

Dr. Tushnet's new story concerns a successful attempt to create an enemy for mans best loved machine, the automobile, and the struggle for existence that follows.

Waves of Ecology

by LEONARD TUSHNET

The meter maid noticed the little green stencils, FUTURE TREE, while she was checking the cars parked on Floral Boulevard in Gordonia, an enclave in the San Fernando Valley section of Los Angeles. At lunch she asked her fiancé, who was in the Department of Public Works, what the signs meant. He shrugged. "I dunno."

The next day, curious and as usual bored with his sinecure, he drove up and down the boulevard. The stencil appeared every fifty feet on the sidewalk near the curb. He asked his supervisor who had painted the signs. His supervisor grunted, "Not us. Probably the Commissioner of Parks and Public Property has some wild idea of beautifying the city. Election time's coming up."

His opinion that the planned trees were an absurd political move was shared by others. Concerned Taxpayer wrote a letter to the

Herald in which he said, among other things, "To expect trees to grow on such a busy thoroughfare, exposed as they would be to gasoline fumes, is an example of how the present incumbents think. The exhaust gases will kill the trees in a couple of weeks. All that would be accomplished is an expenditure of money the city can ill afford..."

The Commissioner of Parks and Public Property saw the letter. He hadn't authorized the tree planting but, "What the hell!" he thought. "If all goes well, I'll get credit. If not, then I'll raise Cain about somebody exceeding his powers." Privately he told his secretary, "I think the mayor's got a deal going with some nutty ecology group. Maybe like the crazies who want the city vehicles to go around with dichondra growing on their roofs. 'Keep California Green' nuts." He snickered. "The best way to keep it green is to bring money."

Work went ahead on the trees. A squad car, responding to a complaint about unnecessary noise from a record shop on the boulevard, found a green truck with a crew busily ripping up the sidewalk with pneumatic hammers at one of the stencils. The truck bore the sign GORDONIA GREENERIES. The workmen wore buttons reading "Employ the Handicapped." They were deaf-mutes. The policemen tried to tell them not to work during business hours, but they got nowhere. They hesitated about giving them a citation for fear one of the municipal judges might make a big publicity play about that. By the time they decided to shift the responsibility by a call back to the station house, the workers had finished the block and had moved to the next, in another precinct.

The actual planting of the trees was done in early February, accompanied by the jeers of knowledgeable bystanders. "Just look at those dry sticks and those puny branches!" one said. "And those tangled roots!" said another. "That tree doesn't have a chance. Even if we do get rain this month, the sun's too hidden by the buildings on the boulevard. I'll bet it'll never even put out a leaf."

But February had rain alternating with warm California sunshine. The trees put out tiny

leaves that grew rapidly to cover the branches. New branches appeared. By the beginning of April wee pink flowerets began to show. The teacher of the second-grade nature-study group at Juniper School wrote to the Commissioner of Parks and Public Property asking what kind of trees they were. The commissioner passed the inquiry down to the Shade Tree Supervisor. He in turn sent a branch with leaves and flowerets to the County Agricultural Station.

The County Agricultural Agent, unwilling to admit his ignorance, reported that the tree was a variety of flowering crab apples. "Who'll contradict us?" growled the agent. "A variety can be anything."

The flowerets dropped off, leaving behind small globules that grew so fast that by the middle of May they were almost the size of apples. The fruit was a brilliant scarlet, striped with yellow. The glossy green leaves and the colorful fruit gave Floral Boulevard the appearance of an orchard.

Some adventurous boys picked the fruit. It was hard as stone, but they cut and pounded it until the rind gave way to expose large tan seeds like pods. "Is the fruit edible?" one woman phoned in to ask the office of the Commissioner of Parks and Public Property. "No," was the reply, on the ground that a negative answer was the

safest. But the commissioner, worried about the elections and the possibility of a child being poisoned by the fruit, ordered his secretary to check with Gordonia Greeneries.

Gordonia Greeneries did not exist. At least, according to the telephone company, it had no phone. The commissioner frowned. He had a private conference with his buddy, the Commissioner of Public Safety. In the next week, the squad cars patrolling the city rode up and down side streets and alleys. No Gordonia Greeneries.

The two commissioners recognized an underhanded political trick. They demanded a private special meeting of the City Commission and the mayor. To their surprise they found that neither of the other three commissioners nor the mayor had anything to do with the planting of the trees. A cut fruit lay on the council table before them. Deep yellow striations ran from stem to base but the rind was still hard. The pods were now larger and a deep brown in color. "What'll we do?" asked the mayor. "Try to get some advantage out of this," answered the Commissioner of Public Health. "Let's mobilize all sanitation workers, firemen, policemen, health inspectors, and school bus drivers. In one day we ought to be able to pick all the fruit. Who knows what'll happen when it ripens and falls? It could

stink like gingko fruit, or poison pets or kids, or attract flies. We have to get rid of it at once." Agreed.

Easier said than done. The union leaders had to be cajoled, wined and dined, and given honoraria for consultants' fees (not bribes!) before they consented to order their members to co-operate. The rank and file members grumbled, threatened wildcat strikes, and gave in only after they were promised double time for the unusual task.

The harvesting of the fruit was set for Sunday, June Fifth, when most of the businesses on Floral Boulevard would be closed and the fruit pickers would be unimpeded by traffic.

They never had a chance to pick the fruit. On June First, about midnight, the citizens living along the boulevard were awakened by what seemed like a series of small backfires. They rushed to their windows. One reported, "Each one of those red apples like swelled up like a balloon and all of a sudden, pop! — the balloon burst and those brown seeds fell all over the ground. There's a streetlight right by me, and when a car went over the seeds, a yellow powder like came out."

The pods covered the pavement and the adjoining gutter. By nine o'clock they had been swept into

the street by the storekeepers on Floral Boulevard. Some pods had been crushed by the few pedestrians passing that early in the day; the yellow powder was flushed off with difficulty. The yellow slurry that resulted from contact of the powder with water was extremely tenacious, almost glue-like in consistency.

Traffic on the boulevard was very heavy because the most recent earthquake had cracked part of the Ventura Freeway, so that vehicles had been diverted onto the length of the boulevard until the next approach to the freeway. By ten o'clock most of the pods had been pulverized by the passing cars and trucks. At eleven special street-cleaning crews went into action by order of the Sanitation Department. They washed down the streets. The job was not easy because of the viscosity of the mixture of the yellow powder and water. At four o'clock, when the crews went off duty, stray globs still remained here and there on the street, but the traffic eventually wore down those globs by attrition.

The executive committee of CAP met that evening. "Well," said the chairman, with a smile, "Phase One of Clean Air Project is over. Now we wait for the late news." The agrochemists, botanists, and environmental engineers grinned at each other.

The news they were expecting came almost as an afterthought on one station and in the final so-called human interest section at the end of the others. "The AAA was swamped by an epidemic of flat tires this morning...The Highway Police announced that abandoned cars will be towed away at the owner's expense...Garage men and gas stations were overwhelmed by the demand for new tires...A record number of accidents caused by blowouts was reported. Fortunately because of the very slow speed at which cars were moving due to the tie-ups there were no fatalities and only minor injuries..." One mathematically minded commentator pointed out that the outbreak of flat tires, while unusual, was not inconsistent with the theory of probability. "What is peculiar," he said, "is the skewed nature of the curve. A quick survey of the affected vehicles indicates that they (except for a few instances) came from the Valley communities served by the Ventura Freeway."

The TV sets were switched off. Dr. Schonberg, the originator of the project, whistled and shook his head. "Too soon. It will take another four months before the next fruiting in Gordonia. We can only hope no one follows up that man's intuitive guess."

"Perhaps we ought to recruit him?" suggested Dr. Verde.

The chairman said no. "We'll have to take a chance. Now that we have had a successful field experiment, we can proceed with Phase Two."

No one paid attention to the green trucks bearing the stylized tree emblem and the Bear State insignie except to grumble as they had to shift lanes. The silent workmen planted their trees along the borders of the Ventura Freeway and then did all the others, the San Diego, the Golden State, Santa Monica, the Hollywood, the San Bernardino, and the Harbor Freeway. They ran out of trees halfway down the Santa Ana Freeway. The trees were spaced fifty feet apart; where overpasses and bridges provided no soil, the trees were deposited in large redwood planters. The trees rooted quickly in the summer sun and required no watering except that routinely provided by the Highways Authority. Pink flowerets appeared and then the fruit. Because of the time lag between plantings, by the time one set of trees had dropped its fruit, other sets were just beginning to bud. Summer speeded up the plant metabolism. Time from flowering to dropping of the fruit was only three months.

The daily users of the freeways took the beautiful display in their stride (or ride). They were too intent

on getting where they were going. Tourists exclaimed at the gorgeous colors and wrote letters to the newspapers complimenting Los Angeles for its civic enterprise in changing jejune highways into aesthetic joys.

In city hall, in the county offices, in the Roads Department, in the Motor Vehicle Division, no one knew who had authorized the plantings. But no government body refused to take the bouquets being thrown at it instead of the customary brickbats. As long as it did not have to pay the bills, it kept quiet.

The bursting of the fruit and the subsequent spreading and crushing of the pods on the concrete of the freeways caused no concern. Some of the yellow powder was blown to drift on city streets but, there, was quickly picked up by the tires of passing cars. The various governing bodies had troubles other than the trees.

The accident rate on the freeways was rising alarmingly. Tie-ups became so frequent that motorists began to abandon the freeways for the city streets, discovering that in the long run they saved time. Traffic engineers held emergency sessions. They recognized the seriousness of the situation but were baffled by the irregular pattern of the tie-ups. Congestion on the city streets

increased to such an extent that parking on the major arteries was forbidden at all times so that the flow of traffic would not be impeded. Parking lots overflowed. Businessmen complained. Ingenious drivers found ways to avoid the regulations by using other streets. Then parking on any city street was prohibited.

The public outcry was directed at the traffic authorities and at the tire companies for their shoddy merchandise. The former developed ulcers from frustration but found no solution to the problem. The latter excused themselves by pointing out they had no trouble with their tires elsewhere in the United States. But they did increase their R&D departments. They soon found out that in the Los Angeles area both natural and synthetic rubber used in tires ceased being amorphous and was converted into a semicrystalline substance worthless for the uses it was intended to provide.

The executive committee was disappointed at the slowness of the response. Dr. Grundorfer expressed the general opinion. "They're just attacking the problem ass-backwards. I suppose we ought to be glad that they haven't yet found the cause. Nevertheless, by this time I expected definite social and demographic changes."

"Phase Three can't be started yet, I admit," sighed the chairman. "And the longer it's postponed the greater is the danger of discovery. We'll just have to wait."

"There's a bright side to waiting," said Dr. Schonberg. "Our hybridization and genetic change experiments are beginning to show results. We're near to having the trees fruit in climates colder than California. What would be the use of our project if it were confined to the southwestern part of the United States?"

"How long do you think we have before some bright boy in the government will put two-and-two together?" asked Dr. Horetz.

The chairman shrugged. "Allowing for the very remote possibility that some agency has employed a person with a scientific bent, four months at least. By that time we should see definite changes."

The chairman was right. Intensive investigation was undertaken to determine the cause of the rapid deterioration of the tires. It was attributed to the high acid content of the smog by some, and to faulty aggregates in the concrete pavement by others. Research in those areas leading nowhere, experiments were done on the effects of nitrogenous waste products and photochemical oxidants.

And when those experiments were equally fruitless, there arose a growing conviction that sabotage by disgruntled elements in the rubber factories was the cause. Some wild extremists talked about the existence of an un-American underground conspiracy directed against the conservative citizens of California. The conspirators were said to spray a mysterious chemical on the freeways during the night. Bands of volunteer vigilantes set up posts on the freeway. No one thought of the trees.

Six weeks later the situation on the freeways had become so chaotic and the traffic in the city so heavy that a large industrial enterprise announced a new hiring policy. Because of the lower production level stemming from absenteeism due to transportation problems, the firm said that henceforth it would hire only those workers who lived within two miles of the plant, a reasonable walking distance. While the novel case of territorial discrimination was being fought in the courts, several other companies found a different solution. They provided free bus transportation from as far away as Orange County and San Bernardino for their workers. That was of little help because the buses shunned the freeways and used the city streets only.

The City and County of Los

Angeles, alarmed by the possibility of the flight of industry from the area, instituted a crash program for the construction of the long-delayed rapid transit subway. Japanese experts were called in, given adequate funds, and told to get to work.

Motor-driven vehicles, including trucks, unable to use the freeways, turned to the streets. They became so clogged that often a man could walk faster than a car could go. Bicycle riding increased. Bicycles were maneuverable for individuals but of little value for moving goods. The rush to horse-drawn transportation was started by a large brewing company which said it could no longer afford the great expense of tire replacement. People recognized the statement as merely an advertising stunt, but nevertheless the idea caught on. Large wagons made good time on the freeways. Teamsters got paid more than truck drivers. Next came the return of carriages and hansom cabs. Young bloods preferred riding their own horses. The San Diego Freeway from Mulholland Drive to Wilshire Boulevard became a veritable Bois de Boulogne with trotters and cabriolets bearing fashionable ladies with parasols. Strivers and arrivistes vied with each other in the elegance of their conveyances. Livery stables sprang

up all over Los Angeles. The parking meters were used as hitching posts. Organic gardening got a big boost from the abundance of manure available.

Dr. Schonberg was pessimistic at the next meeting of the executive committee. "We didn't expect this. The computers predicted decentralization, not a return to horse-and-buggy days."

The chairman laughed. "Our programming didn't take into account human ingenuity. Let's face it. Cities, metropolises like Los Angeles, are part of our civilization. They have enormous advantages over what Lenin called the idiocy of rural life. No one would willingly give up those advantages without a struggle. Horses are only a makeshift, a passing fad. What counts is that individually driven automobiles will soon disappear completely, to be replaced by mass urban transit. And since 90 per cent of the smog is caused by automobiles here, the air will get cleaner and cleaner. After all, that was the major goal of our project, wasn't it?"

Dr. Villanova, the treasurer, was worried. She was an economist. She said, "If the computers were wrong in one direction, they may be wrong in another. Perhaps the whole industrial and commercial structure of the country will be

damaged by this local change in ecology. I know we planned to finance CAP by buying up tire company stock during the initial phase, selling it for a quick profit, and then selling the stock short. So far we've been very successful financially. But we may have been too short-sighted. What about the rubber workers in Ohio who are unemployed? And the shutting down last week of Kelsey-Hayes and other auto-parts makers? And the layoffs in Detroit?"

"And what about Los Angeles itself?" added Dr. Nittunkel. "Buses can't use the freeways, and we can't plant trees on every street and byway in the city. Traffic goes so slowly now that staggering of work hours will certainly follow, and that means more night work with its consequent neuroses and disruption of family life."

Dr. Grundorfer nodded. "We tossed a pebble into the center of the lake, expecting it to sink without a trace, but we didn't count on how the waves spread in every direction. Decentralization was what we hoped for, not further urban glut."

The chairman remained sanguine. "I'm sure all will turn out well as soon as the subway is opened. I've seen the plans. It will combine the best features of the Paris Metro, the Moscow subway, and the London Underground.

Superfast quiet comfortable trains, express and local service, escalators so that no one will have to walk more than a few steps, and so laid out that anyone in Los Angeles can get to any other part of the city in less time than it formerly took on the freeways. And with no contamination of the air and with no loss of life or limb in accidents."

"But truckers can't use the freeways, either," Dr. Villanova pointed out. "And the railway system is too archaic to take up the slack. All we've done is transfer pollution from the freeways to the streets. Horses can never take the place of trucks."

"That's where American inventiveness will take over," said the chairman. "Now we'll see a spurt in research on other than internal-combustion engines. I foresee that in a year the first electrically driven truck will be commercially available."

In spite of his confident remarks, the committee voted to postpone the projected plantings elsewhere for another six months.

The chairman was right and was wrong. The completed subway became one of the wonders of American technology. Los Angeles residents boasted of its efficiency. No point was more than half an hour from any other point, incredibly faster than the previous

travel time on the freeways. Used automobiles began to be sold in such quantities in the Los Angeles area that their price was depressed in the rest of the country. Even the poorest family in Appalachia could now afford a car, with the result that traffic congestion and air pollution increased in all but Los Angeles at a fearful rate. Furthermore, the availability of such a cheap form of individual transportation speeded up the flight from the central city cores to the surrounding suburbs and countryside. Then followed the spread of trucking goods and food to the urban sprawl, and inevitably the building of new highways to expedite traffic.

The air in Los Angeles was once more breathable. Eye irritations, asthma, bronchitis and emphysema diminished to such an extent that some specialists in those disorders turned to geriatrics because people began to live longer. Unfortunately the morbidity and mortality rate in the rest of the state and country went up more than enough to cancel the improvement in Southern California.

The executive committee read the accumulated statistics with dismay. They put off all plans to plant more trees for two years until they had ample time to digest the data and communicate their

findings to the general membership.

The freeways were deserted. Grass grew in tiny cracks, splitting the pavement. But since man, as well as nature, abhors a vacuum, a demand rose that all freeways be opened to pedestrian and horse-drawn vehicles. The Highway Authority acceded to the demands. For a few weeks hiking enthusiasts, joggers, and just plain strollers used the freeways, but when their sneakers and rubber-soled shoes gave out after a mile or two, they went back to their former routes.

The freeways again became empty of all but commercial wagons with metal-rimmed wheels.

While CAP was reprogramming its computers for a more thoroughgoing prediction of the results of nationwide planting, an intelligent high-school student from Encino undertook a special-credit project in inductive logic. He gathered all the data available from various governmental and industrial research agencies having to do with rubber deterioration in Los Angeles. He arranged his facts: a,b,c,d,e...for time of onset of the tire trouble, age of the freeway, type of cement and concrete used, and so forth. He came to the conclusion that the trees had something to do with tire destruction. A few simple experiments, and he had the answer. He showed without question that the

yellow powder released when the pods were crushed destroyed both natural and synthetic rubber.

Like Columbus's egg, everyone said, "Of course!" Aided by a generous grant from the automobile industry, the Highway Authority uprooted and destroyed every offending tree.

The freeways were again opened to motor vehicles, but traffic changed its character. Only a few individuals used the freeways; most preferred the convenience, safety, and lower cost of the subway. The freeways were used mainly by truckers, school and chartered tourist buses, and ambulances. Draft horses again became a rarity.

The convenience of fast truck transportation, now that private cars no longer got in the way, gave an impetus to the development of industry in the farthest reaches of Los Angeles County. Efficient lobbies, using ecology arguments, succeeded in having the freeways closed to all but commercial traffic. Slowly, slowly the air once more became polluted.

CAP was dissolved. "It was fun while it lasted," said the chairman in his final speech, "but it didn't last long enough. One thing I've learned — the Lady Bountiful technique of doing good to others doesn't work with ecology. People have to want the good to be done to them for results to be permanent."