The Millrace

by

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of the Requirements
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I am especially indebted to the following people, without whose assistance this project would not be what it is:

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PREFACE

Looking back on the research I have done for this paper has been most interesting. The training that a landscape architecture student receives in regard to the analysis of a problem typically deals with natural systems (hydrology, geology, topography, etc.); little emphasis is placed on social elements (history, legalities, etc.). In retrospect, however, I find my emphasis in this project has been on these social elements rather than on natural systems. The fact that the millrace has been so heavily influenced by people makes social elements far more relevant to understanding the present, and to influencing the future, of the millrace. An interesting corollary is that Pattern Language, discussed herein, is particularly appropriate in a situation of social emphasis, and therefore, particularly suited to designing the millrace for people.

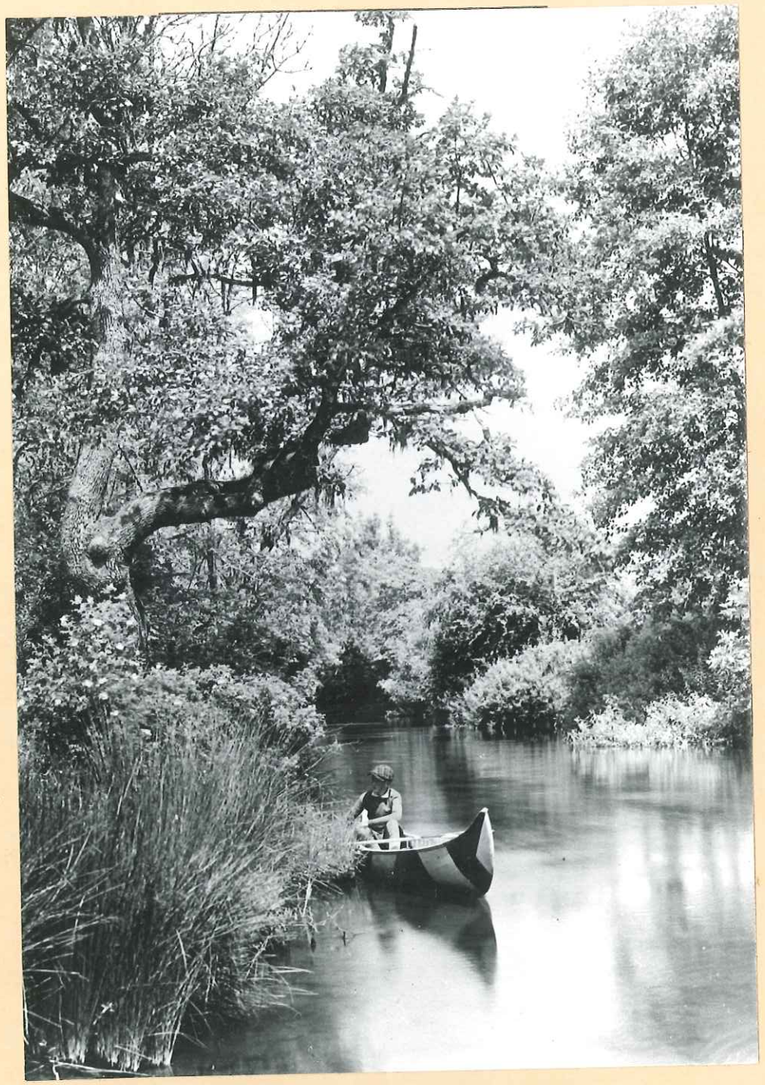
The following paper is divided into three parts. The first, in general terms, is an exploration of water and its importance to man. The second is a specific examination of how man has related in the past to a particular water course, the Eugene millrace, and how that relationship has deteriorated. The third is a strategy for reinstituting the importance of the millrace in the life fabric of Eugene.

"I do not know much about gods; but I think that the river
Is a strong brown god -- sullen, untamed and intractable,
Patient to some degree, at first recognised as a frontier;
Useful, untrustworthy, as a conveyor of commerce;
Then only a problem confronting the builder of bridges.
The problem once solved, the brown god is almost forgotten
By the dwellers in cities -- ever, however, implacable,
Keeping his seasons and rages, destroyer, reminder
Of what men choose to forget....
The river is within us, the sea is all about us."

T. S. Eliot

the ocean, with which this stream - and all the water in the world - is linked. Our imaginary trip with the water has helped dispel the claustrophobia that the metropolis induces." (Moore, 1957, pp. 165-6)

In response to the present misuse of water and the deplorable environment of most cities, in order to give us a better understanding of our world, the reintroduction of water into city life is necessary, both through its use as physical arteries, and through the visual demonstration of its part in the larger water cycle. The continuity of water can unite us with larger life-systems, and reinforce the seasonal rhythms of life within us.



The Millrace:

Yesterday & Today

MILLRACE EDGE AND ITS USE

Because of its linearity, Eugene's millrace is presently bordered by a variety of land-use activities that are quite distinct. At its beginning it is surrounded by wilderness, the native vegetation of bigleaf maples, willows, and poplars, and many small birds and animals. However, as one travels down the millrace, this wilderness shortly gives way to the backs of motels and old-time rambling backyards that roll down its banks. From this primarily residential use, one passes through narrow metal culverts into the more commercial zone of the electric coop and the Coca-Cola plant, with asphalt paving and bright reflecting cars parked at the millrace's edge. Further on, one enters the University area where the roar of Franklin Boulevard and the industry of the Physical Plant and the hog fuel pile contradict the green, sloping, ornamental lawns and plantings reminiscent of an English park. Passing quickly by the backs of a few more commercial establishments, one passes through the long narrow culvert under Franklin Boulevard, emerging in a deep canyon of blackberries. The millrace is bordered now by the backyards of large old houses, many of them fraternities, and its edge is defined by concrete or rock retaining walls.

As one passes under low bridges, the houses slowly give way to highrise apartments. Abruptly, the millrace dead-ends in a metal grate and flows into a 30-inch pipe, through which it returns to the Willamette River under the Ferry Street Bridge.

Although the millrace edge is presently put to a variety of uses, few of them enhance the millrace or take advantage of it as a positive element. It is used as a sewer system by most, an inexpensive way of getting rid of waste. This is encouraged by the City, which officially recognizes the millrace as a storm sewer, and refuses to provide an alternate system because of the cost.

Most millrace crossings constructed in recent years have also had deleterious effects on the millrace. The City bridges at Patterson, Hilyard, and Alder Streets are only insensitive, not taking advantage of this special place for pedestrian-millrace interaction, and not providing head room for canoeists. Worst, however, are the culverts that constrict its flow, are aesthetically unattractive, and difficult for canoeists to negotiate. A notable exception to this trend is a pedestrian bridge designed by Unthank, Seder and Poticha for the Millrace Medical Building.

Another kind of destruction has come from people who view the millrace as a detriment and a nuisance. They have filled and culverted the race because the additional land created is more valuable to them than the water.

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h

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a
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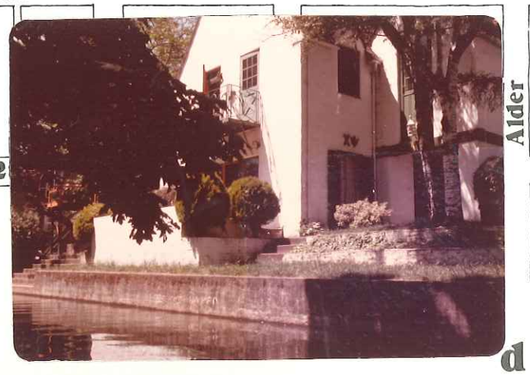
c
d
e
f

11th

Mill
Ferry
12
Alder
Kincaid



d

b

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Franklin Blvd
Moss

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THE MILLRACE: A Sense of Place

8th

Broadway

11th

Mill

Ferry

12th

Patterson

Hilyard

Alder

Kincaid

Franklin Blvd

Moss

13th

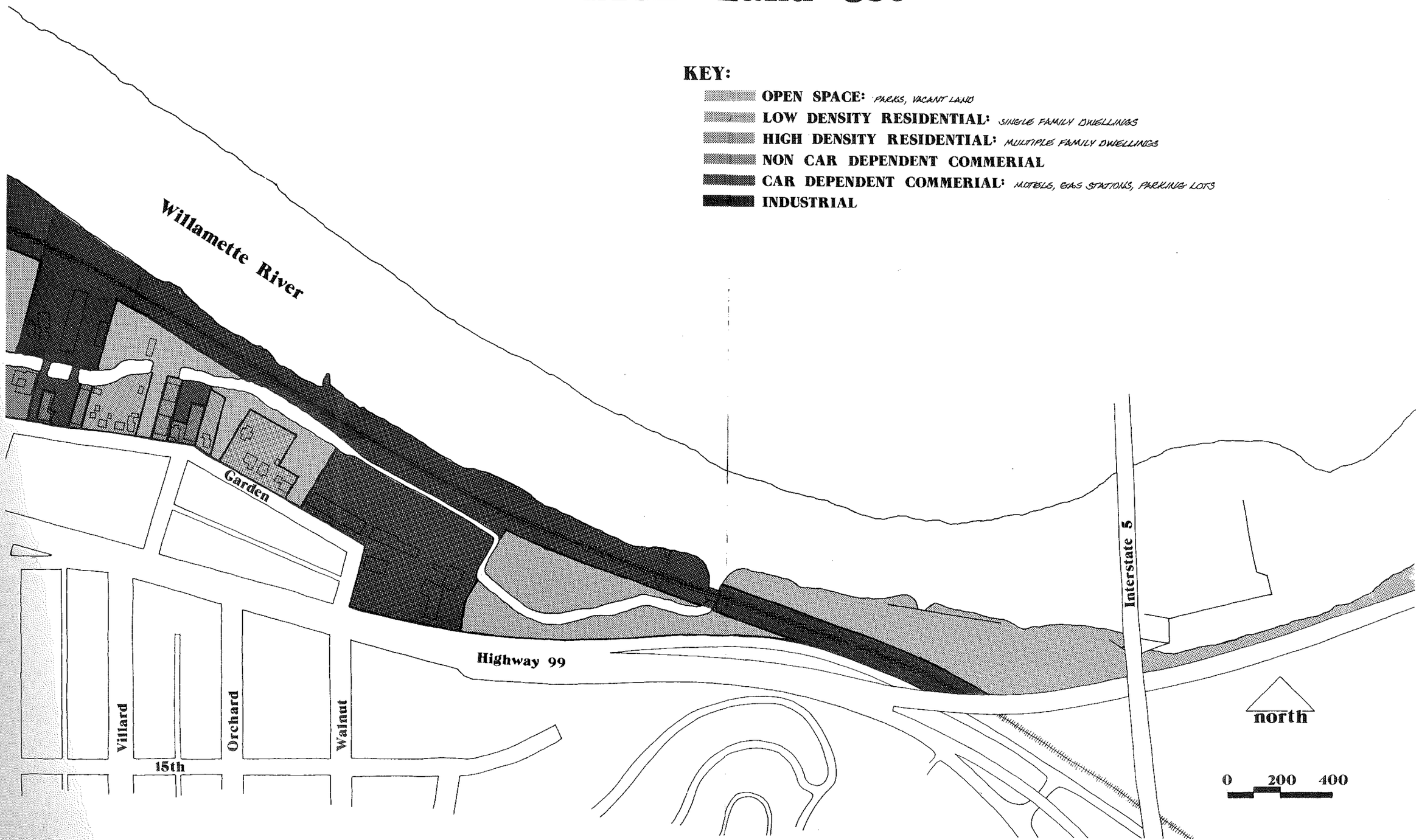
Agate

Columbia

THE MILLRACE: Land Use

KEY:

- **OPEN SPACE:** *PARKS, VACANT LAND*
- **LOW DENSITY RESIDENTIAL:** *SINGLE FAMILY DWELLINGS*
- **HIGH DENSITY RESIDENTIAL:** *MULTIPLE FAMILY DWELLINGS*
- **NON CAR DEPENDENT COMMERIAL**
- **CAR DEPENDENT COMMERIAL:** *MOTELS, GAS STATIONS, PARKING LOTS*
- **INDUSTRIAL**



In general, especially in recent years, there have been very few who have viewed the millrace as a positive asset. One such attempt was made, however, by Murphy and Me Tavern. Rather than turning a blank wall to the millrace as most other businesses have, they oriented a back terrace toward it, making it possible to sit amid the willow tops as canoeists paddle beneath. Even though the design has some weaknesses, not necessarily of their own making, it is an attempt to use the millrace edge to a mutual advantage.

It is truly amazing that more businesses which could benefit from their proximity to the millrace have not taken advantage of their location. This becomes especially apparent when one looks at another urban waterway, the San Antonio River, in San Antonio, Texas. Its banks are lined by a variety of business establishments that relate to, and take advantage of, their waterside location. There are sidewalk cafes, small shops, and even an outdoor stage and ampitheatre. Various kinds of small boats travel the river's course, and a walkway for strollers, shoppers, and business people lines its bank. In San Antonio, the river is looked upon as a positive asset, not as a nuisance.

> *"There is something about rivers, no matter how small or how useless for commerce, that fascinates men and attracts the affairs of men to them. It's not just a matter of drinking water or power to turn the millers' wheels, as economists would have you think. It is almost as if a*

river were in fact, as well as simile, an artery of the community through which its life blood flows. So with this river. Though it is unnavigable for any craft much larger than a rowboat, and the city draws its drinking water not from the river but from a system of deep artesian wells, the life of San Antonio has always centered on it."
(Moore, 1957, p. 51)

The millrace was once a vital artery in the City of Eugene; it could be again. The major stumbling block is our conception and use of it as a noxious open sewer.

MILLRACE HISTORY

The Willamette Valley, which is situated between the Coast Range to the west and the Cascade Range to the east, is characterized topographically by broad alluvial flats separated by groups of low hills. The valley, oriented in a north-south direction, is itself gently tilted in a northerly direction; consequently, the Willamette River is a sluggish stream with many meanders. Scars of old river courses are readily apparent from aerial photographs. A dramatic change of course in the Eugene vicinity has occurred only once since the white man's arrival in the valley, during extreme flooding in 1890.

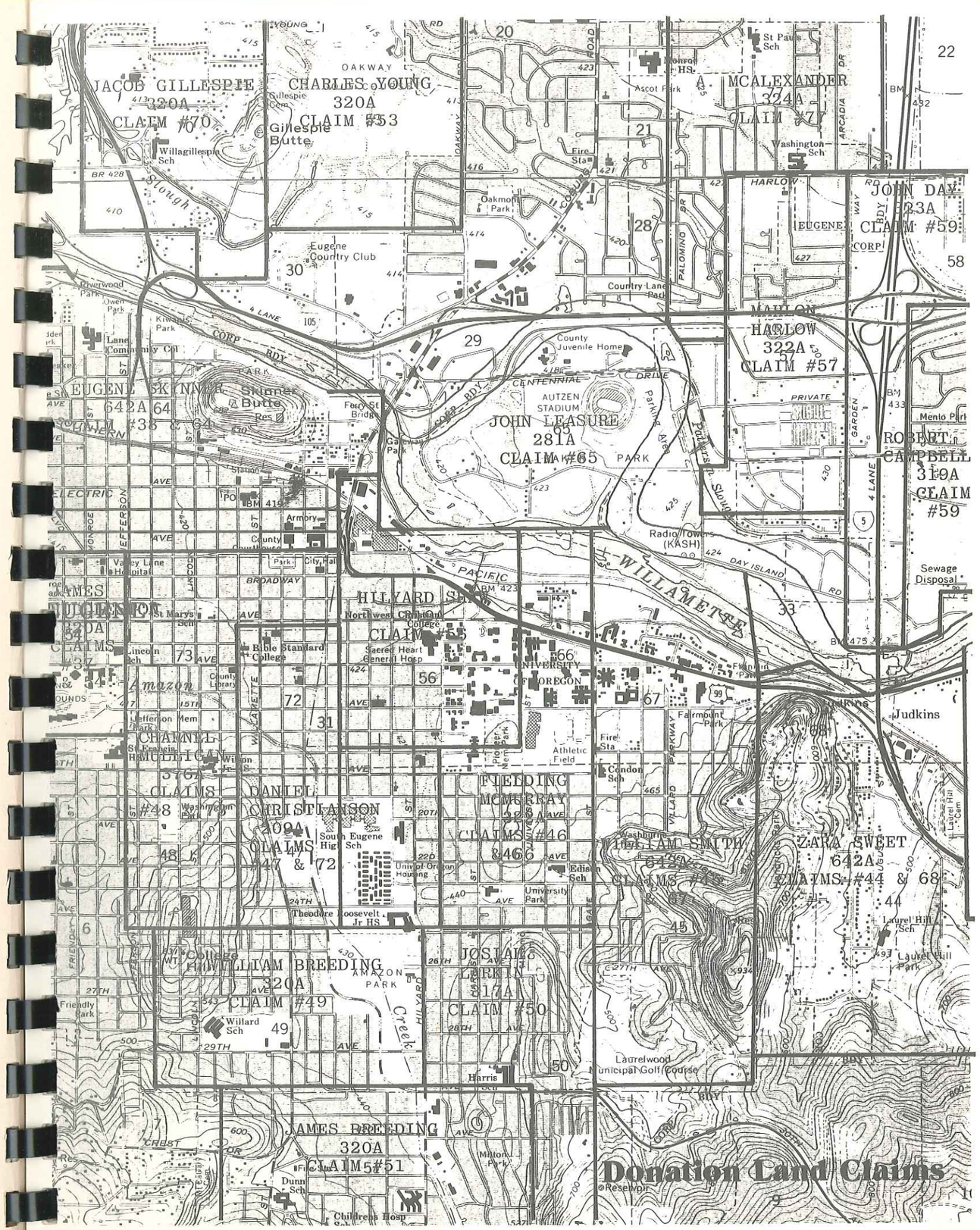
The millrace, or what was to become the millrace, was originally composed of two sloughs, old river bed scars that had been abandoned by the river as it changed its course. In some places the sloughs were filled with sluggish backwaters, and others, merely low spots in the topography, were filled with brush undergrowth.

The river banks and old river scars in the Eugene area were vegetated by lush riparian growth, typified by California Black Poplar, Populus trichocarpa, Bigleaf Maple, Acer macrophyllum, Willow, Salix, Red Alder, Alnus rubra, and

Oregon White Oak, Quercus garryana. In one of the few places on the millrace that has remained relatively undisturbed, between the railroad headgates and the Black Angus Motel, the native vegetation can be seen as it existed before the white man inhabited the valley.

In contrast, most of the valley, including the land that has since become the City of Eugene, was vegetated solely with grasses and occasional open grown woods.

> *"Prairies dominated the valley landscape at the end of Indian control. Trees grew in galeria forests along the streams, and in woodlands on the steeper slopes. Isolated oaks, pines, and firs in the prairie were related to special conditions such as former dwelling places of Indians, thin soil, rock outcrops, slight rises (oak) or depressions (ash), trails, and the infrequent accident of being missed by annual fires when young." (Johannessen, 1961, p. 294)*

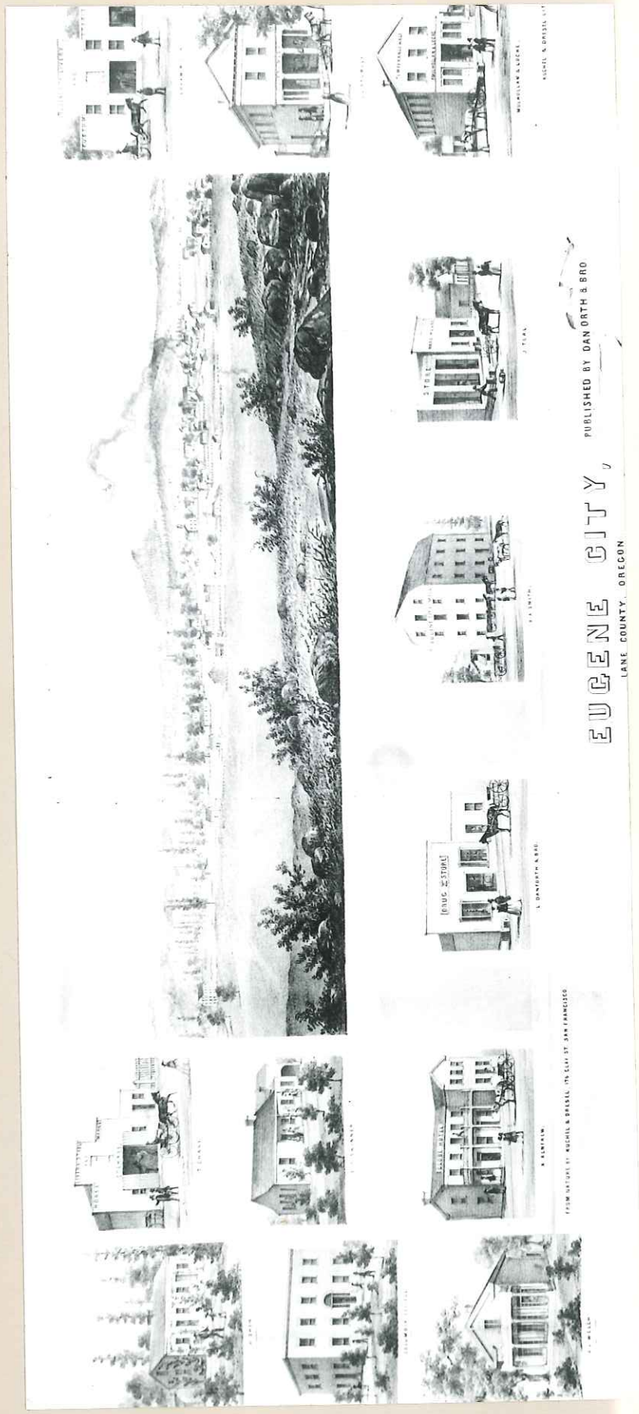


Although occasional explorers and trappers had traversed the valley in the early 1800's, a white man did not settle in the vicinity of Eugene until 1846, when Eugene Skinner staked his claim at the foot of what has become known as Skinners Butte. Soon, other men followed Skinner's lead, and were settling up and down the Willamette Valley, eager for the 640 free acres the government promised to each man who would settle in the Oregon country.

One of those who came and settled near Skinner was Hilyard Shaw. His donation land claim included the area which is now defined by University Street on the east, Seventeenth Street on the south, the alley between Mill and High Streets on the west, and an area toward the river on the north; his claim also included two sloughs. Looking down on the two sloughs from under the Condon Oaks and Judkin's point, Shaw saw the possibility of developing the sloughs into a millrace which would produce power for mills. At that time, the closest flour mill was at Oregon City, and the trip was an arduous one. Shaw, with the help of Avery A. Smith, decided to link the two sloughs. Taking advantage of the natural low places, they excavated a ditch approximately five blocks long, from Ferry Street to Kincaid Street, connecting the sloughs. It is assumed that the ditch was dug with teams of oxen pulling a scraper device, and that the excess dirt was thrown up on the banks of the channel. In 1851, the ditch was finally completed and the two sloughs were connected.

The completion of the millrace brought the dawn of industrial enterprise to Eugene. By 1852, Shaw had built a sawmill on the banks of the lower millrace near Sixth and Mill Streets, and by 1856, a grist (flour) mill was also completed. The upper parts of the millrace were contained in the donation land claims of Zara Sweet, William Smith, and Fielding McMurray, and its banks were used for grazing and farming.

In 1856, Joseph Brumley and M. W. Mitchell bought 23 acres of Shaw's donation land claim through which the lower millrace passed, and on which the grist and saw mills were located. The sale included *"the water power upon said premises with the right of way over said Shaws claim to bring all the water that may be required." (3/1/1856, A:60)* Ownership of the mills, and the right to water power, was transferred back and forth between Shaw, Smith, Mitchell, and Brumley during these early years, until Brumley sold the property to W. T. Osburn, J. B. Underwood, and A. W. Patterson in 1870.

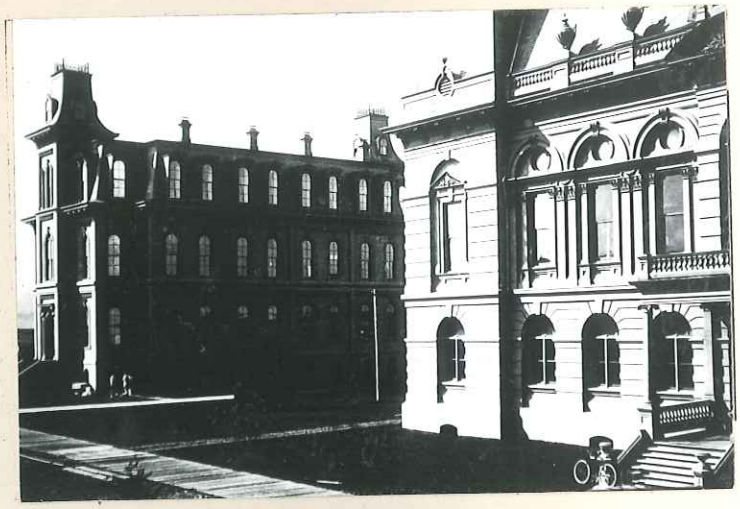


The population of the Eugene area continued to grow because of the promise of free government land; by 1870 the population had burgeoned to 850. A small town was beginning to form on the 80 acres that Skinner and Mulligan had donated so that Eugene would be chosen the seat of Lane County. But Eugene was still very much a pioneer community, for during these early years it was only tenuously linked to other valley towns to the east and west by territorial roads, and to the south by a central military road.

However, in 1870 the Oregon-California Railroad reached Eugene, effectively linking it with other valley towns and with cities outside the valley. The population of Eugene increased dramatically with the influx of new settlers the trains brought. Within one year (1885) 80 new houses were built to accomodate the increasing population. Hotels such as the Baker (Smeede) were built to accomodate the influx of visitors the railroad also carried. New industries began to grow up on the banks of the lower race: the David Cherry Furniture Factory, the Haines Tannery, Abrams Cider and Vinegar Factory, Campbell and Midgley Sash and Door Factory, and Skelton's Woolen Mill.

The rapid expansion of Eugene was further accelerated by the selection of Eugene as the location for the State University. The University of Oregon first opened its doors in 1876 with the completion of the first University building, Deady Hall. The University also grew rapidly,

and by 1885, a second building, Villard Hall, was opened, financed by, and named after, Henry Villard, owner of the Northern Pacific Railroad.



At this point, the millrace was thought of primarily as a power source for the many mills located on its banks, and secondarily, as a highway by which farmers could bring their produce to market in the City center. However, in the winter of 1884, heavy snows and cold weather caused the race to freeze over, and the townspeople and University students conceived of another use for the millrace, ice skating. From the time this first recreational use was conceived, it was not long until other recreational uses were envisioned.

In 1890, Edward J. McClanahan opened a boathouse at Ferry Street which rented skiffs to students and others who would *"row stoutly upstream against the current, and picnic by a campfire in the shady woods at the headgates of the Race. In the*

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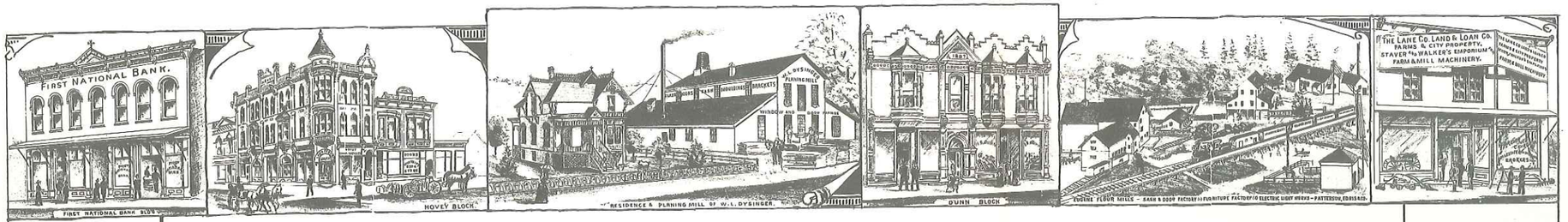


Eugene City, Oregon.

This birdseye view will give a good idea of the general appearance of Eugene, Oregon, and its surroundings. The streets are broad, laid out at right angles, and lined with handsome shade trees. It is the natural center of a large tract of country, and has no rival within forty miles. It has a population of 2,500 people, intelligent, thrifty and prosperous, and is one of the most beautiful and enterprising cities of Oregon. It is located on the left bank of the Willamette River, near the center of Lane County, of which it is the county seat. It has many substantial brick business blocks and has some handsome residences, three banks eight general stores, twenty-two other stores, two breweries, five hotels, and a large number of shops and places where minor industries are carried on. Its manufactures embrace leather, flour, woolen yarns and hose, furniture, carriages, vinegar and evaporated fruits. Four newspapers, six churches and a public school building costing $13,000, testify to the intellectual and moral character of the people.

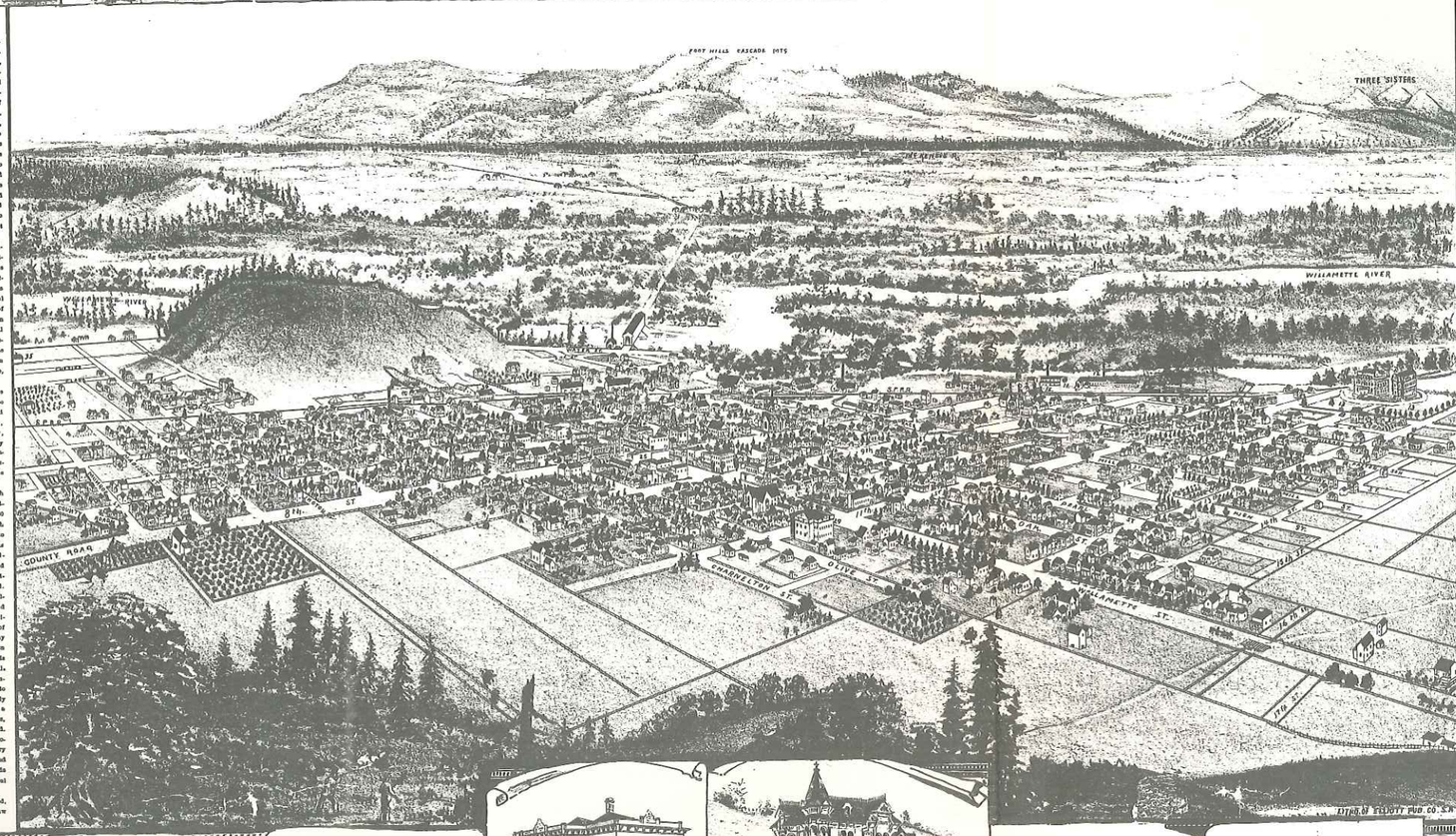
The city is the seat of the State University, the leading institution of learning on the North Pacific Coast, with an able faculty and large attendance of students from all sections of the state. The institution has attracted to the city a very desirable class of citizens who wish to educate their children, and the general tone of society is of as high character as any city of this state. The state owns a fine campus of eighteen acres, on which is located two large and substantial brick and stone buildings costing over $100,000, one-half of which was donated by the citizens of Lane County, to secure its location at Eugene. It is open on terms of equality to both sexes, tuition being free, and is in a prosperous condition.

The cost of living is comparatively cheap, and the taxe upon property the lowest of any city of its size in the state. It has its streets and sidewalks in good condition public improvements are pushed rapidly, yet the city has no debt, but money in the treasury, upon a tax of only two and one-half mills. The city is supplied with excellent water from the works situated on the butte south of the city, with ample pressure for the most perfect fire protection, besides the best of water is reached by wells 12 to 16 feet deep.

A complete system of electric lights is in use both by the city and private residences, giving the best satisfaction to our people. The lots are laid off 60 by 160 feet in size, with correspondingly wide streets, which gives the appearance of comfort and plenty of room to the many elegant residences for which the city is famous. The station of the Oregon & California Railroad is situated in the northern part of the city, and the amount of business transacted is among the greatest on the line between San Francisco and Portland.

The water power at Eugene is only partially developed, and can be easily made equal to one thousand horse power by the expending of a small sum additional to what has already been done. The owners of the power are striving it free for a term of years to any party or parties who will erect and put into operation manufacturing establishments of any kind. There is a demand for a large and well appointed woolen mill, with the latest and most approved machinery for converting the raw material produced in the county into manufactured goods, which can be done as cheaply here as anywhere else. A good new mill will find a profitable field and a ready market for its products, while logs would be easily and cheaply obtained. There is a large field for the increase of leather production. The hemlock already here is satisfactory and prosperous, but thousands of hides are shipped out of the county when they could as well be made into leather here, as bark for tanning is both plentiful and cheap. There is need of a good fruit canning.

Two other lines of Railroad are now being surveyed, and will be constructed soon. One a line to Siuslaw Bay, to connect with steamers for San Francisco.



LANE COUNTY.

Lane County, of which Eugene is the county seat, was named in honor of Gen. Joseph Lane, the first governor of Oregon Territory under the laws of the United States. It has an area of two thousand four hundred square miles, and is the largest of any of the counties lying wholly, or in part, in the Willamette Valley, whose beauty, fertility, healthfulness, and equability of climate are so well known as to render it almost unnecessary to refer to them here. Lane County extends from the Pacific ocean eastward a distance of about 180 miles to the summit of the Cascade mountains, and has an average breadth of fifty miles.

Of this vast territory about one-fourth is valley land mostly prairie, with very rich soil, producing abundant crops of grain, grass, fruits and vegetables every year. The other three-fourths of the county is mostly hilly or mountainous. The hill or table lands bordering the valleys are usually partly ore-ed with timber or brush, most of it being open enough to produce fine natural pastrops. It is a fact worthy of note that while nearly all the hills are destitute of timber on the south sides, they are densely covered on the north. These table lands are very fertile, and when brought under cultivation produce the most bountiful crops. The grain and other products are readily handled through the warehouses and mercantile houses along the line of the great Southern Pacific Railway, which runs through the county, affording daily communication north and south. The county is abundantly supplied with springs and rivers of pure, soft water.

The three principal branches of the Willamette river take their rise in the eastern and south-eastern parts of the county, in the Cascade mountains, and after winding in almost every direction for a hundred miles they finally unite near the center of the county

Lying partially in the valley and partially on the slope of three ranges of mountains, the topography and soil are necessarily of a varied character. The valley portion is composed mainly of level or slightly rolling fertile prairie, through which runs the Willamette, dividing within the county into two forks, and several important tributaries, such as the McKenzie, Mohawk and Long Tom rivers. The Siuslaw, flows through the southwestern portion of the county crossing the mountains, and discharges into the ocean near the line of Douglas county, where is situated the new and flourishing village of Florence.

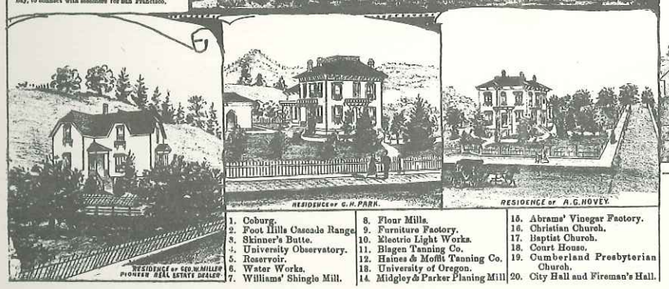
The fishing and lumbering interests of the Siuslaw Bay are yet in their infancy, but are destined to be a source of great wealth to the county in the near future. A wagon road has been constructed by the county from Eugene City to the head of tide on the bay, and semi-weekly mail service is now had to Florence. The bay proper extends inland a distance of 20 miles, with a breadth varying from a few hundred yards to three-fourths of a mile. It is navigable for good sized vessels its entire length, and the harbor at Florence is sufficient for the largest vessels and ample to size to float all the ships of the nation.

As yet, little lumbering has been done in Lane county, except for the supply of local markets, and the great body of timber may be said to be still in its primeval condition. The maple, ash, alder and oak are used to some extent for furniture.

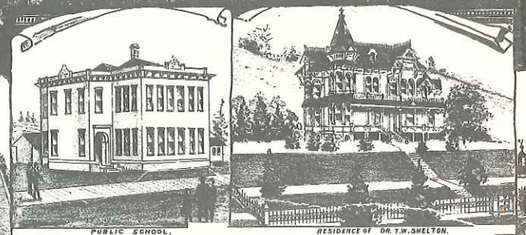
The mountains are clothed with a dense growth of valuable timber, fir, pine, cedar, spruce, hemlock, ash, larch, yew, maple, oak, balm, alder and madrona. The most common and most valuable of these trees for commercial purposes is the Douglas fir, ("Oregon pine") which is the chief reliance of the lumberman. It is of a large, tall and straight growth, adapted for this reason, and from its strength and durability, for ship timbers, masts and spars, as well as for bridge timbers and general building purposes.

The fruit of the Willamette valley has of late years acquired a wide celebrity, owing fit its railroad facilities for sending it to distant markets which have recently been provided. There are numerous fine bearing orchards in the county, whose large and luscious cherries, plums, pears and apples are sent to market in their natural state, or as dried or evaporated fruit.

Immigrants desiring to settle here should understand from the first that there cannot now be had in Lane County any prairie land not already occupied. There are, however, large tracts of timbered land comparatively level, and much hill land but lightly timbered. Large areas of rich land, as yet unclaimed, extend along the course of the streams flowing from the eastern side of the county. A man of means, energy and experience need have no fear of not finding here that which will give him profitable employment.



1. Coburg.
2. Foot Hills Cascade Range.
3. Skinner's Butte.
4. University Observatory.
5. Reservoir.
6. Water Works.
7. Williams' Shingle Mill.
8. Flour Mills.
9. Furniture Factory.
10. Electric Light Works.
11. Blagen Tanning Co.
12. Haines & Moffit Tanning Co.
13. University of Oregon.
14. Midgley & Parker Planing Mill.
15. Abrams' Vinegar Factory.
16. Christian Church.
17. Baptist Church.
18. Court House.
19. Cumberland Presbyterian Church.
20. City Hall and Fireman's Hall.



EUGENE, LANE COUNTY, OREGON.

PRESENTED BY

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REAL ESTATE AND COMMERCIAL BROKERS.

CORRESPONDENCE SOLICITED.

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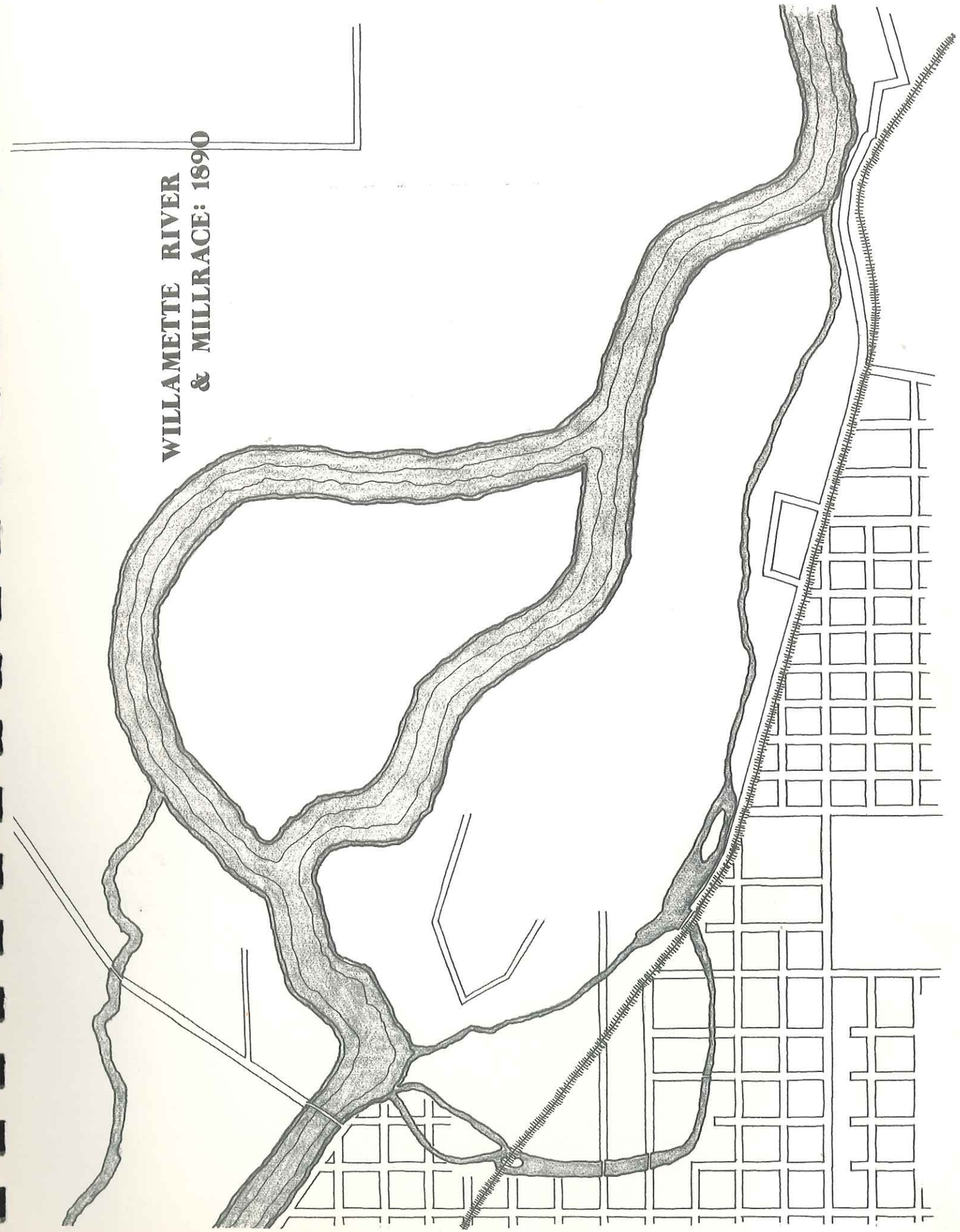
22. Lane Co. Bank.
Real Estate Office of Miller & Hopkins.
23. Eugene Nat. Bank.
24. 1st Nat. Bank.
26. Office J. A. Straight & Co., Real Estate Brokers.
26. Hoffman House.
27. M. E. Church.
28. Catholic Church.
29. Public School.
30. Episcopal Church
31. Presbyterian Church.
32. Masonic Temple.
33. Dysinger Planing Mill.
34. S. P. R. R. Depot.
35. Sladden's Fruit Dryer.

evening, tired, happy, sunburned and mosquito-bitten, they could glide back downstream in the gathering twilight." (Wentz, 1974, p. 20)

In the intervening years, the Mill Property and the easement for power had changed hands again; William Edris, A. S. Patterson, J. G. Gray, and Samuel Swift were now the proprietors of the Mill Property. It was during the years of their ownership, 1877-1898, that the millrace attained its height as the industrial heart of Eugene. New industries were located by the race, such as the Upper Willamette Lumber Manufacturing Co. and the Eugene Canning and Packing Co., forerunner of the Eugene Fruit Growers Association. At this time, the millrace was the center of industrial enterprise, supplying power to the McMurphey woolen mill, the excelsior plant, Carter's Ice Co., Eugene Mill and Elevator, and Eugene Canning and Packing. Additional tailraces were built to accomodate the increasing industrial demand. There were setbacks for some of the industries, such as the destruction

of the grist mill by fire, and for the millrace itself, such as the flood of 1890, which tore out the rock walls of the intake channel and changed the river's course. However,

these setbacks seemed only transitory in nature; the mill and channel were soon rebuilt and a new diversion dam accommodated the river's new course. In 1891, William Edris sold the Mill Property, what was left of it, and the easement for power, to George Midgley and F. L. Chambers. The 23-acre tract had been broken up in 1886, when Edris sold a parcel to the Upper Willamette Lumber Manufacturing Co. In the subsequent years, he sold other parcels to the Eugene Canning and Packing Co. and the Eugene Mill and Elevator Co. This fracturing of the relationship between the Mill Property and the millrace, and the diversity of industry, instigated Midgley's and Chamber's vision of the millrace as a self-supporting power company, independent of the mills. To increase the flow of the millrace, they built a wing dam into the river. This diverted the river's



WILLAMETTE RIVER
& MILLRACE: 1975

flow into the millrace, for the 1890 flood had not only changed the course of the river, but had scoured its bed so that it had fallen five to six feet. They also began to deepen and widen the millrace channel extensively.

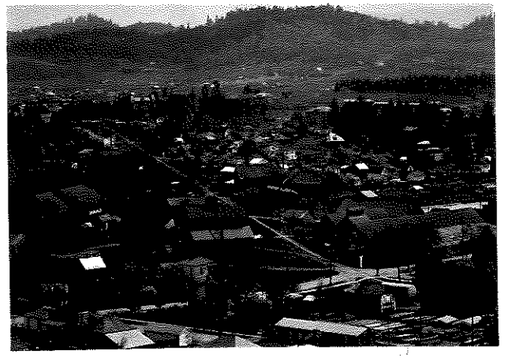
There had not been any controversy about such actions in previous years, because most of the property owners along the race had been farmers; the soil thrown onto their land from periodic clearing and dredging of the race had either been used to enrich the alluvial soils of their fields, or left in place as a protective berm agains the frequent winter floods. However, in about 1900, Eleventh Avenue between Mill and Kincaid Streets became a fashionable place to live. Many fine homes, such as the Calkins House and the Patterson House, were built. Many of the backyards of these residences

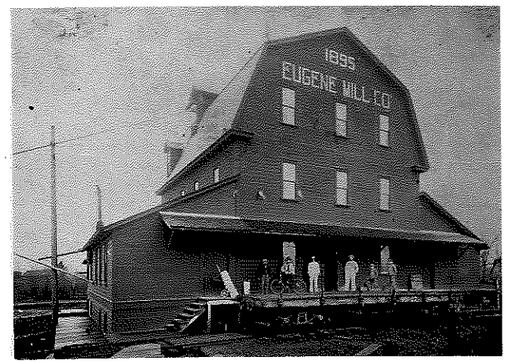
ran down to the race. And, as recreational use of the race increased, the residents of these fine homes looked upon the race as a pleasant amenity and oriented their backyards toward it. Consequently, as Midgley and Chambers began their

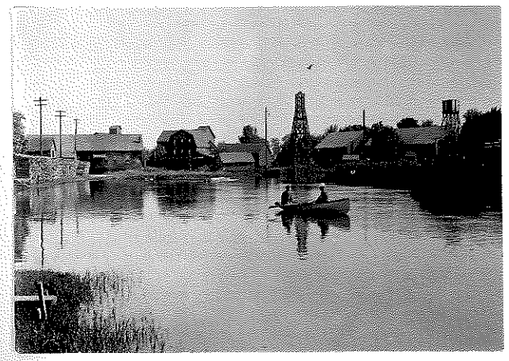
millrace improvements for the industries, the residents along the race became incensed. They petitioned the U. S. Engineering Department to destroy the wing dam, as they believed it had raised the water table and was causing flooding in their basements. The dispute finally reached the Oregon Supreme Court. Although the Court found in favor of the defendents, it set definitive limits to the easement that had been handed down from Shaw:

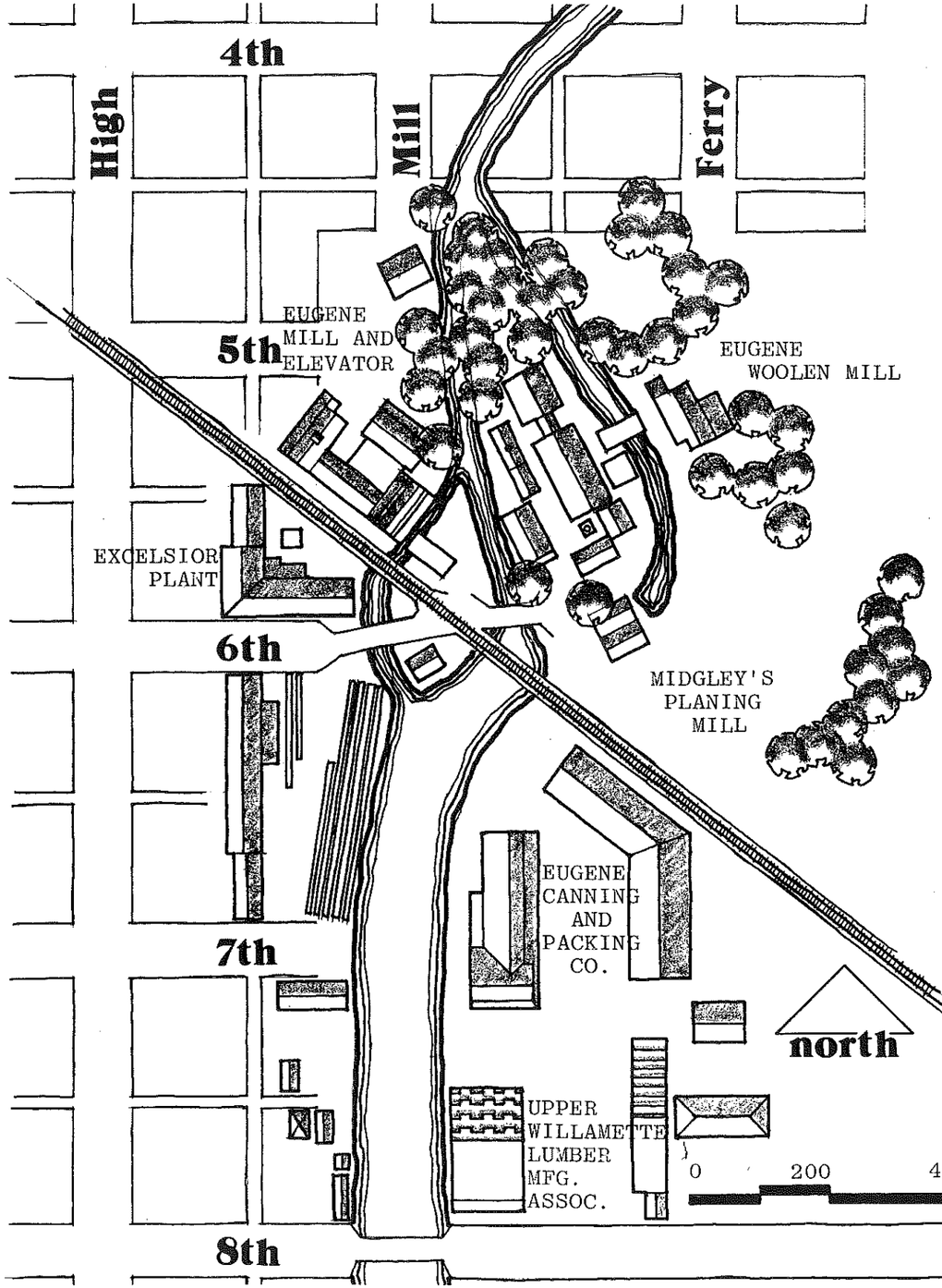
> *"The defendents will be permitted to widen their ditch so as to bring it up to 50 feet in width, and will be enjoined from further widening it, and from throwing mud and silt from the bottom upon adjacent property."*
> *(Patterson vs. Chambers Power Co., 31 Or. 328, p. 351)*

During the years of conflict between the millrace property owners and the Chambers Power Co., the existing industries along the race continued to grow and expand, using the race as a power source; however, no new industries settled on its banks because of its uncertain future. Although the 1916 decision was outwardly favorable for the defendents, the lengthy debate had effectively stalled the development of the race as a self-supporting power source, and technological advances had supplanted the millrace as an efficient and inexpensive source of power. Subsequent to the court decision, Chambers sold the Mill Property and the easement for power to the Eugene Woolen Mill and Patterson & Royse, proprietors of the Eugene Excelsior Co.

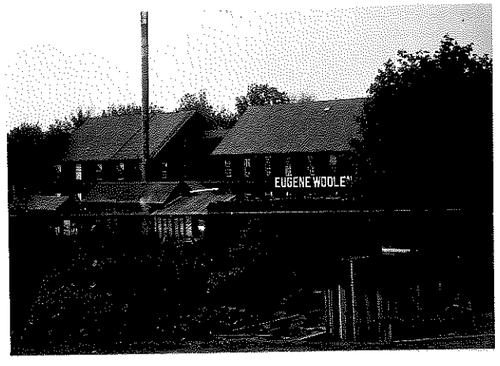


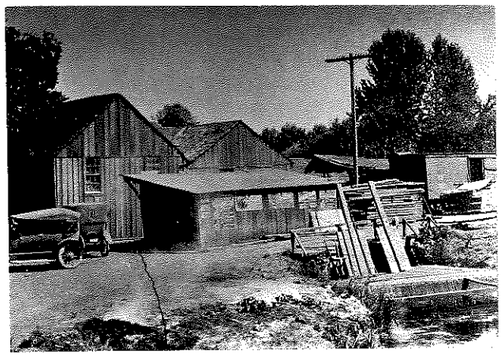






Millrace Industries





Both companies were located by the race and continued to use it as a source of power until 1928, when a flood breached the intake channel and all water wheels were finally stopped.

However, as the millrace lessened in industrial importance, it gained in recreational importance. From 1906, when Chambers opened a boathouse at the northwest side of the intersection of Eighth Street and the millrace, recreational use expanded rapidly. Paul Bond opened another boathouse north of Alder Street in 1911, and in 1913, moved to an old house at 997 Franklin Boulevard, across from Villard Hall. In years to come, the house became known as the "Anchorage," a well-loved University tradition. With the opening of these new boathouses came the advent of the canoe, and the demise of McClanahan's skiffs.

Along with the seasonal enterprise of canoeing came an annual embellishment, the Canoe Fete. It was developed as part of the University's Junior Weekend, and originally consisted of swimming races in the daytime, and, in 1915, the addition of a nighttime parade featuring decorated canoes. From the very first, the Canoe Fete was a tremendous success, and *"began a tradition of increasingly spectacular and sumptuous parades." (Wentz, 1975, p. 5)* With each passing year, the Canoe Fete became more elaborate. In 1937, movie newsreels and coast-to-coast radio broadcasts were made. In order to further enhance the annual event, the University began to develop elaborate plans for an outdoor amphitheater, extended park lands, and the relocation of the railroad tracks

Anchorage:

1922

1922

1928

1928

and Franklin Boulevard; in 1938, the University bought the property north of the millrace and east of the Anchorage, with the intention of implementing these plans.

However, the plans were abandoned with the advent of World War II. The tradional Canoe Fete ceased when a series of floods in the early 1940's destroyed the intake channel and the diversion dam, and left the millrace dry. In 1945, at the War's end, the plans for relocation of the highway and the railroad tracks were resumed, but plans for the millrace were left hanging because it was still dry. The Canoe Fete was revived, but as a float parade on wheels down the City streets. This began the darkest period in millrace history.

In 1947, the City of Eugene bought the millrace so that the new Ferry Street Bridge could be built in its lower bed, and so that the rest of the race could be used for recreational purposes by City residents. The City finally repaired the intake channel in 1949, and refilled the millrace; but

within a short time it was described as *"little more than a half-filled muddy slough clogged with debris."* *(Eugene Register-Guard, 9/17/52)* Both the pipe used to patch the intake channel and the pipe under the new highway were too small to accommodate an adequate flow.

By the time the race was refilled, the last of the industries that had used the race for power had closed their doors; the only remnant of the industrial days was a lone grain elevator that had been part of the Eugene Mill and

Elevator Co. The other industries had been demolished for construction of the highway, or had burned down.

Another casualty of this time was the "Anchorage."

> *"The end of the war brought in a host of soldier-students and young newcomers to whom the Anchorage was nothing but a ramshackle old restaurant with a dry ditch behind it. When the race was finally refilled with water in 1949, it was too late for the old Anchorage to make a comeback. The huge new Student Union building was being completed, and the University built its own canoe house, which still operates today." (Wentz, 1974, p. 23)*

The University bought the Anchorage property in 1950, and proceeded to develop its millrace properties by building the University heating plant on the north shore of the race, realigning the course of the race, demolishing the Anchorage, and transforming the entire south bank of the millrace into rolling green lawns.

Another setback for the millrace in the early 1950's was a circuit court decision which stated that the bed of the race was owned by the adjacent property owners, and that they were free to culvert the race as long as they did not limit the flow to any greater extent than the City already had. This decision instigated a number of culvertings and fillings of the race.

Other setbacks, caused by the City government's callousness toward the race, and by its higher monetary priorities, included industrial zoning of the land between the millrace

and the river, and a sanitary sewer line for the Riverview area, laid in the bed of the upper race.

The late Fifties brought renewed interest in the millrace; the Canoe Fete was revived, as was student concern about the polluted condition of the race. Students hired an engineering firm to investigate the possibility of increasing the flow of the race, and, upon the advice of the report, convinced the University and the City to install pumps to increase the race's flow. They also helped convince the City Council, against the Mayor's wishes, to install bridges instead of culverts at Alder, Hilyard, and Patterson Streets, so that the lower millrace would remain open to canoeists.

Student enthusiasm for the millrace raised the interest of others, and comprehensive proposals for what could and should be done were made by Unthank, Seder and Poticha, Architects, the Metropolitan Civic Club, and the Mayor's Millrace Commission. Under pressure from the increasing interest, the City agreed to connect the millrace to the storm sewer at Tenth and Mill Streets, contingent upon the granting of recreational easements to the City from all millrace property owners. The easements had been gathered once before, in 1951, but had been mislaid before they were recorded; the City's request for the gathering of easements has proven to be a larger hurdle than originally imagined. Property owners, skeptical about the City's willingness to rehabilitate the race, and sensitive to rising property values, realize that a polluted millrace is worth less than the land created by culverting.

Another reason gathering easements has been more difficult the second time is that, in recent years, student interest in the race has changed, and the infinite pool of free student labor has diminished. First, the campus became radicalized in response to the Viet Nam War, and frivolous pleasures such as the Canoe Fete were abandoned. Second, the greatest student support for the millrace came from the fraternities and sororities, which have waned in popularity; many have folded completely. Third, new concern and interest in the environment has initiated a different student response to the millrace, such as the formation of the Millrace Volunteers, which is primarily concerned with cleaning the race.

The brightest hope for the future of the millrace lies in the current enthusiasm for the "historical," which has been precipitated by the Country's bicentennial and the University's centennial celebrations in 1976. Apparently the millrace's future will depend upon contributions which, hopefully, can be solicited from government agencies and nostalgic alumni. Without such funds, it is highly unlikely that the City will take the initiative in the major restoration effort that will be necessary to redevelop the millrace as an asset to the City of Eugene.

THE MILLRACE:

A "FRAMES OF REFERENCE" TIME LINE

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1846	Oregon Country became part of United States; 640 acres free to each man	Skinner built his cabin on hillside because Indians warned of flooding	Eugene Skinner staked claim at west base of butte and built cabin at what is now Second and Lincoln Streets
1847			Skinner family moved into cabin in spring; new settlers: Davis, Akin, Noble, and Mulligan
1848	Oregon Territory extended from summit of Rocky Mountains to the Pacific Ocean	Hilyard Shaw started to connect two sloughs (millrace)	First white child (a daughter) born in Lane County to Mary Skinner; Shaw left for gold rush in California
1849	California Gold Rush; Oregon officially admitted as a Territory		Skinner cabin became polling place; population of settlement soared to 40
1850	Donation Act established: before 1850, 320 acres to a single man, 640 acres to a married man; after 1850, 160 acres to a single man, 320 acres to a married man		Skinner postmaster of "Skinner's;" Huddleston operated a tiny trading post
1851	Lane County created and named for first Territorial Governor, Joseph Lane	Severe flooding	First survey and plat of town; first house built within city limits; Shaw, Smith, and Blair take up Donation Land Claims (DLC)
1852		Millrace (MR) completed	Sawmill built by Shaw and A.A. Smith on MR; Young and Gillespie acquire DLC's across Willamette River

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1853	Eugene became seat of Lane County: County Clerk's Office (Lane Co. Pioneer Museum) built on public square at Eighth and Oak Street		Mulligan and Skinner each gave 40 acres, 4 blocks to be retained for county buildings, the rest to be sold; first plat revised to higher ground
1854	Sidewheelers used on river from Portland to Eugene during rainy season (canoes and rafts used formerly)		
1855	Territorial road built up west side of the valley; first stagecoach reaches town: one/week		Grist mill built on MR; first Courthouse built, Christian House (170 East Twelfth) built; population of town 200
1856	First steamboat reached Eugene		Shaw disposed of MR rights; Columbia College opened at Nineteenth and Olive Streets; brewery built
1857	Territorial road built up east side of the valley: Concord Stagecoach		Smith, Brumley, and Mitchell partners in MR and mills; Masterson House (2050 Madison Street) built on 160-acre DLC
1858			First newspaper, "The News," printed; stone jail built in Courthouse enclosure
1859	State of Oregon admitted into the Union, February 14; Comstock Lode discovered in Nevada: silver; Darwin wrote The Origin of the Species		Smith, Brumley, and Shaw partners in MR and mills; Masonic Cemetery (Twenty-fifth and University Streets) dedicated
1860	Railroad completed to Junction City		
1861	Civil War started	Extreme flooding: 100-year flood	Shaw published "State Republican"
1862	Homestead Act established: 160 acres to the head of a family; Pacific Railroad Act established: first transcontinental railroad		Town incorporated and named "City of Eugene;" Shaw died September 6 at the age of 62
1863	Indian Wars started; Morrill Act established, created land-grant colleges		
1864	Civil War ended		First telegraph received at the Mountain House Hotel near Lorane
1865	Oregon Central Military Road built by the Middle Fork of the Willamette River; President Lincoln assassinated		Two bridges built over the MR at Eighth and Ninth Streets
1866	Trans-Atlantic cable invented by Cyrus Field		David Cherry Furniture Factory built by MR; Behrens Distillery built on Ninth Street; population of city 720
1867	Alaska purchased by the United States from Russia		First issue of the "Eugene Guard" published; Dunn House (129 East Thirteenth) built
1868	Typewriter invented by Christopher Sholes		Walton House (433 East Broadway) built by MR; Skinner-Packard House (260 West Sixth) built
1869			Brumley sold Mill Property and MR rights to Osburn, Underwood, and Patterson; population of City 850
1870			Peters-Liston-Wintermeier House (1611 Lincoln Street) and Miller House (246 Third) built; population of City 861
1871	First Oregon-California Railroad (O&CRR) train reached Eugene from Portland: replaced stagecoaches and riverboats; Lost Creek Canyon discovered: wagon road to eastern Oregon		Willamette Street graded and gas lights installed
1872			Patterson sold MR rights and property to Osburn and Underwood; Gray bought an interest in the MR
1873			I.O.O.F. Cemetery (Eighteenth and University Streets) dedicated

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1874		Flood	Osburn sold his interest in MR and the Mill Property; bridge built between Eugene and Springfield
1875	Telephone invented by Alexander Graham Bell		
1876			Deady Hall finished and the University of Oregon opened; covered bridge (Ferry Street) built between Eugene and Coburg area
1877			Patterson, Edris, Miser, and Gray bought MR and Mill Property; Cherry built new flume to use MR
1878			Miser sold his interest in the MR and the Mill Property
1879			
1880	Incandescent lamp invented by Thomas Edison		Condon House (1268 Jackson Street) and Mathews House (416 Jefferson Street) built; population of Eugene 1,117
1881	Southern Pacific Railroad established by C. P. Huntington and L. Stanford	Flood from melting snow and 3 days of rain	Haines Tannery built between Eighth and Ninth Streets east of the O&CRR
1882			Swift bought an interest in the MR and Mill Property; Skelton built woolen mill on the MR; Hovey and Humphrey opened bank
1883	Northern Pacific Railroad established by Henry Villard		Abrams Cider and Vinegar Mill (between Eighth and Ninth on Patterson) built; first trees planted on the University campus; Eakin and Hendricks opened bank
1884	Heavy snows and ice		Ice skating drew people to MR: first recreational use of the MR
1885			Villard Hall (U.O. campus), Baker (Smeede) Hotel (767 Willamette Street), and 80 new houses built; population of Eugene 2,000
1886			Upper Willamette Lumber Mfg. Assn. built by MR; Collier House (U.O. Faculty Club, 1200 East Thirteenth) built
1887			Woolen mill closed; first electric lighting system, Eugene Electric Co., established 100 hp generator
1888			MR proprietors enlarged tailrace below woolen mill; Shelton-McMurphy house (303 Willamette Street) built
1889			First U.O. Skip Day, became Junior Weekend with Canoe Fete; City name changed to "Eugene"
1890	Last of Indian Wars: Sioux at Wounded Knee		McClanahan's boathouse opened at Ferry Street, had flat-bottomed skiffs; Lansdown house (2056 Lincoln Street) built
1891		Great flood changed River's course, tore out rock walls of MR intake, and cut away banks to portage	Eugene Canning and Packing Co. built by MR; brewery converted to Eugene Ice and Cold Storage; mule drawn street cars instituted; Chambers House (1006 Taylor Street) built
1892		Retaining walls built along MR banks after a new channel was cut from the portage to the river	Fire destroyed gristmill and warehouse; H. Weinhard bought Eugene Ice and Cold Storage Co.; Grace Lutheran built on the NE corner of Eleventh and Ferry Streets
1893			Friendly Hall (U.O. campus) completed
1894			First telephone and telegraph exchange established in Eugene, 25 customers

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1895	Spanish-American War started		Gristmill and warehouse rebuilt by Williams and Mathews; Eugene Divinity School (Northwest Christian College) opened
1896			
1897			Shelley bought gristmill and renamed it Eugene Mill and Elevator Co.
1898	Spanish-American War ended: United States gained Guam, Puerto Rico, and the Phillipines; Hawaii annexed by United States		Edris sold all the MR property and rights to Midgley and Chambers; "City of Eugene" riverboat launched
1899			Three story brick courthouse built (demolished in 1960's)
1900	Barges and towboats used on the Willamette (until 1945)		City streets paved; Koppe House (289 Pearl Street) built; population of Eugene 3,236
1901		MR flow 350 cubic feet per second (cfs.)	McMurphey opened woolen mill on MR; took over Cherry Furn. Fact. bldgs.; MR supplied power to Midgley's, Carter's Ice, Eug. Mill and Elev. Co., Eug. Can. & Pack., excelsior plant, and woolen mill
1902	New Lands Reclamation Act established: 150 million acres designated as National Forests	In October, repairs at Judkin's Point stilled water wheels on the MR; in December, a flood damaged MR industries	Quackenbush Store (160 East Broadway) and Calkins House (588 East Eleventh) built
1903			
1904		Flood	First automobile in Eugene
1905			First canoe on MR; last sternwheeler to reach Eugene
1906		Typhoid epidemic, February 24, 300 to 400 people quarantined	MR rights sold to Chambers Power Co.; woolen mill sold to Kay and Koppe, Eugene Woolen Mill; Chambers opened boathouse on MR at NW side of Eighth; Hendricks gave 10 acres to City for a park
1907			Fenton Hall (U.O. campus) completed; Eugene-Springfield Electric Streetcars replaced mules
1908			First Junior Weekend; City purchased water system, E.W.E.B. established; Southern Pacific Depot (north end of Willamette Street) built
1909			
1910		"Wing Dam" extended into the river to divert river's flow as floods had lowered the river's bed five to six feet	To make MR self-supporting power source, independent of the mills, Chambers Power Co. built intake canal and diversion dam, and widened and deepened; Eugene Fruit Growers bought Eugene Canning and Packing
1911			Property owners along the MR petitioned the U.S. Engineers Dept. to destroy the dam because the water table had been raised and was flooding their basements
1912			First Water Fete held, 2,000 spectators; Bond opened boat livery at Alder Street; Oregon Electric Depot (27 East Fifth Street) built
1913			Controversy between Chambers Power Co. and MR property owners continued; Mill-race Protective Association organized; Bond moved boat livery to 997 Franklin Boulevard ("Shack")
1914	World War I started; Panama Canal completed		
1915	Lusitania sank, May 17, 1,198 drown		

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1916		In response to court decision, first retaining walls built on residential property	Oregon Supreme Court decision: Chambers Power Co. could widen MR to 50 feet; Chambers Power Co. sold MR rights to Eugene Woolen Mill and Eugene Excelsior Co.
1917	United States entered World War I, April 6		"Shack" closed, Bond went to war; technical advances cause demand for water power to diminish
1918	World War I ended, November 11		Chambers bought the "Shack" and offered to rent it to the U.O., but offer declined as too expensive
1919			First Municipal Airport built at Eighteenth and Chambers Streets
1920	18th Amendment adopted (Prohibition)		"Anchorage" opened by Kieffer and Marshall: lunches, dinners, and private parties, in the old "Shack"
1921			Midgley's moved from MR location to Fourth and High Streets; Gerlinger, Susan Campbell, Commonwealth, and Education Halls (U.O. campus) built
1922			Canoe facilities opened in the "Anchorage" by Bayly; Junior Class bought bleachers and lights for Canoe Fete (CF); canoe entries paired
1923			Heating Plant (Jewelry and Weaving, U.O. campus) built
1924			Upper Willamette Lumber Mfg. Assn. bought by Ford-Nelson Mill; Condon Hall (U.O. campus) built
1925			Petition for public dance hall on north bank of MR across from the "Anchorage" squashed because it violated the sanctity of the MR
1926			Bayly bought "Anchorage" from Chambers, added children's swim pool and heated water; MacArthur Court (U.O. campus) built
1927		Flood, intake channel breached	Canoe Fete cancelled because of break in canal wall; Seymour took over "Anchorage" restaurant
1928			All MR water wheels (power) stopped; MR rights bought by Eugene Power Co.; naming of Canoe Fete themes started; Straub Hall (U.O. campus) built
1929	Stock Market crashed, Depression started		"Ed's Coed" filmed by the MR; public market moved from open stalls to new building at Broadway and Charnelton Streets
1930			Seymour traded Hummel the "Anchorage" for the "Peter Pan;" Eugene Divinity School closed; Eugene Guard and the Eugene Register combined; population of Eugene 18,900
1931			Canoe Fete float costs limited to $50; Canoe Fete theme: "La Fete Modern"
1932	Height of Depression		Canoe Fete theme: "Venetian Nights"
1933	21st Amendment adopted: repealed prohibition; Hitler came to power		Canoe Fete theme: "La Fete Fantastique;" Eugene Divinity School merged with Spokane University to form Northwest Christian College
1934			Canoe Fete theme: "Where Rolls the Oregon"
1935			Canoe Fete theme: "Float of Song"
1936	First Flood Control Act adopted		Canoe Fete theme: "Stardust;" Library (U.O. campus) completed

YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1937		Threat of logging initiated "Save Spencer Butte" group	First burlesque Canoe Fete, cost limited to $2; Canoe Fete broadcast coast-to-coast by radio and movie; Alberts ran "Anchorage"
1938			Canoe Fete theme: "Romantic Serenade;" U.O. bought property on MR north and east of "Anchorage"
1939	World War II started: Hitler invaded Poland		Canoe Fete theme: "Alice in Wonderland;" Chapman (U.O. campus) built
1940		First flood control projects on Coast and Middle Fork of Willamette and McKenzie Rivers	Canoe Fete theme: "Springtime in Vienna;" E.W.E.B. contracted with Bonneville Power Administration; population of Eugene 20,838
1941	Hitler invaded Russia;		Cuthbert planned development of MR property, relocation of railroad tracks and highway; first printing of "Letter to the Gods"
1942		20-year flood smashed intake channel, 300 feet of wall washed away	Cuthbert's plans dropped because of war; no Canoe Fete, MR dry; Emerald Hall (U.O. campus) built
1943		315 feet of concrete gravity wall reconstructed to repair intake channel channel	Mahlon Sweet Airport built
1944			Miniature Canoe Fete held on Fenton Pool: "Mother Goose Goes to War"
1945	U.S. dropped atom bomb on Japan, World War II ended; Central Lane Planning Commission formed	Flood tore out 150 feet of MR retaining wall and bank; Railroad built headgates and diversion dam on the MR	Highway and railroad relocation plans resumed; float parade revived, but down City streets instead of the MR
1946	Post-war baby boom began	MR empty	City Council moved to buy MR property from Eugene Power Co. for relocation of new highway; flour mill burnt to the ground
1947		70 feet wide washout around north end of diversion dam, City attempted to repair by constructing a gravel dike	Millrace Protective Association reorganized to lobby at budget hearings; City Parks Dept. refused to back Association, as it had other higher priorities than the MR
1948	Zoning Ordinance adopted by the City, building permits required	Lower MR buried in a 30-inch pipe from Willamette River to Broadway by construction of the new highway	$20,000 bond issue passed for repair and construction of the MR; pipes proposed to repair breaks in the intake channel
1949		Intake channel repaired with pipe which limited flow of MR to 25 cfs; MR refilled with water; property owners at lower end of MR filled its bed for gas station site	Easements obtained for recreational use of the MR; Erb Memorial Union (U.O. campus) built, "Anchorage" closed forever
1950	Korean War started; Ferry Street Bridge rebuit	MR polluted open sewer	U.O. bought "Anchorage" and demolished it, filled pool, and "landscaped" into rolling lawn; U.O. built new Physical Plant on north bank of MR; Eugene Woolen Mill closed; population of Eugene 35,879
1951			Lane County Circuit Court ruled that MR channel was part of adjacent private property
1952		MR half filled, muddy slough, clogged with debris; maximum flow of MR, 20 cfs; Silva built first culvert on MR	
1953	Korean War ended		Intake walls proclaimed rotten by City Engineer; students and City cleaned up MR; land between MR and river annexed to City
1954	First U.S. involvement in Viet Nam	Washout around diversion dam 150 feet wide; City sewer line laid in MR bed	Land between MR and river zoned "industrial"
1955		50-year flood	First Canoe Fete held in 14 years: "As I Sit and Dream At Evening;" pumps proposed by CH_2M to increase flow of MR
1956	Hungarian Revolution		Canoe Fete theme: "Disneyland;" U.O. Canoe House built; Park Blocks landscaped Public Market sold
1957	Space Age began: U.S.S.R. put Sputnik I into orbit	MR polluted, swimming banned by Lane County Health Dept.	U.O. and City jointly contract for pumps at Judkin's Point to increase MR flow; MR connection to Amazon Slough first proposed

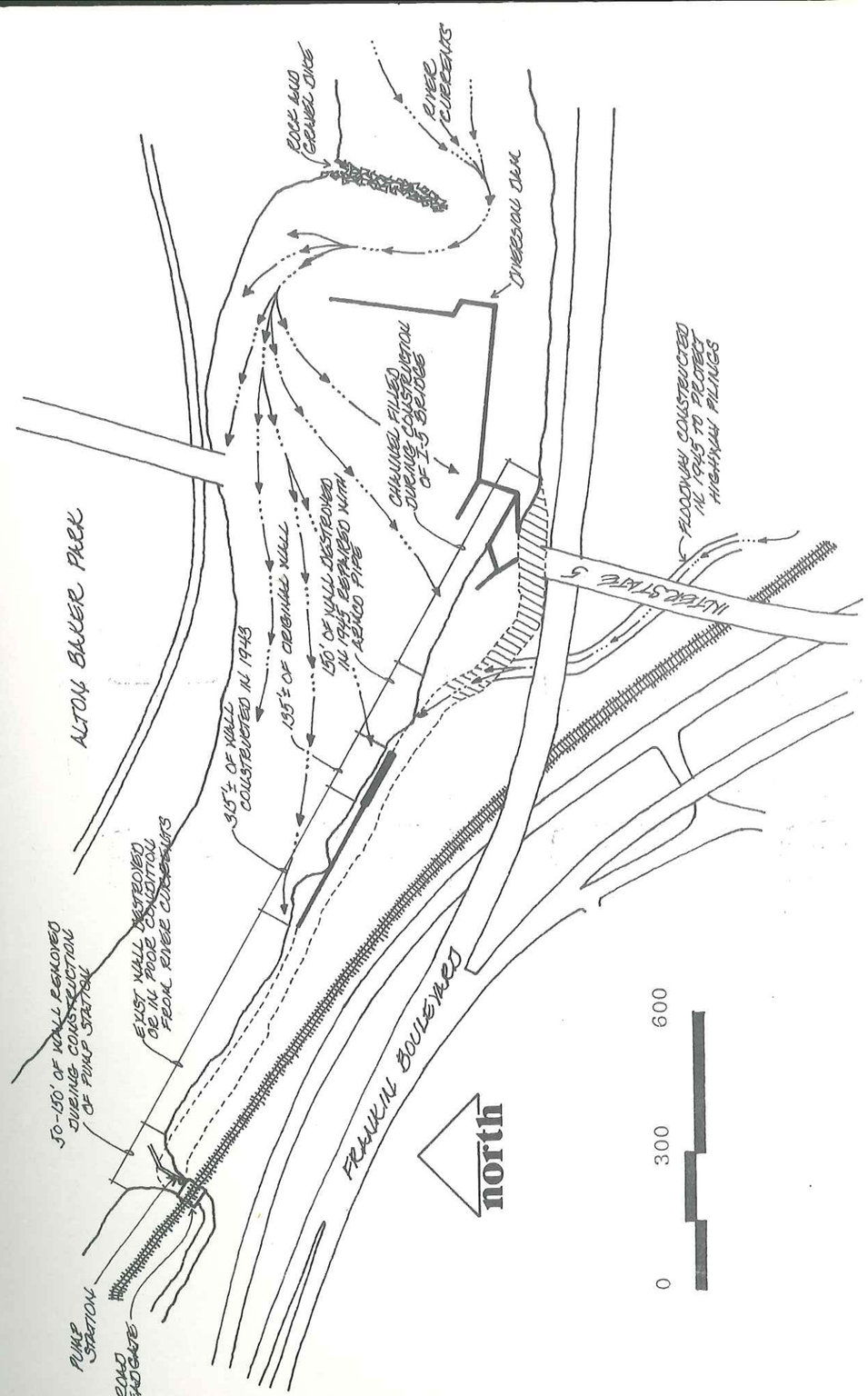
YEAR	SOCIETAL	ECOLOGICAL	BEHAVIORAL
1958	First jet airplain arrived in Eugene	City abandoned gravel dike, intended to reduce erosion around north end of diversion dam	1899 Courthouse, City Hall, old Post Office, Jail, Public Market, and Osburn Hotel all demolished
1959	Castro took over Cuba; Oregon's Centennial	Pumping station constructed at railroad headgates, 20 feet of intake channel wall removed	Canoe Fete theme: "Oregon Trailmarks;" Lane County Courthouse complex completed
1960			Population of Eugene 50,977
1961		Interstate 5 bridge built, 350 feet of intake channel filled in; 50-year flood; Alder Street bridge rebuilt	Canoe Fete theme: "Tales Twice Told;"
1962		Columbus Day Storm; Patterson and Hilyard Street bridges rebuilt; Architects proposed walkway in bed of lower MR	Architects proposed walkway in bed or lower MR
1963			Canoe Fete float cost limited to $150, Canoe Fete theme: "Let Freedom Ring"
1964	Civil Rights Act passed	300 feet of lower MR bed filled by property owners; flood	U.O. posted MR to University controlled canoe traffic to upper MR because of 2 complaints
1965	President Johnson sent American troops to Viet Nam	Lower MR filled in to Ferry Street	
1966			Metropolitan Civic Club made report on MR; Mayor's Millrace Commission appointed Canoe Fete theme: "Through the Looking Glass"
1967	Hippie Movement, "The Summer of Love;" Willamette Greenway established		Mayor's Millrace Commission made report on MR; City Council okayed tying MR to storm sewer system if recreational easements are given to the City; Washington-Jefferson Street bridge built
1968			Campus radicalized, "Letter to the Gods: not printed; Canoe Fete theme: "It's a Wild, Wild West"
1969	U.S. landed first men on moon; City adopted 1990 Plan		
1970	Campus riots across U.S., 4 killed at Kent State; Ecological Movement initiated, first Earth Day	MR cleaned by U.O. Survival Class; developer forced to remove culvert from upper MR because too small for canoeists to negotiate	Canoe Fete delayed for a week because of rain and fear of disruption, when held there were only 300 spectators; Canoe Fete Theme: Magical Mystery Tour;" population of Eugene 78,389
1971	Alexander hired as Campus Planner, developed "Pattern Language" for U.O.		Millrace Volunteers made report on MR; U.O. abolished Canoe Fete because it "lost money and students are too apathetic"
1972			Apartment project proposed for lower MR, rejected by City as detrimental to MR; population of Eugene 84,750
1973	Last combat troops withdrawn from Viet Nam		
1974	Development of Alton Baker Park waterway begun	Washout around north end of diversion dam 250 feet wide; redevelopment of millpond begun	CH_2M reported on possibility of making MR a gravity flow system again; first U.O user group for MR formed to redevelop the millpond according to Alexander's Patterns; population of Eugene 91,200
1975			Canoe Fete revived
1976	United States Bicentennial; University of Oregon Centennial		
1977			
1978			

HISTORY OF MILLRACE POLLUTION PROBLEMS

In order to understand the millrace's present pollution problems, a brief review of its history is necessary. The original intake channel was a natural slough; however, in 1890, a severe flood made the installation of retaining walls necessary. Further floods in the early 1900's scoured the riverbed so severely that, by 1910, the bed had dropped five to six feet. At that time, the intake channel was repaired, and a diversion dam was built across the Willamette River to raise the water level so that water would continue flowing into the millrace. In 1927, another flood caused a break in the channel wall, but it was repaired. It was not until a series of floods occurred in the early 1940's that the intake channel was breached again. In the winter of 1941, 300 feet of the intake channel wall were washed away; the wall was replaced in 1942. In the winter of 1945, another section of the intake wall, 150 feet long, was washed away; it has never been repaired.

An aggregate of events converged in 1945, disastrously affecting the millrace; the 1945 flood was only the crowning blow. The advent of World War II and the simultaneous occurence of the 1941 flood had combined to turn student

attention and concern away from the millrace. The annual Junior Weekend Canoe Fete, the most cherished of student traditions, was discontinued in 1942. Early in 1945, the relocation of Highway 99 (Franklin Boulevard) and the Southern Pacific Railroad tracks was resumed. As part of this relocation, the State Highway Department constructed a floodway underneath the new highway, east of Judkin's Point, to alleviate annual flood inundation in the community of Glenwood, and to protect the highway's pilings from the wash of the floodway waters. The floodway consisted of a concrete apron that joined the millrace's intake channel at a right angle. In the winter of 1945, a 150-foot section of intake channel wall was washed away; however, it appears this breach was caused by the floodway waters rather than the river. The breach occurred just below a small island that shielded the beginning of the intake channel from the river. Although the channel is exposed to the river where the breach occurred, the flow of the river is most forceful where the 1941 breach occurred, 300 feet down river. On the other hand, waters from the floodway strike hardest just at the point below the island. An engineering report (1948) by J. W. Cunningham states that *"the break in the canal wall, being in direct line, can undoubtedly be attributed to the impact of the water pouring over the apron during the 1945-46 flood."* *(J. W. Cunningham, 1948, p. 5)* As a consequence, the millrace was left dry intil 1949, when a corrugated metal pipe was installed to bypass the breach.



INTAKE CHANNEL BREAKS AND RIVER CURRENTS

The floods of the early 1940's also damaged the diversion dam by causing a washout around its north end. Although this washout has had its most dramatic effect on the north shore, having washed away 4½ to 5 acres of park land, it also caused extensive damage to the intake channel. As a a stop-gap measure, the City of Eugene constructed a rock and gravel dike upstream from the diversion dam annually (until 1958). The dike was supposed to reduce erosion of the City's park land, and divert low river flows into the millrace. However, during the stages of low river flow, the water flowed around the end of the rock dike, turned approximately 90 degrees, and flowed parallel to and between the axes of the dike and dam. This flow then struck the north shore of the river, and caused more intensive erosion that would have occured without the dike. After striking the northern shore of the river, the water deflected toward the unprotected north bank of the intake channel on the south side of the Willamette River. Thus the north bank of the intake has been so severely undercut or washed out by river currents that only 450 of its original 1,800-foot length is in usable condition today (Cornell et al, 1974).

Another consequence of the relocation of Highway 99 and the railroad tracks was a series of structures that were built along the millrace's course: the railroad headgates north of Judkin's Point, the railroad diversion north of Kincaid Street, a 128-foot culvert under Franklin Boulevard, north of Kincaid Street, and a 30-inch pipe that

could be constructed in its bed, from Broadway to the Willamette River. The rest of the millrace was to be maintained by the City for recreational purposes. Unlike the millrace's previous owners, the City was in no particular hurry to repair the intake channel because it would have complicated the relocation of Highway 99 and the Southern Pacific Railroad tracks.

During this time, the City commissioned a number of engineering studies to determine the best way to restore the millrace flow when the highway was completed. These studies made a number of proposals; however, the suggestion to repair the intake channel and the diversion dam was summarily *"dismissed as doubtful, impractical and uneconomical"* by both the City and the consulting engineers (W. J. Cunningham, 1948, p. 3). The City was committed to the most inexpensive proposal, which turned out to be the installation of an elliptical Armco pipe, 31 inches by 50 inches, in the area of the 1945 breach. The intake channel was closed off above and below the 1945 break to force the water through the pipe.

It was not until 1949, when the millrace was refilled, that it was discovered that both the pipe in the intake channel and, more disastrously, the pipe under Highway 99 were too small and could only handle 25 cfs. of the original flow of 250 cfs. The Armco pipe in the intake channel was exposed and could easily be modified; however, the pipe under Franklin Boulevard precluded any modification.

One angry citizen stated that,

> *"it seems to me the highway engineers were responsible to design a culvert which would provide the flow. Sure a mistake was made, but they made it.*
>
> *The people should decide how bad they want a decent millrace. If it's worth it, they should demand help from the highway department whose blunder ruined the restoration plans in the first place. If Eugene wants a millrace, it can have it if the people have enough guts to go after it. If Eugene doesn't want the millrace, or doesn't feel the people of the state as a whole should pay the cost of correcting the blunder, then let's forget it. But let's not say 'the highway can't be ripped up.' Men put it there not God." (Eugene Register-Guard, October 2, 1952).*

But nothing was done by either the City of Eugene or its citizens.

By 1952, the millrace was *"little more than a half-filled muddy slough clogged with debris." (Eugene Register-Guard, September 17, 1952)* The next five years found the water level of the millrace down as often as it was up. Any project near its banks prompted the City to lower it (construction of the University of Oregon physical plant, footings for the Ferry Street bridge, etc.). It was even lowered so that a private citizen, Julio Silva, could put in a culvert rather than a bridge to reach his property on the north side of the millrace. In 1954, the City lowered the millrace again, to install a

sanitary sewer line in the upper bed to service the Riverview district, east of Judkin's Point; *"the millrace route was termed the easiest and least expensive for the city." (Eugene Register-Guard, September 26, 1954)*

Because of the dismal condition of the millrace, further studies were done by the City Engineering Department and an independent firm, Cornell, Howland, Hayes, and Merryfield (CH_2M), hired by University students. Student enthusiasm and concern about the condition of the millrace had been renewed in 1955 by the success of the traditional Canoe Fete, the first to be held in the 14 years since the advent of World War II.

The outcome of CH_2M's 1955 report was a proposal to install pumps near the railroad headgates, totally abandoning the intake channel and the diversion dam, and increasing the flow in the upper millrace. The lower millrace would remain unchanged as the 30-inch pipe could only handle 25 cfs; the excess flow from the upper millrace would be diverted through the Kincaid railroad diversion.

Although the City felt that the University would gain the most from any improvement to the millrace, it agreed to share in the restoration project. An agreement was reached whereby the City would pay 50 percent of the cost of installing the pumps and improving the channel, up to a $24,000 limit. A bond issue of $20,000 for millrace restoration had been approved in 1948 by the citizens of Eugene, but it had never been spent. The City also agreed to keep

8th

30" PIPE LAID BY HIGHWAY DEPARTMENT IN 1947, CONSTRUCTING MILLRACE FLOW TO 25 C.F.S.

Lower Millrace

Broadway

1ST EXTENSION OF 30" PIPE IN 1949 BY KOKE & CHAPMAN

2ND EXTENSION OF 30" PIPE IN 1964

LOWER MILLRACE OUTLET

FRANKLIN BLVD. BOX CULVERT, 12'

11th

12th

Mill

Ferry

Patterson

Hillyard

Millpond

KINCAID EXIT: RAILROAD DIVERSION

Upper

BACKWATER FILLED WITH DEBRIS CAUSED BY FILL

UNIVERSITY CULVERT, 32'

MILLRACE FILLED FOR ADDITION TO VETERINARIAN'S

OLD MOTEL SIGN THROWN INTO MILLRACE

Franklin Blvd

60" STORM SEWER WHICH DRAINS AREA EAST OF UNIVERSITY ST. & WEST OF JUDKINS POINT, SOUTH TO 18TH ST.

Moss

Columbia

THE MILLRACE: Problem Areas

Key: ⇕ SIZE PIPE DRAINING INTO MILLRACE

Millrace

Willamette River

Wild Area

Intake Channel

CULVERT, 20'

MAINMARINE CULVERT, 90'

SILVA CULVERT, 20'

WOODEN FOOT BRIDGES

"THE NARROWS": CHANNEL REALIGNED & CONSTRICTED TO ACCOMMODATE ENLARGED PARKING LOT FOR BLACK ANGUS MOTEL

Garden

INTAKE CHANNEL WALL REMOVED DURING CONSTRUCTION OF PUMPING STATION

REMAINS OF STEEL BRIDGE

REMAINS OF INTAKE WALL UNDERCUT BY RIVER CURRENTS

1945 BREACH REPAIRED WITH ARMCO, PIPE, 31"x 50"

RAILROAD HEADGATES

36" CITY STORM SEWER DRAINS WEST SIDE OF JUDKINS POINT

ABANDONED INTAKE CHANNEL

Highway 99

Interstate 5

REMAINS OF DIVERSION DAM

INTAKE CHANNEL FILLED DURING I-5 CONSTRUCTION

Villar

Orch

Walnut

15th

CITY SANITARY SEWER LINE

north

0 200 400

the millrace channel clean with a $2,500-per-year budget, and it agreed to repair the public bridges across the millrace. The University agreed to pay 50 percent of the cost of installing the pumps, up to $24,000, and 100 percent of anything over $24,000; it also agreed to operate and maintain the pumps and pay for the electricity for them. A ten year contract, subject thereafter to annual review, was signed by both parties in 1957.

Finally, in early 1959, the pumps were installed. One-hundred-and-twenty feet of the intake channel was destroyed so the pumps could take water directly from the Willamette River. The gates in the railroad headgate structure were rendered inoperative, and the inlets were sealed with concrete; the intake channel and the diversion dam were abandoned.

In 1962, Interstate 5 was constructed across the Willamette River east of Judkin's Point; 350 feet of the abandoned intake channel were filled in during construction of the bridge for the freeway. No objections were raised about this action.

However, the Alder Street bridge touched off a great deal of controversy in the same year. The Alder Street bridge had collapsed during the summer of 1961. The City Public Works Department had designed a new bridge to replace it, with four feet of head room for conoeists. A low bid of $17,000 for its construction was approved by the City Council, but the question was then raised by Mayor Edwin E. Cone as to the cost of bridging the millrace if canoeists

were disregarded. The response from the Public Works Department was that a 30-inch culvert would handle the flow, and would only cost about $500.

Mayor Cone urged the Council to reconsider its action: *"I think you'll hear from the taxpayers on this one -- and I hope you do. This is a luxury for a handful of people who aren't even taxpayers of the city."* He also called attention to the fact that the Patterson and Hilyard Street bridges would have to be replaced in the near future as well. It was Cone's opinion that *"the lower millrace should either be abandoned and filled in, or else only culverts provided at the crossings. The portion of the millrace on the north side of the highway would still be adequate for canoeing." (Eugene Register-Guard, October 6, 1961).* In order to allow the City Attorney to review the contract between the City and the University, no further action was taken by the Council. At a subsequent meeting, City Attorney Herman Hendershott ruled that the City had no choice but to replace the bridge under the terms of the 10-year contract with the University.

Subsequent to this determination, concern about the stagnation and the deplorable condition of the race was expressed by abutting property owners. Councilman J. Hobart Wilson stated that *"the problem stems from an inadequate outflow pipe and made a motion that the city request the State Highway Dept. and the university to install an adequate outflow."* According to the Eugene Register-Guard, *"Wilson's motion lost after the*

council split 4 to 4 and Mayor Cone broke the tie with a negative vote." (Eugene Register-Guard, October 10, 1961) The Hilyard and Patterson Street bridges were replaced in 1962.

In the summer of 1964 the problems of the lower race were further aggravated, and hopes of remedying the inadequate outflow were further complicated when the millrace was filled in to Ferry Street. The inadequate 30-inch pipe system was extended, and the open channel was replaced with parking lots. The Eugene Register-Guard stated that *"one reason for filling the channel is that land prices are rising rapidly, making the millrace worth a good deal more as solid land than as a stream bed." (Eugene Register-Guard, August 30, 1964)* The filling was done during the summer months, when few University students were around to protest as they had when the first filling of the millrace occurred in 1949.

In February of 1949, shortly before the millrace was to be refilled, two citizens, Joseph Koke and Thomas Chapman, who owned the millrace where it intersected Broadway, decided to extend the pipe laid by the State and fill in their portion of the race. According to the Eugene Register-Guard, they had said that,

> *"...no building is contemplated on the millrace property in the dispute.*
>
> *"'That part we fill in is going to be landscaped,' Koke said. 'We are going to have another building put in where the white building (Harpham house, 444 East Broadway) now stands.'*

"Koke said he and Chapman desire to make a beauty spot on the property at the northern termination of the millrace, where it intersects with Broadway.

"He said they intend to fill the millrace about 24 feet up the dry channel from a point where the State Highway Department left the outlet culvert.

"The building mentioned by Koke, to be erected at 446 East Broadway, will be a filling station, valued at approximately $5000. Application for the building permit was made Wednesday by Chapman." (Eugene Register-Guard, February 25, 1949)

The "beauty spot" has evolved into an asphalted parking area for the Jorgenson Union Station, and the 300 feet filled in during the summer of 1964 has become asphalted parking area for the Medical Arts Building, Continental Motel, and the City Center Motel.

Other incidents have occurred in recent years that have adversely affected the flow of the millrace; most notable are two fills and four culverts. One constriction of 90 feet blocks the millrace, just west of the University canoe house; it was caused by a fill that was created to allow room for an addition to the Eugene Animal Hospital in 1964. A 900-foot realignment and constriction of the millrace, caused by the extension of the Black Angus Motel parking lot in 1969, blocks the race just west of the Franklin Park property.

Since the first installation of a culvert by the State Highway Department in 1949, there have been four other culverts constructed by millrace property owners. The culverts are all located east of Agate Street in an area where, typically, both sides of the millrace are in single ownerships, and access to the northern bank of the millrace is limited. Previously, bridges had been used as a means of access; some of these still exist today. But in recent years, as the bridges have needed major repairs or replacement, most millrace property owners have opted for the least expensive method of crossing the millrace, which has meant the abandonment of bridges and the installation of culverts. Aside from being less than desirable aesthetically, and difficult for canoeists to negotiate, culverts aggravate millrace pollution problems by slowing the flow and, thereby, increasing sedimentation. The biggest problem posed by the use of culverts, however, is that they limit the capacity of the millrace, and thereby complicate any plans to increase the rate of flow.

From west to east, the first culvert is located directly north of the Agate Street/Franklin Boulevard intersection. It provides access to the Coca-Cola Bottling Company property, but is owned by the University of Oregon. It was installed in 1959 and is approximately 32 feet long and 8 feet in diameter. The second culvert lies just northeast of the Moss Street/Garden Avenue intersection. It is also owned by the University of Oregon, and provides access

to the University's Animal Research Facility. It was installed in 1954 by Julio Silva, and is approximately 25 feet long and 8 feet in diameter. About 150 feet farther upstream is the third culvert (1831 Garden Avenue). It is owned by McKenzie River Motors, and provides access to a small warehouse and storage facility. It was installed in 1964, and is 20 feet long and 8 feet in diameter. The fourth culvert is approximately 250 feet upstream from the third, and northwest of the Villard Street/Garden Avenue intersection. The first section of this culvert, 60 feet long by 8 feet in diameter, was placed in the millrace in 1957 by the owner of the property, Sam Mainwaring, in anticipation of apartment construction on the property. In 1958, the culvert was extended 30 feet to the east by the addition of a railroad tank car with its ends removed.

The owners of the adjacent property to the east, Land Associates, attempted to further extend this culvert in 1970, with the addition of boiler tanks. The culvert would have been 120 feet long, and would have allowed Land Associates to extend the parking lot for its apartments, at 1893 Garden Avenue, which had been built in 1969. However, because the boiler tanks were only five feet in diameter, canoeists were unable to negotiate them, and a quarter mile of the upper millrace was effectively cut off. The small diameter of the boiler tanks caused an immediate uproar from University students; the City Public Works Department

officials and the City Attorney persuaded Land Associates to remove the boiler tanks.

As had happened in the first incidence of millrace filling, in 1949 by Koke and Chapman, Land Associates seemed surprised and somewhat hurt when its motives were brought to question; the rationalization for its actions stretched the truth of the situation.

> *"'I'm as concerned as anyone else about beautification,' Pennington told the Register-Guard. 'We have plans for tables and chairs and landscaping of that back area....'"*
>
> *(Eugene Register-Guard, September 29, 1970)*

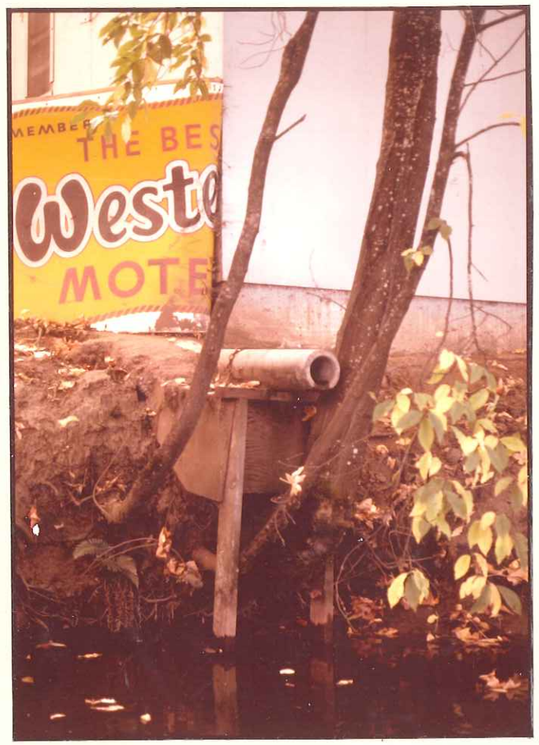
No landscaping has ever been put in, and the parking lot has been extended over that part of the millrace culverted in the railroad tank car.

PRESENT POLLUTION PROBLEMS

Present-day pollution of the millrace seems to come from a variety of sources. One is millrace residents who,

> *"...once most proud of the stream, are now among the worst offenders in its pollution. Lawn-clippings and piles of leaves are regularly tossed into the Millrace, blocking the grates at the exit-gate, or, when the current is already stopped, water-logging and sinking where they are. Many cubic yards of cans, bottles and other trash have been thrown in, besides...boards, and old furniture. One fraternity has swept ten cubic yards of sand into the Race every year after an annual luau, so that an area once deep enough to dive into is now filled almost to the surface."*
>
> *(Millrace Volunteers, 1970, pp. 13-14)*

Another source of pollution is the storm sewers which empty into it. The millrace is officially recognized as a storm sewer by the City; it is used to drain Franklin Boulevard, the area north of Franklin Boulevard, and east of University Street, as far south as Twenty-eighth Street. In addition to the official City storm sewers, a multitude of small storm sewers drain parking lots, swimming pools,



roofs, the industrial wastes from the Coca-Cola Bottling Company, and the University Physical Plant. The millrace has always functioned as a storm sewer, being a natural low point; however, when the flow of the millrace was slowed in 1949, it could no longer rid itself of the wastes dumped into it. The storm sewers are the source of the oil and gasoline which scum the millrace's surface.

The millrace's pollution problems are further aggravated by stagnation and siltation caused by the various constrictions along its course, and by the inadequate outflow.

"Besides carrying an unusually high concentration of pollution and micro-organisms, the water of the millrace, particularly the lower Millrace, is oxygen poor. This is due to the layer of oil over the surface, which prevents osmosis, to the decay of mulch on the bottom which consumes considerable oxygen, and to the heat added to the water by the Physical Plant's condensers, which reduces the ability of the water to retain oxygen. Lack of oxygen in the water hampers the reproduction of essential freshwater biota, such as fish and amphibians, and encourages the growth of algae, waterweeds, and other water plants utilizing carbon dioxide. Algae and tough waterweeds grow abundantly in the lower Millrace, aggravating the problems of stagnation and blockage." (Millrace Volunteers, 1971, p. 11)

The inadequate flow is not able to flush out the pollutants dumped into the millrace, nor is it able to move fast enough to keep the water from becoming heated by the sun. Therefore, increasing bacterial development and the growth of water plants impede its flow.

In recent years, the Lane County Health Department has posted the millrace as unsafe for drinking or swimming because of its high coliform count. Coliform is a measurement of the bacteria, Escherichia coli, which is found in the intestines of all warm blooded animals, in soil, and in decomposing plant matter. Any total coliform count over

1,000/100 ml., or fecal coliform count over 200/100 ml., is considered unsafe for swimming.

From samples taken by the Health Department in 1967, it was determined that the Willamette River, which had been polluted in recent years, was not the only source of millrace pollution. Water tested from the Willamette and the millrace in the vicinity of Garden Avenue tended to have low total coliform counts, 49-490/100 ml. However, by the time the millrace reached the University canoe house, the coliform had soared to 4,900/100 ml. The ducks are undoubtedly a major source of fecal coliform; however, another potential, if not actual, source is the sanitary sewer that runs in the millrace bed from east of the Black Angus Motel to the railroad headgates.

ALTERNATIVES TO MILLRACE POLLUTION

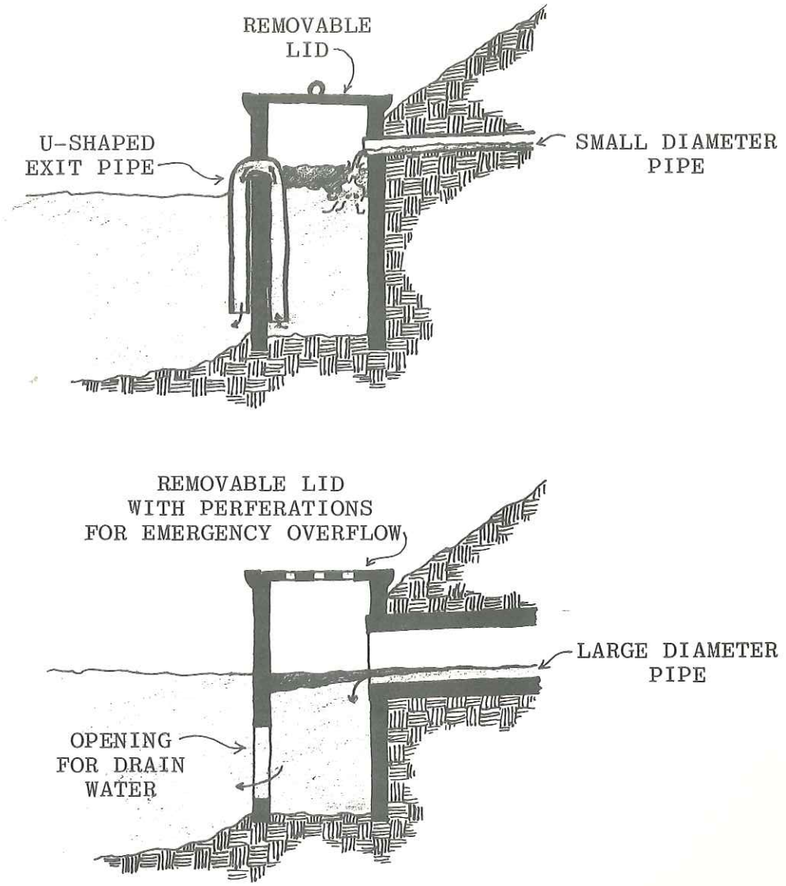
To alleviate pollution problems that plague the millrace, a number of things must be done. Many actions can and are being taken that will help solve some of the problems; however, real solutions will be expensive and will require a serious and long-term commitment from the City and the University, from citizens and students.

The problem of trash has been attacked in recent years by a group known as the Millrace Volunteers. Formed during the upsurge of ecological concern in 1970, it held its first annual cleaning of the millrace on Earth Day, April 22, 1970. Each spring since 1970, the lower race has been drained and the Volunteers, joined by other University students (mostly fraternity residents) have tried to remove as much trash as possible. A quarter-century of siltation has made this spring trash removal difficult and less effective than it might be. The Volunteers have suggested that a small tractor might be used to dredge the race, scooping the mud and silt into piles at convenient locations. The silt could be loaded onto trucks and offered to people wanting fill-dirt or garden loam. It is assumed that such a dredging would probably not be necessary more than once every 25 years,

especially if residents found other places to dispose of their leaves, yard clippings, and sand.

Another approach to trash removal was instituted by the University in September, 1974, through a canoe rental rebate for sacks of litter collected while paddling along the millrace. This was the first attempt at trash removal on the upper race in recent years. However, although it is an excellent idea, it needs to be strengthened by a program similar to that of the Millrace Volunteers on the lower race. Rather than draining and detrashing only the lower race each spring, attention should be given to the entire race. Pruning of blackberry vines and other overgrowth on the upper race could also be accomplished during the spring cleaning. In addition, the Millrace Volunteers' ideas on dredging apply equally to the upper race. Making such a yearly program completely successful will entail the coordination of the City and the University. A full advertising campaign should be undertaken to encourage students, millrace fraternities and residents, and interested citizens to participate in the spring cleaning, through donations of money, labor, materials, or services. Of course, another important plan of action is the strict enforcement of litter laws against repeated and excessive offenders.

A short-term solution for oil pollution from storm sewers might be the use of oil traps, designed by Physical Plant employees.



OIL TRAPS FOR SMALL AND LARGE DIAMETER DRAIN PIPES

"The main body of the trap would consist either of a section of three foot diameter concrete pipe, or of a large oil drum treated inside and out with rustproofing compound. The lid would be hinged or easily removable to permit removal of accumulated oil. The drain pipe would enter the trap near the top of one wall, at or slightly above the interior water level. An exit pipe shaped like an inverted U would be of the same diameter as the inlet drain. This drain would begin at a point just above the floor of the trap, go through the wall at the interior water level, and go down the outer wall of the trap into the Race." (Millrace Volunteers, 1971, p. 27)

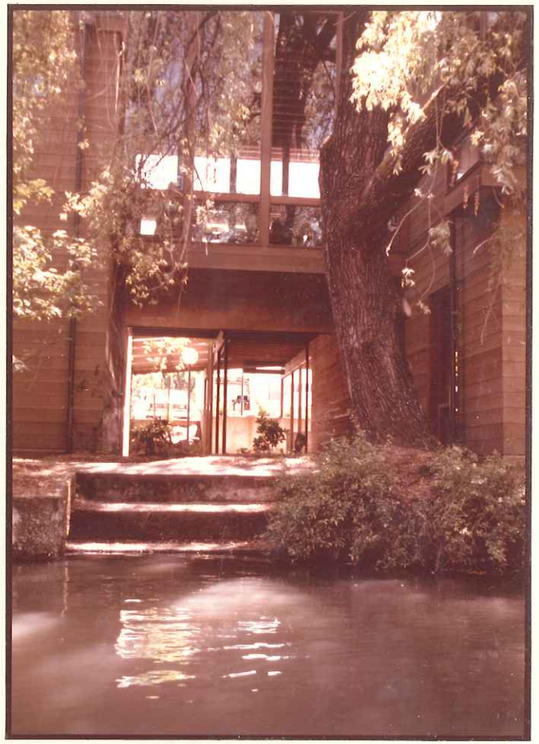
To begin with, oil traps should be installed at the two storm sewers that seem to be the source of most the oil pollution: the Agate Street storm sewer, and the small street drain about 20 yards upstream from the spot where a steel bridge used to lead to Franklin Park. Other traps might be installed as other pollution sources are noted.

Although the traps might prove effective for the elimination of oil pollution from the race, they will do nothing to eliminate other pollutants introduced by storm sewers. Eventually, a storm sewer system will have to be provided under Franklin Boulevard to handle all the waste and storm water presently handled by the millrace; it is unlikely that Eugene will be able to continue dumping millrace-polluted waters into the Willamette River.

In order to alleviate the coliform problem, it is necessary to determine what is causing the high coliform counts in the lower race; the Lane County Water Quality Board and the University should be encouraged to do more extensive research on its source. Experiments such as removal of the ducks from the millrace to determine their actual contribution to the coliform might also be undertaken. In any event, it appears the duck population should be closely monitored, especially while the millrace flow is limited, to ensure that their wastes are not contributing significantly to the coliform problem. It is also important that the sanitary sewer line be checked regularly for leaks.

The problem of constrictions along the millrace will be one of the most difficult to solve, but one of the most important if the flow is ever to be increased. In the future, culverting and filling of the race must be actively discouraged. Instead, the City should attempt to acquire recreational easements from millrace residents. In the past four years, two requests for apartment developments next to the millrace have been denied by the Eugene Planning Commission on the grounds that they would have had detrimental effects on the millrace. Plans for one of the developments, at 1883 Garden Avenue, proposed to cover the millrace completely with a building and parking lot; plans for the other development, at 995 Alder Street, proposed a partial fill of the race for a parking lot.

In contrast to these two proposals, three recent developments, the Millrace Medical Building, the College Inn, and Murphy and Me Tavern, indicate an encouraging trend that, hopefully, will be expanded upon in years to come.



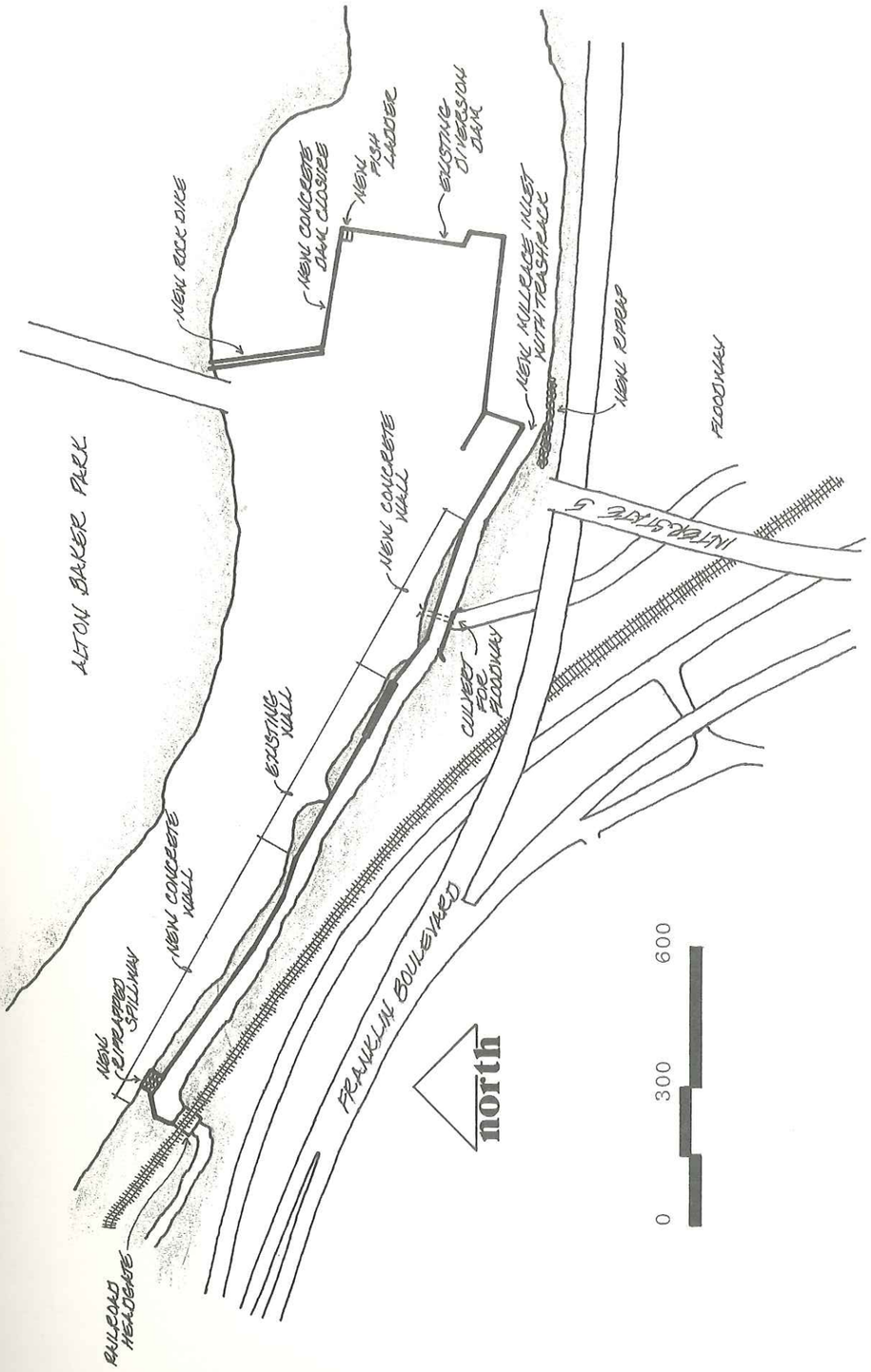
These developments have been oriented towards the millrace, and attempt to take advantage of it as an attractive site feature. The medical building has even provided an elaborate foot bridge, the first to be built in the many years since the advent of the culvert.

The four culverts that presently exist east of Agate Street have not been built upon; the damage they have done to the race can be reverse if they are removed. They should

be replaced with bridges when the need for repairs arises, or when the flow of the millrace is increased. Because of the actual and potential pollution problems caused, however, no more culverts should be allowed on the millrace.

The two existing fills pose a problem that will be more difficult and expensive to resolve. Removal of the fills and restoration of the millrace channel to its original width or alignment does not appear possible. However, in the case of the Eugene Animal Hospital fill, it may be possible to widen the channel by realignment to the north, because the northern bank is owned by the University. The narrows by the Black Angus is a more difficult problem because it is bordered by a steep fill bank and a retaining wall for the motel parking lot to the south, and by a steep fill embankment for the railroad to the north. The two right-angle turns upstream from the narrows might be more gently curved to allow a better flow, but the deleterious effects of the machinery needed to do such earthwork on this natural area outweigh any benefit to be derived. Further, when the flow is increased, the water will readjust the channel alignment naturally, by erosion and deposition, without the harmful effects of heavy equipment.

Increasing the flow of the race is of major importance to solving the millrace's pollution problems. This entails increasing both the amount of inflow and the capacity of



PROPOSAL FOR GRAVITY FLOW INTAKE CHANNEL

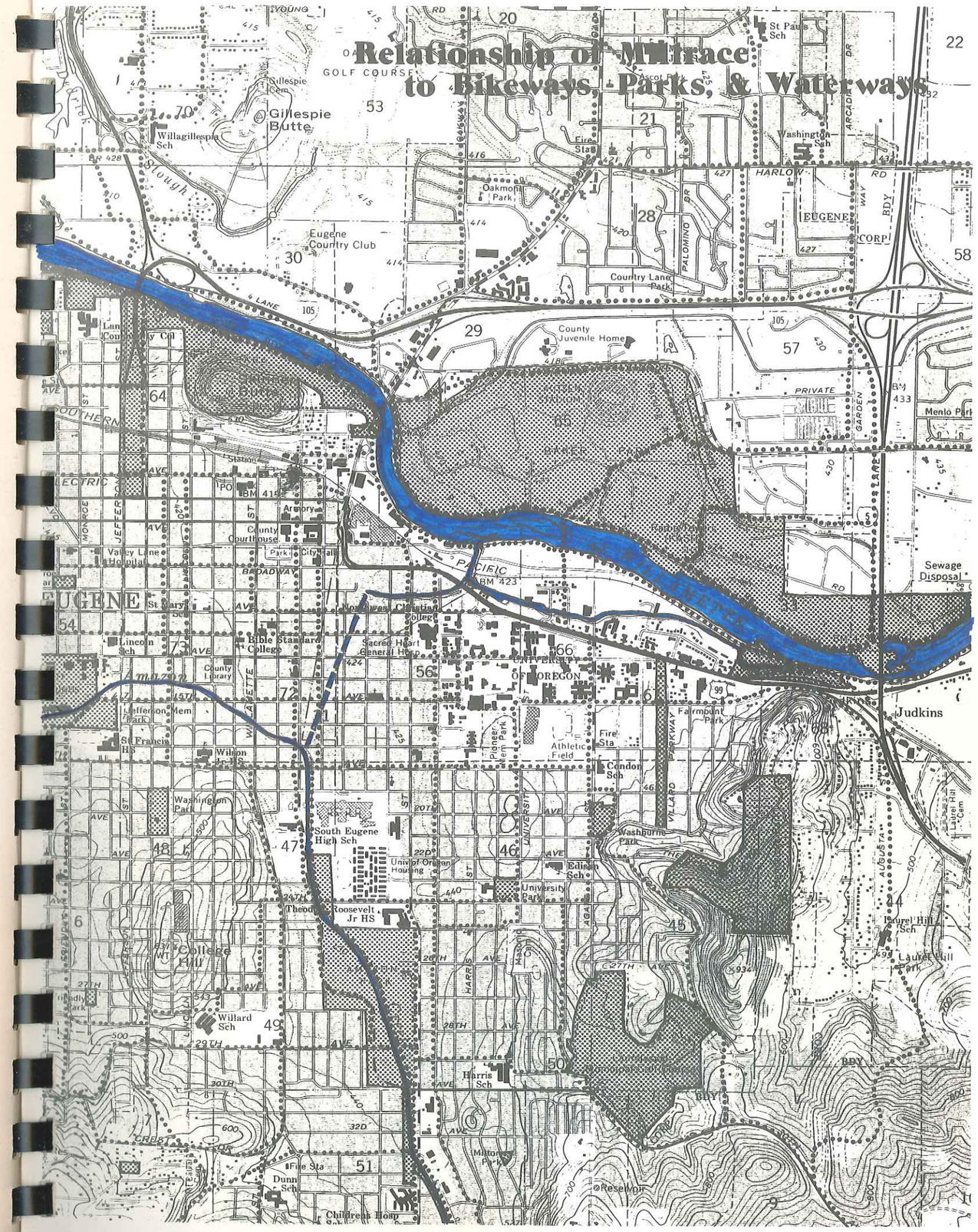
outflow. Increasing the inflow could be accomplished by either enlarging the existing pumping system, or returning to a gravity flow system. Cornell, Howland, Hayes, and Merryfield's most recent report (1974) outlines a number of ways a gravity flow system might be accomplished. The most promising of their proposals entails restoring the intake channel and diversion dam; their other proposals are variations of this, which incorporate the use of pipes to bypass parts of the intake channel. Complete restoration of the intake channel and the diversion dam has two major benefits not created by the other alternatives: a range of flow rates in an open channel system that is greater than that in a pipe system, and the possibility of a direct connection to the river and, thereby, to other waterways for canoes. The advantage of the gravity flow system is that it takes no extraneous energy source to make the system function, and repair of the diversion dam would reduce erosion of park land on the north side of the Willamette River.

There are a number of ways that the outflow capacity of the millrace could be increased. The alternative most often discussed by the City is the connection of the race to the Tenth and Mill Street storm sewer; this would increase the outflow to 100 cfs. This is the least disruptive and the least expensive of all the alternatives; it is also one of the least effective alternative possible,

because 100 cfs. will still be less than half of the original flow, and not a fast enough rate to create a visible current. A more radical and expensive variation, one never discussed by the City, is to dig up Franklin Boulevard and install a pipe that could handle an outflow of up to 350 cfs.

A second alternative, previously suggested by CH_2M (1955), is the diversion of the increased flow through the Kincaid railroad diversion. In effect, this proposal would leave the lower race as it is, in a highly polluted condition. A variation of this proposal, suggested to the City in 1962 by a local architectural firm, Unthank, Seder, and Poticha, was the development of the lower race as a walkway corridor between the University and downtown, with only a remnant of the millrace retained as a trickling stream. Although an attractive proposal, it was plagued by a variety of problems and was never acted upon by the City.

The most optimistic alternative for increasing the outflow of the millrace is the redevelopment of an open channel system for the entirety of the race, tying it to another major water system. This could be accomplished by either rerouting the millrace through the downtown area east of Skiner's Butte, and reconnecting it to the Willamette River, or routing it through the west campus area, connecting it to the Amazon Slough. Of the two alternatives, the west campus/Amazon Slough connection appears to offer the greater number of benefits.



There is a distance of approximately ten blocks, and a change in water elevation of approximately nine feet between the millrace's 419.0 feet at Tenth and Ferry Street and the Amazon's 410.0 feet at Seventeenth between Pearl and High Streets. One of the benefits of this connection would be that summer flow of the Amazon would be increased, and, therefore, the Slough's summer stagnation would be eliminated. The water from such a connection would also provide a back-up system for Fern Ridge Reservoir and increase the reservoir's irrigation capabilities for farming uses. Although this connection could be more easily achieved by means of a closed underground system, an open system has the advantages of allowing a greater rate of flow and providing additional urban water frontage, which could be developed residentially or commercially. A project of this nature was successfully undertaken on the San Antonio River in San Antonio, Texas. If such a connection were made, it would be possible to canoe from the Alton Baker Waterway to the Willamette River, from the Willamette to the millrace, from the millrace to the Amazon Slough, and down the Slough to Fern Ridge Reservoir. This route covers a distance of almost 25 miles, all within or in close proximity to the City of Eugene. The connection of the millrace and the Amazon could also function as a greenway connector between parks in the Eugene metropolitan area as well as a connector between other waterways. It would provide

needed linkage between the system of Willamette River parks (Skinner's Butte, Alton Baker, and Sladden), Amazon Slough parks (Amazon, Amazon Parkway, Kincaid, and Frank Kinney), and east Eugene parks (Franklin, Villard Parkway, Hendrick's, and the Laurelwood Golf Course).

LEGAL HISTORY

Abstract of Onwership

In about 1851, Hilyard Shaw connected two sloughs on his donation land claim to form a millrace that would provide power for a saw and grist mill. In 1856, Shaw sold his rights to 23 acres of his claim, upon which the mills were located, and granted an easement to the millrace for power generation.

> *"Together with an undivided two thirds part of the water power upon said premises with the right of way over said Shaw's claim to bring all the water that may be required. Therefor the words, "Right of Way", are hereby defined to include all necessary dirt and stone lying adjacent to said raceway for the purpose of keeping the same in repair." (Lane County Deed, A:60)*

Through the years, the property and the easement in the original grant from Shaw have been modified. (See Appendix A) Between 1859 and 1898, the grant of the easement became more defined and typically read as follows:

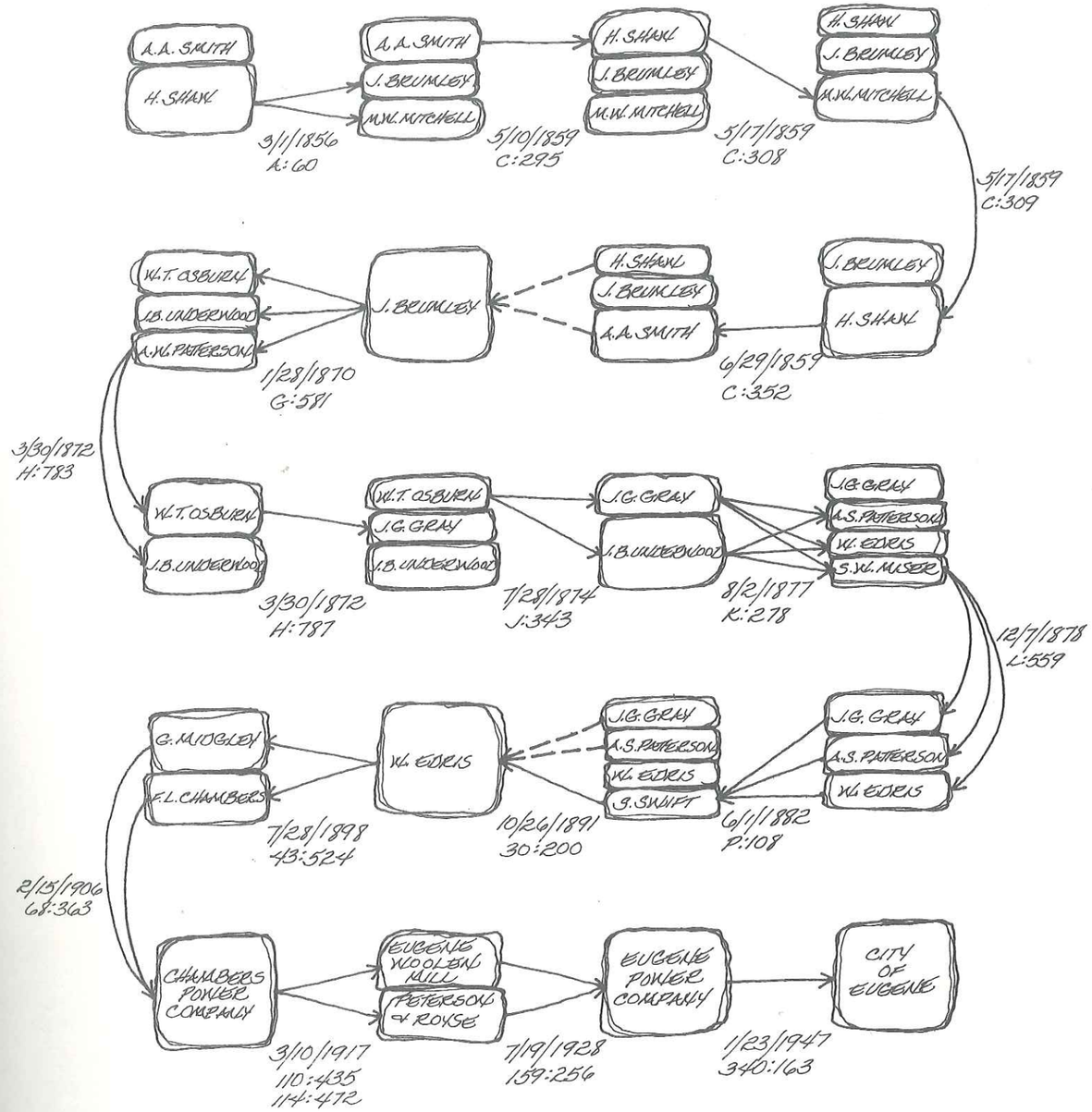
> *"...together with all the water power upon said premises also the right to dig the present raceway as deep*

and wide as may be required to run the mills thereon, and all other mills or machinery that may at any time or times be placed on said premises, also the right to dig the present raceway as deep and wide as may be necessary and bank the dirt and stone on either side, also to include sufficient dirt and stone lying adjacent to the dams for the purpose of keeping them in repair, also the right to take water out of the dam for other mill purposes by increasing the flow to the extent of the water so taken out." (Lane County Deed, H:787)

In 1872, other parcels of land were also included in the deed, in addition to the 23-acre tract. The number of parcels and the amount of land involved continued to increase until 1886. In that year, the owners of the Mill Property, William Edris, J. G. Gray, A. S. Patterson, and Samuel Swift, sold a piece of the original 23-acre tract to the Upper Willamette Lumber Manufacturing Company. In the succeeding years, various other pieces were sold to other industrial enterprises, such as the Eugene Canning and Packing Company and the Eugene Mill and Elevator Company.

Finally, in 1906, the wording of the easement granting water power rights was modified again.

"Also: That certain water power ditch, canal, and raceway in Lane County, Oregon,...the water of which is taken out of the Willamette River near Judkins Point... and which water is developed into power in the City of



Abstract of Millrace Ownership

Eugene, on the lands hereinbefore described,...and terminates in the Willamette River adjacent to the City of Eugene, and including all rights, priviledges and easements of the grantor to operate, maintain, repair, widen and improve said water power ditch, canal and raceway, together with all water wheels, machinery and appliances of whatsoever nature used in or about the operation of said power plant and race...." (Lane County Deed, 114:472)

In this final form, the City of Eugene acquired the easement from the Eugene Power Company in 1947, along with what remained of the original 23 acre tract and the additional parcels.

Use of the Millrace and its Legal Repercussions

Although Shaw had connected the sloughs with the intention of creating a millrace to supply power, the millrace was used in other ways from early in its history. The first recorded recreational use of the millrace occurred in 1884, when heavy snows froze the surface of the race and the townspeople used it for ice skating. In 1890, Edward J. McClanahan opened a boathouse in the vicinity of Ferry Street and rented out flat-bottomed skiffs. By 1901, when the millrace was the center of industrial enterprise in Eugene, its use as a recreational resource was rapidly expanding. Picnickers used it as a highway for boating to Judkin's Point, where they portaged

their boats to the Willamette River and paddled to picnic grounds above the rapids on the north bank of the river. In 1906, Frank L. Chambers, one of the owners of the Mill Property (from 1898 to 1917), opened a boathouse that was situated on the north side of Eighth Street; another canoe rental was opened by Paul Bond at Alder Street in 1912. In that year, the first water fete was held by University students, consisting of swimming and canoe races. In 1915, Bond moved his canoe livery to 997 Franklin Boulevard, into a house on the millpond banks that, in succeeding years, became knows as the "Anchorage." In that same year, the first Canoe Fete was held; it became a cherished University tradition and, although forgotten during times of war and flood, it survives today.

The first conflict over use of the millrace occurred in about 1910, when the Chambers Power Company, the Mill Property owner, decided to make the millrace a self-supporting power project, independent of the mills. The company began extensive widening and deepening operations. Townspeople who had built their houses along the millrace's edge objected strenuously to this activity, because it altered or destroyed the backyards they had put in to take advantage of their location. The controversy was finally resolved in 1919 by the following decision of the Oregon Supreme Court:

"The defendants will be permitted to widen their ditch so as to bring it up to 50 feet in width, and will be enjoined from further widening it, and from throwing mud and silt from the bottom upon adjacent property." (Patterson v. Chambers Power Co., August, 1916)

The Court's decision was based upon the following opinions:

1. *"The grant made by Shaw created an encumbrance, and parties making improvements along the route of the ditch and near enough to be affected by any probable widening of it that the grantees might make, made them at their peril. There is no evidence of acquiescence in the improvements by defendents further than that they did not actually object to them, and that they did not declare orally the claim which their deeds were asserting all the time. (Patterson vs. Chambers Power Co., August, 1916, pp. 346-7)*
2. *"Defendents' relation to the water right and way in question is fixed by the deed, which, in effect, grants to them all the power then produced through the agency of the ditch, and as much more in the future as can be used in factories erected on the 23 acre tract. They would have no right to cover the tract with factories to its full capacity, and then build other factories upon adjoining land and increase the capacity of the ditch in order to supply these additional mills, because this would be putting a burden upon the servient estate beyond that which was contemplated in the grant." (Patterson v. Chambers Power Co., August, 1916, p. 349)*

Soon after the court decision was handed down, technical advances made the use of water power obsolete; only factories already equipped to use water power continued to do so. The Chambers Power Company decided that attempting to make the millrace a basic power supply would be unprofitable and, in 1917, sold it to the Eugene Woolen Mill Company and the Eugene Excelsior Company, two industries that still used the millrace as a power source. The remaining parcels of the 23-acre tract and the easement for power were finally purchased by the City of Eugene in 1947. The City made the purchase with the intent of using the bed of the millrace north of Broadway as a right-of-way for the expansion of Highway 99 North, restoring the rest of the race for scenic and recreational use by the community.

In 1949, the State Highway Department buried a portion of the millrace in a 30-inch pipe, effectively limiting its flow to 25 cfs. Shortly after, Joseph Koke and Thomas Chapman, owners of the property just southeast of the intersection at Broadway and the millrace, decided to extend the pipe laid by the Highway Department and fill their portion of the race so they could build a gas station and parking lot on their property. Anena Stewart, who owned the abutting property to the west, brought suit against Koke and Chapman to restrain them from further filling, and to compel them to remove the fill and conduit pipe already in place.

In 1951, the Oregon Circuit Court made the following findings on the case:

1. *"...that the mill race is an artificial, dug and constructed power ditch, having its origin in the development of power upon the 23 acre tract, and is in no sense a natural water course.*

2. *"...that any use made of the millrace by citizens of Eugene was purely permissive, and that the City itself has never, up to the time of its acquisition by the City, made any use of the millrace at all, and never exercised any dominion over it." (Stewart v. Koke and Chapman, Case #38123)*

These findings were based upon the following opinions:

1. *"There has been considerable testimony confirming that there were originally certain sloughs, swamps and low lands along parts of the course through which it now flows. However, the evidence, including the early history, the maps, etc., fail to show that it was a natural watercourse in any sense of the term. The evidence, in my opinion, bears out that it was constructed and dug by Hilyard Shaw, his employees and associates, for the purpose of diverting waters from the Willamette River, through their dug ditch to the mills located on the 23 acre mill site near Sixth Street. There is no doubt that they took advantage of the natural terrain and used the low places to advantage to avoid excessive digging; but it does not prove, nor necessarily indicate, that they followed any natural stream or water course.*

2. *"I am of the opinion that the City of Eugene still has the right to utilize the water power on the 23 acre tract if they wish. They would normally be entitled to the maximum flow as set by the Supreme Court in 81 Oregon 328; but by their own act and acquiescence with the Highway Commission, they have limited the flow to a three foot conduit, so that they cannot complain so long as the defendents do not limit the flow to a lower degree than the City itself has already done.*

3. *"...that the City of Eugene has succeeded by mense conveyances and is now the owner of the water power and the right of way over Shaw's land,...limited, however, to the three foot conduit established by the City itself." (Stewart v. Koke and Chapman, Case #38123)*

The result of the Court's findings was the dismissal of the plaintiff's complaint, based on the fact that she did not own the channel, or have any riparian rights, because the channel had been man-made. It further stated that the City only had water power rights to the millrace, and that it had limited the extent of these to the 30-inch pipe.

In order to bolster the plaintiff's position, University students had gathered recreational easements from most of the millrace property owners, and had entered them in the case. The judge, aware of the strong civic concern about the millrace, and reassured by the easements, concluded as follows:

"Civic beautification and sentimental reasons make a strong argument for keeping this ancient Mill Race open, but these reasons do not take precedence over the law of the case as I construe it. The additional easements already secured and being negotiated, will probably leave the remainder of the Mill Race southerly from the defendents property unimpaired." (Stewart v. Koke and Chapman, Case #38123)

The easements were withdrawn from the case, never having been recorded officially, and finally disappeared altogether; they have never been recovered. The effect of the court decision was to make the City hesitant about using any funds for restoration of the millrace until the easements were regathered.

The deplorable shape of the millrace, and rising property values, have encouraged property owners to follow Koke and Chapman's lead through the years. At the lower end, the millrace has been filled in to Ferry Street; on the upper race, in the vicinity of Garden Avenue, an additional 90 feet have been culverted to provide parking lots for apartment houses; 800 feet have been narrowed and realigned to accommodate a parking lot for the Black Angus Motel; other miscellaneous culvertings have occurred to provide inexpensive bridging to the north side of the race.

Present Legal Status

Prompted by University students and a $20,000 bond issue passed by Eugene citizens (in 1948), the University and the City signed an agreement in 1957, the purpose of which was:

> *"1. to restore to the extent economically feasible the recreational use and scenic appeal of the millrace;*
>
> *2. to maintain the functional use of the millrace as an integrated part of the storm sewer system of the City of Eugene; and*
>
> *3. to provide cooling water for the University's heating and power plant and a possible water supply for irrigation." (Millrace Agreement, 1957, p. 3)*

An engineering firm hired by students in 1955 had reported that the millrace's deplorable condition could be improved by increasing the flow, and that the most feasible method of accomplishing this was to install pumps at the head of the race, abandoning the intake channel and diversion dam. The estimated cost of the project was $48,000.

The City agreed to spend the $20,000 that had been approved by voters and an additional $4,000; the University agreed to pay the other half, and any additional costs over $48,000.

The agreement also specified how the millrace would be operated and maintained.

> *"The University shall have full responsibility for filling the millrace, operating the pumps, gates and any other necessary control equipment, and for the normal maintenance of pumps and other control equipment, including replacement of component parts thereof, and for the removal of any debris placed in the millrace as a result of any activity sponsored by the University....The City shall be responsible for the maintenance of all City owned bridges over the millrace and shall keep the millrace channel in good repair and free and clear of debris and shall at least once a year drain and make a thorough cleaning of the millrace channel. The City's annual liability for these purposes other than costs of maintenance of City owned bridges, which are charged to another fund, shall not exceed the sum of $2500.00 based upon the current price level, said amount to be adjusted on the basis of any changes in future price levels." (Millrace Agreement, 1957, pp. 5-6)*

The agreement was to run for a period of ten years and would then *"be renewable from year to year upon the mutual consent of both parties."*

In 1962, the agreement came under attack by the City's Mayor after the Alder Street bridge collapsed. The Mayor proposed that a culvert be installed in place of the bridge; he felt it would accommodate the flow of the millrace, and would be much cheaper than the installation of a new bridge. However, the culvert would not have accommodated canoeists,

and the University students objected. The situation was finally resolved by the City Attorney, who overrode the Mayor with an opinion which stated that the City had no choice but to replace the bridge under the terms of the ten year agreement it had signed with the University. The Patterson and Hilyard Street bridges were also replaced in that year.

In 1968, the agreement between the City and the University was renewed, but with some changes. The University was still responsible for maintenance of the flow of the race, as it had been in the first agreement, but the burden of channel maintenance shifted from the City to the University:

> *"The maintenance of the millrace channel as to cleaning of the brush and debris in order to maintain proper flow will be the responsibility of the University where the channel borders University owned land....The University assumes no responsibility for the cleaning of the upper channel that does not border University land and further does not guarantee proper flow if impeded by obstructions in this part of the channel." (Millrace Agreement, 1968, p. 3)*

The City's responsibility was lessened further:

> *"The City will maintain and clean out the lower channel as required to maintain a level flow, the lower channel being that part from the east end of the Franklin Boulevard culvert nearest the north end of Kincaid Street to the channel exit at the Willamette River." (Millrace Agreement, 1968, p. 3)*

No longer was there any specification allotting responsibility for yearly dredging or cleaning.

Since the signing of this agreement, neither the City nor the University has lowered the race for effective cleaning. Since 1970, however, a local group, the Millrace Volunteers, has organized a yearly spring cleaning, filling this gap in responsibility.

The City continues its refusal to take affirmative action until easements are gathered; and, although attempts have been made to gather them through the years, none have been successful. In the most recent attempt, five easements were granted by Phi Kappa Psi, Sigma Nu, Alpha Eta Delta Association of Chi Psi, Sigma Phi Epsilon, and Northwest Christian College. Four other fraternities have agreed, but have not yet signed: Alpha Phi, Gamma Phi Beta, Kappa Sigma, and Beta Theta Pi. One other property on the lower race was recently acquired by the University, and will probably sign in the near future. However, there are an additional nine property owners on the lower race.

In 1967, the Mayor's Millrace Commission conducted a study of the lower millrace property owners as to their feelings about improvement of the race, methods of financing, and willingness to grant easements or deeds. Of the nine

property owners who have not currently signed easement agreements, or pledged to do so, the following responses were given to the Commission's questionnaire:

Four were willing to grant easements: Patterson Apartments, Globe Lumber Company (apartments), Lindbergs (private residence), and Brockelbank (private residence).

Two were not willing to grant either an easement or deed to the millrace: Woodruff (used car lot) and Fennel (private residence).

Two did not respond to the questionnaire: Slocum (Millrace Medical Building, built since the survey was conducted), and Weinstein (apartments).

One owner said he only owned land up to the bank of the millrace: Hult.

Gathering easements is an arduous task, and, although the easements are made out to the City, it has never given any help in their acquisition.

METHODS OF ACQUISITION

A report done by the Metropolitan Civic Club on the millrace in 1966 states that *"the city has not legal rights in nor responsibility for the Millrace, except for a contract with the University of Oregon for maintenance." (Metropolitan Civic Club, 1966, p. 5)* Although the City acquired the remainder of the 23-acre Mill Property in 1947, as well as an easement of flow for the purposes of generating power, the City has never used the millrace for this purpose, and appears to have no intention of doing so. In fact, the easement may now be considered legally abandoned. The millrace has not been used for power generation in over 25 years; abandonment is assumed after ten years.

Apparently, at the time of the City's purchase in 1947, no thought was given to any prescriptive rights the City might have acquired. As noted previously, the citizens of Eugene have used the millrace for recreational purpose from time immemorial. And the City has used the race as a storm sewer to drain all of the area east of University Street and north of Twenty-eighth Street.

Although the City no longer appears to have any legal rights to the millrace as a consequence of its purchase in

1947, there do seem to be a number of ways the City and/or University could acquire legal rights to the millrace as a recreational resource for the citizens of Eugene and the University community.

Power of Condemnation for Park Purposes

> *"The city has power under its charter to 'purchase real property...for public parks.' The city also has statutory power to acquire sites and develop them for purposes of parks. (Memorandum, 1973, p. 2)*

Therefore, by gift, devise, voluntary purchase, or condemnation, the City could acquire any of the following for park purposes:

> *"1. Fee title to the bed of the millrace and whatever adjacent area would be appropriate for park purposes.*
>
> *2. The air space above the millrace and its immediate environs.*
>
> *3. Development rights in the millrace and its immediate environs.*
>
> *4. Easements for particular recreational uses of the millrace and its immediate environs." (Memorandum, 1973, p. 2)*

Such a method of acquisition would depend upon funds for voluntary purchase or comdemnation. Funds for acquisition of the millrace seem highly unlikely at this time. The

Parks Department has higher priorities and has not put aside any funds to develop the park land it owns at the head of the race, let alone additional funds to purchase any further millrace property or easements.

Acquisition of Conservation or Scenic Easements

The City and the University have the power to acquire by purchase, agreement, or donation, a conservation or scenic easement, as long as such an acquisition is determined to be in the public interest. Such an easement would preserve or maintain the millrace as a recreational, scenic, or historic area of public significance. Again, such acquisition would depend upon funds for purchase if necessary.

Zoning

The City has the power to zone the millrace and its edges. In fact, the millrace is currently zoned, and has been since 1948 when the City adopted its first zoning ordinance. However, the zoning ordinance has never recognized the scenic, recreational, or historical significance and potential of the millrace. The millrace's zoning has always been dependent upon adjacent properties. This means the millrace has never had consistent zoning over its entire length, but has been zoned in pieces.

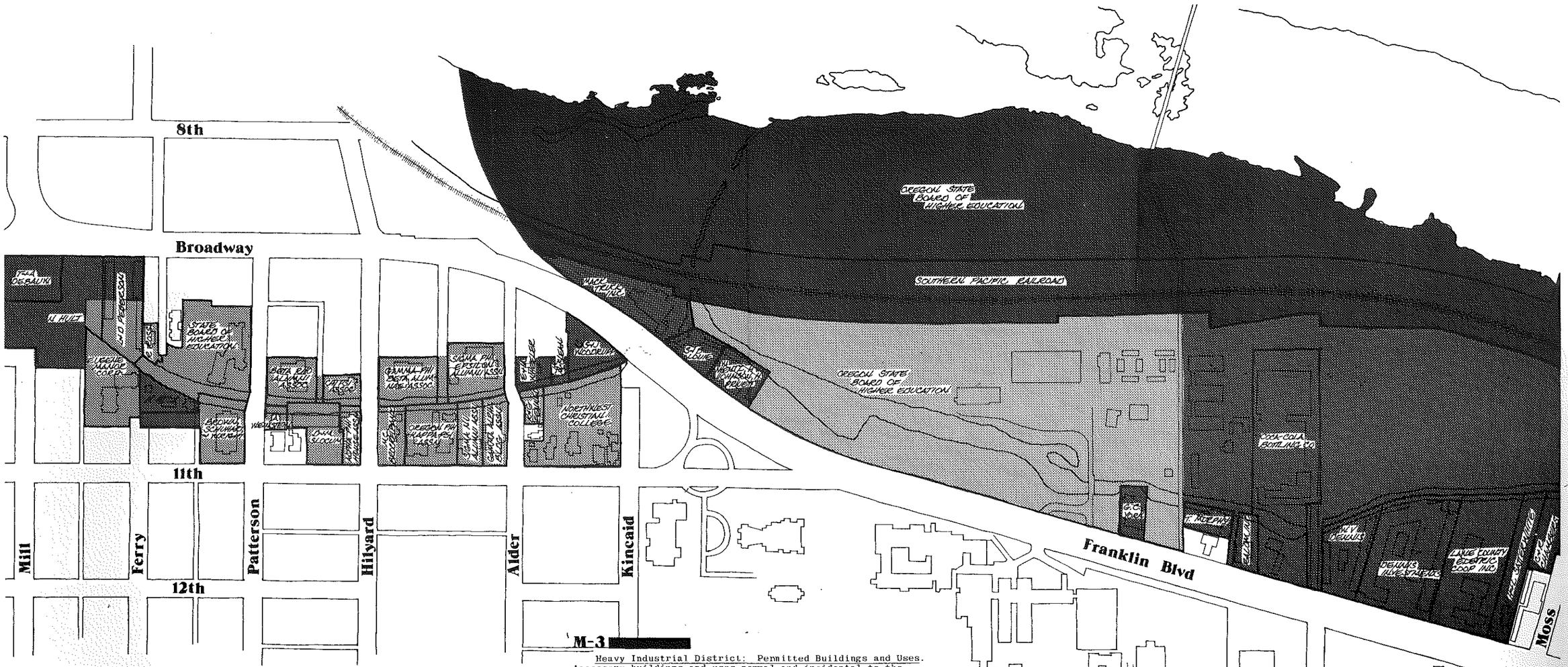
In recent years, zoning of the millrace has been particularly deterimental to its continued use as a scenic,

recreational, or historic asset. Most of the uses allowed under its current zoning (R-4 High Rise Residential, C-2 Community Commercial, M-3 Heavy Industrial, and PL Public Land) are either plainly detrimental, or have inflated land values to the extent that land created by filling the race is more valuable than the millrace itself.

In the past, there has been heated debate about zoning appropriate to the millrace. Most notable is the controversy that arose when the Riverview area, annexed to the City in 1953, was to be zoned. (See Appendix B) The Riverview area consists of about 65 acres of land between the millrace and the Willamette River, from University Street to Judkin's Point. The City Council approved M-2 Light Industrial zoning for the land between the millrace and the railroad tracks, and M-3 Heavy Industrial for the land north of the railroad. The Council rationale for the Heavy and Light Industrial zoning centered around the following:

1. That it was a logical outgrowth of the existing uses;
2. That industrial uses were most appropriate, considering the location of the railroad and Franklin Boulevard;

"If the Council's zoning is rejected, the next move will probably be for someone to ask that this area be acquired for a



R-4

High Rise Multiple Family Residential District: Permitted Buildings and Uses. Accessory buildings and uses normal and incidental to the buildings and uses permitted in Sections 9.378 to 9.382, boarding and rooming houses, campus living organizations, churches (subject to the following conditions: dedications and improvements of public streets, conveyance or dedication of public utility easements as determined by the city), clinics, day nurseries, duplexes, group care homes (group care homes - U. S. Veterans), homes for the aged, home occupations, nursing homes, multiple family dwellings, planned unit developments (subject to Planned Unit Development Procedures in Sections 9.768 to 9.792), public and semi-public buildings essential to the physical and economic welfare of an area, such as fire stations, substations and pump stations (interior yards for these uses shall be a minimum of 25 feet in width; no stockpiling or storage of materials shall be allowed), public or private parking areas, public or private parking garages, public or private parks, playgrounds, golf courses, driving ranges, or community centers, single family dwellings, schools (public elemeotary, junior high and high schools, and colleges, subject to the following conditions: dedication and improvement of public streets, conveyance or dedication of public utility easements as determined by the city).

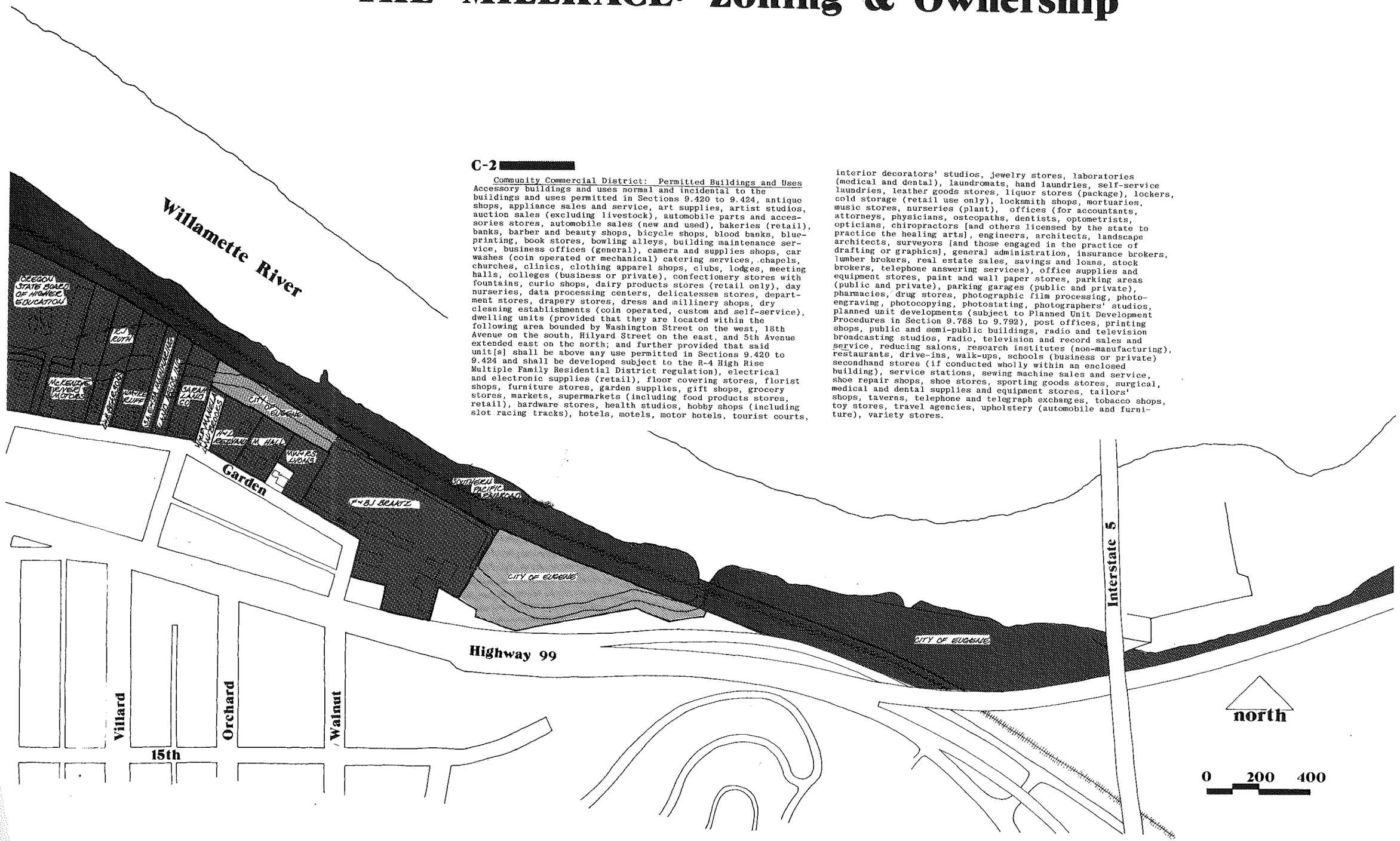
M-3

Heavy Industrial District: Permitted Buildings and Uses. Accessory buildings and uses normal and incidental to the buildings and uses permitted in Sections 9.476 to 9.482, administrative and sales office (limited to those related to permitted industrial uses), agricultural machinery (sales and service), agricultural supplies (including hatcheries), agricultural uses, or any other enterprise customarily carries on in the field of general agriculture (except no slaughterhouses permitted), ambulance services, auction sales, automobile painting shops, automobile sales (new and used), bakeries (wholesale and retail), barber and beauty shops, bars, nightclubs (including entertainment and sale of alcoholic beverages), billiard and pool halls, building maintenance services, building material sales, car washes (coin operated or mechanical), driving ranges (private), dwellings (single-family), dwelling unit (limited to one, for a caretaker or superintendent, whenever the use requires the on-site residence of such person), equipment rental yards, equipment sales, feed and seed stores, laboratories, manufacturing, warehousing, wholesaling, compounding, assemtling, processing, storing, researching, treating or testing or any combination thereof of items, materials or goods, miniature golf courses, mobile home sales and service, planned unit developments (subject to Planned Unit Development Procedures in Sections 9.768 to 9.792), plumbing supplies and services, printing and publishing, public and private parking areas and garages, public and semi-public buildings, radiator service and repairs, radio towers and transmitters, repair garages, residential buildings and uses (dwellings, single family, or dwelling units limited to one whenever the use requires the on-site residence of such a person, facilities for the care and/or lodging of adult, indigent persons), restaurants, retail sales and services (provided that they shall only be incidental and directly related to the operation of industrial uses), secondhand stores, service stations, small animal clinics, small animal hospitals, theatres, drive-ins, trucking yards and terminals, truck sales and service, utility distribution plants and service yards.

PL

Public Land: Permitted Buildings and Uses. Public land acquired by persons, firms or corporations, prior to March 15, 1968, shall be limited to the use for which the land was acquired and/or any use established for the most restrictive abutting district. Development of public land acquired subsequent to March 15, 1968, shall conform to the district in which it is located.

THE MILLRACE: Zoning & Ownership



C-2

Community Commercial District: Permitted Buildings and Uses

Accessory buildings and uses normal and incidental to the buildings and uses permitted in Sections 9.420 to 9.424, antique shops, appliance sales and service, art supplies, artist studios, auction sales (excluding livestock), automobile parts and accessories stores, automobile sales (new and used), bakeries (retail), banks, barber and beauty shops, bicycle shops, blood banks, blueprinting, book stores, bowling alleys, building maintenance service, business offices (general), camera and supplies shops, car washes (coin operated or mechanical) catering services, chapels, churches, clinics, clothing apparel shops, clubs, lodges, meeting halls, colleges (business or private), confectionery stores with fountains, curio shops, dairy products stores (retail only), day nurseries, data processing centers, delicatessen stores, department stores, drapery stores, dress and millinery shops, dry cleaning establishments (coin operated, custom and self-service), dwelling units (provided that they are located within the following area bounded by Washington Street on the west, 18th Avenue on the south, Hilyard Street on the east, and 5th Avenue extended east on the north; and further provided that said unit[s] shall be above any use permitted in Sections 9.420 to 9.424 and shall be developed subject to the R-4 High Rise Multiple Family Residential District regulation), electrical and electronic supplies (retail), floor covering stores, florist shops, furniture stores, garden supplies, gift shops, grocery stores, markets, supermarkets (including food products stores, retail), hardware stores, health studios, hobby shops (including slot racing tracks), hotels, motels, motor hotels, tourist courts, interior decorators' studios, jewelry stores, laboratories (medical and dental), laundromats, hand laundries, self-service laundries, leather goods stores, liquor stores (package), lockers, cold storage (retail use only), locksmith shops, mortuaries, music stores, nurseries (plant), offices (for accountants, attorneys, physicians, osteopaths, dentists, optometrists, opticians, chiropractors [and others licensed by the state to practice the healing arts], engineers, architects, landscape architects, surveyors [and those engaged in the practice of drafting or graphics], general administration, insurance brokers, lumber brokers, real estate sales, savings and loans, stock brokers, telephone answering services), office supplies and equipment stores, paint and wall paper stores, parking areas (public and private), parking garages (public and private), pharmacies, drug stores, photographic film processing, photoengraving, photocopying, photostating, photographers' studios, planned unit developments (subject to Planned Unit Development Procedures in Section 9.768 to 9.792), post offices, printing shops, public and semi-public buildings, radio and television broadcasting studios, radio, television and record sales and service, reducing salons, research institutes (non-manufacturing), restaurants, drive-ins, walk-ups, schools (business or private) secondhand stores (if conducted wholly within an enclosed building), service stations, sewing machine sales and service, shoe repair shops, shoe stores, sporting goods stores, surgical, medical and dental supplies and equipment stores, tailors' shops, taverns, telephone and telegraph exchanges, tobacco shops, toy stores, travel agencies, upholstery (automobile and furniture), variety stores.

city park, or to impose some absurd restrictions that will prevent its development for ANY purpose." (Eugene Register-Guard, May 19, 1954)

3. That the railroad facilities should be expanded;
4. That additional industries would expand the tax base and increase the economic health of the area;
5. That industrial zoning of this area would prove no more objectionable than existing development along Franklin Boulevard;
6. That uses permitted under M-2 zoning would be no more unsightly that the University's own physical plant;
7. That most of the area was not visible from the campus; and
8. That the millrace would not be affected:

"In the area in question it is simply a brush-lined ditch, of no value to the public." (Eugene Register-Guard, May 19, 1954)

There was a public outcry at the zoning decision of the Council, and petitions were circulated calling for a vote by the citizens of Eugene. The issue came before the voters on the May primary ballot in 1954, and the Council

decision was upheld. In subsequent years, the University has acquired most of the property in the area. Accordingly, the land has been rezoned Public Land, a designation that limits the use to that *"for which the land was acquired and/or any use established for the most restrictive abutting district."* *(Eugene Code, 1971, p. 39)*

Rezoning of the millrace and its edges, in response to its special scenic, recreational, and historical potentialities, could be accomplished by the City. However, if rezoning was rigorous or extensive enough to amount to taking property rights within the meaning of the law of eminent domain, the City would have to compensate the property owners. Considering the uses presently allowed, any change in the rezoning to protect or benefit the millrace would probably be considered such a taking.

Prescriptive Rights

It appears the City may have acquired prescriptive rights to the millrace through adverse possession, especially in regard to the City's use of the millrace as an outlet for storm sewers and as a recreational resource. Whether a city may obtain a prescriptive easement has not been extensively litigated in Oregon, but, based on law in the rest of the United States, it appears that the City of Eugene would have such a right. Whether the general public could acquire such an easement appears to be less clear.

"Because of certain technicalities in the law of adverse possession and prescription,...there is a wide spread doctrine that 'the general public is incapable of receiving a grant and hence...cannot acquire a prescriptive easement.' However, in Oregon, the capacity of the public to acquire easements, even recreational easements by prescription, derives some support from the recent case regarding the public's right to use Oregon's beaches for recreation....In that case, the Oregon Supreme Court said: 'Several early Oregon decisions generally support the trial court's decision...that the public can acquire easements in private land by long-continued use that is inconsistent with the owner's exclusive possession and enjoyment of his land.'...The role of the state as representative of the public in the ocean-beach case suggests that in any judicial proceeding to establish a public recreational easement for use of the millrace for boating, swimming, and other recreational pursuits, the City or the University or both would be appropriate moving parties. The University is, of course, a state agency, and the University community has been the principle user of the millrace for recreational purposes down through the years." *(Memorandum, 1973, pp. 5-6)*

If it is possible under Oregon law for the City, the University, or the public they represent to obtain recreational easements in bodies of water such as the millrace, it becomes important to establish whether or not the City

or the University has met the standards or conditions that would establish a prescriptive right:

> *"'the use and enjoyment which will give title by prescription to an easement or other incorporeal right is substantially the same in quality and characteristics as the adverse possession which will give title to real estate; that is to say, as respects prescriptive title, it must be adverse, under claim of right, continuous, uninterrupted, open, peaceable, exclusive, and with the full knowledge and acquiescence of the owner of the servient tenement, and must continue for the full prescriptive period, and while the owner of the servient tenement is under no legal disability to assert his right....'*
>
> *"Use of the millrace over a long period of time appears to have met these standards or conditions for the establishment of prescriptive rights, especially as the standards or conditions are related to certain presumptions in the law of prescription." (Memorandum, 1973, p. 7)*

1. The use appears to have been adverse, based on the following presumptions:
   a. *"...the open and continuous use of an easement on another's land for the period of prescription, whether of a way, of drainage, or of water rights..., unexplained by qualifying evidence, 'must be considered as exercised adversely to the owner of the land, '...the*

   'burden of proving' that the claimant held by license being on the owner."
   b. *"...where there has been an unmolested, open, and continuous use of a way (for the prescriptive period)...or more with the knowledge and acquiescence of the owner of the servient estate, the use will be presumed to have been adverse and under claim of right and sufficient to create a title by prescription unless contradicted or explained."*
   c. *"Upon its appearing that a servitude has been enjoyed during the period required for prescription, openly, continuously and uninterruptedly, a presumption arises, in the absence of any other explanation, that the user was adverse and under a claim of right. The burden is then upon the owner of the soil to show that the use was permissive, or otherwise that it was not adverse." (Memorandum, 1973, pp. 8-9)*

2. The use appears to have been under the claim of right, in that the people who have boated or swum on the millrace have done so with the assumption that they had the right to do so and were not trespassing.

3. Within the technical meanings that apply in the law of adverse possession and prescription, the use has been continuous and uninterrupted for many years. It is true that during the cold and rainy seasons the use becomes infrequent; but with the return of good weather which is conducive to outdoor recreation, the use appears to have resumed year after year, frequently enough to be considered continuous and uninterrupted within the meaning of the law.
4. The use has apparently been open and peaceable.
5. The use appears to have met the standard of exclusiveness as evolved in the law of adverse possession and prescription. That standard may be considered to have been met even when more than one person is the the user.
6. The use was apparently carried on with the knowledge and acquiescence of owners of fee titles to the millrace bed, according to the following presumption:

> *"The foundation of the establishment of a right by prescription is the acquiescence on the part of the owner of the servient tenement in the act which are relied upon to establish the easement by prescription. This makes it necessary that he know of those acts, or be charged with the knowledge of them if he did not in fact know of them....It is presumed, however, that every man knows the condition and status of his land; and if anyone enters into the open and notorious possession of an easement therein under claim of right, the owner is charged with knowledge thereof." (Memorandum, 1973, p. 9)*

7. The prescriptive period in Oregon is ten years. The use of the millrace has continued for the full prescriptive period, continuing, in fact, for approximately 90 years.

The following Oregon case might prove to be an obstacle to the position that the City, the University, or the public has acquired a recreational easement for use of the millrace:

> *"...the mere user, however,...uninterrupted by the public, and long continued, is not sufficient to give the right in the public; but...such user must be accompanied by acts showing the user to have been under a claim of right, and not merely by permission of the land-owner; such as working the road, keeping it up by the public, repairing it, or removing obstructions, etc. 'A permissive use of a way by certain portions of the community constitutes a license and not a dedication, and is ordinarily something that may be revoked.'"*
> *(Memorandum, 1973, p. 10)*

However, it seems that the activities of the City, the University, and private citizens in building and maintaining boating facilities, in clearing away debris and other obstructions from the millrace that would be detrimental to recreational use, and in maintaining it as a part of the City's storm sewer system would make a strong case for a "claim of right."

Custom as a Legal Basis

In 1908, a court decision indicated that custom might be the legal basis for the right to use a stream.

> *"Custom is said to be applicable to cases where inhabitants of a particular locality have acquired an easement by long enjoyment, without being capable of taking collectively under deed." (Memorandum, 1973, p. 11)*

In the recent ocean-beach case, the Court asserted that custom could be used as the legal basis for a recreational easement for public use of the dry sands along the Oregon coast, preferring it to prescriptive right as a basis.

The definition of a custom includes the following:

1. *"...the first requirement of a custom, to be recognized by law, is that it must be ancient. It must have been used so long 'that the memory of man runneth not to the contrary.' Professor Cooley footnotes his edition of Blackstone with the comment that 'long and general' usage is sufficient."*

2. *"The second requirement is that the right be exercised without interruption. A customary right need not be exercised continuously, but it must be exercised without interruption caused by anyone possessing a paramount right."*
3. *The third requirement is "that the customary use be peaceable and free from dispute."*
4. *"The fourth requirement, that of reasonableness, is satisfied by the evidence that the public has always made use of the land in a manner appropriate to the land and to the usages of the community."*
5. *"The fifth requirement, certainly is satisfied by the visible boundaries of the dry-sand area and by the character of the land, which limits the use thereof to recreational uses connected with the foreshore.*
6. *"The sixth requirement is that a custom must be obligatory; that is...not left to the option of each landowner whether or not he will recognize the public's right...."*
7. *"Finally, a custom must not be repugnant, or inconsistent, with other customs or with other law."*

"Applying this law to the use of the millrace for recreational purposes, a cogent argument can be made that in in the Eugene-University community custom has established

an easement for public use of the millrace for recreational purposes, particularly boating and swimming. Recreational use of the millrace apparently began at a time that no one in the community can now remember -- that is, in other words, 'so long (ago) that memory of man runneth not to the contrary.' The use has apparently been continuous, in the sense that it has been 'without an interruption caused by anyone possessing a paramount right.' The use appears to have been 'peaceable and free from dispute.' The use apparently 'has always' been 'in a manner appropriate to the...(site) and the usages of the community.' The banks of the millrace appear to be definite enough to meet the standard of certainty. The standard of obligatoriness, as explained by the court, appears to have been met, in that apparently the recreational use of the millrace has not been questioned by the owners of abutting property so long as the swimmers and boaters remained in the millrace and 'refrained from trespassing' on the adjacent dry land. Finally, the recreational use of the millrace appears never to have been 'repugnant, or inconsistent, with other customs or with other law.' The canoeing and swimming have, for example, generally not been engaged in by people in the nude." (Memorandum, 1973, pp. 11-12)

LEGAL PLAN OF ACTION

Acquisition of Easements

At this time, the most important legal issue concerning the millrace seems to be the resolution of the public's right to a recreational easement. Although there are a number of alternatives for acquiring the recreational easements, the most promising appears to be the preparation of a legal memorandum outlining custom as the legal basis for their acquisition. Such a document would strengthen the bargaining position of the committee that is currently seeking the easements.

With such a document, the committee might approach the more hesitant of prospective donors with the following proposition:

> *"We believe that long public usage of the millrace has established a right in the public to use the millrace for swimming and boating. This legal memorandum explains the basis for our belief. You may wish to consult your attorney about its cogency. We could, of course, begin judicial proceedings to establish the right on an adjudicated basis. The proceedings would entail considerable*

expense and delay, especially if appealed as high as possible in the Oregon court system. The basic result that we believe the litigation would produce could be achieved more readily and economically by your conveying to the city an easement for use of the millrace for boating and swimming." (Memorandum, 1973, p. 13)

It appears the above statement, accompanied by a well prepared brief of the City's and University's position, would do much to convince many millrace property owners of the legitimacy of the easement request. However, it would be most important that the City, in the case of obstinate property owners, be willing to initiate judicial proceedings to establish the right to easements on an adjudicated basis.

Another method of acquiring easements that could be used by the City in the interim would be to require granting of easements as a condition for approval of conditional use permits. This has already been done successfully in regard to some apartments built in the Garden Avenue vicinity.

Zoning

In addition to taking the first step in gathering easements, the City needs to develop a coherent zoning plan for the entire length of the millrace. Ideally, it would take into account the millrace's unique combination of historic, scenic, and recreational potentialities. Such

a plan could be developed in the form of an ordinance similar to that adopted by the City of San Antonio, Texas for its River Walk. (See Appendix C) Such an ordinance would develop a Millrace Review Board that would review plans for the construction, alteration, modification, or repair of any building on property abutting the millrace, and any proposed change to the millrace itself, such as bridging, culverting, or modification of its edge or course. Such a board would only function in an advisory capacity to the Planning Commission and the City Council.

Another method by which a coherent zoning plan for the millrace could be developed under the existing zoning code, and within the existing City structure, is attachment of the Special Development District (SD) designation to all millrace property. Under an SD designation it would also be possible to establish a Millrace Review Board which could evaluate development proposals within the special millrace district, and which could advise the Planning Commission and the City Council about such proposals.

Citizen input about development proposals would occur under either method, as referral to the Planning Commission by the Millrace Review Board would require public hearings where both proponents and opponents of any proposal could be heard.

The SD designation is relatively new, and has only been used once (on Fifth Street between Pearl and High Streets);

however, it involves less red tape and could be implemented more quickly than the drafting of a new ordinance that would deal only with the millrace. Another consideration in the use of the SD designation on the millrace is that it might strengthen the ordinance, and encourage its use in other areas of the City, such as Skinners Butte.

As noted earlier, rezoning of millrace property may, in some cases, limit what would have previously been permitted outright. In such cases, the City would have to be prepared to compensate property owners, or find compromises that would be mutually beneficial to the millrace and the property owner, in a manner similar to that outlined in the City's Historic Preservation Ordinance. Further, it is anticipated that by gathering recreational and scenic easements prior to the establishment of zoning action, many of the problems concerning "taking" may be obviated. Actions such as culverting and filling of the millrace would effectively be curtailed by a recreational and scenic easement; in effect, a recreational and scenic easement would include an easement of light and air rights.

FINANCING

Sources of Financial Assistance

Finding sources of financial assistance for acquisition and rehabilitation of the millrace is probably one of the most important factors in the millrace's future. It is assumed that most of the easements will be acquired by donation, especially if property owners are reassured that the City really intends to protect, maintain, and enhance the millrace. However, it is to be expected that there may be recalcitrants who will not succumb to social pressure, and for whom the issue of granting a recreational easement will have to be settled on an adjudicated basis. In such an event, it will be necessary to have funds available.

Funds might be obtained through a bond issue or serial levy, as are funds for the purchase of other park lands in the City. However, because of high unemployment locally, and the depressed state of the economy in general, the likelihood of passing a bond issue or serial levy is doubtful at this time. If the bond issue were of a moderate amount and bolstered by funds for rehabilitation from other sources, its potential for passage might be improved.

The University is presently preparing to celebrate its centennial in 1976, and the millrace has been named one of the centennial projects. A list of contemplated improvements for the millrace, and their estimated costs, has been compiled, and will be sent to prospective donors and all alumni. (See Appendix D) However, most of the proposed improvements will only affect University-owned land, and not the millrace in general; one major exception to this is the restoration of the diversion dam and the intake channel.

Other funds may be available for millrace rehabilitation from the National Historic Preservation Trust, National Bicentennial, or National Endowment for the Arts. Such funds could be used to rehabilitate those areas not owned by the University. Funds for the rehabilitation of non-University property will be especially important if the diversion dam and intake channel are restored, because the outflow capacity of the millrace will have to be increased. The City has stipulated that if recreational easements are acquired from all millrace property owners, it will connect the millrace, at City expense, to the Tenth and Mill Street storm sewer to increase its outflow. The more desirable alternative, connecting the race with the Amazon Slough through an open channel, might be accomplished by acquiring the land necessary for the new channel by vacation of City alleys and streets if potential legal entanglements contained in the original plats for the area could be resolved.

Such action would be relatively inexpensive, but would require City commitment. It would also require active involvement and approval of the local neighborhood group, the West University Neighbors. Another possibility is that development of the waterway through the neighborhood could financed with Housing and Community Development Funds for Open Space, as the need for inner-city open space is of high priority, and the west university neighborhood is a high priority area.

The connection of the millrace and the Amazon Slough might also be financed partially by the Army Corps of Engineers, as the increased flow would improve the irrigation capacity of Fern Ridge Reservoir.

IMPACTS OF MILLRACE REHABILITATION

Physical

Improvement of the millrace, especially restoration of the diversion dam and the intake channel, is going to create a wide range of impacts on abutting property owners. In addition to positive effects, such as increasing the rate of flow and cleanliness of the stream, there will be negative impacts on those property owners who have culverted or filled the millrace. The culverts owned by the University will probably have to be replaced by bridges, since they provide vehicular access to the north bank of the race; it is assumed the culverts will be replaced by the University at its own expense. The culvert owned by McKenzie River Motors will also have to be replaced by a bridge unless the company can obtain an easement for access over the University's bridge; the properties are abutting, and a roadway directly connects the present University culvert to the McKenzie River Motors property.

The culvert owned by Mr. Mainwaring and Land Associates will probably not be replaced; it was built to increase the potential building area of the two properties but has never been built upon. The culvert under Franklin Boulevard will

have to be supplemented by an additional pipe so the increased flow will not eliminate necessary head room for canoeists in the culvert. The cost of the pipe and its installation will have to be negotiated between the State Highway Department and the City.

Economic

Another potential impact upon abutting property owners is the increased property values that would result from extensive improvement of the millrace. It is possible that property owners could deed the bed of the race to the City rather than grant easements. However, this would probably decrease property taxes only minimally because it would not involve much property. Such action would take some property off the tax rolls, but only a small amount, since the largest parcels of millrace property are owned by the University, the City, and Northwest Christian College, all of which are tax exempt.

Liability

Rehabilitation of the millrace will not affect the City's legal liability.

"The city has no liability in damages with respect to seepage of Millrace water into nearby basements or with respect to children or others who might be injured or killed in the Millrace provided that the only basis for the city's liability was related to the attractive nuisance doctrine and not to any act or ommision by a city employee in the scope of his duties." (Metropolitan Civic Club, 1966, p. 6)

Water Rights

In order to increase the flow of the race, more water will have to be taken from the Willamette River.

"Present water rights were granted for the millrace in 1958, and are limited to 13.2 cfs for condenser cooling at the University of Oregon heating plant (Application No. 31932) and 36.8 cfs for recreational use in the millrace (Application No. 91913)." (Cornell et al, 1974, p. 14)

An increased flow will require acquisition of increased water rights. Such an increase does not pose any particular problem if the water increases the irrigation potential of Fern Ridge Reservoir; however, if the water is used only for recreational purposes and returned to the Willamette River in worse (contaminated) condition than it is in now, there might be some hesitance about granting additional water rights.

The Millrace:

Tomorrow

A METHODOLOGY AND APPROACH APPROPRIATE TO THE MILLRACE

The following is a proposal for the future development and care of the millrace. There are a variety of ways that development can take place. However, it is obvious that the millrace should be considered as an entire system, not as bits and pieces. In the past, the race has passed through a long phase of non-planning. Individuals did as they pleased, with minimal consideration for the effect their actions would have on others (especially downstream) or their impact on the millrace as a whole. As has been obvious in other environmental situations, a system must be seen as a whole, or vital qualities of the system are lost.

The traditional approach to consideration of a system as a whole has been master planning. However, there are many inherent problems in this approach. In essence, a master plan is a "map of the future," which prescribes land uses and functions; it depends upon the future's remaining a continuation of present-day trends. However, it is not possible to fix today what the environment will be tomorrow. Therefore, a master plan does not take into account the natural and unpredictable changes that take place in time.

As soon as an event changes or modifies circumstances, the master plan becomes an interesting relic of the past, no longer applicable to the current situation. The most glaring problems of master planning are the inaccuracy of future predictions, disregard for the minute relationships between places, and alienation of, and insensitivity to, the needs of users.

Another method for considering a system in a holistic manner has been developed by Christopher Alexander of the University of California at Berkley. Rather than attempting to guess what the future will be, and making proposals based on such guesses, he advocates dealing with the present situation. Through the use of patterns (a general planning principle which states a problem that repeatedly occurs, its range of contexts, and graphically depicts features necessary for a solution), the users (the people most concerned with the situation) are able to diagnose and repair the situation. The idea of the user as the planner of his environment is based on the theoretical concepts of territoriality and manipulation of the environment, and the reality that the user knows more about his needs than the non-user. This approach institutes a system of continual repair and adjustment to changing users and needs. It proposes a dynamic and continuous view of the environment, versus the static and discontinuous view of master planning, a system of repair versus replacement. The following is an example of how Christopher Alexander's principles were used to design the University Millpond.

A CASE STUDY: THE MILLPOND PROJECT

The initial stimulus for the millpond project came through a monetary contribution by an anonymous donor. Through the contribution, it was possible for the University to hire Cornell, Howland, Hayes, and Merryfield, an engineering firm, to investigate the feasibility of reinstituting a gravity flow system in the millrace. The idea of returning to a gravity flow system was stimulated by the need to increase the flow of the millrace, and by interest in use of a natural energy source. Cornell, Howland, Hayes, and Merryfield found it would be possible to reinstate the gravity flow system, and proposed three possible ways of doing it. Upon this conclusion, the rest of the donor's money was assigned to the enhancement of the millpond area as a wildlife habitat.

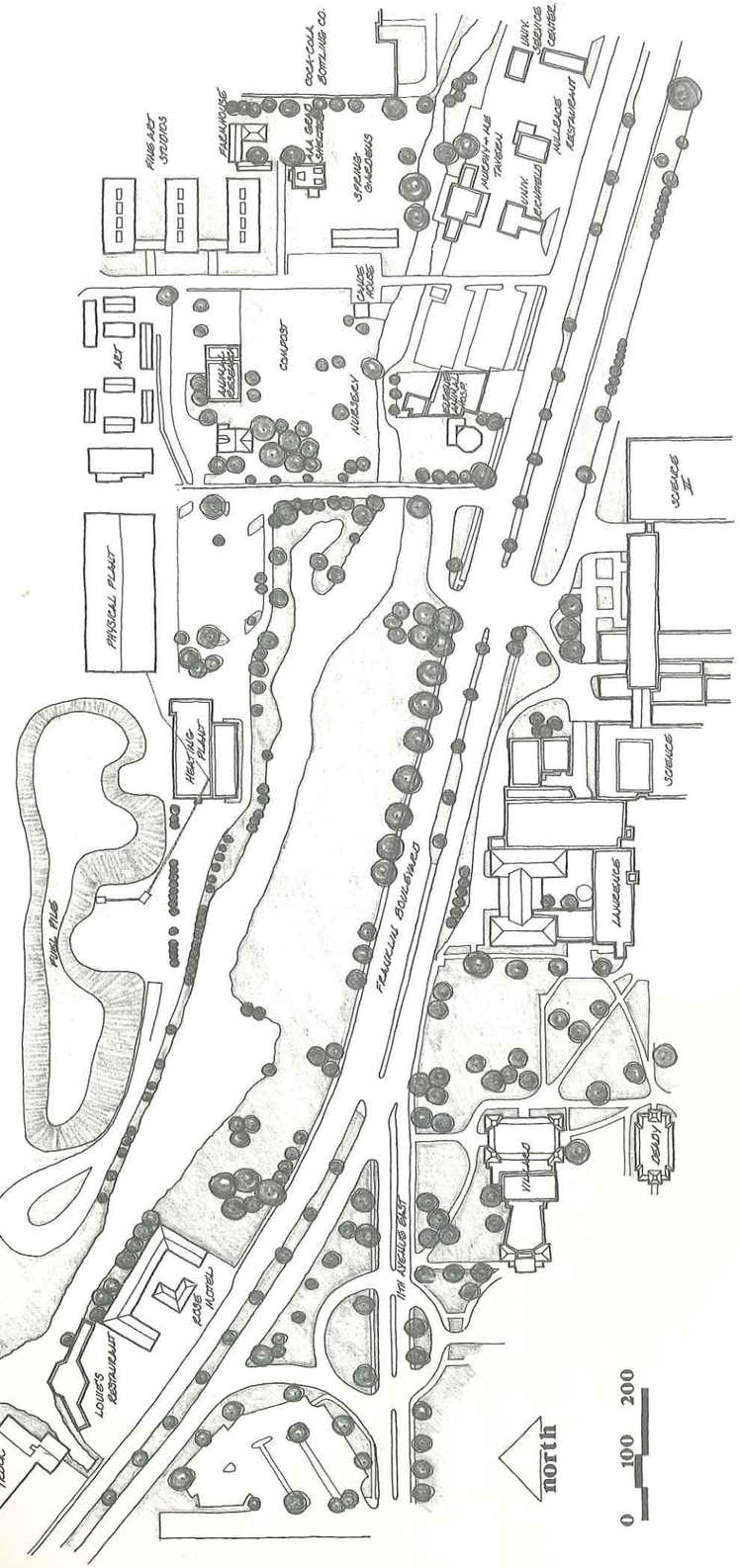
On April 17, 1974, John Lallas, Executive Dean in the President's Office of the University of Oregon, called a meeting of people concerned about the millrace: Jerome Diethelm, Head of the Department of Landscape Architecture and Chairperson of the Campus Planning Committee; Ken Morin, Chairman of the Mayor's Millrace Commission; Walter Wentz, Head of the Millrace Volunteers; Greg Leo, President of the Associated Students of the University of Oregon; Harold

Babcock, Director of the University of Oregon Physical Plant; and Judith Rees, Graduate Student in Landscape Architecture, doing a master's thesis on the millrace. During the meeting, various ways of creating a design for a wildlife habitat in the millpond area were discussed; concern seemed to center on the peninsula and stabilization of the eroding edge. At the conclusion of the meeting a design team of Jerome Diethelm, Walter Wentz, and Judith Rees was appointed.

On April 18, 1974, the design team met with Walter Jubber of the State Wildlife Commission to discuss the development of the millpond as a wildlife (duck) habitat. Mr. Jubber suggested the duck population be limited and stabilized, and that natural food sources and wildlife cover be increased and improved. The design team also met to discuss other problems of the area: stabilization of the millrace edge, elimination of pollution, improvement of public access and public facilities, separation from Franklin Boulevard, the University Physical Plant, and Mack Trucks, Inc., and increased supportiveness of the area.

On April 26, 1974, the team met with the original group to present its identification of major problems, an enlargement of the original issues, and a tentative schedule. At that time, it was suggested that the area of concern should be extended eastward to Murphy and Me Tavern and the spring garden area, and westward to Mack Trucks and the Rose Motel. It was also suggested that a design for the millpond be developed according to the new University planning policy.

THE MILLPOND



Concurrent with this progress the University was adopting a new planning process proposed by Christopher Alexander of the University of California at Berkley. The new policy was based upon six general planning principles:

1. The Principle of Organic Order: Planning and construction will be guided by a process which allows the whole to emerge gradually from local acts.
2. The Principle of Participation: All decisions about what to build, and how to build it, will be in the hands of the users.
3. The Principle of Piecemeal Growth: The construction undertaken in each budgetary period will be weighted overwhelmingly towards small projects.
4. The Principle of Patterns: All design and construction will be guided by a collection of communally adopted planning principles called patterns.
5. The Principle of Diagnosis: The well being of the whole will be protected by an annual diagnosis which explains, in detail, which spaces are alive and which are dead, at any given moment in the history of the community.
6. The Principle of Coordination: Finally, the slow emergence of organic order in the whole

will be assured by a funding process which regulates the stream of individual projects put forward by users.

The new planning policy seemed especially well suited for the millrace because of the diversity of users and concerns involved. Harry Van Oudenallen, Campus Planner, suggested which patterns the design team might consider first, and people who might be interested in working in a user group. Initially there was some difficulty in forming the user group because the school term was half finished at the time. Finally, a group was formed: Judith Rees, Walter Wentz, Georgia Bizios (a graduate student in Architecture doing a master's thesis on patterns recognizing the importance of water in the environment), Karen Ross (a student in Architecture), Mark Mannarelli (a student in Business Administration, a resident of a millrace fraternity, and a member of the Millrace Volunteers), and Jerry Koike (a student appointed by Greg Leo as an Associated Students of the University of Oregon and fraternity representative).

At its first meeting the user group discussed how the pattern language worked and which patterns it would look at first. At the second meeting the group walked over the entire site; Walter and Judy related what they had learned in their preliminary investigation. At its third meeting the group settled down to a discussion of the patterns. It did not meet on the site because of rainy weather and

noise from Franklin Boulevard and the University of Oregon Physical Plant. However, the group would walk over the site periodically, reviewing patterns and their relationship to the physical reality of the millpond. Typically, the group met in Lawrence Hall with a map of the site and one set of patterns. One group member would read a pattern and the rest would listen; the group would then thoroughly discuss how the pattern did or did not apply to the millpond area. Some patterns seemed perfectly suited to the area, others seemed to apply in modified form, and others not at all. The group would come to a consensus about each pattern before going on to the next. (See Appendix E)

When the user group had discussed about two-thirds of the patterns, it decided to make a priority list because of limited funds. First, the group decided its total area of concern seemed to fall within two distinct geographic areas, the Physical Plant millpond, and the Canoe House area. Both areas were viewed as equally important; however, it was decided that the millpond should be of first priority because it was in a state of rapid deterioration, initial improvements in the area would be less expensive, and the pond had been the area of initial concern. Therefore, the group concentrated its first effort on the millpond area, and separated those patterns which concerned only the Canoe House area into another group.

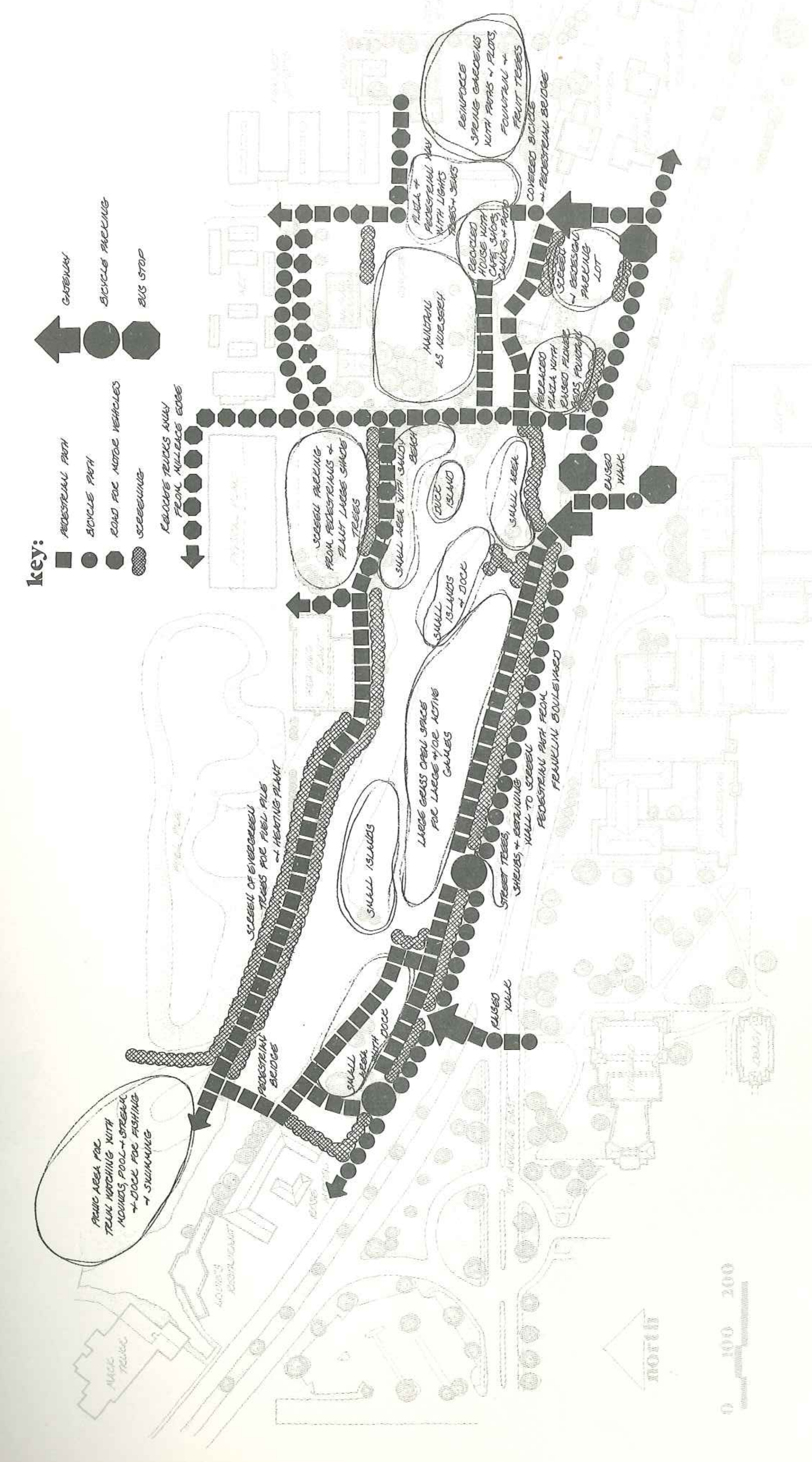
At this time the user group met with John Lallas and the original committee to discuss its idea, to get feedback,

and to decide upon a list of priorities for the millpond area itself, in order to determine where the available funds should be spent first. The following decisions were made:

1. The street trees along Franklin Boulevard should be filled in, and shrubs planted beneath them in order to screen the race;
2. The large open area on the southern bank should be divided into smaller areas with trees;
3. Trees should also be planted to screen the heating plant and fuel pile;
4. The millrace edge should be planted to provide winter duck food and to prevent erosion;
5. The peninsula should be cut off into an island to provide refuge for the ducks, and several islands for ducks and people should be carved out of the south bank;
6. The duck islands should be surrounded with a barrier of prickly shrubs to discourage ducks and people; and
7. Two docks and a sandy beach should be provided as penetrations of the planted edge, allowing access to the water and places for safe disembarkation of canoes.

A rough estimate of the materials was submitted to the Physical Plant in order to determine the cost of these changes.

THE MILLPOND: PATTERN ANALYSIS



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GLOBAL PATTERNS

10. Magic of the City: This is an all encompassing pattern which defines the Millrace's significance to the City as a whole, rather than just to the University. The Millrace is a unique feature in Eugene's downtown area.

24. Sacred Sites: The Millrace is both a historical landmark and a place of natural beauty. Historically it is significant to Eugene because it maintains the City's link to its founders, and was the cause of Eugene's economic growth in early years. It is also of nostalgic significance to the University of Oregon.

25. Access to Water: The Millrace is precious to the City and the University campus because it allows such ready access to water; it is the most easily accessible body of water in the downtown and campus area. The millpond area is the gateway to the Millrace, because the Millrace is publicly accessible in this area and also affords connection to the more private areas by means of canoes and kayaks.

64. Pools and Streams: This pattern reinforces the importance of maintaining the Millrace (not allowing it to be further destroyed) by cleaning it up, increasing the flow so that more varied kinds of activities can be supported, and connecting it to other water systems such as Amazon Slough, and thereby, Fern Ridge Reservoir, and the Willamette River.

TRANSPORTATION: BUS, CAR, BIKE, PEDESTRIAN

16. Web of Public Transportation: This pattern suggests strong public transportation links to the Millrace should be made, especially in the millpond area, in order to decrease dependence on cars, and to make the Millrace more accessible to all types of people, particularly the less mobile: the young, the old, and the poor.

22. Nine Percent Parking: This pattern is especially important to the millpond and Millrace as a whole. Parking is a particularly incongruent use of the Millrace edge, and yet parking lots dominate its edge more and more.

49. Looped Local Roads: In keeping with the relaxed and leisurely atmosphere of the millpond area, we suggest the vehicle road over the Millrace be maintained as a looped local road so that traffic is kept to a minimum, and low speeds are encouraged. Therefore, the only bridge serving vehicles should be the Physical Plant bridge. The other bridges should serve only pedestrians and bikes.

51. Green Streets: We suggest the fire lane serving the landscape architecture greenhouse and architecture graduate shelter be maintained as a green street. It would greatly benefit by the change: less reflected heat summer and less mud in winter. We suggest that the existing truck route also be maintained as a green street. In both situations only minor changes are necessary, as neither is currently paved.

53. Main Gateways: Because the millpond area is so linear in nature, we are proposing a number of gateways along its Franklin Boulevard edge. The first would be located where most pedestrians now cross at the lights. We also feel another major gateway should be located across from Deady Hall and Villard Hall. The third suggested gateway would be in the canoe house area, for it is a major connector, not only to the Millrace, but also to the river, bike path, Autzen Stadium, and Alton Baker Park. The first two gateways might be as simple as a widened space between the street trees with columnar basalt markers. The third might consist of street trees and a special pedestrian/bike bridge.

54. Road Crossing: Connecting to the first two gateways, we are proposing that Franklin Boulevard be raised to allow for a more secure pedestrian crossing, and to facilitate access to the millpond for people in wheelchairs. These two crossings would occur where traffic lights already exist; however, it will be necessary to lengthen the crossing time allowed.

55. Raised Walk: Rather than raising the walk along Franklin Boulevard, we are suggesting that the existing walk be left as it is and an alternate system be provided. The existing path would be used by bicyclists and pedestrians immune to car noises and fumes.

56. Bike Paths and Racks: We feel bikes should not be encouraged along the edge of the millpond area. If located along the edge, they would block pedestrian access to the water, and might also result in unfortunate duck/bike interactions. However, it is felt that bikes provide an important means of transportation to the millpond, and one which would we would like to encourage because of their minimal environmental impact. Therefore, we are proposing that the existing sidewalk along Franklin Boulevard be used as a bike path, and that secure bike racks be provided at two locations along its length. In this way, bicyclists would be encouraged to use the site, but to leave their bikes in appropriate areas. We are also encouraging the connection of the Franklin Boulevard bike path and the Willamette River bikeway (Valley River, Alton Baker Park, and Springfield) to the campus by the two raised walks. Two connectors via the Autzen Stadium Footbridge are provided, one to go over the Physical Plant bridge and past the animal research and art buildings, and the other to go by the canoe house. Bike racks would be provided at the canoe house.

64A. Bridges: Two bridges already exist over the Millrace in the millpond area. We are proposing that a third be added at the west end of the millpond. It would be for pedestrians only. This would allow a continuous pattern of circulation around the millpond. It would allow access to the Kincaid exit and the Willamette River. The area west of the fuel pile would be developed to encourage picnicking, train watching, fishing, and swimming. The two existing bridges need repair or replacement. The one to the Physical Plant should be maintained as a truck, car, bike, and pedestrian bridge, while the promenade bridge should be for bikes and pedestrians only. The west and promenade bridges should provide places for people to pause and watch the goings-on, and should, perhaps, be covered.

92. Bus Stop: Presently, buses stop randomly along their route to pick up passengers. However, to encourage bus riding by university people, bus stops with shelters should be provided. We are proposing an east-bound stop in front of the Science Building, and west-bound stops directly across from the Science Building and near Murphy and Me Tavern.

97. Shielded Parking: There is more land given over to parking in the millpond area than is necessary. Therefore, we are proposing elimination of those parking areas which particularly infringe upon its edge: parking behind the sculpture dome and parking across from the canoe house in the spring garden area. Because cars have so heavy an impact on the Millrace, and are out of keeping with its mood, parking lots near its edge should be heavily screened. The existing Physical Plant lot is already adequately screened from the Millrace, but could use more shade trees within it to protect cars from the sun. However, the lot across from the canoe house needs to be screened and tightened up (the lanes are much wider than necessary), and shade trees should be provided.

103. Small Parking Lots: Although we are not limiting the two major lots to the six-to-eight car limit, we are softening and lessening their impact with plantings. At this time, it is necessary to maintain these lots because of the number of people still using private transportation. With a changing trend toward public transportation, these lots could gradually be modified to conform with this pattern. We strongly recommend that some of the spaces (six to eight?) in the canoe house parking lot be designated as visitor parking. A sign indicating this, clearly visible on Franklin Boulevard, should be erected. This lot seems to be the better of the two for visitor parking, because it is more easily visible from Franklin Boulevard, less used than the Physical Plant lot, nearer to the canoe house, and causes less congestion and interference with Physical Plant trucks (i.e. safer).

31. Promenade: The beginnings of a promenade already exist on the roadway past the canoe house. We are proposing that it be strengthened by maintaining the canoe house bridge for bikes and pedestrians only, that the new bridge be

designed to encourage pedestrian loitering, that the pavement be changed to draw attention to the space as special (and to slow down bicyclists), and that the parking area across from the canoe house be made a widening of the promenade in which visitors could sit and watch the activity in the spring gardens (the greenhouse would be relocated).

120. Paths and Goals: We are proposing that pedestrian paths be circular so that a diversity of circulation is encouraged. Therefore, a pedestrian path should be formalized along both edges of the Millrace between the canoe house and Physical Plant bridge areas; a larger loop should go from the Physical Plant bridge along the existing truck road to the north of the Millrace over a pedestrian bridge by the Rose Motel, and back along the south side. The truck road on the north shore of the Millrace would have to be relocated in order to allow pedestrian access to this area. The rerouting will also help to lessen noise and pollution from dust, sawdust, and truck/Millrace mishaps. Along these two major pedestrian systems would be located the canoe house, the University nursery, a beach area, public parking, a picnic area with a stream and a place to watch trains, a pedestrian bridge, docks, sitting areas, water fountains, bike parking, bus stops, a terraced plaza, a pedestrian and bike bridge, pedestrian crossings to the campus, and spring gardens.

121. Path Shape: Both in the promenade area and the sitting places, the pedestrian path would be expanded to encourage and accomodate more intense activity.

123. Pedestrian Density: The proposed promenade, with the addition of its extensions next to the canoe house and spring gardens, presently seems to be about the appropriate size.

150. A Place to Wait: One primary waiting activity is for the bus; therefore, we are proposing small structures which provide a place to sit comfortably, and which give protection from rain and sun. Another waiting place is by the canoe house; we are suggesting a street cafe type atmosphere, a place to eat, read, or talk with friends and watch the race flow by.

OPEN GREEN

60. Accessible Green: This pattern has been amply satisfied in the University area. There are many open greens in the University area, most of them more easily accessible than the south bank of the millpond, and more appropriate for group games. Presently, the south bank is a large grassy open space with only a few street trees separating it from Franklin Boulevard. In order to make the south bank area more attractive, we are proposing more effective screening from Franklin Boulevard and the Physical Plant with trees and shrubs. We are also proposing a division of the space itself into smaller, more positive room-like spaces with the use of plantings and islands. The spaces will be of various sizes; one large open green space will be maintained to allow for large group games and activities.

73A. Play with Water: We are proposing that water from the heating plant which is used for cooling be returned to the Millrace above-ground through the picnic area, rather than underground near the Kincaid exit. Such a change would provide a warm stream and shallow pool in which small children could play in safety. We are also proposing that islands, in addition to the duck islands, be carved out of the mainland. They would provide shallow channels for wading and playing. There would be a gradation in depth and width of the channels as they became distant from the mainland. Stepping stones or bridges would be provided to get to the islands. In a gently sloping area on the north bank of the millpond, a beach area would also provide for gradual and safe access to the water for small children. Fountains, exposed drainage, and irrigation channels would also provide additional, varied, safe exposure to water for small children.

74. Animals: Ducks and geese already exist on the site, but have difficulties during certain times of the year. The ducks need to be able to get away from people and dogs, especially at nesting time. Therefore, special duck islands will be created that will discourage people and dogs with prickly bushes; they will, at the same time, encourage the ducks with an

attractive food source. Other areas of the millpond edge will also be planted with duck food vegetation, because there is not enough natural food to sustain the ducks in the winter. The duck population should be thinned to two or three dozen Mallards in the fall, because that is the maximum number than can be sustained by the natural food supply.

105. Site Repair: We are proposing the most extensive changes in those areas which are in the worst condition:

Area west of the fuel pile	--	Picnic area with stream and pool
Sculpture dome	--	Terraced plaza for sale of crafts, food, etc.
Parking Lot south of canoe house	--	Redesigned with trees and shrubs
Canoe House	--	Redesigned with eating facilities, bathrooms, and outdoor sitting areas

Areas that need some minor improvements, but which should not be built upon or modified greatly, are the spring gardens, the nursery, and the millpond green.

114. Hierarchy of Open Space: This is especially important in two areas: 1) the sitting spaces along the alternate pedestrian path will be recessed into a retaining wall, and will face out towards the race, and 2) the sitting area in front of the canoe house will have a back to the canoe house, and will face toward the Millrace.

161. Sunny Place: Sunny places have been kept in mind while developing the various open spaces. Some areas in the green will be particularly open, and especially good for sunbathing. Other areas will vary in shadiness, in order to provide places to get away from the summer heat.

170. Fruit Trees: Not only do we strongly urge maintenance of existing fruit trees, but we propose that some of the new trees introduced into the area be fruit trees as well. Fruit trees should be located in highly accessible areas where proper maintenance can take place, and where bees and fruit droppage will not cause problems. Further, we suggest that trees and other vegetation which support wildlife should be planted in all areas of the millpond.

171. Tree Places: The street trees along Franklin Boulevard will be filled in and extended along the two existing roadways over the Millrace. Trees will also be used to separate the huge green area by the millpond into smaller, more usable areas. Extensive tree planting will occur in front of the heating plant and fuel pile in order to screen them; these trees will, of necessity, be primarily evergreen to be effective year-round, and planted in naturalized clumps to give better coverage. Trees will also be used as focal points, and will provide filtered shade in such areas as the canoe house, the proposed terraced plaza (formerly the sculpture dome), and the islands. Trees will also be planted in the parking lots to screen and provide shade.

172. Garden Growing Wild: This pattern especially applies to the millpond area where a naturalized wilderness is intended. Especially important is that the edge and islands be left without maintenance, for, presently, only those edges which have been left alone are not eroding. The area east of the Physical Plant bridge is more urbanized and formal in character (the nursery, the spring gardens, the proposed terraced plaza, and the canoe house patio and promenade).

173. Garden Wall: We propose a thick planting of shrubs under the street trees on Franklin Boulevard, to protect the millpond visually and audially. The plantings will vary in height to allow occasional views into the site, and will also have entrances through it for pedestrians and bikes.

THE AREA BETWEEN THE BRIDGES

30. Centers of Action: The canoe house is a natural center of action. It is an intersection of the Millrace and pedestrian and bike paths, and has a variety of existing activity areas (canoe house, spring

gardens, green house, tavern, art studios) and potential activity areas (restaurant, sporting goods shop, bus stop, crafts stalls, small plaza).

33. Night Life: There is already some existing night life in the area (Murphy and Me Tavern) which could be enhanced by providing street lights along the promenade and the small pedestrian loop between the canoe house and Physical Plant bridge (for strolling on hot summer nights). Encouraging development of other businesses such as restaurants, bookstores, and sporting goods shops would add diversity to the shopping and strolling potential.

61. Small Public Squares and (69.) Public Outdoor Room: We are proposing that the area adjacent to the canoe house be developed into a paved public area where people can sit and watch the Millrace flow by, wait comfortably for canoes, or leisurely spend time eating sack lunches or something from a sidewalk cafe.

87. Individually Owned Shops: To increase the diversity of the canoe house area, we propose that the University encourage a diversity of small shops which might lease space from the University. Especially disappointing presently is the way the canoe house is maintained. It is potentially a tremendous generator of Millrace use and appreciation, but is run is such a manner that it has almost the opposite effect. We feel the University should take more interest in the canoe house operation, or allow some independent individual to run the facility so that it would be more responsive to its users (such as the former canoe rental at the Anchorage). Money earned by the canoe house should be put back into canoe house improvements and maintenance, instead of the General Fund.

88. Street Cafe: A street cafe seems like a natural adjunct to the canoe house (such as the old Anchorage). It would provide an alternative to Murphy and Me Tavern and the plastic Franklin Boulevard fare for that end of campus (Lawrence Hall, Science, Administration, Physical Plant, art studios, etc.), and would provide a more sensitive commercial use of the Millrace edge than is presently the case.

90. Beer Hall: Murphy and Me Tavern is adjacent to the canoe house site, and is seen as a positive use. It is hoped, however, that future development will be allowed to use the Millrace edge more effectively. Murphy's is presently hindered by the Oregon Liquor Control Commission ban on public viewing of imbibing.

93. Food Stands: If a street cafe seems too elaborate, something as simple as portable food stands might be encouraged.

104. South Facing Outdoors: The present location of the canoe house, just off the promenade with a sunny space to its south, and next to the Millrace, seems excellent.

125. Stair Seats: A natural area for stair seats is the berm from the pedestrian/bike bridge; another good area, perhaps, would be the terraced plaza (sculpture dome)bank.

169. Terraced Slope: The sculpture dome area is well suited for a terraced slope. It could provide a series of spaces in which a multitude of activities could take place: outdoor crafts sales, eating, studying, informal classes, and access to the water's edge. The existing structures would be removed.

175. Greenhouse: The plastic/railroad tie greenhouse next to the promenade will be moved to a location where it does not block the view of the spring garden for people on the promenade, and where it will have access to electricity and gas.

177. Vegetable Garden: The spring garden should be maintained as an important activity in the canoe house area. It adds interest and diversity. It is well located because of existing structures (farmhouse and greenhouses), soil type, and access to water. No further structures should be located in this area. The existing parking to the west of the spring garden will be removed, and a widening of the promenade with sitting areas and street trees will be provided so that passersby can pause and watch the garden activity.

245. Raised Flowers: Because of the formality of raised flower beds, they seem most appropriate in the canoe house area, specifically, the canoe house patio and the terraced plaza.

DETAILS

90A. Fountains: Fountains for drinking, and for visual and audible enjoyment, should be provided in a variety of places on the site: the canoe house, the terraced plaza, the picnic area, and the Franklin Boulevard pedestrian path.

104A. Site Drainage and (246A.) Paving of Outdoor Rooms: Drainage from roads and paved areas should be allowed to drain in exposed surface channels into the Millrace. The natural topography of unpaved areas will take care of themselves.

126. Something Roughly in the Middle: All open spaces will be designed with "something roughly in the middle," except for the large grass areas on the bank of the Millpond, which we envision as a place to play frisbee, football, and other active games.

169A. Irrigation: Instead of extending the underground sprinkler system already existent in the millpond area, we propose using water from the Millrace to irrigate such areas as the spring gardens, the nursery, and the raised flower beds, by means of hand pumps, rain, and fountain runoff.

207. Good Materials: In general, materials used in construction should be brick or stone for walks, plazas, and promenades. Structures such as the boat house, bridges, trellises, etc., should be built of wood and stone.

241. Seat Spots: We are proposing seat spots along the pedestrian path next to Franklin Boulevard, to the north of the canoe house parking lot, west of the spring garden, and in or near the terraced plaza, the canoe house, and pedestrian/bike bridge. Some of the seat spots will be rigidly fixed with traditional benches; others will consist of retaining walls, raised flower beds, stair steps, and, as in the case of the sidewalk cafe, movable tables and chairs.

243. Sitting Wall: Walls could be used for sitting along the Franklin Boulevard pedestrian path, near the terraced plaza, north of the canoe house parking lot, and, perhaps, in the promenade expansion.

247. Paving with Cracks Between the Stones and (248.) Soft Tile and Brick: All paths and terrace areas should be paved with brick, native stone cobbles, gravel, or wood decking. Concrete, particularly, should not be used in this area. In most areas, brick, stone, or cobbles would be soft-set (without mortar). However, in an area such as the promenade where cars might use the area, mortar could be used if necessary.

The user group also felt a survey of the area would be necessary to locate island cuts correctly, to aid in the design and construction of the docks, and to help future user groups that would work in the area. It was envisioned that the goal of the present group was not only the design of $16,000 worth of improvements in the millpond area, but also the identification of other problems in the area and the creation of suggestions for future user group projects when additional money came available. Because of the overview nature of the current user group, it seemed especially appropriate that the survey be done at this time in order to facilitate future projects of smaller scope, such as the Canoe House or the pedestrian/bike bridge. There was some opposition to the survey proposal, however, and when the Physical Plant estimate of the cost of the millpond changes was completed, the survey was obviously out of the question. The estimate came to a grand total of $26,000.

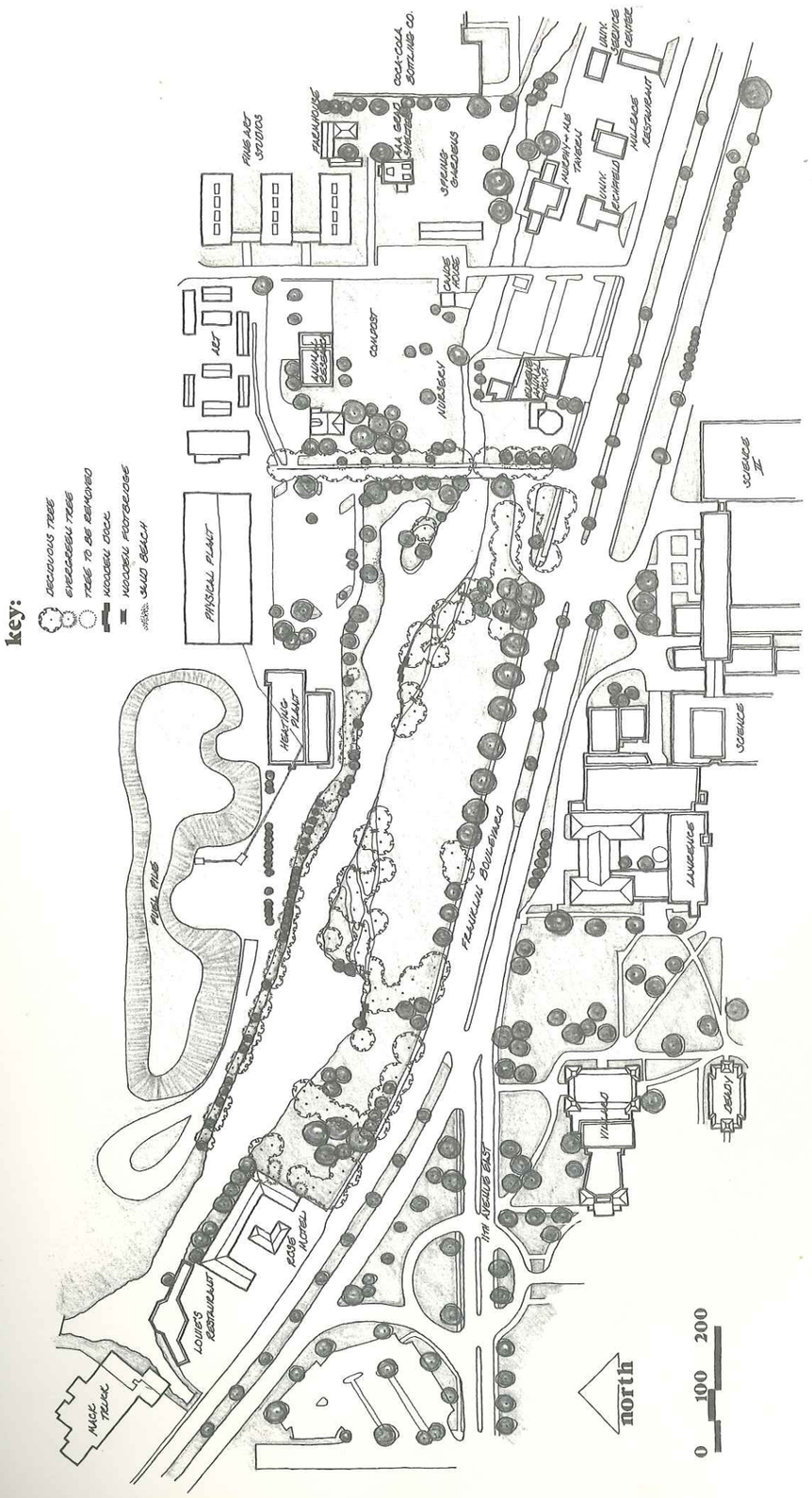
During this period, the user group completed its discussion of the patterns for both the millpond and Canoe House areas, and did a write-up of the discussion. The final proposals, based on patterns and other relevant data, was then put in schematic form, and a plan of the initial changes was drawn up. At this point, both the schematic proposals for the entire area and the specific changes in the millpond area were presented to the Campus Planning Committee. There was a lengthy discussion, during which

doubts about encouraging people to use the millrace (because of its polluted condition) were expressed. Concerns about pedestrian access, public parking, and people in wheelchairs were also raised. These concerns had all been discussed and provided for by the user group in the schematic proposals, but their solutions were dependent upon future monetary contributions for implementation, as are plans for elimination of pollution in the millrace.

After approval from the Campus Planning Committee, and after estimates from the Physical Plant were received, another user group meeting was held to determine what items could be cut back or eliminated in order to bring the project within its $16,000 budget. First, the group decided the Franklin Boulevard shrubs were expendable for the time being. They were very expensive and had hidden costs the group had not considered, such as irrigation and bed preparation. Another change was in the size of street and millpond trees to be used; ceilings were put on the amount to be spent for each tree, but the group agreed to get as large a tree as possible within its limits. The last change was to lower the cost of the docks; it was decided the millpond should be drained and the posts dug and set, instead of piles driven.

Concerns expressed by Harold Babcock and Ted Burns, University of Oregon Landscape Superintendent, about possible swampiness of the beach area, and irrigation and maintenance of the islands were also discussed at the meeting.

THE MILLPOND: PROPOSED CHANGES FOR THE IMMEDIATE FUTURE



The user group reaffirmed the importance of the beach, both as access to the water's edge for people and as a source of grit for ducks. To assure that it would be well drained, the group decided the beach area should be excavated, a layer of gravel added, and sand put on top. Because of the difficulty in providing maintenance or irrigation to the duck islands, it was decided such activities should be discontinued; however, irrigation and minimal pruning maintenance would continue on the people islands. It was also agreed that, because no money was available for a survey, the staking for the islands would be done by members of the user group.

Implementation of the immediate project must now wait for acqusition of materials and cool rainy weather suitable for planting. As far as the schematic proposals for future development, the user group felt it was necessary to look at the millrace as a total system. It believes future groups should keep this in mind as well. However, the group feels it has pointed out projects that future groups might investigate in greater detail, and eventually implement. And although the group regrets that it will not be able to take an active part in these future design projects, it feels assured that this is in line with Christopher Alexander's view of incremental growth, and that future participants will add to the representative quality of millrace user groups. Because the millrace is one of the

University's centennial projects, the user group also feels assured that money will be made available in the future for both major and minor rehabilitation plans.

CONCLUSION

In order to make the millrace fully usable for the citizens of Eugene a number of things must be accomplished. The following is only a general list of the most important, and its order is not necessarily significant.

Of major importance is the involvement of as many people as possible in the millrace, especially the local neighborhood groups (West University Neighbors and Fairmount Neighbors), residents and property owners of the race, the University, the City, the Mayor's Millrace Commission, the Millrace Volunteers, alumni, and interested townspeople. Involvement should take two forms, education and active participation. The first could be accomplished through articles in the Eugene Register-Guard on millrace history and its potentialities, and by special programs for neighborhood groups and schools. The University could promote the second form, participation, by publicizing its facilities for the public (free parking, canoe rentals, etc.). It could initiate a campaign to acquaint the public with the millrace by offering free canoe rentals on Saturday mornings or every third Thursday. Without community involvement and support, it will be next to impossible to convince the City government to take any action in the millrace's behalf.

Acquisition of recreational easements for the bed of the millrace is one task which should be undertaken with community support as soon as possible; the most recent attempt has lost force and needs to be revitalized. Acquisition of easements would probably be facilitated if a standardized form (such as outlined on page 99) was drawn up; this would require legal assistance from City attorneys, University attorneys, or private attorneys who were willing to donate time and expertise. Acquisition of the easements might goad the City into taking more interest in the millrace.

Another activity which could be organized with grass roots support is the cleaning of the millrace in the spring. This should be a far more extensive endeavor than those in recent years (as outlined on page 61). Under pressure from the neighborhood groups, property owners who have granted easements, and the University, the City might be persuaded to donate heavy machinery and labor. Oil traps (as outlined on page 63) for the storm drains should also be installed as soon as possible. These might be financed with money left from the millpond project, and installed by the University Physical Plant employees.

Completion of the original millpond rehabilitation plans is extremely important. This will require help from people willing to donate time and energy. Lilyturf and daylilies, donated by the Soil Conservation Service, need to be planted at the edges of the new islands in the

millpond area. Bridges and docks need to be built; they are of simple construction, and could be built by architecture students or Action Now.

In addition to rehabilitation of the millpond area, other repairs are necessary (page 104); specifically, the canoe house area is in dire need of renovation. Further rehabilitation of these areas is dependent upon donation of funds to the University; such funds may be donated in the near future, as the University is mounting its Centennial Fund Campaign for the coming year. It is important that the first donations are used to improve the millpond and canoe house areas as soon as possible, so that these features may serve to attract additional funds for further improvements. These two areas are the most visible and accessible to the public, and will serve to stimulate public understanding of the potentiality of the millrace and its uses.

Rehabilitation of the canoe house is particularly important; the existing structure leaves a great deal to be desired, as does the management of the facility. One suggestion for inexpensive and harmonious development of the canoe house is to move a residence that might otherwise be demolished to the present canoe house site. One possible candidate for such a plan is the Calkins House, presently located on the southwest corner of Eleventh and Patterson Streets. Such a structure could support activities other than canoe rental, as did the "Anchorage." It would be strongly recommended that such a facility be leased to

private individuals so that it could be run in an efficient and enthusiastic manner. Additional improvements in the millpond and canoe house area could occur as other funds became available.

The Centennial Funds raised by the University are also intended for rehabilitation of the intake channel and the diversion dam. However, before any definitive action is taken for this repair, consideration must be given to the various alternatives for getting water out of the millrace. One proposal, connection to the Amazon Slough, will involve much red tape. It will take the coordination of the Army Corp of Engineers, the City, and the West University Neighbors. In order to finance such an endeavor, the City must acquire federal grants, Community Development Funds, and Army Corp funds. The Army Corp of Engineers is proposing to connect the Willamette River with Fern Ridge Reservoir by digging a canal through the Bethel-Danebo area. However, a connection via the millrace and Amazon Slough through the west university neighborhood, though the area is more built up, would be much shorter.

After recreational easements have been acquired, the millrace should be rezoned as a Special Development District, and a Millrace Review Board should be formed. The review board should consist of concerned persons from the University and the City, a millrace resident, a millrace businessperson, a lawyer, and a local historian, so that all areas of concern are represented. The board should function

as a user group for the entire millrace. The purpose of this group, taking the diverse viewpoints into account, would be to diagnose the condition of the millrace and agree upon a concept of the millrace as a whole. The board would also review all development affecting the millrace.

It would be best if all abutting property owners joined in ititiating such a zone change request; however, this seems unlikely. In any event, all interested abutting property owners should be encouraged to request such a change; those in opposition might eventually comply as a result of social pressure. Finally, the City might initiate rezoning of the remaining parcels if the public was supportive.

Now is the time to act on behalf of the millrace, because of interest in the Centennial, the availability of funds, and the increasing concern about the livability of cities. Further, delays will only diminish interest and aggravate an already dire situation. Only when it is thought of holistically, taking into account all the people it affects and is affected by, will the millrace again become a vital thread in the fabric of life in Eugene.

A:60, 3/1/1856, SHAW TO BRUMLEY & MITCHELL, $5,000, 2/3

"Beginning at the northwest corner of Shaw land claim, thence east along the north line of said claim 11 chains, thence south 21 chains, thence west 11 chains to the west line of said Shaws claim thence north along said west line 21 chains to the place of beginning containing 23 acres of land more or less.

The water power upon said premises with the right of way over said Shaws claim to bring all the water that may be required, therefor the words 'Right of way' are hereby defined to include all necessary dirt and stone being adjacent to said raceway for the purpose of keeping the same in repair."

C:295, 5/10/1859, SMITH TO SHAW, $1,800, 1/3

Same as A:60, EXCEPT "lying" instead of "being" in Line 10.

C:308, 5/17/1859, SHAW TO MITCHELL, $1,700, 1/6

Same as A:60 Lines 1-7, then:

"way over said Shaws land to bring all the water that may be required therefor to include the right to dig the said raceway over said Shaws land claim wider and deeper and bank the dirt or stone taken out of the race at any time or times. Sufficient to furnish a sufficient quantity of water to drive all the machinery that may at any time or times be placed on the above described premises of whatever kind or nature. Also to include all necessary dirt and stone lying adjacent to said raceway for the purpose of keeping the same in repair. Reserving to the grantor the right to take water out of the slough above the dam for other purposes than running the other machinery below."

C:309, 5/17/1859, MITCHELL TO SHAW, $1,700, 1/2

Same as A:60 Lines 1-6, then:

"the water power upon said premises."

C:352, 6/29/1859, SHAW TO SMITH, $6,000, 1/2

Same as A:60 Lines 1-8, then:

"be required to run the mills thereon and all other mills or machinery that may at any time or times be placed on the above described premises of whatever kind or nature, Also the right to dig the present raceway as deep and wide as may be necessary and to bank the dirt and stone on either side, Also to include sufficient dirt and stone lying adjacent to the dams for the purpose of keeping them in repair... the exclusive right to use the said waterpower or privilege for flouring or grist mills and lumber or saw mills... reserving to the grantor the right to take water out of the slough above the main dam for the purpose of driving any mills or other machinery there for the purposes above mentioned...at any time or times they may wish to use said water, being at his or their expense of putting or bringing into the slough as much water as they may see fit to use for mills or other purposes and by paying their proportional expense keeping the same in, Also repairing the main dam and headgates at the head of the slough provided there should be one put in."

G:581, 1/28/1870, BRUMLEY TO OSBURN, UNDERWOOD, & PATTERSON, $1, 1

"All that certain piece or parcel of land known as the Eugene City Mill property," then same as A:60 Lines 1-6.

"the water power upon said premises, Also the right to dig the present raceway as deep and wide as may be required to run the mills thereon and all other mills or machinery that may at any other time or times be placed thereon also the right to dig the present raceway as deep and wide as may be necessary and bank the dirt and stone lying adjacent to the dams for the purpose of keeping them in repair."

H:783, 3/30/1872, PATTERSON TO UNDERWOOD & OSBURN, $10,000 1/3

Same as G:581 Lines 11-12, then:

"the water power upon said premises, also the right to dig the present raceway as deep and wide as may be necessary to run the mills thereon, and all other mills and machinery that may at any time or times be placed on the above described premises and bank the dirt and stone on either side, also to include sufficient dirt and stone lying adjacent to the dams for the purpose of keeping them in repair, also the right to take water out of the dams for other mill purposes by increasing the flow to the extent of the amount so taken out."

A: Lots 6 and 7 and fractional Lots 5 and 8 in Block 15 in Skinner's Original Plat;

B: Lot 5 in Section 33, 17-3;

C: Lots 1, 2, 3, and 4 in Block 5 in Skinner's Original Plat;

D: Beginning at the NW corner of John Leasure Donation Land Claim (DLC), thence S 14.65 chains, thence E 1 chain, thence N 12.50 chains to the bank of the Willamette River, thence N 40° W 1.50 chains, thence SW 1 chain to the point of beginning.

E: Beginning 32 rods N of the SW corner of the Leasure DLC, thence S 75°40'E to the left bank of a slough thence up the left bank to the S boundary of the DLC, thence E on boundary across the slough to the right bank, thence down the right bank to the left bank of the Willamette River, by the meanderings thereof to the NW corner of the DLC: ±7 acres except 2 pieces containing about 2.71 acres sold by Leasure to Daniels and Shaw; and

F: NE corner of the "E11" of Shaws DLC, thence W to the NE corner of the Eugene City Mill tract, about 25', thence S along the E boundary of the mill tract 150 yds., thence E to the E boundary of the "E11," thence N 150 yds.: ± 1/2 acre.

H:787 3/30/1872, OSBURN TO GRAY, $8,250, 1/4

Same as G:581 Lines 11-17, EXCEPT "on said premises" instead of "thereon" in Line 16, and H:783 Lines 24-29.

A,B,C,

E_1: E without the exception.

G: Lots 1, 2, 3, and NW 1/4 of the NE 1/4 of Section 3, 20-1: ± 162 acres;

H: Lots 1, 2, and fractional Lot 3 in fractional Block 12, and Lots 1, 2, 3, 4, and fractional Lot 5 and so much of fractional Lot 6 as lies E of the millrace in fractional Block 11, and fractional Lot 8 in fractional Block 10, and Lot 3 and fractional Lots 1 and 4 in fractional Block 15, all in Skinner's Original Plat;

I: Shelly's DLC No. 54, 18-2: 162.44 acres; and

J: Beginning at the NE corner of Lot 2 in Block 15, thence S to a point 30' from the center of the tract of the O&CRR as built, thence NW parallel to and 30' distant from said center line to a point where the same intersects the N line of said lot, thence E to the place of beginning, being part of Lot 2 in Block 15.

J:343, 7/28/1874, OSBURN TO UNDERWOOD & GRAY, $2,500, 1/4

Same as G:581 Lines 11-12, and H:783 Lines 20-29, EXCEPT "or" for "and" in Line 22, "or times" deleted in Line 23, "the dams" for "them" in Line 27, and "the extent of" deleted in Line 28.

A, C, E_1, F, I, J, and

H_1: "the S 72' of Lot 3...in Block 15" for "lot 3 in fractional Block 15."

K:278, 8/2/1877, UNDERWOOD & GRAY TO PATTERSON, EDRIS, GRAY, & MISER, $10,000, 1

Same as G:581 Lines 11-18, EXCEPT "on said premises" instead of "thereon" in Line 16, and H:783 Lines 24-29, EXCEPT delete "all" in line 22.

A, C, E_1, F, H_1, J,

B_1: "fractional Lot 5 and 4" for "Lot 5"; and

K: Fractional Lot 8 in Section 34, 17-3.

L:559, 12/7/1878, MISER TO PATTERSON, EDRIS, & GRAY, $2,000, 1/4

Same as K:278 Lines 30-32, EXCEPT delete "to the extent of" in Line 28, and "so" in Line 29.

A, B_1, C, E_1, F, H_1, J, and K.

P:109, 6/1/1882, PATTERSON, EDRIS, & GRAY TO SWIFT, $6,500, 1/4

Same as K:278 Lines 30-32, EXCEPT delete first exception.

A, B_1, C E_1, F, H_1, J, K, and

L: Beginning at a point 14' N of the SW corner of Lot 7 in Block 10 in Skinner's Original Plat, thence S 14', thence E on the S boundary of Lot 7 33', thence NW to the place of beginning, the same being a wedge shaped piece of the SW corner of Lot 7 in Block 10.

30:200, 10/26/1891, SWIFT TO EDRIS, $10,000, 1/4

Same as G:581 Lines 11-18, EXCEPT delete "all" in Line 15, and "on said premises" for "thereon" in Line 16, and H:783 Lines 24-29.

A, B_1, C, E_1, F, H_1, J, K, and L, EXCEPT AA, BB, and CC.

43:524, 7/28/1898, EDRIS TO MIDGLEY & CHAMBERS, $1,650 + $8,100 note, 1

Same as G:581 Lines 11-18, EXCEPT "on said premises" instead of "thereon" in Line 16, delete "all" in Line 15, and "other" in Line 16, and H:783 Lines 24-29.

A, B_1, C, E_1, F, H_1, J, and K, EXCEPT AA, BB, CC, and DD.

68:363, 2/15/1906, CHAMBERS & MIDGLEY TO CHAMBERS POWER CO., $10 & other valuable consideration

"That certain waterpower ditch, canal and raceway... the water for which is taken out of the Willamette River near that certain point known as Judkin's point...and which water is developed into power in said city of Eugene... including all the rights...to operate, maintain and repair said water power, ditch, canal and raceway."

A, B_1, C, K

E_2: "365' N of the SW corner of the Leasure DLC, thence N70°35'E 281' for "beginning 32 rods N of the SW corner of the Leasure DLC;"

H_2: H_1 except Lot 1 and that part of fractional Lot 4 lying N of the O&CRR r.o.w. in fractional Block 15;

M: Beginning 32 rods N of the SW corner of the Leasure DLC, thence S 163', thence S 70°35'W 11'± to the east line of the Eugene City Mill Property, thence N 170', thence E 14' to the W line of the DLC, thence S 4': ± .04 acre;

N: Beginning 32 rods N of the SW corner of the Leasure DLC, thence S 163', thence N 70°30'E 281', thence N75°40'W 273' to beginning: ± .5 acre;

O: Beginning on the E line of the Campbell DLC 11.25 links S of the fir tree which marks the most Sly re-entering angle in the E boundary of the DLC, thence S75 3/4°W 9.86 chains to the W line of the DLC, thence S 5.18 chains to the SW corner of the DLC, thence NE on the S line of the claim 10.50 chains to the E line of the DLC, thence N 3.25 chains to beginning: 4.01 acres;

P: Lots 17, 18, & 19 in Block 34 in Fairmount and an extension of 30' on the S end of said lots to the center of vacated street (Mill);

66' N of the NE corner of the Mulligan DLC, thence N on the W boundary of the Shaw DLC to the intersection of the O&CRR r.o.w., thence SE along the r.o.w. to the NW corner of the Eugene Canning and Packing Co., thence S11°50'W 93.8', thence N89°52'W 65.7', thence S 285' to the SW corner of the Eugene Canning and Packing Co., thence E to NW corner of the Upper Willamette Lumber Manufacturing Assoc., thence S to the SW corner of the Upper Willamette Lumber Manufacturing Assoc., also being the N line of the Eighth and 66' E of the E line of Mill Street, thence W to beginning;

543.5' E and 400' N of the NE corner of the Mulligan DLC also being on the S line of Seventh, thence E 180', thence N to the O&CRR r.o.w., thence NW along the r.o.w. to a point due N of beginning, thence S to beginning; and

Beginning at the NW corner of the Shaw DLC, thence E 11.35 chains to the NE corner of the DLC, thence S1°3'W 150 yds., thence W 14', thence S on the E boundary of the original Eugene Mill Co. to the intersection of the N line of the O&CRR r.o.w., thence NW along the r.o.w. to the SSW corner of the Eugene Mill and Elevator Co., thence N86°20'E 38.75', thence N3°40'W 295', thence W 178', thence N 120' to beginning.

110:435, 3/10/1917, CHAMBERS POWER CO. TO EUGENE WOOLEN MILL CO., $8,000

"the grantor hereby reserves...a perpetual easement and right of way for the waters of its millrace and the several branches and tail races thereof flowing over and across said premises, or any part thereof, to flow, stand and be discharged over and across said premises as they now flow and have been wont to flow, and to maintain its dams, forebays and water wheels on said premises as they are now maintained, together with all machinery and equipment thereon located, and all shafts or shafting utilized in connection with its powerplant, and the right and priviledge to change and rechange from time to time the arrangement and location of any thereof and to improve the same and said mill race and its branches, dams and forebays in any manner, including the right to deepen, widen, or otherwise improve and increase the flow of water in the raceways, forebays and several tail races of said millrace and power plant now flowing across said premises, and also a right of way over and along the banks of said millrace, forebays and tail races for the purpose of improving same, or doing any work thereon, doing no unnecessary damage to said premises in such work.

M, N,

C_1: Except Lots 1 and 2 in fractional Block 5;

H_3: H plus all of Lot 6 lying W of the millrace in Block 11, and part of Lot 5: 8' S of the NW corner, thence W to the alley (N-S), thence S to the SW corner of Lot 5, thence E to the W line of Shaw's DLC, thence N to beginning, in Block 10; EXCEPT the portion of Lots 2 and 3 sold to Ray Goodrich in Block 11, and Lot 3 and fractional Lots 1 and 4 in Block 15;

Beginning 8' S of the NW corner of Shaw's DLC, thence E 105' to the W line of Mill Street, thence N 8' to the N line of Shaw's DLC, thence E 644' ± to the NE corner of DLC, thence S1°3'W 150 yds. along the E line of DLC, thence W 14' to the E boundary of the Eugene City Mill Property, thence S on the E boundary line of said property to an intersection with S line of the O&CRR r.o.w., thence NW along the S line of the r.o.w. to the most Nly NW corner of tract deeded to the Eugene Canning and Packing Co., thence NE across r.o.w. at right angle to the N line, thence NW along the N line of r.o.w. to the most Sly SW corner of tract conveyed to the Eugene Mill and Elevator Co., thence N86°20'E 38.75' to the SE corner of said property, thence N3°40'W 295' to the NE corner of said property, thence W 178' to the W line of Shaw's DLC, thence N; and

Beginning 32 rods N of the SW corner of the Leasure DLC, thence S75°E to the left bank of the slough, thence NW to a point where the S line (if extended) of fractional Lot 3 in Block 12 would intersect the W line of the DLC, thence S.

114:472, 3/10/1917, CHAMBERS POWER CO. TO EUGENE WOOLEN MILL CO. AND PETERSON & ROYSE, $10,000

"That certain water power ditch, canal, and raceway... the water of which is taken out of the Willamette River near Judkin's point...and which is developed into power in the City of Eugene ...and including all rights, privileges and easements of the grantor to operate, maintain, repair, widen and improve said water power ditch, canal and raceway, together with all water wheels, machinery and appliances of whatsoever nature used in or about the operation of said power plant and race...."

B_1, K, O, P, and

Q: Beginning on the N line of Eighth 66' N and 72' E of the NE corner of the Mulligan DLC, thence N to a point 20' S of the N line of Seventh, thence E to a point 123.05' distant from the W line of Shaw's DLC, thence N to the S line of Sixth, thence NE to the N line of the O&CRR r.o.w. (at right angle to the r.o.w.) thence SE along the N line of the r.o.w. to a point directly opposite the most Nly NW corner of the Eugene Canning and Packing Co., thence across r.o.w. at right angles to corner of said tract, thence S11°50'W 93.8', thence N89°52'W 65.7', thence S 285.05' to the SW corner of said tract, thence

E 3.25' to the W line of Upper Willamette Lumber Manufacturing Assoc. tract, thence along the W line of said tract to a point 160' N of the N line of Eighth, thence W 65', thence S to the N line of Eighth, thence along the N line of Eighth to beginning.

159:256, 7/19/1928, EUGENE WOOLEN MILL CO. TO EUGENE POWER CO., $10 and other valuable consideration

Same as 114:472 Lines 33-40.

B_1, K, O, P, and Q

340:163, 1/14/1947, EUGENE POWER CO. TO CITY OF EUGENE, $10 and other valuable considerations

Same as 114:472 Lines 33-40.

B_1, K, O, Q,

Beginning 10' S and 30' W of the reentrant corner in angle in the S boundary of the Campbell DLC said point being 14.35 chains N and 30' W of the most Sly SE corner of the DLC, thence W 8.65 chains to a point 20' E of the W line of the DLC, thence S 4.04 chains to a point 20' E and 20' S of an iron bar at the SE corner of County Survey #468, thence S 7.53 chains to the SE corner of a 5 acre tract convey to Springfield, thence W 6.64 chains to the SW corner of 5 acre tract, thence N 7.83 chains to the S line of Survey, thence W 9.81 chains to the SW corner of Survey, thence S 13.96 chains $\pm$ to the SW corner of the Day DLC, thence E 16.46 chains $\pm$ to the SE corner of the Day DLC, thence N 5.18 chains to the NW corner of a tract (Chambers Power Co. from Campbell), thence N75 3/4°E 9.86 chains to a point 30' W of the E line of the Campbell DLC, thence N 11.05 chains to beginning;

Beginning on the W line of the Campbell DLC 20' S of the SE corner of Survey #468, thence W 6.64 chains, thence S 7.53 chains, thence E 6.64 chains to the W line of the DLC, thence N 7.53 chains to beginning.

Beginning at the SW corner of Lot 1 of Section 34, 17-3, thence on the right bank of the Willamette River according to the U. S. Survey N63°E 5 chains, thence N75°E 9 chains, thence N85°E 6.42 chains, thence N 3.23 chains to the middle of the County Road, thence along the middle of the County Road N82°W 7.38 chains, thence S .58 chain, thence W 12.25 chains to the W boundary of Lot 1, thence S 8.8 chains to beginning.

Beginning at the reentrant corner of the Campbell DLC also the most Wly NW corner of Lot 1, Section 34, thence W 30', thence S parallel to the E line of the DLC 11.05 chains to the N line of tract once owned by Chambers Power Co., thence N75.75°E to the E line of the DLC, thence N to beginning.

Beginning on the W line of Lot 2 in Block 34, Fairmount N15°54'E 249.45' from the SW corner of the Lot also being on the S bank of the millrace, thence S15°54'W along W line of Lot 2 12.25' to the SW corner of tract conveyed to State of Oregon (224:564), thence S59°57'E along the S line of property 66', thence N15°54'E 22.81', thence N78°20'E 24.56' to the S bank of the Millrace, thence N77°58'W along the S bank of the millrace 85.96' to beginning;

EXCEPT: (conveyed by Eugene Power Co. to State Highway) In Lot 8, 17-3-34 beginning 1478.6' N and 73.1' E of the SW corner of Section 34, thence N74°1'30"E along Nly r.o.w. of Pacific Highway 330.9', thence N 46.8' to the Sly low water line of the Willamette River, thence downstream S74°1'30"W 193', thence S27°14'W 153.7', thence S15°58'30"E 15' to beginning.

EXCEPT: (conveyed by Eugene Power Co. to Oldham) Beginning on the N side of the Pacific Highway 29.1' N of the SE corner of Lot 8 17-3-34, thence SW along the N boundary of the Highway 510', thence N to the present left and S bank of the Willamette, thence up Ely and along the left bank to a point due N of the point of beginning, thence S along the E line of Lot 8 to beginning;

EXCEPT: (conveyed by the Eugene Woolen Mill and Peterson to Eugene Fruit Growers) Beginning 226' N and 161.3' E of the NW corner of the Mulligan DLC being 65' W of the W boundary of the tract deeded to the Eugene Fruit Growers (113.352) and being 163' N of the N line of Eighth, thence N 113', thence N10°17'E 351.4' to the corner on the W boundary of tract conveyed to Eugene Fruit Growers (81:461), thence N42°49'E 125' to S line of the SPRR r.o.w., thence S11°50'E 93.8', thence N89°52'W 65.7' along the N boundary of the Eugene Fruit Growers to the Wly NW corner, thence S 282.8' along the W boundary to the S line of Seventh, thence E 3.25' to the NW corner of said tract, thence S along the W boundary 176.1' to the NE corner of tract conveyed to Ford Nelson, thence W along N boundary of tract 65' to beginning;

EXCEPT: (conveyed to Ford Nelson by Peterson and Eugene Woolen Mill) Beginning on the N line of Eighth at the E abutment to the bridge over the millrace, thence E along the N line of Eighth to the SW corner of tract "GG," thence N along the W line of tract "GG" 160' to the NW corner of "GG," thence W a distance equal to and parallel with the SW corner of "GG," thence S to beginning

EXCEPT: A parcel in 17-33- and -34 Lots 5 and 8 resp....

EXCEPT: A parcel in 17-3-33 Lot 4 beginning at the intersection of the Sly r.o.w. of the SPRR and the N line of the Sweet DLC being 486' NE of the NW corner of the DLC, thence S78°27'W along Nly DLC line 194.9', thence 19°55'30"E 99.71' to S line of the RR r.o.w., thence SE along the r.o.w. to beginning; and

EXCEPT: A parcel in the Sweet DLC beginning at same point as above, thence S78°27'W along N line of the DLC 162.3', thence S70°48'E 147' to NW r.o.w. of the Pacific Highway, thence N81°7'30"E along the r.o.w. 134', thence N19°12'E 20' to the S r.o.w. of the RR, thence NW along the r.o.w. line 125.6' to beginning.

R:783, 7/30/1886, EDRIS, GRAY, PATTERSON, & SWIFT TO UPPER WILLAMETTE LUMBER MANUFACTURING ASSOCIATION

AA N side of Eighth 66' E of E line of Mill Street., thence N to S line of Seventh, thence E 160', thence S to N side of Eighth, thence W 160'.

U:166, 10/15/1887, PATTERSON, EDRIS, GRAY, & SWIFT TO BAKER

BB Beginning at a point 66' N of a point 383.5' E of the NE corner of the Mulligan DLC, thence E 120', thence N to the S line of Seventh, thence W along the S line 120', thence S to beginning; also 543.5' E and 66' N of the NE corner of Mulligan's DLC, thence E 180', thence N to the S line of Seventh, thence W 180', thence S to beginning.

25:512, 5/6/1891, PATTERSON, GRAY, SWIFT, & EDRIS TO EUGENE CANNING & PACKING CO., $2,000

CC Beginning on the S side of Seventh extended E 506.3' and 350.5' N of a stone in front of Frazer's Foundry on the S side of Eighth, thence N 218.7' to a point 30' from and at right angles to the center line of the O&CRR, thence N51°10W on a course parallel with the center line 254.7', thence on a line deflecting 117° to the left 93.8', thence on a line deflecting 78°18' to the right 65.7', thence S 285' to the S line of Seventh, thence E on the S line of Seventh 283.25' to beginning: 1.93 acres.

37:229, 5/4/1895, EDRIS TO EUGENE MILL & ELEVATOR CO., $1,500

DD Beginning 120' S of the NW corner of Shaw's DLC, thence E 178', thence S3°40'E 295', thence S86°20'W 38.75' to the N line of the O&CRR, thence N50°43'W along r.o.w. 367' to the S line of Fifth, thence E 127', thence N 66' to beginning.

81:561, 4/23/1910, ALLEN TO EUGENE FRUIT GROWERS ASSOCIATION, $18,000

Same as 25:512 (CC).

90:27, 6/16/1910, WILLIAMS & SHELLY (EUGENE MILL AND ELEVATOR CO.) TO CHAMBERS POWER CO., $50

EE Beginning at the SW corner of fractional Lot 5 in Block 10 Skinner's Original Plat, thence N 32', thence E 55' to the E line, thence S along the E line to the S line of Lot, thence W to beginning.

113:352, 1/2/1917, BARNARD TO EUGENE FRUIT GROWERS ASSOCIATION., $6,400

FF N line of Eighth 66' E of E line of Mill Street, thence N ± 334' to S line of Seventh, thence E along S side of Seventh 160', thence S ± 334' to N line of Eighth, thence W along N line of Eighth 160'.

144:34, 11/24/1924, SMITH & CHAMBERS TO FORD NELSON MILL CO., $6,000

GG 66' N and 226.3' E of NE corner of Mulligan DLC, thence N 160', thence W 65', thence S 160', thence E 65'.

Appendix B:

Eugene Register-Guard Articles Concerning the Millrace Zoning Controversy, 1954

Special Group to Study City Millrace Problems

The Eugene City Council Monday night instructed Mayor V. Edwin Johnson to appoint a committee of citizens, city council members, University of Oregon officials and others to make a complete study of the historic Millrace.

The move came as the first action on a varied council agendum.

The Millrace question, long a point of argument, was brought up just as the mayor rapped the gavel to start the meeting. Calvin Crumbaker started the discussion.

He asked for permission to read a statement he had prepared and mineographed for other council members and interested parties.

In the statement, Crumbaker asserted that the city has spent far more on upkeep of the stream during the past seven years than the $20,000 matching money voted by the people in May of 1948, and never officially used.

ESTIMATED COST

Crumbaker went on to explain that as far as he could find the city has been spending an estimated $7,600 a year on the Millrace, in one form or another. This includes labor, use of equipment and actual repairs to the structures along the stream adjacent to the University of Oregon campus. He said his statement was supported by reports of the city engineer's office.

The council president listed, item by item, estimated costs to the city since a restoration project was started in 1947.

INITIAL FUND

An initial fund, he said, took $10,000 of city money to get the project underway after diversion structures and retaining walls had been washed out by winter floods. This money, he charged, was spent prior to any effort of the Eugene Millrace Assn. to get money to match a later $20,000 bond issue approved by the voters.

He then listed $6,000 for the purchase of the Martin Tract at the head of the Millrace as part of the expenditures. This money, he stated, came from park funds.

But the surprise in the statement came when Crumbaker said that the city spent about $7,600 during 1953 on maintenance of the Millrace alone. He later indicated that other years might average the same amount.

This money came from street department funds, and was not budgeted for this work, he declared.

Another $790 of park department money was used for cleaning trash from the stream, he reported. This also was not budgeted for Millrace work, according to Crumbaker.

Crumbaker then summed up the expenses, and figured that the estimated costs for maintenance and all else connected with the Millrace from 1950 through 1954 are $33,561.52.

NEARLY $58,000

Then he pointed out that the total cost for the past four years in operation of the stream has been nearly $58,000. This is in addition to any of the $20,000 contributed by the Millrace Assn.

The councilman added eight points of argument on what the Eugene taxpayer gets for the money spent on the Millrace.

He noted that the Millrace is a private stream, and the public has access only to the surface of the water; the water has been muddied by dredging operations upstream from the intake; the diversion structure costs about $1,000 a year in damage to city-owned property along the north bank of the river; the outlet near Broadway and Mill St. is "grossly inadequate; the stream, if it is bank full, might cause law suits; estimates on complete restoration of the stream, including a greater rate of water flow, run from $143,000 to $301,000; the stream is on the wrong side of Franklin Blvd. from the city for general use as a recreational area.

'PRIVATE DITCH'

In the last argument, Crumbaker declared that "Some critics accuse the Eugene City Council of being niggardly in spending money for Millrace improvement and maintenance. Others may demand that the council justify the expenditure of nearly $60,000 of taxpayers' money to maintain a private ditch, so located that it cannot be considered a public proect."

The councilman, noting that the statement was prepared on his own behalf, then moved that the document be made a matter of record. The motion was seconded by Councilman Ray Siegenthaler. The vote was unanimous, with one councilman absent.

Robert Booth, second in seniority on the council, then commented that he is "glad" the matter is coming up now, prior to a city-wide vote on a council ordinance zoning land on the north side of the stream.

He said that a question of the value of the Millrace has entered into the dispute over the ordinance, and it is important to keep the facts straight on the issue. "Personally," he commented, "I don't feel this (the Millrace) has anything to do with the other matter of zoning."

A BOTHER

At the same time, he added, the Millrace problem has been a bother for some time, and something will have to be done. He then suggested that the mayor appoint the committee to make a complete study of the situation. Booth asked that the committee be composed of residents along the Millrace, other city residents, representatives of University of Oregon groups, members of the Eugene Planning Commission and the city council.

Booth's motion asking for the committee was seconded by Councilman George Owen. This brought another seven - man vote of approval, with Jess Godlove absent.

There was no one in the audience of six persons who commented on the proposal.

Millrace Zoning Row
The Story, Step by Step

By TOM JAQUES
Of The Register-Guard

Arguments over zoning of some Millrace area land in Eugene had already reached a fever pitch last week—a full month before city voters will decide upon two sections of an ordinance zoning the area to light and heavy industry.

Most of the arguments are those that have been making the rounds since the city council passed the ordinance on March 8. Some personalities also are involved. And, even the methods used in referring the two sections of the ordinance to the voters have been questioned.

But through all the smoke and haze of the arguments runs the basic issue—heavy and light industrial zoning of about 65 acres of land between the Millrace and the Willamette River from University St. (extended) to Judkins Point.

WHAT ISSUES ARE

However, this is only a portion of the land involved in the zoning ordinance. The rest of the land has not been at issue in the referendum move. Is is excluded from the May 21 election.

Specifically, city voters will decide:

- Whether or not they want heavy industrial zoning of land between the Southern Pacific tracks and the Willamette River;
- Whether or not they want light industrial zoning of land between the Millrace and the railroad tracks.

All of this land was in the Riverview area that was annexed last Aug. 4. It, like most of Glenwood, remained unzoned while it lay outside the city limits.

Excluding all arguments in this issue, here is a summary of what has happened:

- The land was annexed to the city on Aug. 4, 1953, by vote of the people.
- Oct. 12, 1953: The city council, on motion of Council President Calvin Crumbaker, requested a meeting with the city planning commission to study zoning for the entire Riverview area, including the Millrace land.
- Nov. 1953: Zoning of the Riverview area was referred to the council's public works committee.
- Dec. 14, 1953; The city council referred the zoning to the city planning commission for study on Jan. 5, 1954. The city attorney was instructed to draw up resolutions for this.
- Dec. 28, 1953: The resolutions were adopted. These called for heavy industrial (M-3) zoning north of the tracks and light industrial (M-2) zoning south.
- Jan. 5, 1954: The city planning commission argued the issue at a public hearing. An amended motion was passed (with one member abstaining) recommending that the land north of the tracks be zoned as light industrial land, and that land south of the tracks and abutting the Millrace be zoned for limited industrial use (M-1).
- Jan. 11, 1954: The city council received the recommendations of the planners. The matter was referred to the council's public works committee. The city recorder was instructed to give notice of public hearing for Jan. 25 on the matter "in the form and content of the committee."
- Jan. 25. 1954: The committee reported that the matter was discussed "at some length" and recommended that the portion of land lying between the railroad and the river be classified as heavy industrial in the advertisement for this meeting.

5 WERE PRESENT

The zoning ordinance was then brought out for hearing. Discussions were followed by a motion that the ordinance be held back and referred to the council as a committee of the whole. The territory located between the Millrace and the railroad tracks was to be readvertised for ahearing on Feb. 8 on a light industrial classification.

- The committee of the whole council met at Mayor V. Edwin Johnson's home on Feb. 2 to consider the zoning measure.

City council minutes indicate, "The main purpose of the meeting was to determine what zoning classification should be advertised for the Feb. 8 meeting." Five members of the council and the mayor were present.

The committee recommended that the land north of the tracks be zoned for heavy industry and the land to the south be zoned for light industry.

- On Feb. 8, the council adopted the report and again heard arguments on the zoning issue. The hearing was continued until March 8.
- On March 8, the hearing was again opened to discussion. It was finally passed by unanimous vote of the council. Mayor Johnson signed the ordinance the next day.
- Then on March 26, a group of citizens met at the University of Oregon to start a referendum move against the portions of the ordinance concerning the Millrace-area land.

- The issue was guaranteed a place on the May primary election ballot when the county elections department declared that signatures of 10 per cent of the city's voters had been obtained on referendum petitions.

All these steps led up to the controversy now underway. There will undoubtedly be more arguments before the election.

THE ARGUMENTS

Owners of some of the land have urged that the council-approved ordinance stand as it is. One of them, a partner in a sand and gravel business, has claimed that the riverfront land is good for nothing but businesses such as his, and that the railroad splitting the area ruins possibilities for higher development.

Another argues that development at his warehouse site south of the tracks will be harmed by higher zoning.

On the other side, officials of the University of Oregon, motel owners and men who are planning development of a medical clinic along the Millrace are objecting to the heavy and light industrial zoning.

Citizens' Group Gives Views

The following statement gives the Citizens Zoning Assn's. arguments favoring rejection of the city council's Millrace area zoning ordinance. The association backed the referendum which started after the council passed the ordinance. Voters will decide the issue Friday.

By MARGARET GREGERSEN
Secretary of
The Citizens' Zoning Association

The Citizens' Zoning Association was formed toward the end of March in protest to those two sections of the Eugene City Council's Ordinance No. 10407 zoning properties included in the recent Riverview annexation, in particular Section 2, which would permit M-3 (Heavy Industry) on the land between the Southern Pacific railroad and the Willamette river, east of University street projected, and Section 3 which would permit M-2 (Light Industry) in the same narrow area between the railroad and the Millrace.

We are like any other group of citizens who believe their rights and the welfare of the city generally have been injured by an unwise official action. About 30 people attended, representing a variety of important interests, including the University of Oregon, and we decided to start petitions and submit this problem to all the people.

OVER 3,500 NAMES

In one week's time we obtained more than 3,500 signatures of citizens in all parts of Eugene, nearly twice the 2,040 required, and I mention this to refute the argument that this issue is not of city-wide concern and that the people did not know what they were signing.

There is city-wide alarm. not only because of the future of this area but because the policies of the Council may affect any other area harmfully. There is widespread alarm because the City Council in this action and in others recently has over-ruled the recommendations of its City Planning Commission, which is authorized by law to study such problems with the advice of engineers and recommend policies.

"SPOT" ZONING

The decision on the ordinance was not reached at open council meeting but at a special session as committee of the whole at the mayor's home, and although we were later given a chance to be heard it was plainly a closed matter.

A study of the maps of the two areas affected will show that toward the east the river and the railroad come together on one side and the Millrace and the railroad on the other leaving only very small areas to be used for industry. We think this is a form of "spot zoning" which we are told is outlawed.

MEDICAL CENTER

We do not think the Council's plan is good zoning, even to assist industry, which we all agree should be encouraged. They have paid no attention to a petition to develop a large medical center at one point in the area between railroad and Millrace, with frontage on Franklin boulevard, a development which would carry a much higher taxable return than the use proposed. The home owners in the area, and they are many, were never consulted and they object to this change which will benefit only two companies.

Victor P. Morris, dean of Business Administration at the University of Oregon for many years, has been one of our leaders in this appeal to the people and he has prepared the following summary of the arguments as to why this council ordinance should be defeated by the people:

ZONING REFERENDUM

In making a wise decision as to the zoning ordinance to be voted upon at the forthcoming election several factors need to be carefully considered.

1. There are the interests of many residents of the area who have good homes that will be seriously affected by the changes which the City Council decided upon and which the voters are being asked to reverse. True, there are two or three property holders who will be personally benefited by allowing heavy industry in the area, but there are many others whose homes and other interests will be adversely affected. Voters are asked to keep these home owners in mind.

2. A vote against heavy industry in the area in question will not in any way damage the growth of industry contributing to Eugene's development. In the southern end here of the Willamette Valley around Eugene and directly contributing to its economic strength is much land; so much, in fact, that it is strange that anyone would have seriously considered allowing heavy industry to come in adjacent to the University of Oregon campus and crowded into the narrow strips of land between the millrace and the river. In view of modern technological developments it is the definite trend of industry throughout the United States to decentralize rather than to increase the degree of concentration. This is being done for a variety of reasons, including (a) highway and traffic needs, (b) housing, (c) city and local beautification and sanitation, and (d) civil defense.

QUESTIONS DECISION

In view of all of the area available in the southern end of the Willamette Valley, it seems very strange that the City Council should feel it wise to crowd heavy industry into the land in question adjacent to the campus of the university.

It may be in the personal interest of a very few property owners, but it is hard to see how it could be regarded as in the general public interest, especially when it goes contrary to the basic trends throughout the entire country.

3. Eugene has a definite highway problem. Virtually all our traffic south and east bound, that is, up the McKenzie, up the Willamette, south to Cottage Grove, Roseburg, Medford and Ashland, together with a large portion of that bound for Coos Bay and the coast, must swing around Judkins Point. This means that Franklin Boulevard must carry a load rarely placed upon a normal artery of traffic. To intensify heavy industry in this particular zone which the Council has chosen to favor does not show reasonable and wise consideration of the public interest.

BEAUTIFICATION EFFORTS

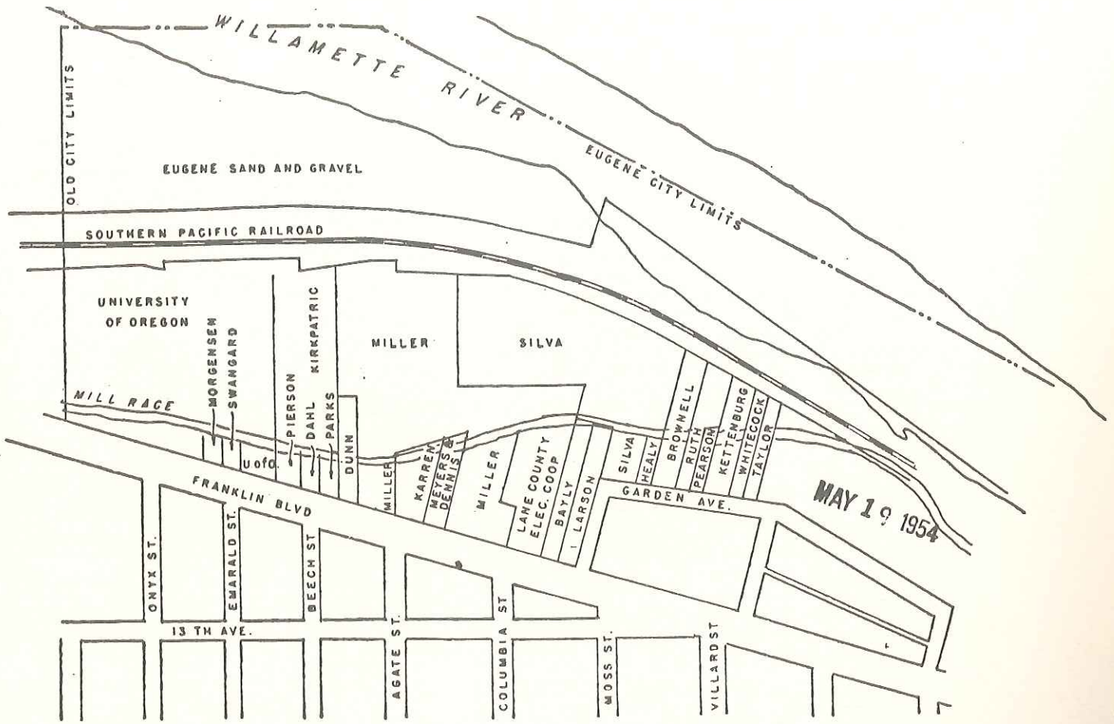
4. Both the University and the highway department have made real efforts to improve and beautify the route of the highway through the campus and on out of town to the south. Definitely the toleration of further heavy industry with additional smoke and fumes in highly disadvantageous and tends to negative the constructive moves already made.

5. It is a matter of great interest and genuine concern to thoughtful citizens that the City Council has gone contrary to its public advisory body, the City Planning Commission.

LAST WORD

We urge everybody to vote NO on this issue which is number 52 on your ballot. We do not dispute the final authority of the city Council over zoning or other legislation, but we think their policy is not sound when they override the Planning Commission consistently because the Planning Commission is also set up by law to guide policy.

In any case the last word rests with the people of Eugene over his or any other council action which the people deem unfair or unwise. We ask you to VOTE NO because this is not even good planning for industry and it is certainly bad planning for our own and the people who come here to make homes. VOTE NO!



(Wiltshire engraving)

MAIN PORTIONS OF THE MILLRACE area of the Riverview annexation involved in the zoning dispute and referendum measure before voters next Friday as shown on the above map. Ownership of land in the area is also shown. The land north of the Southern Pacific right-of-way would be zoned for heavy industrial use under one section of the ordinance, and land between the railroad and the Millrace would be zoned for light industrial development in another section. Approval of the ordinance sections on Friday will uphold the zoning by the city council, while rejection will remove all zoning and call for new studies.

Council Presents Zoning Argument

The following statement gives the Eugene City Council's arguments for its heavy and light industrial zoning ordinance for the land involved in a referendum election in the city on Friday of this week. The statement is in line with the Register-Guard's policy of giving each side a chance to present arguments on controversial issues.

STATEMENT ON BEHALF OF THE CITY COUNCIL

After restudy, the Council is more than ever convinced of the correctness of its decision to zone the area between the millrace and the river for industry. We cannot with clear consciences reverse our decision simply because extreme pressure is brought by a minority, many of whom we are convinced have never been over the territory for the sole purpose of studying its proper zoning, as we have been repeatedly.

If you are one of those who has not gone over the ground and considered the alternatives, we believe you should support the City Council by voting "Yes" on this referendum—to approve the ordinance. Here are the reasons we believe our zoning was correct:

ZONING LOGICAL

With a railroad, gas plant, asphalt plant, sand and gravel plant, concrete plant, warehouses and University heating plant and physical plant already in the area, the type of zoning was a logical outgrowth of existing conditions.

"MOST APPROPRIATE" USE

Eugene's zoning ordinance requires the Council to "encourage the most appropriate use of land." With the railroad on one side and the highway nearby, what more "appropriate" use can be suggested? Industry of certain kinds is the only logical answer, and a "Yes" vote in this election will sustain the City Council in its decision to zone appropriately even though subjected to frenzied attacks and presure by a relatively small minority. If the Council's zoning is rejected, the next move will probably be for someone to ask that this area be acquired for a city park, or to impose some absurd restrictions that will prevent its development for ANY purpose.

RAILROAD SHOULD BE USED

The University already has a spur track, and other spur tracks can be put in. Warehouses, freight yards, machine shops, small manufacturers and others can go in this area, increasing the tax base and providing much-needed payrolls—diversified industries this area needs for its economic health.

NOT NUISANCES

M-2 zoning has been grossly misrepresented. It does not permit industries that are any more objectionable than those which already exist along Franklin Blvd. The basic difference is that M-1 industries require traffic, while those in M-2 require much less traffic. The M-3 zone, which the ordinance authorizes north of the railroad tracks, is an extension of an existing M-3 zone. The land is useless for any other purpose except expansion of whatever business uses the M-3 land adjoining it on the west. Most people have not studied the zoning ordinance carefully and are being swayed by emotions, not facts.

EUGENE NEEDS INDUSTRY

Past policies, and present policies of many well-meaning groups and individuals are driving industry away from Eugene. Services for our expanding population require the broader tax base which industries provide. The alternatives are to curtail needed services or to levy confiscatory taxes on our homes.

UNIVERSITY NOT INJURED

M-1 zoning was recommended by the Planning Commission. This would permit bakeries, manufacturing of dairy products and other food products storage buildings for household goods, automobile sales agencies, farm equipment and other similar uses. Additional uses authorized under M-2 would be no more objectionable. Certainly, a "slaughterhouse," or "processing of refuse materials" IS NOT AUTHORIZED, regardless of what the paper has said about it. Most of this area cannot be seen from the campus. Look at the acrial photo in your Voter's Pamphlet to see how the millrace veers away from the campus and highway, just east of the university's heating plant. The existing industries along Franklin Blvd. hide practically all of the area, and in no event would M-2 industries be more unsightly than the university's own plant.

MILLRACE NOT AFFECTED

The millrace here is accessible only by boat, and the same would be true under either M-1 or M-2 zoning. The Planning Commission did not recommend this for a park or for beautification of the campus — IT RECOMMENDED LIMITED INDUSTRIAL ZONING (M-1), and the effect on the millrace would be no different under M-2. The question of the future of the millrace has now become urgent, and the Council has ordered a thorough study to be made to determine whether our citizens want to spend huge sums for its improvement and maintenance. In the area in question it is simply a brush-lined ditch, of no value to the public.

RECOMMENDATIONS

A great fuss is being made suggesting that the Council should invariably adopt recommendations of its Planning Commission. Those who are loudest in proclaiming this are the very ones who in the Byers Case demanded a referendum when the Council DID adopt the Planning Commission's recommendation. For propaganda only, they are now adopting the opposite position. The Planning Commission is an APPOINTED, ADVISORY group. Your ELECTED officials are the ones who must take full responsibility for zoning. The records show that more than 90% of the time the Council adopts the Commission's recommendations; when we disagree, we must zone as we believe the majority of citizens would if they knew all the facts, had looked at the ground, and had the zoning ordinance before them. That is what we did, to the best of our ability. And we believe a vast majority of voters would agree if they had the same information and had studied the ground.

If you want courageous, devoted, independent government for Eugene, you should back your City Council. When we find we are wrong, we are quite willing to reverse ourselves. In this case, the more we study the area, the more certain we are that we are right.—V. E. JOHNSON, Mayor.

Architect, Editor, Councilmen

Debate Zoning

Heated arguments flared briefly Tuesday night during a debate on the controversial city ordinance zoning the Millrace area.

About 75 to 100 persons heard four forum speakers—two on each side of the issue—during the two-hour debate at the Unitarian Church.

Principals in the debate were William Tugman, editor of the Register-Guard, and Frank Hitchcock, Eugene architect — calling for defeat of the ordinance at a for repeal of the ordinance at a special election Friday; Council President Calvin Crumbaker and Councilman Ray Siegenthaler—arguing in defense of the two ordinance sections involved in the zoning issue.

Robert D. Clark was the moderator. He kept the debate on schedule, allowing 25 minutes for each side.

Tugman began the debate. He told the audience he will continue to criticize the city council on some of its policies—meetings in particular.

The editor spoke with special emphasis on portions of the city council's statements printed in the Voter's Pamphlet that has been distributed to Eugene homes.

COUNCIL ERROR

Picking the first issue — the council's statement that asks, "Shall Eugene have government by editorial?" — Tugman commented that "Don't you think that's a little bit childish?"

He also referred to statements accusing the Register-Guard of

Radio Station KERG will broadcast the main arguments in the debate at the Unitarian Church. The program will begin at 10 p.m. Wednesday and will run for one hour.

"falsifying and misstating" facts of the case in the zoning dispute and other arguments. The editor said the paper is always willing to correct any error of fact, but that in this case, the city council itself has "made an error in fact."

That, he said, is the mistake in the disputed ordinance, in the Voter's Pamphlet and the ballot.

(Wording on the proposal calls for zoning of part of the area for M-2, limited industrial use, and it should read M-2, light industrial use).

"I think that in the light of what has happened, I too could raise a hue and cry and accuse the city council of maliciously and deliberately misstating the facts."

KNEW OF ERROR

Tugman was answered by Crumbaker and was told the mistake was not made by the city council, but by those who drew the ordinance. Then too, he related, there are mistakes in the referendum itself. "We have known the error was in the ballot since it came out," Crumbaker added.

He refused to debate the issue of committee meeting procedure of the council, and said that such arguments have stemmed from the editorials of the newspaper and not the news columns.

Stating the council has disputing sides on every issue, Crumbaker declared that the issue of zoning the land between the Millrace and the Willamette River was "investigated thoroughly."

He said that land north of the Southern Pacific railroad is "out of sight of Highway 99, the University of Oregon, and the land use there has been M-3 heavy industry for the last 50 years." He added that "the opportunity to hurt anybody is negligible."

Then the councilman said he feels the city is "falling behind" in advancing the tax base. Engene is "shriveling up" as far as the tax base is concerned, he added.

Therefore, zoning the land in question for heavy and light industry—besides being the "only appropriate" use—could add tax income to the city, he said.

POINTS DISPUTED

He said the area proposed for M-2 light industrial zoning (between the Millrace and the Southern Pacific tracks) would not be harmed by adoption of the controversial city ordinance. Basically, he added, the council has followed the practices of the city planning commission in limiting the zone at the Millrace.

But Frank Hitchcock, attacking the city ordinance, disputed most of the points of the council's argument.

He declared that a portion of the statement questioning a "continued" policy of "driving away" industry from Eugene is "a classic." He also charged that industries do not by-pass Eugene, as the pamphlet argument states and that the city has a "healthy" industrial outlook.

"Heavy industry has no right in Eugene, except for the service industries," Hitchcock added. And furthermore, he declared, they don't want to come in.

IN THE FUTURE

Most of the large mills and other plants are located just outside the city limits, the architect pointed out, and this "is wonderful, since we get their payroll."

He also declared that industry in the center of the city would harm the future development of land on the north side of the Willamette River, directly across from the controversial area. He said there are chances the very area in question will be the center of a 75,000 to 100,000 population, and asked, "Do you think M-3 belongs in the center of the city? I don't."

Hitchcock's most bitter argument came as he attacked the council's statement that the University of Oregon heating plant, in the controversial area, is an M-3 use in itself.

Slamming his fist on a table, the architect declared that "I say that's false. The heating plant is not M-3 and I challenge any man to prove it to me."

Hitchcock noted other points in the council's arguments for the heavy and light industrial zoning. He disputed all of them and declared that "M-3 is as far as you can go" in zoning.

REAL PLANNING

Ray Siegenthaler said "everyone is confused" on the present zoning issue. But the question narrows down to one thing, he added, and that is "what kind of industrial zoning do you want."

"The council tried to visualize the kind of industry that would use the land," he declared, and "we believe the area is not going to be affected adversely" with zoning as proposed in the city ordinance approved by the council on March 8.

This is one chance for the council to do some real planning, Siegenthaler declared, but if the referendum is successful and the land is later rezoned to higher uses, "It'll sit there until doomsday."

He cited portions of the zoning code and definitions of some land uses. Then the councilman added that people in general, don't understand the arguments involved. But, instead, they get "wildly excited."

Siegenthaler declared that "there are some things misrepresented" in the current argument. For instance, material such as furs, feathers and bones must be previously processed before they can be used in manufacture in a light industrial zone.

He concluded that the city council studied the area three or four times and "has worked harder on this than on anything since I've been there."

A long question and answer period followed the statements of the debaters. Most of the inquiries were made to the councilmen, although sharp argument between teh four on the platform took place several times.

TO READ ORDINANCES

Crumbaker declared "there isn't any question" but that the city council will read all ordinances from now on to clear mistakes. Tugman charged that the mistake in the disputed ordinance had been called to the attention of officials in time to get the ballot changed.

Crumbaker at another point said there was "lots of pressure" applied before the council acted on the ordinance. Then Tugman arose and charged that the zoning decision was made at the mayor's house and not at the council session. The councilman, rising, and with a reddening face, declared that "that is a false statement!"

Another man asked if the city council has a master plan for development of Eugene. Crumbaker said no, that that is the duty of the city planning commission under state regulations.

The same man continued to ask the same question, and Crumbaker gave the same answer, that delegation of such duties is defined in state laws.

Hitchcock was asked by Paul Bosnyk, 1181 W. 13th Ave., where he "gets all his hot tips" in relating improvements planned by the University of Oregon and others.

DENIES ANGER

A woman asked Crumbaker why the city council should get "so blistering mad" when the peopie wanted to help decide the controversial zoning issue. She received applause for the query.

The council president answered that the council isn't angry about the referendum but it "objected to the methods used" to promote the issue. The woman replied that the people took it upon themselves to refer the issue, and that "we're all behind it."

Each side in the debate made concluding statements before the meeting adjourned.

Tugman asked for a vote on Friday because of "very bad planning." Crumbaker asked that everyone go look at the area, and said they will probably challenge Tugman's statements.

Hitchcock also asked that everyone go look at the area in question. Siegenthaler commented that the area is already limited, and "you have to put industry where the character of the neighborhood is already determined."

Text of Two Zoning Sections In Issue at Friday's Election

In Friday's referendum on City Council Ordinance No. 10407 for the zoning of properties included in the recent Riverview annexation, only two sub-sections are affected.

Sub-section II would classify all property in this area between the Southern Pacific railroad and the Willamette River east of University Street as M-3, heavy industrial.

Sub-section III would classify all property between the railroad and the Millrace east of University Street as M-2, light industrial.

(Actually the ordinance as enacted by the council and the extract of the ordinance, as printed in the official Voter's Pamphlet and the ballot itself contains an error, by which the property between the Millrace and railroad is designated for M-2 "limited industrial." In checking the ordinance submitted by the planning commission, the council and its clerks changed "M-1" to "M-2" but forgot to change the word "limited" to "light." City Attorney Pennington says this will not affect the validity of the council's action, but people should understand that the wording should read "M-2, light industrial.")

So that people may know exactly what is provided in each of these two sections, we are re-printing herewith the complete text of each one.

Uses permitted in M-2, Light Industrial District, from Section XIV, Comprehensive Zoning Ordinance, City of Eugene.

No building, structure, or land shall be used, and no building or structure shall be hereafter erected, structurally altered, enlarged, or maintained except for the following uses:

1. Any use permitted in the R-4, C-3, or M-1 districts; 2. Animal hospitals; 3. Blacksmith and machine shops; 4. Building material storage yards; 5. Contractors' equipment storage yards; 6. Draying, freighting, and trucking yard, or terminal; 7. Laundry, cleaning and dyeing works, and carpet and rug cleaning; 8. Manufacturing, compounding, assemblying, or treatment of articles or merchandise from the following previously prepared materials; bone, cellophane, canvas, cloth, cork, feathers, felt, fibre, fur, glass, hair, horn, leather, paper, plastics, precious or semi-precious metals or stones, shell, textiles, tobacco, wood, yarns, and paint not employing a boiling process; 9. Manufacture of pottery; 10. Marble works or stone yard; 11. Plumbing and sheetmetal shops; 12. Poultry or rabbit killing incidental to a retail trade on the same premises; 13 Public parking areas developed in accordance with provisions established under "General Provisions," Section XVI, B-3 (page 34), 14. Retail lumber yard, including mill work; 15. Wholesale business, storage buildings, and warehouses; 16. Other uses similar to the above; provided that:

a. Use is not objectionable due to odor, dust, smoke, noise, or vibrations.

b. If, in the opinion of the city manager, the appearance is objectionable, a solid wall, evergreen hedge, or painted board fence shall be constructed around the development.

Uses permitted in M-3, Heavy Industrial District, from Section XV, Comprehensive Zoning Ordinance, City of Eugene.

No building, structure, or land shall be used, and no building or structure shall be hereafter erected, structurally altered, enlarged, or maintained, except for the following uses:

1. Any use permitted in the M-2 district; provided, however, that no building, structure, or portion thereof shall be hereafter erected, structurally altered, converted, used, or maintained for any residential use, except accessory buildings which are incidental to the use of the land; 2. Abattoir; 3. Acetylene gas manufacture or storage; 4. Acid manufacture; 5. Alcohol manufacture; 6. Ammonia, bleaching powder, or chlorine manufacture; 7. Arsenal; 8. Asphalt manufacture, refining, or paving mixing plants; 9. Automobile wrecking, if completely enclosed by an approved type of painted fence, wall or hedge; 10. Blast furnace or coke oven; 11. Boiler works; 12. Brick, tile, or terra cotta manufacture; 13. Candle manufacture; 14. Celluloid or plastic manufacture; 15. Chemical manufacture; 16. Concrete or cement products manufacture, and lime, gypsum, or plaster of Paris manufacture; 17. Cotton gin or oil mill; 18. Crematory; 19. Creosote treatment or manufacture; 20. Disinfectants manufacture; 21. Distillation of bones, coal, or wood; 22. Dyestuff manufacture; 23. Emery cloth and sandpaper manufacture; 24. Exterminator and insect poison manufacture; 25. Fat rendering; 26. Fertilizer manufacture; 27. Fireworks, or explosive manufacture or storage; 28. Fish smoking, curing, or canning; 29. Forage plant; 30. Freight classification yard; 31. Gas (illuminating or heating) manufacture; 32. Glue, size, or gelatine manufacture; 33. Gunpowder manufacture or storage; 34. Incineration or reduction of garbage, dead animals, offal, or refuse; 35. Iron, steel, brass, copper, tin, or zinc foundry or fabrication plant and heavyweight casting; 36. Lamp black manufacture; 37. Match manufacture; 38. Mill, alfalfa; 39. Oilcloth or linoleum manufacture; 40. Ore reduction; 41. Paint, oil (including linseed), shellac, turpentine, lacquer or varnish manufacture; 42. Paper and pulp manufacture; 43. Petroleum products manufacture or wholesale storage of petroleum; 44. Plating works; 45. Potash works; 46. Preparation or treatment of oiled rubber or leather goods in their raw state; 47. Printing ink manufacture; 48. Public parking areas; 49. Pyroxylin manufacture; 50. Quarry or stone mills; 51. Railroad repair shops; 52. Rock crusher or rock, sand, and gravel excavation; 53. Rolling mills; 54. Rubber or gutta-percha manufacture or treatment; 55. Salt works; 56. Sauerkraut manufacture; 57. Sausage manufacture (if any killing of animals is done on the premises); 58. Saw mills; 59. Smelters; 60. Soap manufacture; 61. Sodium compounds manufacture; 62 Stock yards or feeding pens; 63. Storage, sorting, collecting, and baling of rags, paper, iron, or junk; 64. Stove and shoe polish manufacture; 65. Tallow, grease, or lard manufacture or refining; 66. Tanning, curing, or storage of leather, rawhide, or skins; 67. Tar distillation or tar products manufacture; 68. Tar roofing or waterproofing manufacture; 69. Tobacco (chewing) manufacture or treatment; 70. Vinegar manufacture; 71. Wool pulling or scouring; 72. Yeast plant.

We are not taking space to reprint the listings under M-1, limited industrial district, which is the present classification on the north side of Franklin Blvd. and what the planning commission recommended for the area between the Millrace and railroad, because it is not directly involved in the voting. It permits automobile sales agencies, wholesale sales rooms; storage for household goods; laboratories; sales and light processing or service activities generally.

Eugene's Millrace Neglect Is Subject of Concern to Other Parts of State

Because of the zoning of Upper Millrace area to industrial development, it may be too late to save the historic stream from the destruction to which councilmanic cynicism has condemned it, but—on account of the University of Oregon—the rest of the state of Oregon is beginning to assert an interest in this problem.

Within the week, the Oregon Statesman (Salem) has made Millrace restoration the subject of a lead editorial, pointing out that the entire state has an equity in this situation just as in similar problems affecting the capitol group in Salem. The Oregonian supports the Statesman's position. We re-print:

Another Look Needed

The Oregon Statesman (Salem)

From time to time the City of Salem has come in for suggestions, and criticism, from various parts of the state regarding zoning practices in the area of the Oregon Statehouse. Such suggestions and criticism, in the opinion of The Statesman, have been well taken—not necessarily for their immediate value, but because they connote a healthy interest in state development in which every citizen of the commonwealth has a part. The statehouse group rightfully transcends the City of Salem in importance.

Now comes the issue of retaining and restoring the tradition-steeped Millrace at the University of Oregon.

For many, many years the Millrace has been a landmark in Eugene and the most distinctive feature of the beautiful Oregon campus. But it appears the Millrace is about to be abandoned or filled in and The Statesman wishes to add its voice to its contemporary, the Eugene Register-Guard, in strong protest.

Here in brief is the story:

The City of Eugene bought the Millrace shortly after World War II from two manufacturers, largely because the city was obligated to provide right-of-way for changes in U. S. Highway 99 (for three blocks between Broadway and Sixth and Seventh). It was understood the upper mile and a half of the Millrace would be maintained for its traditional recreational uses. The whole Millrace cost the city but $50,000 because shortly before the purchase was completed a flood damaged the intake from the Willamette River. It became largely stagnant.

In 1949, the city council agreed to restore the Millrace if property owners would provide half of the $40,000 estimated cost of the job and voters would approve expenditure of city funds for the other half. The property owners did, aided by students and townspeople, and the voters did, and eventually the $20,000 provided by subscription was expended on it. But the $20,000 authorized by the voters never was spent. The work, therefore, was incomplete and inadequate.

Last spring, the City Council, over the opposition of the City Planning Commission, zoned areas adjacent to the Millrace for industrial use, and its action was upheld in a close vote on a referendum in the recent primary election after the City Council brought out a report saying it would cost $300,000 to restore the Millrace—instead of the $40,000 estimated in 1949.

In the last few weeks, however, there has been many a demand for a new look at the whole issue. Formerly disinterested citizens are becoming interested. We hope they continue to do so. We are in no position to judge the $300,000 figure, which even for the Millrace is a lot to expect taxpayers to pungle up. But the past performance of the Eugene City Council on the issue isn't one to inspire confidence.

The state at large, the University of Oregon in particular and its graduates in general the nation over have a real interest in the picturesque stream which gave rise to the song: "Give me a shady place, by the old Millrace, at O-re-gon."

A citizen's committee has been designated by Mayor Johnson to make a special study of the problem. This committee has met, elected officers and made a preliminary tour of the Millrace.

May we point out that this Committee will have to move fast, and it will have to have working funds and sincere councilmanic support, if it is to be anything more than an appeasement gesture. If action is long delayed the Millrace will be beyond all repair.

We drove home one blistering hot evening last week with a man who has spent most of his life in Eugene. Going over the Patterson street bridge near the Beta House he looked at the slimy, sluggish water and at the deserted embankments upstream and said sadly:

"Twenty years ago, on a hot night like this, the Millrace would have echoed and resounded with the joyous shouts of hundreds of people. To the people of Eugene, the neglect of the Millrace means a loss incalculable."

For 100 years Eugene had a waterway to compare with South Bend's development of the St. Joseph River, or the Ten Mile at Providence, R. I., or even the magnificent waterways of Ottawa, the Canadian capital. Men who exalt dollar values condemned the Millrace to what they call "higher use."

If the Millrace areas were actually good industrial sites there might be some excuse, but they are NOT. The destruction of the recreational values is a monumental waste.

Oregonian Takes Note of Millrace Problem

In printing our protests against the Eugene City Council's negligent and destructive policies toward the historic Millrace, it was very far from our thoughts to stir up a state-wide agitation on this subject, but that seems to be developing. Thousands of Oregon citizens who attended the University in years past have fond memories of the stream. The Statesman (Salem), the Albany Democrat-Herald, the Bend Bulletin, and the Oregonian, have all taken up the cause and we reprint this most recent comment from the Oregonian:

VALUE OF EUGENE'S MILLRACE

Even if it should cost the taxpayers of Eugene $300,000, instead of the $40,000 estimated in 1949, to restore the "Old Millrace" of song, campus legend and fond memory, it should be saved. The higher figure was used in a report the Eugene city council employed to help defeat a referendum on this year's primary ballot which would have blocked a council vote to zone the upper millrace for industrial purposes. The figure has been questioned by many.

The Eugene Register-Guard, believing the city council to be autocratic, cynical and mistaken in condemning the once beautiful millrace to extinction, said the other day in an editorial:

"For 100 years Eugene had a waterway to compare with South Bend's development of the St. Joseph River, or the Ten Mile at Providence, R. I., or even the magnificent waterways of Ottawa. . . . Men who exalt dollar values condemned the millrace to what they call 'higher use.' If the millrace areas were actually good industrial sites there might be some excuse, but they are not. The destruction of the recreational values is a monumental waste."

We believe it the duty of every community, every county, every state to re-examine its course of "progress," to re-evaluate its perpetual resources, and to fight to the last ditch to preserve those spots of beauty and recreation which can be saved. Once lost, they are gone forever—or can only be restored, in less valuable form, at tremendous cost. Let the tide of humanity sweep around these oases, not over them.

The special Citizens Committee which was appointed belatedly by Mayor V. Edwin Johnson to find some accurate answers for the Millrace problem has inherited a tough job. The first step should be to get reasonable estimates on what it would actually cost to put the Millrace in usable condition in spite of the damage which has been done to it. It is our belief that a workable plan can be found for much less than the $300,000 figure.

A few days ago we were visited by a State Highway engineer, who said he had been instructed by Mr. Baldock to see what could be done to speed up the flow of the stream, where it passes through the 30-inch tube under the highway between Broadway and the river. This indicates a co-operative attitude on the part of the State Highway Commission and other agencies. It may not be too late to restore the Millrace, although it will undoubtedly cost more than it would have cost if the city had had a sincere and active interest in it from the beginning.

Appendix C:

Special Development District & San Antonio River Walk Ordinances

AN ORDINANCE #30238

ESTABLISHING STANDARDS FOR THE FUTURE DEVELOPMENT OF THE SAN ANTONIO RIVER WALK AREA; CREATING AN ADIVSORY COMMISSION TO REVIEW APPLICATIONS FOR BUILDING PERMITS IN SUCH AREA; PROVIDING A PROCEDURE FOR ISSUANCE OR DENIAL OF BUILDING PERMITS IN SUCH AREA; PROVIDING FOR APPEALS FROM THE FINAL RULING WITH RESPECT TO THE ISSUANCE OF BUILDING PERMITS; AND DESIGNATING THE MAIN ENTRANCE TO THE RIVER WALK AREA.

* * * * * * * * * *

WHEREAS, the San Antonio River, as it winds its way through the City of San Antonio, and especially as it meanders through the Central Business District, has long been one of the principle attractions for tourists, lending to the City a quaintness and romantic charm found in no other American City; and,

WHEREAS, the preservation, protection and promotion of this sedate and unique atmosphere will result in the furtherance of the public welfare through benefits accruing to the economy of San Antonio by promoting and maintaining the flow of tourists into the City and by maintaining property values in the Central Business District; and,

WHEREAS, in order to protect the public welfare, and in order that the distinctive character of the River Walk Area not be affected injuriously, and in order to preserve to the community the value of the River Walk Area it is necessary that a reasonable degree of control be exercised over the development of the River Walk Area and the architecture of private and semi-public buildings in said area; NOW, THEREFORE

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANTONIO:

1. Section 1. Definitions. As used in this ordinance the following words and phrases whall have the meaning herein ascribed to them:

"River Walk Easement" is that area along the San Antonio River, between its Villita Street crossing and its Sixth Street crossing, from the water's edge to the flood retaining wall, or, if there be no retaining wall, to private property lines.

"River Walk Area" comprises La Villita, the River Walk Easement and all private and public lands abutting on the River Walk Easement

"River Bend" refers to that portion of the River Walk Area from the River's junction with the cut-off channel at the rear of the Commerce Petroleum Building downstream around the horseshoe bend of the River to its junction with the cut-off channel near the Granada Hotel just north of Villita Street, and shall include La Villita.

"Commission" refers to the River Walk Commission created by Section 4 of this ordinance.

"Director" refers to the Director of Housing and Inspections of the City of San Antonio.

Section 2. Purpose of Ordinance. The purpose of this ordinance is to preserve and promote the natural beauty and distinctively quaint and romantic character of the River Walk Area which is so intimately connected with the history of San Antonio; the maintenance of the charm and atmosphere of Old San Antonio along the River Walk Area; and the promotion of an integrated shopping, entertainment and recreation area for visitors and the people of this City, to the end that the public welfare will be promoted and advanced through the preservation of property values and the resulting benefits to the economy of the City flowing from the promotion and maintenance of San Antonio as a leading attraction for tourists.

Section 3. Restrictions on Buildings, Scope. The restrictions, regulations and controls on construction prescribed by this ordinance shall be applicable to the construction, repair, alteration, modification and painting of all buildings in the River Bend.

Whenever any building in the River Bend is constructed, repaired, altered, modified, painted, or repainted, such work shall be done in a manner conforming to and in sympathy with early San Antonio architecture, using regional and indigenous materials whenever possible. Nothing herein shall be construed as an attempt to regiment architecture to the extent of prohibiting modern technological styling or materials which would be in sympathy with early San Antonio architecture.

Section 4. River Walk Commission. There is hereby created an advisory commission, to be known as the River Walk Commission, which shall consist of seven (7) residents of the City, to be appointed by the City Council, two of whom shall be recognized practicing professionals in the field of design and applied arts. Initially, three members of the Commission shall be appointed for a term expiring May 31, 1965, two members shall be appointed for a term expiring May 31, 1964, and two members shall be appointed for a term expiring May 31, 1963. Thereafter, all appointments shall be for three-year terms.

The members of the Commission shall choose from among themselves a person to act as chairman, who shall serve in such capacity for a period of one year, unless re-elected. Provided, however, that no person shall serve as chairman for more than three consecutive years. The members shall serve without pay.

Section 5. Functions of Commission. The Commission shall act in an advisory capacity only, and shall have no power to bind the City by contract or otherwise. It shall be the function of the Commission to advise the Director concerning all applications for building permits within the River Bend, and to act in an advisory capacity to the City Council and the City Manager in all matters pertaining to the development of the River Walk Area as well as the development of property on the banks of the River from its headwaters to the Sixth Street crossing, and the granting of licenses, permits, concessions, and other privileges involving the use of private persons of all municipally owned property along that portion of the River lying north of the Villita Street crossing, including the River itself.

Section 6. Application for Building Permits, Procedure. Whenever application is made for the construction, alteration, modification or repair of any building within the River Bend, the Director shall forthwith refer said application, together with the plans and specifications for the proposed work, to the Commission for its recommendations.

The Commission shall review plans and specifications, so far as they relate to the proposed appearance, colors, texture, materials and architectural design of the exterior, including the front, sides, rear and roof, of said building, alteration, modification or repair, or any courtyard, fence, or dependency thereof, as well as installation of signs and proposed lighting arrangements, and, after due consideration, shall promptly report to the Director its recommendations, including such changes, if any, as in the judgment of the Commission are reasonably necessary to comply with the requirements of this ordinance. The Director shall take no action on an application for a permit until he has received the recommendation of the Commission.

The Commission shall act upon all applications within 30 days from the filing date. If said application is not disapproved within 30 days from the filing date, it shall be deemed to have been approved and a certificate showing the filing date and the failure to take action on the application within 30 days shall be issued by the Commission upon demand.

If the Commission recommends denial of the permit it shall deliver a copy of said recommendation to the City Manager.

In no case shall the Director issue a permit for such work unless he finds that the proposed work conforms to the provisions of this ordinance and all other pertinent ordinances of the City of San Antonio.

Section 7. Appeals. Any person dissatisfied with the final ruling of the Director relating to the issuance or denial of a permit for construction, alteration, modification or repair of a building within the River Bend shall have the right to appeal to the Zoning Board of Adjustment as provided in Chapter 42 of the City Code.

Section 8. That portion of Lot 13, NCB 161, which was declared surplus to the needs of the City Water Works System more fully described in Resolution No. S-9002 of the San Antonio Water Board of Trustees, is hereby designated as the main entrance to the River Walk Area and as the location of a Tourist Information Center.

2. PASSED AND APPROVED this 28th day of March, 1962.

/s/ W. W. McAllister
M A Y O R

ATTEST:

/s/ J. Frank Gallagher
City Clerk

APPROVED AS TO FORM: /s/ Crawford B. Reeder
City Attorney

SD Special Development District

9.484 Description and Purpose. It is recognized that certain areas may possess unique and distinctive man-made or natural features which can be identified as having significance or benefit for the entire community. It is further recognized that these areas require special consideration so that the uses permitted and the development standards imposed are designed to protect and enhance those unique features which make the area distinctive. The SD Special Development District is intended to provide procedures and criteria for the recognition of such areas and for the development of standards governing each application of the SD Special Development District to a particular area. It is further intended that SD Special Development District be very selectively used and only after extensive demonstration that the area merits special consideration in accordance with the standards provided. (Section 9.484 added by Ordinance No 16916, enacted September 10, 1973.)

9.485 Criteria for Establishment of the SD Special Development District. Before an area is granted the SD Special Development District classification, the planning commission and city council shall make affirmative findings on all of the following criteria:

(a) That the area possesses unique man-made or natural features which require special consideration to preserve, encourage, or insure appropriate development or redevelopment. In order to be considered unique, it must be demonstrated that:

1. The area is characterized by substantial buildings which are in a state of historical transition and in which it would be desirable to encourage a mixture of uses; or

2. The area is characterized by a predominant (in excess of 50 percent) residential type, and it is desirable to encourage protection of that residential character to insure that new construction does not destroy that character.

3. The area is characterized by natural features which have been designated by the city as worthy of special treatment or preservation.

(b) That none of the other standard zoning districts would be suitable to promote appropriate types of development or preservation due to uses permitted and/or general development standards imposed in those districts.

(c) That the area to be classified SD Special Development District encompasses an area which is the equivalent of at least one standard city block (e.g. 320'. x 320') or the equivalent of at least one block length (e.g. 320'). An exception may be made to allow a pilot project of lesser area provided that

1. The commission finds that the surrounding area would be suitable for the kind of special district being proposed, and

2. The size of that surrounding area which is suitable for the special district is the equivalent in area to at least a city block.

(d) That the proposed Special Development District is in conformance with the General Plan.

(e) That a special refinement study of the area had been completed showing how the special district would be integrated with the surrounding area within the context of the General Plan.

(Section 9.485 added by Ordinance No 16919, enacted September 10, 1973.)

9.486 Special District Elements. Due to the unique characteristics which are to be identified under section 9.485, it will be necessary to identify permissible uses and appropriate development standards designed to protect or enhance appropriate development or redevelopment in each particular application of this district. Therefore, the ordinance establishing an SD Special Development District shall contain the following additional elements:

(a) A Description and Purpose Section setting forth the specific purposes the district is intended to accomplish in the particular situation;

(b) A Use Section setting forth the activities, categories of activities, or the performance standards to be used in evaluating specific activities which shall govern the uses permitted within a specific special district;

(c) A Standards Section setting forth general development standards governing parking, coverage, setbacks, height limitations and other factors as appropriate within a specific special district;

(d) A Public Facilities Section setting forth standards for public improvements to insure conformance of these improvements to the purpose of the district and the general development standards; and

(e) A Review Section setting forth the type of review process that will be followed in evaluating development within each special district (e.g. Planned Unit Development, Conditional Use Permit, Site Review, etc.).

(Section 9.486 added by Ordinance No 16919, enacted September 10, 1973.)

9.487 Exemption. When an area has been classified as an SD Special Development District, the general development standards set forth in Chapter 9 of this Code shall govern, but to the extent the special development standards set forth under section 9.486 conflicts with those general standards, the specific standards set forth under section 9.486 shall prevail.

(Section 9.487 added by Ordinance No. 16919, enacted September 10, 1973.)

UNIVERSITY CENTENNIAL NEEDS AND PRIORITIES:

MILLRACE DEVELOPMENT

Abstract: Renovate the Millrace to increase the flow of water and correct stagnation, beautify its banks and increase accessibility to its length.

Contribution to the University: Renovation of the Millrace would revive a vital element in the University's historic way of life, strengthen the connection between the University and the community and between the University and the Willamette River, maintain the oldest man-made structure in Eugene and thus contribute to the preservation of community tradition, and provide a unique place within the campus for recreation, the enjoyment of beauty, and refreshment of the spirit.

Cost: Cost of increasing the flow of water and some development is estimated at $700,000. Beautification and extensive development is estimated at over $571,000.00. It has been invisioned in phases.

Phase 1: This encompasses the repair of the diversion dam and the intake canal at the headwaters which would provide a gravity system insuring a flow sufficient to reduce pollution and allow return to the broad range of activities which prevailed in earlier times.

Phase 2: This encompasses the University property directly across from the campus. It has two distinct characters, and, therefore, requires two plans for development.

The first area is the "millpond" west of the physical plant bridge. It is plagued with problems of noise, visual pollution, eroding edges, poor duck habitat, difficult public access.

Solutions proposed include raised walks to better connect the area with the campus; bus stops to connect it with downtown and provide an alternative to cars; guest parking spaces to provide easy access for the public; plantings to screen Franklin Boulevard, the heating plant and fuel pile; creation of duck islands to provide a secure habitat; plantings for duck food to provide a stable winter food source; plantings along the water's edge to inhibit erosion; small docks and a sandy beach to provide access to the water's edge through these plantings; an alternative walkway through the area buffered from

Cost: (cont.)

Franklin Boulevard; a connection of this walkway to the other side of the race by means of a footbridge; development of the area west of the fuel pile into a picnic and train-watching place; rerouting of the fuel trucks away from the millpond edge and redevelopment of the existing road as a pedestrian loop around the millpond.

The second area of development is between the physical plant bridge and the Coca-Cola plant and is similarly plagued with problems, including a profusion of parking lots and asphalt. Solutions proposed include strengthening the pedestrian and bikeways with street trees and special paving, and a new covered pedestrian and bike bridge next to the canoe house; rehabilitation and expansion of the canoe house to include a sidewalk cafe and outdoor sitting area; screening of parking areas with trees and shrubs; removal of the sculpture dome and development of a terraced plaza for a variety of activities; improvement of spring gardens with fruit trees, fountain, and paths; providing night lights to encourage evening strolling in a strengthened park system next to the Millrace.

Phase 3: This encompasses the lower Millrace, whose attractiveness will be greatly enhanced by an increased flow of water. Developmental problems are both lessened and compounded by private ownership of land adjacent to the water.

Hope Hughes Pressman
Centennial Coordinator

July 23, 1974

ESTIMATES FOR MILLRACE DEVELOPMENT:

(August 7, 1974)

Survey of Millpond Area	$ 1,000.00
Raised Walk Access Across Franklin Blvd. (2)	10,000.00
Bus Stop Structures (3); Covered, Benches	10,000.00
Physical Plant Parking Lot: Guest Spaces, Trees, Ground Cover	5,000.00
Plantings to Screen Franklin Blvd: Plants, Irrigation	10,000.00
Small Docks (2)	5,000.00
Pedestrian Path South of Millpond: Paving, Retaining Wall, Benches, Fountain, Bike Racks	41,000.00
Pedestrian Bridge West End of Millpond	70,000.00
Picnic Area; Mounds, Trees, Stream and Pool	25,000.00
Relocation of Truck Access Away From Millpond	80,000.00
Green Streets: Gravel, Strees, Shrubs	5,000.00
Street Trees: Franklin Blvd., and Physical Plant	5,000.00
Promenade: Paving, Retaining Wall, Benches, Fountain, Lights, Trees	55,000.00
Pedestrian and Bike Bridge to Canoe House: Covered, Benches	50,000.00
Canoe House: Bathrooms, Enlarged Rental, Sidewalk Cafe, Patio, Bike Racks	80,500.00
Canoe House Parking Lot: Redesigned, Trees, Shrubs	15,000.00
Terrace (Sculpture Dome): Paving, Retaining Wall, Lights, Fountain, Simple Structure	45,000.00
Spring Gardens: Hand Pump, Paths, Dock, Fruit Trees	25,000.00
Path by Canoe House: Paving, Trees, Lights, Shrubs	17,000.00
Channel Change: Across From Veterinarian	16,500.00
TOTAL ESTIMATED COST	571,000.00

10. MAGIC OF THE CITY

. . . next to the MOSAIC OF SUBCULTURES (8), perhaps the most important structural feature of a city is the pattern of those centers where the city life is most intense. This pattern was first written by Luis Racionero, under the name "Downtowns of 300,000."

--oOo--

There are few people who do not enjoy the magic of a great city. But urban sprawl takes it away from everyone except the few who are lucky enough, or rich enough, to live close to the largest centers.

Therefore:

Put the magic of the city within reach of everyone in a metropolitan area. Do this by means of collective regional policies which restrict the growth of downtown areas so strongly that no one downtown can grow to serve more than 300,000 people, with the result that in a large urban region, there will be many downtowns, each at the center of about 300,000 people, yet each serving the entire region with its own specialties. With this population base, the centers will be between 2 and 9 miles apart.

--oOo--

Treat each downtown as a pedestrian and local transport area--LOCAL TRANSPORT AREAS (11), PROMENADE (31); with good transit connections from the outlying areas--WEB OF PUBLIC TRANSPORTATION (16); encourage a rich concentration of night life within each downtown--NIGHT LIFE (33), and set aside at least some part of it for the wildest kind of street life--CARNIVAL (58); DANCING IN THE STREET (63). . . .

16. WEB OF PUBLIC TRANSPORTATION*

. . . the city, as defined by CITY COUNTRY FINGERS (3), spreads out in ribbon fashion, throughout the countryside, and is broken into LOCAL TRANSPORT AREAS (11). To connect the transport areas, and to maintain the flow of people and goods along the fingers of the cities, it is now necessary to create a web of public transportation.

--oOo--

The system of public transportation--the entire web of airplanes, helicopters, hovercraft, trains, boats, ferries, buses, taxis, mini-trains, carts, ski-lifts, moving sidewalks--can only work if all the parts are well connected. But they usually aren't, because the different agencies have no incentives to connect to one another.

Therefore:

Treat interchanges as primary, and transportation lines as secondary. Create incentives so that all the different modes of public transportation--airplanes, helicopters, ferries, boats, trains, rapid transit, buses, mini-buses, ski-lifts, escalators, travelators, elevators--plan their lines in such a way that their stops coincide as often as possible with the interchanges; with the hope that gradually, as many different lines, of many different types will meet at every interchange.

Give the local communities control over their interchanges--so that they can implement the pattern by giving contracts only to those transportation companies which are willing to serve these interchanges.

--oOo--

Keep all the various lines within a single interchange, and its parking, within 600 feet, so that people can transfer on foot--INTERCHANGE (34). It is essential that the major stations be served by a good feeder system, so people are not forced to use private cars at all--MINI-BUSES (20). . . .

22. NINE PERCENT PARKING*

. . . the integrity of local transport areas, and the tranquility of local communities and neighborhoods, depends very much on the amount of parking they provide. The more parking they provide, the less possible it will be to maintain these patterns, because the parking spaces will attract cars, which in turn violate the local transport areas and neighborhoods--LOCAL TRANSPORT AREAS (11), COMMUNITY OF 7000 (12), IDENTIFIABLE NEIGHBORHOOD (14). This pattern proposes radical limits on the distribution of parking spaces, to protect these communities.

--oOo--

Very simply--when the area devoted to parking is too great, it destroys the land.

Therefore:

Do not allow more than 9 percent of the land in any given area to be used for parking. In order to maintain this rule for every portion of the land, it is necessary for a town or a community to subdivide its land into "parking zones" no larger than 10 acres each, and to apply the same rule in each zone. This will prevent the "bunching" of parking in huge neglected areas.

--oOo--

Two later patterns say that parking must take one of two forms: tiny, surface parking lots, or shielded parking structures--SHIELDED PARKING (97), SMALL PARKING LOTS (103).

If you accept these patterns the 9 percent rule will put an effective upper limit of 30 parking spaces per acre, on every part of the environment, mainly SHIELDED PARKING (97)--and 12 cars per acre if parking is on the ground, all in SMALL PARKING LOTS (103). Present day on-street parking, with driveways, which provides spaces for about 35 cars per acre on the ground is totally ruled out. And present day high density business developments are also ruled out--they must be transformed to conform to the pattern SCATTERED WORK (9). . . .

24. SACRED SITES*

. . . in every region and every town, indeed in every neighborhood, there are special places which have come to symbolize the area, and the people's roots there. These places may be natural beauties, or historic landmarks left by ages past. But in some form they are essential.

--oOo--

People cannot maintain their spiritual roots and their connections to the past if the physical world they live in does not also sustain these roots.

Therefore:

Whether these places are large or small, whether they are at the center of the towns, in neighborhoods or in the deepest countryside, establish ordinances which will protect them absolutely--so that our roots in the visible surroundings cannot be violated.

--oOo--

Give every sacred site a place, or a sequence of places, where people can relax, enjoy themselves and feel the presence of the place--QUIET BACKS (59), ZEN VIEW (134), TREE PLACES (171), GARDEN SEAT (176). And above all, shield the approach to the site, so that it can only be approached on foot, and through a series of gateways and thresholds which reveal it gradually--HOLY GROUND (66). . . .

25. ACCESS TO WATER**

. . . water is always precious. Among the special natural places covered by SACRED SITES (24), we single out the ocean beaches, lakes, and river banks, because they are irreplaceable and so fundamental to all human communities. Their maintenance and proper use requires a special pattern.

--oOo--

People have a fundamental yearning for great bodies of natural water near them. But the very movement of the people towards the water can also destroy it.

Therefore:

When natural bodies of water occur near human settlements, treat them with great respect: preserve their edges for the common good; direct growth, so that communities and neighborhoods grow near the water, but always preserve a belt of common land, immediately beside the water. Keep all roads at right angles to the water's edge.

--oOo--

The width of the common land will vary with the type of water, and the ecological conditions. In one case, it may be no more than a simple stone promenade, along a river bank a few feet wide--PROMENADE (31). In another case, it may be a swath of dunes extending hundreds of yards beyond a beach--THE COUNTRYSIDE (7). In any case, do not build roads along the water within one mile of the water; instead, make all the approach roads at right angles to the edge, and very far apart--PARALLEL ROADS (23). If parking is provided, keep the lots small--SMALL PARKING LOTS (103). . . .

30. CENTERS OF ACTION**

. . . imagine, now, that a community and its boundary are growing under the influence of COMMUNITY OF 7000 (12), SUBCULTURE BOUNDARY (13), IDENTIFIABLE NEIGHBORHOOD (14), NEIGHBORHOOD BOUNDARY (16), DENSITY RINGS (24), and ECCENTRIC NUCLEUS (28). As they grow, certain "stars" begin to form, where the most important paths meet. These stars are potentially the vital spots of a community. The growth of these stars and of the paths which form them, need to be guided to form genuine community crossroads.

--oOo--

Community facilities scattered individually through the city do nothing for the life of the city.

Therefore:

Create centers of action every 100 to 300 yards in the community. Modify the layout of the paths in the community, to bring as many of them through these centers as possible. This makes each center function as a "star" in the path network. Then, at the center of each star, make a small public square, and surround it with a combination of community facilities and shops which are mutually supportive.

Wherever possible, create the centers of action, by first identifying those existing spots in the community where action seems to concentrate itself, and then intensifying them. according to the dictates of the pattern.

--oOo--

Connect those centers which are most dense, with a wider, more important path for strolling--PROMENADE (31); make special centers for night activities--NIGHT LIFE (33); whenever new paths are built, make certain that they pass through the centers, so that they intensify the life still further--PATHS AND GOALS (120); and differentiate the paths so they are wide near the centers and smaller away from them--DEGREES OF PUBLICNESS (36). At the heart of every center, build a small public square--SMALL PUBLIC SQUARES (61), and surround each square with an appropriate mix of mutually self-reinforcing facilities--WORK COMMUNITY (41), UNIVERSITY AS A MARKETPLACE (43), LOCAL TOWN HALL (44), HEALTH CENTER (47), BIRTH PLACES (65), TEENAGE SOCIETY (84), SHOPFRONT SCHOOL (85), INDIVIDUALLY OWNED SHOPS (87), STREET CAFE (88), BEER HALL (90), FOOD STANDS (93). . . .

31. PROMENADE**

. . . assume now that there is an urban area, perhaps subdivided into communities and neighborhoods, each with its boundaries and centers of action --MOSAIC OF SUBCULTURES (8), COMMUNITY OF 7000 (12), SUBCULTURE BOUNDARY (13), CENTERS OF ACTION (30). Within the heart of each community the people need a major place where they can go.

--oOo--

Each subculture needs a center for its public life: a place where you can go to see people, and to be seen. But most suburban towns are so spread out that the nearest of these places is too far away, and so you never go there.

Therefore:

Encourage the gradual formation of a promenade at the heart of every community, linking the main centers of action, typically 200-600 meters long, and placed centrally, so that each point in the community is within 10 minutes walk (800 meters) of it. Recognize that these figures are only rough, and that a successful promenade can also be much smaller, or much larger, if the circumstances will guarantee a high enough density of strolling people. Put main points of attraction at the two ends, to keep a constant movement up and down.

--oOo--

No matter how large the promenade is, there must be enough people coming to it, to make it dense with action, and this can be precisely calculated by the formula of PEDESTRIAN DENSITY (123). The promenade is mainly marked by concentrations of activity along its length--CENTERS OF ACTION (30); naturally, some of these will be open at night--NIGHT LIFE (33); and somewhere on the promenade, there will be a concentration of shops--SHOPPING STREET (32). It might also be appropriate to include CARNIVAL (58) and DANCING IN THE STREET (63) in very large promenades. The detailed physical character of the promenade is given by PEDESTRIAN STREET (100) and PATH SHAPE (121). . . .

33. NIGHT LIFE*

. . . every community has some kind of public night life--MAGIC OF THE CITY (10), COMMUNITY OF 7000 (12). If there is a promenade in the community, the night life is probably along the promenade, at least in part--PROMENADE (31). This pattern describes the details of the concentration of night time activities.

--oOo--

Most of the city's activities close down at night; those which stay open won't do much for the night life of the city unless they are together.

Therefore: -

Knit together shops, amusements and services which are open at night, along with hotels, bars, all-night diners, to form centers of night life: well-lit, safe and lively places that increase the intensity of pedestrian activity at night by drawing all the people who are out at night to the same few spots in the town. Encourage these evening centers to distribute themselves evenly across the town.

--oOo--

Treat the physical layout of the night life area, exactly like any other CENTER OF ACTION (30), except that all of its establishments are open at night. The evening establishments might include LOCAL TOWN HALL (44), CARNIVAL (58), DANCING IN THE STREET (63), STREET CAFE (88), BEER HALL (90), TRAVELLER'S INN (91). . . .

49. LOOPED LOCAL ROADS*

. . . assume that neighborhoods, house clusters, work communities and major roads are more or less defined--LOCAL TRANSPORT AREAS (11), IDENTIFIABLE NEIGHBORHOOD (14), PARALLEL ROADS (23), HOUSE CLUSTER (37), WORK COMMUNITY (41). Under today's development procedures, the local roads would be built before the clusters; it is, however, more organic, and more profound, to locate the small roads which serve the clusters after the positions of the clusters are more or less decided; the roads and paths can then be made to meander between the clusters, without entirely dominating them. Now, for the layout of these local roads.

--oOo--

Nobody wants fast through traffic going by their homes.

Therefore:

Lay out local roads so that they form loops. A loop is defined as any stretch of road which makes it impossible for cars that don't have destinations on it to use it as a shortcut or a through road. Do not allow any one loop to serve more than 50 cars. Keep the road less than 18 feet wide, and make the pedestrian path continuous, if the road is a dead end.

--oOo--

Make all the junctions between local roads three way T junctions, never four way intersections--T JUNCTIONS (50); wherever there is any possibility of life from buildings being oriented towards the road, give the road a very rough surface of grass and gravel, with paving stones for wheels of cars--GREEN STREETS (51); keep parking off the road in driveways--SMALL PARKING LOTS (103) and CAR CONNECTION (109); except where the roads are very quiet, run pedestrian paths at right angles to them, not along them, and make buildings open off these paths, not off the roads--PATH NETWORK (52). . . .

51. GREEN STREETS**

. . . the position of small roads is fixed by LOOPED LOCAL ROADS (49) and T JUNCTIONS (50). It remains, still, to decide the character of these roads.

--oOo--

There is too much hot hard asphalt in the world. A local road, which only gives access to buildings, needs a few stones for the wheels of the cars; nothing more. Most of it can still be green.

Therefore:

On local roads, closed to through traffic, plant grass all over the road and set occasional paving stones or gravel, or dirt, into the grass, to form a surface for the wheels of those cars that need access to the street. Combine the sidewalk with this kind of street, so there is no fast distinction between streets for cars and sidewalks for people. Where houses open off the street, put in more paving stones or gravel to let cars turn onto their own land. On existing local roads this means, essentially, closing the road and digging up the asphalt.

--oOo--

When a road is a green street, it is so pleasant that it naturally tends to attract activity to it. In this case, the paths and the green street are one--COMMON LAND (67). However, even when the street is green, it may be pleasant to put in occasional very small lanes, a few feet wide, at right angles to the green streets, according to PATH NETWORK (52). In order to preserve the greenness of the street, it will be essential, too, to keep parked cars in tiny parking lots, at the ends of the street, reserved for the house owners and their visitors--SMALL PARKING LOTS (103). Fruit trees and flowers will make the street more beautiful--FRUIT TREES (179), RAISED FLOWERS (245)--and the paving stones which form the beds for cars to drive on, can themselves be laid with cracks between them, and with grass and moss and flowers in the cracks between the stones--PAVING WITH CRACKS BETWEEN THE STONES (247). . . .

53. MAIN GATEWAYS**

. . . at various levels in the structure of the town, there are identifiable units. There are neighborhoods--IDENTIFIABLE NEIGHBORHOOD (14), clusters--HOUSE CLUSTER (37), communities of work--WORK COMMUNITY (41); and many smaller building complexes ringed around some realms of circulation--BUILDING COMPLEX (95), CIRCULATION REALMS (98). All of them get their identity most clearly from the fact that you pass through a definite gateway to enter them--it is this gateway acting as a threshold which creates the unit.

--oOo--

Wherever there is a part of a town which is to be identified by its inhabitants as a precinct of some kind, it will be reinforced, helped in its distinctness, marked, and made more vivid, if the paths which enter it, are marked by gateways where they cross the boundary.

Therefore:

Mark every boundary in the city which has important human meaning--the boundary of a building cluster, a neighborhood, a precinct--by great gateways where the major entering paths cross the boundary. Make the gateways solid elements, visible from every line of approach, enclosing the paths, punching a hole through a building, creating a bridge or a sharp change of level: but above all make them "things."

--oOo--

Treat the placing of the gateway, and its physical prominence, in just the same way specified for MAIN ENTRANCES (107), but make them larger. Whenever possible, emphasize the feeling of transition for the person passing through the gateway, by allowing change of light, or surface, view, crossing water, a change of level--ENTRANCE TRANSITION (108). In every case, treat the main gateway as the starting point of the pedestrian circulation inside the precinct--CIRCULATION REALMS (98). . . .

54. ROAD CROSSING

. . . under the impetus of PARALLEL ROADS (23) and PATH NETWORK (52), paths will gradually grow at right angles to major roads--not along them as they do now. This is an entirely new kind of situation, and requires an entirely new physical treatment, to make it work.

--oOo--

Where paths cross roads, the cars have power to frighten and subdue the people walking, even when the people walking have the legal right of way.

Therefore:

At any point where a pedestrian path crosses a road, that has enough traffic to create more than a two second delay to people crossing, make a "knuckle" at the crossing: narrow the road to the width of the through lanes only; continue the pedestrian path through the crossing about a foot above the roadway; slope the road up towards the crossing (1 in 6 maximum); mark the path with a canopy, or shelter, to make it visible.

--oOo--

On one side or the other, of the road, make the pedestrian path swell out to form a tiny square, where food stands cluster round a bus stop--SMALL PUBLIC SQUARES (61), BUS STOP (92), FOOD STANDS (93); provide one or two bays for standing space for buses and cars--SMALL PARKING LOTS (103), and when a path must run from the road crossing along the side of the road, keep it to one side only, make it as wide as possible, and raised above the roadway--RAISED WALK (55). Perhaps build the canopy as a trellis or canvas roof--TRELLISED WALK (174), CANVAS ROOFS (244). . . .

55. RAISED WALK*

. . . in most cases, pedestrian paths will not run along major roads, but across them--PATH NETWORK (52). However, from time to time, it is inevitable that a path will run along a major road, often from one road crossing to the next--ROAD CROSSING (54). In this case, the path needs the following character.

--oOo--

Where fast moving cars and pedestrians meet in cities, the cars overwhelm the pedestrians. The car is king, and people are made to feel small.

Therefore:

Where pedestrian paths run alongside busy streets, where the car traffic tends to dominate the scene, raise the sidewalk 18 inches above the road, with a low wall or railing at the edge. Put the raised walk on only one side of the road--make it as wide as possible.

--oOo--

Protect the raised walk from the road, by means of a low wall--SITTING WALL (243). An arcade built over the walk, will, with its columns, give an even greater sense of comfort and protection--ARCADES (119). At the end of blocks and at special points, where a car might pull in to pick up or drop passengers, build steps into the raised walk, large enough so people can sit there, and wait in comfort--STAIR SEATS (126). . . .

56. BIKE PATHS AND RACKS

. . . within a LOCAL TRANSPORT AREA (11) there is a heavy concentration of small vehicles like bikes, electric carts, and perhaps even horses. The main roads for cars move mainly outward--PARALLEL ROADS (23), but the trips across the transport area, across the bigger roads, along the paths and local roads--LOOPED LOCAL ROADS (49), PATH NETWORK (52), need a system of bike paths. This pattern, which defines the layout and condition of the bike paths, will play almost the largest role in helping to create the local transport areas.

--oOo--

Bikes are cheap, healthy, and good for the environment; but the environment is not designed for them. Bikes on roads are threatened by cars; bikes on paths threaten pedestrians.

Therefore:

Build a system of paths designated as "bike paths," with the following properties: the bike paths are marked clearly with a special, easily recognizable surface (for example, a red asphalt surface). As far as possible they run along local roads, or major pedestrian paths.

Where a bike path runs along a local road, its surface may be level with the road--if possible, on the sunny side; where a bike path runs along a pedestrian path, keep it separate from that path and a few inches below it. If a bike path must run beside a major road, separate it, and raise it a few inches. Bring the system of bike paths to within 100 feet of every building, and give every building a bike rack near its main entrance.

--oOo--

Build the racks for bikes to one side of the main entrance, so that the bikes don't interfere with people's natural movement in and out--MAIN ENTRANCE (107), and give it some shelter, with the path from the racks to the entrance also under shelter--ARCADES (119); keep the bikes out of quiet walks and quiet gardens--QUIET BACKS (59), GARDEN WALL (173). . . .

60. ACCESSIBLE GREEN**

. . . connected with the quiet backs, in boundaries between subcultures, and at the heart of neighborhoods, there need to be small greens--SUBCULTURE BOUNDARY (13), IDENTIFIABLE NEIGHBORHOOD (14), QUIET BACKS (59). Of course, it makes the most sense to locate these greens in such a way that they help form the boundaries and neighborhoods, and backs.

--oOo--

People need green open places to go to; when they are close they use them. But if the greens are more than three minutes away, the distance overwhelms the need.

Therefore:

Build one open public green within 3 minutes walk--about 750 feet--of every house and workplace. This means that the greens need to be uniformly scattered at 1500 foot intervals, throughout the city. Make the greens at least 150 feet across, and at least 60,000 square feet in area.

--oOo--

Pay special attention to old trees, look after them--TREE PLACES (171); shape the green so that it forms one or more positive room-like spaces and surround it with trees, or walls or buildings, but not roads or cars--POSITIVE OUTDOOR SPACE (113), GARDEN WALL (173); and perhaps set aside some part of the green for special community functions--HOLY GROUND (66), GRAVE SITES (70), LOCAL SPORTS (72), ANIMALS (74), SLEEPING IN PUBLIC (94). . . .

61. SMALL PUBLIC SQUARES**

. . . along the promenades, in work communities, in front of certain buildings, and above all, in all the nodes and centers of activity, the public space needs to be organized with special care--CENTERS OF ACTION (30), PROMENADE (31), WORK COMMUNITY (30), LOCAL TOWN HALL (44)--especially the size and shape and character of public squares. When it is right centers of action live; when it is wrong they die.

--oOo--

A town needs public squares; they are the largest, most public rooms, that the town has. But when they are too large, they look and feel deserted; fewer and fewer people come to use them; and they destroy the very possibility of life which they create.

Therefore:

Make public squares much smaller than you would at first imagine; usually no more than 45 to 60 feet across, never greater than 70 feet across.

--oOo--

An even better estimate for the size of the square: make a guess about the number of people who will typically be there (say, P), and make the square no larger than 150-300P square feet--PEDESTRIAN DENSITY (123); ring the square around with pockets of activity, where people congregate--ACTIVITY POCKETS (125); build buildings round the square in such a way that they give it a definite shape, with views out into other larger places--POSITIVE OUTDOOR SPACE (113), HIERARCHY OF OPEN SPACE (114), BUILDING FRONTS (122), STAIR SEATS (126); and to make the center of the square as useful as the edges, build SOMETHING ROUGHLY IN THE MIDDLE (124). . . .

64. POOLS AND STREAMS**

. . . the land, in its natural state, is hardly ever flat, and was, in its most primitive condition, over-run with rills and streams which carry off the rainwater. There is no reason to destroy this natural feature of the land in a town--SACRED SITES (24), ACCESS TO WATER (25)--in fact, it is essential that it preserved, or re-created--and, in doing so it will be possible to deepen several larger patterns--boundaries between neighborhoods can easily be formed by streams--NEIGHBORHOOD BOUNDARY (15), quiet backs are made more tranquil--QUIET BACKS (59), pedestrian streets are made more human and more natural--PEDESTRIAN STREETS (100).

--oOo--

We came from the water; our bodies are largely water; and water plays a fundamental role in our psychology. We need constant access to water, all around us; and we cannot have it without reverence for water in all its forms. But everywhere in cities water is out of reach.

Therefore:

Preserve natural pools and streams and allow them to run through the city; make paths for people to walk along them and footbridges to cross them. Let the streams form natural barriers in the city, with traffic crossing them only infrequently on bridges.

Whenever possible, collect rainwater in open gutters and allow it to flow above ground, along pedestrian paths and in front of houses. In places which do not have any natural running water, create water fountains in streets and public places where people can gaze at running water, and be in touch with it.

--oOo--

If at all possible, make all the pools and swimming holes part of the running water--not separate--since this is the only way that pools are able to keep alive and clean, without the paraphernalia of pumps and chlorine; always make part of the edges gradual so that people can get to the water, and can put their feet in it--STILL WATER (71). Sometimes, here and there, give the place immediately around the water the atmosphere of contemplation; perhaps with arcades, perhaps some special common land, perhaps one end of a promenade--PROMENADE (31), HOLY GROUND (66), ARCADES (119). . . .

64a. BRIDGES

A bridge is a transition point, a connection between places on either bank. However, a bridge is not only a point of connection or transfer, but also a place in its own right. Since the bridge is that point where many paths converge, it provides splendid opportunity for social interactions, i.e., buying, selling, celebrating, watching people, etc. If a bridge is allowed to realize its potential, then, it will become not only a means of bypassing an obstacle, but also a special event and a place in its own right that people would visit often.

--oOo--

Many people cross a bridge; they cross in various modes of transportation, and often wish to stop along the way. Contact with water, places, and events on both banks are expected. If provisions are not made for convenient and safe crossings, as well as for stopping along the way, conflicts arise that result in inconvenience, inefficiency, irritation, and/or danger.

Therefore:

Let the crossing of a bridge be a special event along a path. If the bridge is to be used by vehicles as well as pedestrians, adequate space (about eight feet wide so that three people can pass each other) must be provided on at least one side enabling people to walk comfortably. In addition, places to sit and watch the water or people go by ought to be provided.

Develop wide sidewalks as stop areas in order that people may bring and exhibit items for sale while others are encouraged to stop.

Cover part or all of the bridge, so that people are encouraged to walk and linger.

Define the center of the bridge as a special point -- a higher roof, a wider sidewalk; make it a place to rest, sit down, gaze at the water, look up and down the river and along the banks, remember what is left behind and contemplate what is ahead.

Provide steps at various points where people may walk down to water level. On large rivers it might be easier to have points of access to water on both banks. Steps should run into the water enabling access at any time of the year, as well as allowing users to notice seasonal changes in the water level.

To accommodate and encourage bicyclists to use the bridge, arrange for BIKE PATHS AND RACKS (56). For those who need to drive, provide parking hear the bridge, according to NINE PERCENT PARKING (22) and SHIELDED PARKING (97).

69. PUBLIC OUTDOOR ROOM**

. . . assume that common land in clusters, larger pieces of common land in neighborhoods, and public squares all exist in some fashion in a neighborhood and along the pedestrian paths--MAIN GATEWAYS (53), ACCESSIBLE GREEN (60), SMALL PUBLIC SQUARES (61), COMMON LAND (67), PEDESTRIAN STREET (100), PATHS AND GOALS (120). Any of these places, perhaps all of them, need at least some place where hanging out, and being "out" in public become possible: and for this purpose it is necessary to distinguish one area, and to define it with a little more elaboration.

--oOo--

There are very few spots along the streets of modern towns and neighborhoods where people can hang out, comfortably, for hours at a time.

Therefore:

In every neighborhood and work community, make a piece of the common land into an outdoor room--a partly enclosed place, with some roof, an arcade or trellis; place it beside an important path and within view of many homes, workshops.

--oOo--

Place the outdoor room where several paths are tangent to it, like any other common area--COMMON AREAS AT THE HEART (129); in bulges in paths--PATH SHAPE (121); or around a square--ACTIVITY POCKETS (125); use surrounding BUILDING EDGES (159) to define part of it; build it like any smaller outdoor room, with columns, and half trellised roofs--OUTDOOR ROOM (162); perhaps put an open courtyard in the middle of it--COURTYARDS WHICH LIVE (115), an ARCADE (119) around the edge, or other simple cover--CANVAS ROOFS (244), and seats for casual sitting--STAIR SEATS (126), SEAT SPOTS (242). . . .

73a. PLAY WITH WATER

Because of its natural characteristics, water fascinates children, enticing them to play, experiment, and learn; it is formless, flowing, changing, creating various effects on other objects.

--oOo--

Every child loves to play with water. Although the advantages of such play are recognized by educators and parents, opportunities for children to play with water are usually limited and/or contrived.

Therefore:

Provide as many opportunities for play with water as is possible. Allow rain water to run off from roofs and paved areas into basins and small open channels so that they, along with irrigation channels and sprinklers, are available for children to play around the house and in the neighborhood. See IRRIGATION (169a.), ROOF DRAINING (220a.).

If a stream or a pond exists in the area, do not completely fence it. Create instead one or more areas with gradually sloping banks, where children are allowed and encouraged to play. It could be located along POOLS AND STREAMS (64), within view of a PUBLIC OUTDOOR ROOM (69), and it can be part of STILL WATER (71). In this way adults and children of all ages are more likely to frequent the area.

74. ANIMALS

. . . even when there is public land and private land for individual buildings--COMMON LAND (67), YOUR OWN HOME (79), there is no guarantee that animals can flourish there. This pattern helps to form GREEN STREETS (51) and COMMON LAND (67) by giving them the qualities they need to sustain animal life.

--oOo--

Animals are as important a part of nature as the trees and grass and flowers. There is some evidence, in addition, which suggests that contact with animals may play a vital role in a child's emotional development.

Therefore:

Make legal provisions which allow people to keep any animals on their private lots and private stables. Create a piece of fenced and protected common land, where animals are free to graze, with grass, trees and water in it. Make at least one system of movement in the neighborhood which is entirely asphalt free--where dung can fall freely without needing to be cleaned.

Make sure that the green areas--GREEN STREETS (51), ACCESSIBLE GREENS (60)--are all connected to one another to form a continuous swath throughout the city, for domestic and wild animals. Place the animal commons near a children's home, and near the local schools, so children can take care of the animals--CHILDREN'S HOME (86); if there is a lot of dung, make sure that it can be used as a fertilizer--COMPOST (178). . . . and finally, within the framework of the common land, the clusters and the work communities, encourage transformation of the smallest independent social institutions: the families, workgroups, and gathering places. First, the family, in all its forms;

75. THE FAMILY
76. HOUSE FOR A SMALL FAMILY
77. HOUSE FOR A COUPLE
78. HOUSE FOR ONE PERSON
79. YOUR OWN HOME

87. INDIVIDUALLY OWNED SHOPS*

. . . the STREET CAFE (88) and CORNER GROCERY (89) and all the individual shops and stalls in the SHOPPING STREETS (32) and MARKETS OF MANY SHOPS (46) must be supported by an ordinance which guarantees that they will stay in private hands, and not be owned by absentee landlords, or chain stores, or giant franchise operations.

--oOo--

When shops are too large, or controlled by absentee owners, they become plastic, bland, and abstract.

Therefore:

Do what you can to encourage the development of individually owned shops. Approve applications for business licenses only if the business is owned by those people who actually work and manage the store. Approve new commercial building permits only if the proposed structure includes many very very small rental spaces.

--oOo--

Treat each individual shop as an identifiable unit of a larger BUILDING COMPLEX (95); make at least some part of the shop part of the sidewalk, so that people walk through the shop as they are going down the street--OPENING TO THE STREET (164); and build the inside of the shop with all the goods as open and available as possible--THE SHAPE OF INDOOR SPACE (192), THICK WALLS (198), OPEN SHELVES (201). . . .

88. STREET CAFE*

. . . both neighborhoods and neighborhood boundaries are defined--IDENTIFIABLE NEIGHBORHOOD (14), NEIGHBORHOOD BOUNDARY (15); and in the neighborhood or in its boundary, there is at least one natural focus where the people congregate--ACTIVITY NODES (30), SMALL PUBLIC SQUARES (61). This pattern, and the ones which follow it, provide the natural functions which embellish this focus, and the neighborhood's feeling of identity.

--oOo--

The street cafe provides a unique setting, special to cities: a place where people can sit lazily, legitimately, be on view, and watch the world go by.

Therefore:

Encourage local cafes to spring up in each neighborhood. Make them intimate places, with several rooms, open to a busy path, where people can sit with coffee or a drink and watch the world go by. Build the front of the cafe so that a set of tables stretch out of the cafe, right into the street. Give this terrace some definition, perhaps with a low sitting wall, a canvas roof, a different ground material, but keep it continuous with the street, so that people passing are brushing past the patrons at the edge.

Build a wide, substantial opening between the terrace and the indoors--OPENING TO THE STREET (165); make the terrace double as A PLACE TO WAIT (150), for nearby bus stops, offices, etc; both indoors, and on the terrace, use a great variety of different kinds of tables and chairs, some huge, some tiny--DIFFERENT CHAIRS (251); and give the terrace some low definition at the street edge, if it is in danger of being interrupted by street action--STAIR SEATS (125), SITTING WALL (243). For the shape of the building, the terrace, and the surroundings, begin with BUILDING COMPLEX (95). . . .

90. BEER HALL

. . . in an occasional neighborhood, which functions as the focus of a group of neighborhoods, or in a boundary between neighborhoods--NEIGHBORHOOD BOUNDARY (15), or on the promenade which forms the focus of a large community--PROMENADE (31), NIGHTLIFE (33), there is a special need for something larger and more raucous than a street cafe.

--oOo--

Where can people sing, and drink, and shout and drink, and let go of their sorrows?

Therefore:

Encourage someone in the community to open a hall where a few hundred people can gather, with beer and wine, music, perhaps a half dozen activities. Inside the hall concentrate each activity and separate it from the others so that people are continuously criss-crossing from one to another (e.g., from the fire to the bar, from bar to music, from the entrance to the fire).

--oOo--

Put the tables in two-ended alcoves, roomy enough for people to pass through on their way between activities--ALCOVES (179); provide a fire, as the hub of one activity--THE FIRE (181); ~~activity filled passages between the alcoves and activities~~; and a variety of ceiling heights to correspond to different social groupings--CEILING HEIGHT VARIETY (195). For the shape of the building, gardens, parking and surroundings, begin with BUILDING COMPLEX (95). . . .

90a. FOUNTAINS

Water fountains are needed in public places for drinking. They also provide opportunities for enjoyment and social interaction. Presently, our attitude towards the existence of fountains is schizophrenic. As a result, utilitarian fountains are uninteresting and "pleasure" fountains are wasteful -- and almost always turned off.

Therefore:

Provide fountains in public and private areas, squares, courtyards, indoor and outdoor paths and streets, so that they serve people and places in many ways. Make the fountain a special place where people can not only get a drink of water, but are tempted to stop for awhile, sit down in shade or sun, relax or contemplate, wait for a friend or talk to others. Provide places where people of all ages, and various heights, can drink water, see and hear it; places where they can cool themselves on a hot day, whether by wetting their hands and faces, wading, or even swimming.

Allow for control of the water supplied to the fountain according to the amount needed at various times. Control the flow of water in such a way that it can respond to seasonal variations (freeze, drought, or heavy rainfall) so that the fountain is available for use and pleasure even when the water supply is off.

If at all possible, make evident where the water is coming from and where it is going, so that people are reminded of the cycle of distribution and collection of water. Make the source of the fountain's water evident. Do not waste water or any other form of energy. Take advantage of every possibility for multiple use. Let the overflow from drinking basins cascade in channels, collect in pools, run along walkways, irrigate plants, or become a children's play area. See pattern PLAY WITH WATER (73a.), SITE DRAINAGE (104a.), IRRIGATION (169a.), ROOF DRAINING (220a.).

92. BUS STOP

. . . within a town whose public transportation is based on MINI-BUSES (20), the most efficient form of public transportation, genuinely able to serve people, almost door to door, for a low price, and very fast, there need to be bus stops, within a few hundred feet of every house and workplace. This pattern gives the form of such a bus stop.

--oOo--

Bus stops must be easy to recognize, and pleasant, with enough activity around them to make people feel comfortable and safe.

Therefore:

Build bus stops so that they form tiny centers of public life. Build them as part of the gateways into neighborhoods, work communities, parts of town. Locate them so that they work together with several other activities: at least, a newsstand, maps, outdoor shelter, seats; and--in various combinations--corner groceries, smoke shops, coffee bar, tree places, special road crossings, public bathrooms, squares....

--ooo--

Make a full gateway to the neighborhood, next to the bus stop, or place the bus stop where the best gateway is already--MAIN GATEWAY (53); treat the physical arrangement, according to the patterns for PUBLIC OUTDOOR ROOM (69), PATH SHAPE (121), and A PLACE TO WAIT (150); provide a FOOD STAND (93): and place the seats according to sun, wind protection and view--SEAT SPOTS (242). . . .

93. FOOD STANDS*

. . . throughout the neighborhood, there are natural public gathering places--CENTERS OF ACTION (30), ROAD CROSSINGS (54), RAISED WALKS (55), SMALL PUBLIC SQUARES (61), BUS STOPS (92). All of them draw their life, to some extent, from the foodstands, the hawkers and the vendors who fill the street with the smell of food.

--oOo--

Many of our habits and institutions are bolstered by the fact that we can get simple, inexpensive food on the street, on the way to shopping, work and friends.

Therefore:

Concentrate small owner-operated food stands at the juncture of pedestrian streets and roads, perhaps with parking nearby; but never provide special parking around them. Keep the foodstand itself simple, scaled to pedestrians, either portable stands or small huts, or built into the fronts of buildings, half-enclosed and half-open to the street.

--oOo--

Treat these food stands as ACTIVITY POCKETS (124) when they are part of a square, and make them a part of A PLACE TO WAIT (150), and BUILDING EDGE (160). Use canvas roofs to make a simple shelter over them--CANVAS ROOFS (244); but keep them completely open to the street--OPENING TO THE STREET (165); place them near walls where people can sit down--SEAT SPOTS (241), SITTING WALL (243). And keep them in line with the precepts of INDIVIDUALLY OWNED SHOPS (87): the best food always comes from people who are in business for themselves, who buy the raw food, and prepare it in their own style. . . .

97. SHIELDED PARKING*

. . . many patterns we have given discourage dependence on the use of cars; we hope that these patterns will gradually get rid, altogether, of the need for large parking lots and parking structures--LOCAL TRANSPORT AREAS (11), NINE PERCENT PARKING (22). However, in certain cases, unfortunately, large amounts of parking are still necessary. Whenever this is so, this parking must be placed very early, to be sure that it does not destroy the BUILDING COMPLEX (95) altogether.

--oOo--

Large parking structures full of cars are inhuman and dead buildings--no one wants to see them or walk by them. At the same time, if you are driving, the entrance to a parking structure is essentially the main entrance to the building--and it needs to be visible.

Therefore:

Put all large parking lots, or parking garages, behind some kind of natural wall, so that the cars and parking structures cannot be seen from outside. The wall which surrounds the node may be a building, connected houses, or housing hills, earth berms, or shops. If there is a high parking garage which cannot be completely surrounded by other things, then it must at least be surrounded by shops and services at ground level. Always choose the functions which form the shield to be things that are genuinely lively and useful--a hillside of grass where children can play, for instance, but not ornamental planting.

Make the entrance to the parking lot a natural gateway to the buildings which it serves. To do this, put the entrance to parking, the main entrance to the building, and the exit from parking to the building, in a simple visible triangular relationship.

--oOo--

For shields see HOUSING HILL (39), HOUSING IN BETWEEN (48), INDIVIDUALLY OWNED SHOPS (87), OPEN STAIRS (153), GALLERY SURROUND (165). One of the cheapest ways of all to shield a parking lot is with canvas awnings--the canvas can be many colors: underneath, the light is beautiful--CANVAS ROOF (244). Make certain that the major entrances of buildings are quite clearly visible from the place where you drive into parking lots, and from the places where you leave the parking lots on foot--CIRCULATION REALMS (98), FAMILY OF ENTRANCES (102), MAIN ENTRANCES (107). In covered parking structures, use a huge shaft of daylight as a natural direction, which tells people where to walk to leave the parking--LIGHT TO WALK TOWARDS (135); and finally, for the load-bearing structure, engineering and construction, begin with STRUCTURE FOLLOWS SOCIAL SPACES (206). . . .

103. SMALL PARKING LOTS**

. . . the large parking structures are well hidden--SHIELDED PARKING (97); but any other parking must also be placed, within the building complex, in such a way as to maintain the strictures of NINE PERCENT PARKING (22), and to be convenient to the pattern of pedestrian movement--CIRCULATION REALMS (98).

--oOo--

Vast parking lots wreck the land for people.

Therefore:

Make parking lots small, serving not more than 6-8 cars, each lot surrounded by hedges, fences, slopes and trees, so that outside the lot, the cars are almost invisible. Space these small lots so that they are at least 100 feet apart.

--oOo--

Place entrances and exits of the parking lots in such a way that they fit naturally into the pattern of pedestrian movement, and lead directly, without confusion, to the major entrances to individual buildings--CIRCULATION REALMS (98). Shield even these quite modest parking lots with walls, and trees and fences, so that they help to generate the space around them--POSITIVE OUTDOOR SPACE (113), TREE PLACES (171), GARDEN WALLS (173). . . .

104. SOUTH FACING OUTDOORS**

. . . assume now, that the most general aspects of the building complex have been laid out--BUILDING COMPLEX (95), NUMBER OF STOREYS (96), CIRCULATION REALMS (98), and that we are ready, now, to place the individual buildings on the site. The patterns which follow, and all remaining patterns in the language, concern the design of one single building and its surroundings. We start, always, with the position of the building, with respect to open space and sun. This is perhaps the most important single decision about the building.

--oOo--

People use open space if it is sunny, and don't use it if it isn't, in all but desert climates.

Therefore:

At the same time that you choose the place to build a building, you must also choose the place for the outdoors next to the building. You cannot place a building, without simultaneously placing its outdoor areas or gardens--it is a double act. Place buildings to the north of the outdoor spaces that go with them. Keep the outdoor spaces to the south and never let a deep band of shade separate them from the buildings.

--oOo--

Be ready, later, to break down the building into narrow wings--WINGS OF LIGHT (110). Keep the most important rooms to the south of these wings--INDOOR SUNLIGHT (128); and keep storage, parking, etc. to the north--NORTH FACE (161). Then later still, when the building is more developed, you can take the special sunny areas where the outdoors and building meet, and make them into a definite place, where people can sit in the sun--SUNNY PLACE (160). . . .

104a. SITE DRAINAGE

It is important to recognize and understand the presence of water on a site (whether in bodies of water or as precipitation), so that various activities are located to take advantage of this natural phenomenon. The way in which water is naturally drained away or collected from a piece of land, as well as the water table level (the depth at which water is collecting in the ground) depend on various factors such as the soil makeup, slope of the site, total precipitation during the year, etc.

--oOo--

A piece of land receives a certain amount of precipitation during a year's cycle. Natural drainage patterns allow water to be distributed or collected throughout a given site, absorbed by the earth, evaporated, collected on the ground's surface, or directed to the sea. If these facts are ignored when deciding where buildings ought to be sited, serious conflicts arise.

Therefore:

Carefully observe the natural drainage patterns of the site. Before deciding where a building, patio, garden, or walkway should go, imagine what kinds of activities the water already flowing through or collecting in that area can support. Collect or divert water to further support those activities -- a small brook through a playground or orchard, a pond by a common green, a natural spring in a public outdoor room etc. Attempt to keep the natural surface drainage visible and understandable, while making it useful. Collect storm water or existing small streams into streams running through the site, watering trees or flowers, cooling the buildings, forming ponds, etc. See patterns POOLS AND STREAMS (64.), PLAY WITH WATER (73a.), FOUNTAINS (90a.), SITE DRAINAGE (104a.), IRRIGATION (168a.), PAVING OF OUTDOOR ROOMS (246a.).

105. SITE REPAIR**

. . . within the general ideas of location which SOUTH FACING OUTDOORS (104), creates, it is necessary to get a more detailed idea of the places on the site where buildings ought to be, and the places where buildings ought not to be. This pattern plays that role. Since it tends to identify very particular small areas of any site, as promising areas of development, it is greatly supported by BUILDING COMPLEX (95) which breaks buildings into smaller parts, and therefore makes it possible to strew them around the site in the best places.

--oOo--

To make the entire environment whole, buildings must always be built on those parts of the land which are in the worst condition, not the best--so that those parts which are beautiful and healthy, are left as they are, and the bad parts are always being improved.

Therefore:

On no account place buildings in the places which are most beautiful. In fact, do the opposite. Consider the site and its buildings as a single living eco-system. Leave those areas that are the most precious, beautiful, comfortable, and healthy as they are. Locate all new structures in those parts of the site which are the least pleasant now, so that when they are finished, all the site, 100 percent of it, is alive and beautiful.

--oOo--

Above all, leave trees intact and build around them with great care--TREE PLACES (171); try, generally, to shape space in such a way that each place becomes positive, in its own right--POSITIVE OUTDOOR SPACE (113). Repair slopes if they need it with TERRACED SLOPE (169), and leave the outdoors in its natural state as much as possible--GARDEN GROWING WILD (172). If necessary, push and shove the building into odd corners, to preserve the beauty of an old vine, a bush you love, a patch of lovely grass--WINGS OF LIGHT (110), LONG PERIMETER (112). . . .

114. HIERARCHY OF OPEN SPACE*

. . . now the main outdoor spaces are becoming clear, from the impact of SOUTH FACING OUTDOORS (104), SITE REPAIR (105), and POSITIVE OUTDOOR SPACE (113)--you can refine them, and complete their character by making certain that every space always has a view out into some other larger one, and that all the spaces work together to form hierarchies.

--oOo--

This pattern is based on two quite simple observations: First, people always take up a position in which they have their backs protected--they like to have a wall, or something comparable behind them. Second: People always take up a position looking out towards some larger opening, beyond the space immediately in front of them.

Therefore:

Whatever space you are shaping--whether it is a garden, terrace, street, park, public outdoor room or courtyard, make sure of two things. First, make at least one smaller space, which looks into it. Second, place it, and its openings, so that it looks into at least one larger space.

When you have done this, every outdoor space will have a natural "back"; and every person who takes up the natural position, with his back to this "back," will be looking out towards some larger distant view.

--oOo--

For example: garden seats open to gardens--HALF HIDDEN GARDEN (106), GARDEN SEAT (176); activity pockets open to public squares--SMALL PUBLIC SQUARE (61), ACTIVITY POCKETS (124); gardens open to local roads--LOOPED LOCAL ROAD (49), PRIVATE TERRACE ON THE STREET (140); roads open to fields--GREEN STREETS (51), ACCESSIBLE GREENS (60); fields open to the countryside, on a great vista--THE COUNTRYSIDE (7), COMMON LAND (67). Make certain that each piece of the hierarchy is arranged so that people can be comfortably settled within it, oriented out toward the next larger space. . . .

120. PATHS AND GOALS

. . . once buildings and arcades and open spaces have been roughly fixed by BUILDING COMPLEX (95), WINGS OF LIGHT (110), POSITIVE OUTDOOR SPACE (113), ARCADES (119)--it is time to pay attention to the paths which run between the buildings. This pattern shapes these paths, and also helps to give more detailed form to DEGREES OF PUBLICNESS (36), PATH NETWORK (52), and CIRCULATION REALMS (98).

--oOo--

The layout of paths will seem right and comfortable only when it is compatible with the process of walking. And the process of walking is far more subtle than one might imagine.

Therefore:

To lay out paths, first place the goals, at natural points of interest. Then connect the goals to one another to form the paths. The paths may be straight, or gently curving between goals: their paving should swell around the goal. The goals should never be more than a few hundred feet apart: all the ordinary things in the outdoors--trees, fountains, entrances, gateways, seats, statues, a swing, an outdoor room--can be the goals.

--oOo--

Shape the important parts of paths according to PATH SHAPE (121); and build the "goals" according to the rules of SOMETHING ROUGHLY IN THE MIDDLE (126). See FAMILY OF ENTRANCES (102), MAIN ENTRANCE (107), TREE PLACES (171), SEAT SPOTS (241), RAISED FLOWERS (245) for possible goals.

To pave the paths use PAVING WITH CRACKS BETWEEN THE STONES (247). . . .

121. PATH SHAPE*

. . . paths of various kinds have been defined by larger patterns--PROMENADE (31), SHOPPING STREET (32), PATH NETWORK (52), RAISED WALK (55), PEDESTRIAN STREET (100), and PATHS AND GOALS (120); now these paths must be given a definite shape. This pattern defines the shape.

--oOo--

Streets should be for staying in, and not just for moving through, the way they are today.

Therefore:

Widen the center of a public path or walk, so that the widened center in contrast with the narrower sections at the ends defines an enclosure which is a place to stay, not just a place to pass through. To enhance this center, place stair seats, arcades on either side, and activity pockets where the buildings form the edge of the bulge.

--oOo--

Above all, to create the shape of the path, move the building fronts into the right positions--and on no account allow a set-back between the building and the path--BUILDING FRONTS (122); decide on the appropriate area for the "bulge" by using the arithmetic of PEDESTRIAN DENSITY (123); then form the details of the bulge with arcades, stair seats, and activity pockets--ARCADES (119), ACTIVITY POCKETS (124), STAIR SEATS (125); perhaps even with a PUBLIC OUTDOOR ROOM (69); and give as much life as you can to the path all along its length with windows--STREET WINDOWS (163). . . .

123. PEDESTRIAN DENSITY*

. . . in various places there are pedestrian areas, paved in some way, with the intention that people will congregate there, or walk up and down--PROMENADE (31), SMALL PUBLIC SQUARES (61), PEDESTRIAN STREET (100), INDOOR STREET (101), PATH SHAPE (121). It is essential now to limit the areas of these places very strictly, especially the areas which are paved--so that they stay alive.

--oOo--

Many of our modern public squares, though intended as lively plazas, are in fact deserted and dead.

Therefore:

For public squares, courts, pedestrian streets, any place where crowds are drawn together, estimate the mean number of people in the place at any given moment (P); and make the area of the place between 150P and 300P square feet.

--oOo--

Embellish the density, and feeling of life, with areas at the edge which are especially crowded--STREET CAFE (88), ACTIVITY POCKETS (124), STAIR SEATS (125), PRIVATE TERRACE ON THE STREET (140), BUILDING EDGE (159), STREET WINDOWS (163), OPENING TO THE STREET (164), GALLERY SURROUND (165). . . .

125. STAIR SEATS*

. . . we know that paths and larger public gathering places need a definite shape, and a degree of enclosure, with people looking into them, not out of them--SMALL PUBLIC SQUARES (61), POSITIVE OUTDOOR SPACE (113), PATH SHAPE (121). Stairs around the edge do it just perfectly: and also help embellish FAMILIES OF ENTRANCES (102), MAIN ENTRANCES (107), and OPEN STAIRS (153).

Wherever there is action in a place, the spots which are the most inviting, are those high enough to give people a vantage point, and low enough to put them in the action.

Therefore:

In any public place where people loiter, add a few steps at the edge where stairs come down, or where there is a change of level. Make these raised areas immediately accessible from below, so that people may congregate and sit, to watch the goings-on.

Give the stair seats the same orientation as SEAT SPOTS (242). Make the steps out of wood or tile or brick so that they wear with time, and show the marks of feet, and are soft to the touch for people sitting on them--SOFT TILE AND BRICK (248); and make the steps connect directly to surrounding buildings--CONNECTION TO THE EARTH (167). . . .

126. SOMETHING ROUGHLY IN THE MIDDLE

. . . SMALL PUBLIC SQUARES (61), COMMON LAND (67), COURTYARDS WHICH LIVE (115), PATH SHAPE (121) all draw their life from the activities around their edges--ACTIVITY POCKETS (124) and STAIR SEATS (125). But even then, the middle is still empty, and it needs embellishment.

A public square without a centerpiece is likely to stay empty in the middle. Even if the edge is lively, the area toward the middle will be wasted, unless there are places there, which draw people out, and make them feel comfortable.

Therefore:

Between the natural paths which cross a public square or courtyard or a piece of common land choose something to stand roughly in the middle: a fountain, a tree, a statue, a clock-tower with seats, a windmill, a bandstand. Make it something which gives a strong and steady pulse to the square, drawing people in towards the center. Leave it exactly where it falls between the paths; resist the impulse to put it exactly in the middle.

Connect the different focal points of a town to one another, with the path system--PATHS AND GOALS (120); and make sure that each one has something to sit on, at least a low wall--SITTING WALL (243). Possible focal points are fountains, pools--HIGH PLACES (62), DANCING IN THE STREETS (63), POOLS AND STREAMS (64), PUBLIC OUTDOOR ROOM (69), STILL WATER (71), TREE PLACES (171). . . .

159. A PLACE TO WAIT*

. . . in any office, or workshop, or public service, or station or clinic, where people have to wait for their appointments, or for trains--INTERCHANGE (34), HEALTH CENTER (47), SMALL SERVICES WITHOUT RED TAPE (81), OFFICE CONNECTIONS (82), and others--it is essential to provide a special place for waiting, and doubly essential that this place not have the sordid, enclosed, time-slowed character of ordinary waiting rooms.

--oOo--

The process of waiting has inherent conflicts in it.

Therefore:

In the places where people end up waiting (for a bus, for an appointment, for a plane), create a situation which makes out of the waiting a positive moment. Fuse the waiting with some other activity--newspaper, coffee, pool tables, horseshoes; something which draws people in who are not simply waiting. And also the opposite: make a place which can draw a person waiting into a reverie; quiet; a positive silence.

--oOo--

The active part might have a window on the street--STREET WINDOWS (164), WINDOW PLACE (180), a cafe--STREET CAFE (88), games, positive engagements with the people passing by--OPENING TO THE STREET (165). The quiet part might have a quiet garden seat--GARDEN SEAT (176), a place for people to doze unmolested--SLEEPING IN PUBLIC (94), perhaps a pond with fish in it--STILL WATER (71). To the extent that this waiting space is a room, or a group of rooms, it gets its detailed shape from LIGHT ON TWO SIDES (159), and THE SHAPE OF INDOOR SPACE (191). . . . .

161. SUNNY PLACE**

. . . on the basis of SOUTH FACING OUTDOORS (104) the building has already been placed to the north of any outdoor space or gardens which belong to it. It is essential now to embellish this simple act of position, by detailing it correctly. The area immediately outside the building, to the south--that angle between its walls and the earth where the sun falls--must be developed and made into a place which lets people bask in it. When done properly this pattern will not only help to finish the south facing pattern, but also the BUILDING EDGE (160).

--oOo--

An outdoor room, a place outdoors for people to use as often as a room indoors, will stand or fall according to its relationship to the sun.

Therefore:

Inside a south facing court, or garden or yard, find the spot between the building and the outdoors which gets the best sun. Develop this spot as a special sunny place--make it the important outdoor room, a place to work in the sun, or a place for a swing and some special plants, a place to sunbathe. Be very careful indeed, to place the sunny place in a position where it is sheltered from the wind. A steady wind will prevent you from using the most beautiful place.

Make the place itself as much as possible like a room--PRIVATE TERRACE ON THE STREET (140), OUTDOOR ROOM (163); always at least six feet deep--no less--SIX FOOT BALCONY (167); perhaps with foliage or a canvas to filter the light on hot days--TRELLISED WALK (174), CANVAS ROOF (244). Put in seats according to SEAT SPOTS (241). . . .

169. TERRACED SLOPE**

. . . the building has been placed in such a way as to preserve the best parts of the site--SITE REPAIR (105); you know where the edges of the building are--BUILDING EDGE (160), CONNECTION TO THE EARTH (168); and it is time now to develop your conception of the garden. The first thing to do, if the ground is sloping, is to take care of the slope.

--oOo--

On sloping land, erosion caused by run off can kill the soil. It also creates totally uneven distribution of rainwater over the land, which naturally does less for plant life than it could if it were more evenly distributed.

Therefore:

On all land which slopes, in fields, in parks, in public gardens, even in the private gardens around a house, make a system of terraces and bunds, which follow the contour lines. Make them by building low walls, along the contour lines, and then backfilling them with earth to form the terraces. Keep the earth a few inches below the wall, so that the wall contains the water which falls on the terraces.

Place terraces after buildings on the site, so that the exact position of each terrace line can fit together with natural edges of the building. There is no reason why the building itself should fit into the terraces--it can comfortably cross terrace lines.

Plant vegetables and orchards on the terraces--VEGETABLE GARDEN (177), FRUIT TREES (179), along the walls which form the terraces, plant flowers high enough to touch and smell--RAISED FLOWERS (245); and it is also very natural to make the walls so people can sit on them--SITTING WALL (243). . . .

169a. IRRIGATION

In most climates, trees and vegetation in urban setting need to be watered during the hotter months of the year. This is usually achieved by underground pipes and sprinklers or by a combination of hoses and sprinklers that are moved to the site when needed. The physical arrangement of the way plants are watered makes irrigation seem a burden and hinders the development of an understanding of water cycles. Thus, people are deprived of evidence of their connection to the larger landscape and to the ecological systems of which they are a part.

--oOo--

People, especially city dwellers, regard the existence of water as a granted, guaranteed amenity for their use. They do not regard it as a system within the total ecological system of a place.

Therefore:

Make the irrigation of flowers, trees, and grass visible and comprehensible, at all times, whether the water is on or off. Let the water flow in open channels; these channels could collect rain water from roofs, pavements, and surfaces that could irrigate vegetation. Depending on the particular climate and seasonal precipitation, water might need to be diverted into these channels from other sources: a stream or pond, the overflow of a fountain, or the public water supply system.

Water running in open channels can be enjoyed by people. It can also add to people's understanding of a larger network of systems and processes which water comprises. Connect these channels into a network of channels flowing by walkways, houses -- POOLS AND STREAMS (64.), through playgrounds and public open spaces -- STILL WATER (71.), PLAY WITH WATER (73a.), and make them part of the natural drainage of a place -- SITE DRAINAGE (104a.).

170. FRUIT TREES

. . . and now that you have got a terraced garden--TERRACED SLOPE (169), you can begin to think what kinds of things to grow in it. Above all, a garden--public or private--is a thing of use, yet not a farm. That half way kind of garden which is useful, but also beautiful in spring, and autumn, and a marvelous place to walk because it smells so wonderful, is the orchard.

--oOo--

In the climates where fruit trees grow, the orchards give the land an almost magical identity: think of the orange groves of Southern California, the cherry trees of Japan, the olive trees of Greece. But the growth of cities seems always to destroy these trees and the quality they possess.

Therefore:

Plant small orchards of fruit trees in gardens and on common land, along paths and streets, in parks, in neighborhoods: wherever there are well-established groups that can themselves care for the trees and harvest the fruit.

If you have an especially nice fruit tree, make a TREE PLACE (171) under it, with a GARDEN SEAT (176), or arrange a path so the tree can provide a natural goal along the path--PATHS AND GOALS (120). . . .

171. TREE PLACES

. . . trees are precious. Keep them. Leave them intact. If you have followed SITE REPAIR (105), you have already taken care to leave the trees intact and undisturbed by new construction; you may have planted FRUIT TREES (170); and you may perhaps also have other additional trees in mind. This pattern re-emphasizes the importance of leaving trees intact, and shows you how to plant them, and care for them, and use them, in such a way that the spaces which they form are useful as extensions of the building.

--oOo--

When trees are set down without regard for the special places they can create, they are as good as dead for the people who need them.

Therefore:

If you are planting trees, plant them according to their nature, to form enclosures, avenues, squares, groves and single spreading trees towards the middle of open spaces. And shape the nearby buildings in response to trees, so that the trees themselves, and the trees and buildings together, form places which people can use.

--oOo--

Make the trees form "rooms" and spaces, avenues, and squares, and groves, by placing trellises between the trees, and walks, and seats under the trees themselves--OUTDOOR ROOM (163), TRELLISED WALK (174), GARDEN SEAT (176), SEAT SPOTS (241). One of the nicest ways to make a place beside a tree is to build a low wall, which protects the roots, and makes a seat--SITTING WALL (243). . . .

172. GARDEN GROWING WILD*

. . . and now, with terracing in place, and trees taken care of--TERRACED SLOPE (169), FRUIT TREES (170), TREE PLACES (171), we come to the garden itself--to the ground, and plants. In short, we must decide what kind of garden to have, what kind of plants to grow, what style of gardening is compatible with both artifice and nature.

--oOo--

A garden which grows true to its own laws is not a wilderness yet not entirely artificial either.

Therefore:

Grow grasses, mosses, bushes, flowers and trees, in a way which comes close to the way that they occur in nature: intermingled, without barriers between them, and without bare earth, without formal flower beds, and with all the boundaries, and edges made in rough stone and brick and wood which become a part of the natural growth.

--oOo--

Include no formal elements, except where something is specifically called for by function--like a greenhouse--GREENHOUSE (175), a quiet seat--GARDEN SEAT (176), some water--STILL WATER (71), or flowers placed just where people can touch them and smell them--RAISED FLOWERS (245). . . .

173. GARDEN WALL*

. . . in private houses, both the HALF HIDDEN GARDEN (106) and the PRIVATE TERRACE ON THE STREET (140) require walls. More generally, not only private gardens, but public gardens too, and even small parks and greens--QUIET BACKS (59), ACCESSIBLE GREEN (60), need some kind of enclosure round them, to make them as beautiful and quiet as possible.

--oOo--

Gardens and small public parks don't give enough relief from noise unless they are well protected.

Therefore:

Form some kind of enclosure to protect the interior of a quiet garden from the sights and sounds of passing traffic. If it is a large garden or a park, the enclosure can be soft, can include bushes, trees, slopes and so on. The smaller the garden, however, the harder and more definite the enclosure must become. In a very small garden, form the enclosure with buildings or walls; even hedges and fences will not be enough to keep out sound.

--oOo--

Use the garden wall to help form positive outdoor space--POSITIVE OUTDOOR SPACE (113); but pierce it with balustrades and windows, to make connections between garden and street, or garden and garden--PRIVATE TERRACE ON THE STREET (140), HALF OPEN WALL (193), and above all, give it openings to make views into other larger and more distant spaces--HIERARCHY OF OPEN SPACE (114), ZEN VIEW (134). . . .

175. GREENHOUSE

. . . to keep a garden alive, it is almost essential that there be a "workshop"--a kind of halfway house between the garden and the house itself, where seedlings grow, and where in temperate climates, plants can grow in spite of cold. In a HOUSE CLUSTER (37) or a WORK COMMUNITY (41), this workshop provides an essential form to the COMMON LAND (67).

--oOo--

Many efforts are being made to harness solar energy, by converting it into hot water or electric power. And yet the easiest way to harness solar energy is the most obvious and the oldest: namely, to trap the heat inside a greenhouse and use it for growing flowers and vegetables.

Therefore:

In temperate climates, build a greenhouse as part of your house or office, so that it is a "room" of the house, which can be reached directly, without going outdoors.

--oOo--

Place the greenhouse so that it has easy access to the VEGETABLE GARDEN (177) and the COMPOST (178). Arrange its interior so that it is surrounded with WAIST HIGH SHELVES (201), and plenty of storage--BULK STORAGE (145); and give it a special seat, where it is possible to sit comfortably--GARDEN SEAT (176), WINDOW PLACE (180). . . .

177. VEGETABLE GARDEN*

. . . we have one pattern, already, which brings out the useful character of gardens--both public and private ones--because it produces fruit--FRUIT TREES (179); now we supplement this with a smaller, but as important aspect of the garden--one which every public and private garden should contain; enhance common land--COMMON LAND (67) and private gardens--HALF HIDDEN GARDEN (106), with a patch where people can grow vegetables.

--oOo--

In a healthy town every family can grow vegetables for itself. The time is past to think of this as a hobby for enthusiasts; it is a fundamental part of human life.

Therefore:

Set aside one piece of land either in the private garden or on common land as a vegetable garden. About 1/10th of an acre is needed for each family of four. Make sure the vegetable garden is in a sunny place and central to all the households it serves. Fence it in and build a small storage shed for gardening tools beside it.

To fertilize the vegetables, use the natural compost which is generated by the house and the neighborhood--COMPOST (178); and if possible, try to use water from the sinks and drains to irrigate the soil--BATHING ROOM (144). . . .

207. GOOD MATERIALS*

. . . the principles of structure allow you to imagine a building in which materials are distributed in the most efficient way, congruent with the social spaces given by the plan--STRUCTURE FOLLOWS SOCIAL SPACES (191), EFFICIENT STRUCTURE (206). But of course, the structural conception is still only schematic. It can only become firm and cogent in your mind, when you know what materials the building will be made of. This pattern helps you settle on materials.

--oOo--

There is a fundamental conflict in the nature of materials for building in industrial society.

We believe that ultra-lightweight concrete is one of the most fundamental bulk materials of the future.

Therefore:

Use only biodegradable, low energy consuming materials, which are easy to cut and modify on site. For bulk materials, use only ultra-lightweight concrete and earth-based materials like tamped earth, brick, and tile. For secondary materials: use wook planks, gypsum, plywood, cloth, chickenwire, paper, cardboard, particle board, corrugated iron, lime plasters bamboo, rope, non-chlorinated plastics like polystyrene.

On no account use any of the following: steel panels, aluminum, hard concrete, prestressed concrete, chlorinated foams, large sections of plate glass, structural lumber, asphalt paving, rolled steel sections, cement plaster....

--oOo--

In GRADUAL STIFFENING (208), we shall work out the way of using these materials that goes with STRUCTURE FOLLOWS SOCIAL SPACES (205) and EFFICIENT STRUCTURE (206). Try to use the materials in such a way as to allow their own texture to show themselves--LAPPED OUTSIDE WALLS (234), SOFT INSIDE WALLS (235). . . .

241. SEAT SPOTS*

. . . assume, now, that the main structure of the buildings is complete. To make it perfectly complete, you need, now to build in the details of the gardens and the terraces around the building. In some cases, you will probably have laid out the walls and flowers and seats, at least in rough outline; but it is usually best to make the final decisions about them, after the building is really there--so that you can make them fit the building, and help to tie it into its surroundings--PATH SHAPE (121), ACTIVITY POCKETS (124), PRIVATE TERRACE ON THE STREET (140), BUILDING EDGE (160), SUNNY PLACE (161), OUTDOOR ROOM (163), CONNECTION TO THE EARTH (168), TRELLISED WALK (174), GARDEN SEAT (176), etc. First, the outdoor seats, public and private.

--oOo--

Where outdoor seats are set down without regard for view and climate, they will almost certainly be useless.

Therefore:

Choosing good spots for outdoor seats is far more important than building fancy benches. Indeed, if the spot is right, the most simple kind of seat is perfect.

First define the best spots for seats. Identify all the spots in the open space which are natural spots for seats; in cool climates, choose them to face the sun, and to be protected from the wind; and in hot climates, put them in shade and open to summer breezes. In both cases, place them to face activities, or at the very least, some kind of view.

--oOo--

If these seats can be made continuous with stairs or building entrances or low walls or balustrades, so much the better--STAIR SEATS (125), FRONT DOOR BENCH (242), SITTING WALL (243). . . .

243. SITTING WALL**

. . . at this stage, the outdoor areas are largely made up of positive spaces--POSITIVE OUTDOOR SPACES (113); in some fashion you have marked boundaries between gardens and streets, between terraces and gardens, between outdoor rooms and terraces, between play areas and gardens--GREEN STREETS (51), PEDESTRIAN STREET (100), HALF HIDDEN GARDEN (106), HIERARCHY OF OPEN SPACE (114), PATH SHAPE (121), ACTIVITY POCKETS (124), PRIVATE TERRACE ON THE STREET (140), OUTDOOR ROOM (163), OPENING TO THE STREET (165), GALLERY SURROUND (166), GARDEN GROWING WILD (172). Now you can help these natural boundaries take on their proper character, by building walls, just low enough to sit on, and high enough to makr the boundaries.

If you have also marked the places where it makes sense to build seats--SEAT SPOTS (241), FRONT DOOR BENCH (242), you can kill two birds with one stone, by using the walls as seats, which help enclose the outdoor space wherever its positive character is weakest.

--oOo--

In many places walls and fences between outdoor spaces are too high; but no boundary at all, is much too low, because it does injustice to the subtlety of the divisions between the spaces.

The problem can only be solved by a kind of barrier which functions as a barrier which separates, and as a seam which joins, at the same time.

Therefore:

Surround any natural outdoor area, and make minor boundaries between outdoor areas, with low walls, about 16 inches high, and wide enough to sit on--at least 12 inches wide.

--oOo--

Place the walls to coincide with natural seat spots, so that extra benches are not necessary--SEAT SPOTS (241); make them of brick or tile, if possible--SOFT TILE AND BRICK (248); if they separate two areas of slightly different height, pierce them with holes to make them balustrades--ORNAMENT (249). Where they are in the sun, and can be large enough, plant flowers in them or against them--RAISED FLOWERS (245). . . .

245. RAISED FLOWERS

. . . outdoors there are various low walls, at sitting height--SITTING WALL (243); terraced gardens, if the garden has a natural slope in it--TERRACED SLOPE (169); and paths and steps and crinkled building edges: PATHS AND GOALS (120), STAIR SEATS (125), BUILDING EDGE (160), GARDEN WALL (173). These are the best spots for flowers, and flowers help to make them beautiful.

--oOo--

Flowers are beautiful along the edges of paths, buildings, outdoor rooms--but it is just in these places that they need the most protection from traffic. Without some protection they cannot easily survive.

Therefore:

Soften the edges of buildings, paths and outdoor areas with flowers. Raise the flower beds so that people can touch the flowers, bend to smell them and sit by them. And build the flower beds with solid edges, so that people can sit on them, among the flowers too. Where there are low walls, build the flower beds right into the walls. And in those public places which get heavy foot traffic, you can even plant the grass, in raised flower beds, with a low wall around it, so the grass becomes a place to sit, a raised natural cushion, which will not get spoiled by people walking over it.

246a. PAVING OF OUTDOOR ROOMS

When outdoor areas where people walk or congregate are paved with expanses of concrete or asphalt, they are as inviting as mud or dust. They drain water into the storm sewer by being slightly sloped. They never change appearance, and they do not appeal to any of our senses. They are not easily changed, and people will usually leave them as soon as they can.

--oOo--

Since water will collect on a perfectly horizontal surface, these areas need to be sloped and/or have cracks so that they can allow the water to drain.

Therefore:

Make the paved areas of SMALL PUBLIC SQUARES (61.), PUBLIC OUTDOOR ROOMS (69.), etc., slope in various directions or in one direction (depending on the size of the area) and let the rain water run into open channels. The size of the channels depends on the area to be drained, and the relationship of their width to height. These channels can connect with those collecting rain water from roofs, may run along walkways or streets, or be used to water areas of grass, trees, or flowers -- see IRRIGATION 169a.). During the hot dry seasons, the channels could be connected to the town's water supply system so that water might continue to flow through public spaces, and along walkways, cooling physically and psychologically while watering vegetation.

Make the pavement of SOFT TILE AND BRICK (248.) or other local material. Choose materials that change color when wet, but do not become slippery. Compose it of small pieces put together either with cracks between them -- PAVING WITH CRACKS BETWEEN THE STONES (247.), or fitted close together; but never use mortar between them, so that you don't totally disturb the ecology of that area: water can seep into the earth through the cracks, and the pavement can be easily repaired or partially altered at any time. Arrange the parts so that they create visual patterns -- ORNAMENT (249.), give rhythm and direction to the movement of people through that place, and articulate it as an outdoor room, a place to stay, be used, and remembered. The drainage channels can also be used as an element in the visual organization and texture of the pavement.

247. PAVING WITH CRACKS BETWEEN THE STONES**

. . . many patterns call for paths and terraces, and places where the outdoor areas around a building feel connected to the earth--GREEN STREETS (51), PATH SHAPE (121), PRIVATE TERRACE ON THE STREET (140), OUTDOOR ROOM (163), CONNECTION TO THE EARTH (168), TERRACED SLOPE (169). This pattern provides a way of building the ground surface that makes these larger patterns come to life.

--oOo--

Asphalt and concrete surfaces outdoors are easy to wash down, but they do nothing for us, nothing for the paths, and nothing for the rainwater and plants.

Therefore:

On paths and terraces, lay paving stones with a one inch crack between the stones, so that grass and mosses and small flowers can grow between the stones. Lay the stones directly into earth, not into mortar, and of course, use no cement or mortar in between the stones.

--oOo--

Use paving with cracks, to help make paths and terraces which change and show the passage of time and so help people feel the earth beneath their feet--CONNECTION TO THE EARTH (168); the stones themselves can most easily be simple soft baked tiles--SOFT TILE AND BRICK (248). . . .

248. SOFT TILE AND BRICK

. . . several patterns call for the use of tiles and bricks--CONNECTION TO THE EARTH (168), GOOD MATERIALS (207), FLOOR SURFACE (233), SITTING WALL (243), PAVING WITH CRACKS BETWEEN THE STONES (247).

--oOo--

How can a man feel the earth, or time, or any connection with his surroundings, when he is walking on the hard mechanical wash-easy surfaces of concrete, asphalt, hard-fired architectural paving bricks, or artificially concocted mixes like terrazo.

Therefore:

If possible, use bricks and tiles which are soft baked, low fired--so that they will wear down with time, and show the marks of use.

Since bricks and tiles are getting more and more expensive, and since we consider this pattern so essential, we suggest that you make your own, on the site, at the same time that you build the building. You can make them in a simple mould, from local clay, reinforced with additives; you can stack the unfired tiles and bricks right on the site; surround the stack with twigs and firewood; and fire them, to a low fired soft pink color which will leave them soft enough to wear with the passage of time, as you start walking on them.

--oOo--

The soft pink color helps to create WARM COLORS (250). Before firing, you may want to give the tiles some ORNAMENT (249). . . .

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