Although there is some evidence of a fission in the community—in the presidential primary George McGovern carried Los Alamos with George Wallace a close second—counterexamples also exist, and there does not seem to be any firm division along class lines. During the push to bring the laboratory's new meson physics facility on line, for example, scientists and technicians alike voluntarily worked weeks of double shifts and shared in the celebration afterward.

The social, cultural, and religious life of the community appears to be flourishing. Upward of 190 clubs and organizations are active, including some, such as the ski association and the recently resuscitated foreign film society, that date back to the early years of the town. A new Arts Council is responsible for, among other things, coordinating a semiannual northern New Mexico arts fair held at Los Alamos.

Events such as the arts fair are evidence of better relations between Los Alamos and its neighbors. In the past there was a certain distance between Los Alamos and the people in the surrounding communities (largely Mexican-American and Indian), who have always resented its wealth and snobbishness; now the town seems less isolated socially and culturally, as more laboratory employees make their homes in Santa Fe or elsewhere in the valley, and the old fears and dislikes of "the hill" appear greatly abated. That these feelings have not entirely disappeared is shown by a recent dispute over the location of a community college in the area. Residents of Espanola and Santa Fe successfully contested plans to expand a University of New Mexico residential center at Los Alamos into a full-fledged college on the grounds that this would foreclose the possibility of a community college in the valley.

Perhaps the most noticeable trend in Los Alamos is the growing atmosphere of permanence. Ownership of property seems to have made a substantial difference in the attitudes of those who once lived here, in a manner of speaking, "at the pleasure of the government." Residents no longer seem to feel such strong compulsions to "get off the hill," and, while many people still drive to Santa Fe or the 100 miles to Albuquerque for major shopping trips or a night out, the business community in Los Alamos is doing considerably better and is making ambitious plans to compete more strongly in the future. Unlike the situation in most small towns, even a number of young people who grew up in Los Alamos are returning after college to settle and find jobs in the laboratory or in the town. The sense of transience that characterized the town for years—no graveyard was established until the early 1960's because of a conviction that "we didn't need one"—seems to have given way to the realization that Los Alamos is here to stay, that for many people it has become home, regardless of the laboratory's mission or its future.

—ALLEN L. HAMMOND

Erratum: The research reported by D. Chapman, T. Tyrrell, and T. Mount [*Science* **178**, 703 (1972)] was sponsored by the National Science Foundation Program of Research Applied to National Needs.