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Masters Thesis

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Professor Shirley W. Allen
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Dear Sir:

This thesis was written in partial fulfillment of the requirements for the degree of Master of Forestry in the School of Forestry and Conservation, University of Michigan at Ann Arbor. In accordance with the regulations governing graduate work, I submit a copy of my thesis, "The Development of a Canoe Route on the Huron River and Adjacent Waters," to you as my advisor.

The thesis represents the results of field study which considers present and proposed developments on the area together with research work to serve as background material.

Respectfully yours,

Oscar G. Traczewitz
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THE DEVELOPMENT OF A CANOE ROUTE
ON THE HURON RIVER AND ADJACENT WATERS

Oscar G. Traczewitz

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Dedication

To those whose love for the outdoors has given them a better understanding, a finer appreciation, and a greater tolerance of the world of man.

Grateful scknowledgments are extended to those whose help and advice made possible the writing of this paper.

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THE DEVELOPMENT OF A CANOE ROUTE
ON THE HURON RIVER AND ADJACENT WATERS

In former years water was the mainstay of many river towns; it meant transportation, power, food, and industry for the people. Men founded cities on river banks or at the junction of two rivers to provide these things. But as the railroad and the automobile made their bid for progress, many of the river towns fell into disuse.. The water from the smaller rivers no longer played such an important part in the face of mechanized industry.

Consequently, population in these towns remained at a standstill, and the activities along the rivers did not flourish. Tastes in recreation began to change: the automobile and golf and other forms of play gained popularity, and canoeing ceased to grow as a sport. No longer did the many campfires which told of happy, carefree hours gleam along the river bank at night; nevertheless, canoeing has persisted through the years, for it is a good sport, a clean sport, and one which will always have its followers.

In recent years, however, a different problem has arisen. Industrial centers have increased in size tremendously, their air has become foul with smoke, dirt, gasoline fumes, and factory odors, and the people in them are crowding ever closer.

Here are thousands upon thousands of tired workers, people with jaded nerves and emotions strained to the breaking point, people who will go to almost any measure for relief from these conditions. Metropolitan Detroit with its congested streets and overtaxed play areas presents such a condition. Approximately three million people in this area should be provided with recreational facilities of one sort or another. Only a small portion of this number is taken care of at present. A great majority of them will not be able to travel far for their diversion, and it is for this multitude that provision must be made.

The Huron River Valley with its grassland areas, forested tracts, wooded lakes, and gently flowing streams has a powerful potential as to its recreational possibilities. Its vast stretch of untold natural wealth will, if properly developed, furnish an outlet for the energies of the hordes of recreation seekers who are within easy traveling distance of the area. I have chosen canoeing as a particular phase in such a development because of my love for the sport and my desire to see it out to good use in the ever-growing need for outdoor recreation.

HISTORY OF THE AREA

Settlement along the Huron Valley began around 1820 when the lands were thrown open for settlers by treaty. From then on growth was quite rapid, and the lands were soon taken by

the French and English farmers of the time. The need for sawmills and gristmills, which at that time formed the major industries, determined the location of the original townsites. A dam to provide power was built on the Huron as early as 1827.¹ Evidences of these early structures can still be seen at many points along the river, and at Hudson Mills and Delhi Mills in particular. The old mill races and parts of dams are still remaining. One of the structures, though not along the Huron, has been rebuilt and makes an interesting study (Figure 1). It gives one a better insight into the lives of the pioneers and their problems. A structure of later date is the suspension bridge shown in Figure 2. It was in use over the river until about 1933 and was still intact in 1936.

Towns like Ann Arbor, Dexter, and Milford are the only ones founded in the early days which are at present of any consequence. Ann Arbor was first known by the Indians as Kaw-goosh-kaw-nick,¹ a name which simulated the noise made by the creaking and groaning of the wooden machinery used in the sash mills. The Indians in the early days of settlement were few in number and caused the settlers little trouble.

Canoeing probably got its start on the Huron River when Paul Tessmer built his first boat livery north of town in 1901. In 1914 the establishment was moved to its present location on the east bank of the river at the end of Longshore Drive. Mr. William Saunders is the present owner.



Figure 1. Old gristmill at Pettysville. Field stone and unfinished siding have been used to restore this picturesque mill. It is about two miles northwest of Lakeland.



Figure 2. Remnants of a suspension bridge upstream from Strawberry Lake. Only cables and a small portion of the walk are left from this once well-used structure.

In the years preceding the war a canoe marathon from Lakeland to Ann Arbor was an annual event. It was run off in connection with the Michigan Union Boat Club regatta held on the river. Up to the time when such activities were discontinued in 1917, the cup which was awarded for this trip had been won twice by the Society of Les Voyageurs and twice by the Buell boys of Ann Arbor. The fastest time officially recognized for this trip of thirty miles was four hours and six minutes made by Les Voyageurs. The Society of Les Voyageurs, which is a recognized outdoor organization at the University of Michigan, still makes the trip every year in spring with about fifteen canoes although no attempts at speed are made.

PHYSIOGRAPHY AND NATURAL HISTORY

In order to gain a better perspective of the area under consideration it would be well to analyze its physical characteristics and forms of life. These factors influence both the methods of development and the kind and amount of use.

Geology

This area, like much of our country in the Paleozoic Era, was first covered by a sea, then had an archipelago formation, and lastly, rose above the water. During the Mesozoic Era erosion took place, and the Cenozoic Era developed the present relief of the region.

The drainage of the Huron River has not always been as it is now. When the Saginaw and Huron-Erie ice lobes were still coalescent at what is now the headwaters of the Huron, a glacial stream formed and flowed past Pinckney in a south-westerly direction to the Illinois River south of Lake Michigan. As the ice front receded, a lake formed on the Erie lobe, and the drainage of the Huron River swung to the south as a tributary of the Raisin River. With the enlargement of this lake the Huron formed its own course and went eastward. The lake into which the Huron now drains has been known as Maumee, Whittlesey, Warren, and now as Lake Erie.²

There has not been a great deal of change in the area since the disappearance of the ice sheet and its glacial lakes. The level of the lakes into which the Huron flowed was lowered at one time and caused deepening on the river, but only up as far as Portage Lake (see map). The course of the river changed slightly since its formation. At one time it followed Mill Creek southward out of Dexter and entered its present course just above Foster, a somewhat longer route than the present one.

General Description

Location. The Huron river, which is a stream of about 150 miles in length, has its source in Big Lake, Oakland County, State of Michigan. It flows southward from its source until it reaches the northern edge of the Ann Arbor quadrangle

and then swings southwestward up to the Washtenaw and Livingston County lines. From here it curves around and assumes a southeasterly course which it holds until it enters the extreme head of Lake Erie.

The section of river with which this problem deals is some sixty miles in length, lying between Milford in Oakland County and Ann Arbor in Washtenaw County. At Milford the elevation of the river is 900 feet above datum (mean sea level) whereas at Ann Arbor its elevation is 760 feet, thus incurring a drop of some 140 feet in sixty miles or an average drop of some 2.3 feet per mile. The gradient of the river varies from .51 feet fall per mile at Ore Lake to 10.42 feet fall per mile at Dexter.²

Topography. The region from Milford to Dexter is, in the main, glacial outwash (gravel deposited by glacial drainage) with areas of peat and muck adjacent to the river. The width of the river varies from fifteen feet in the upper reaches near Milford to seventy-five feet near Dexter. The land bordering the river is almost all low, flat, and marshy with occasional high spots. This type of country continues until reaching Dexter with the exception of the two high hills below Portage and Base Line Lakes. Prospect Hill (Figure 3) is one of the highest points in the quadrangle and affords a fine panorama of the surrounding countryside. It is well worth while for the canoeist to stop, stretch his legs, and hike to the top of the hill only a few hundred yards from the



Figure 3. Portage Lake as viewed from Prospect Hill. A portion of Base Line Lake is visible on the right--both are frozen over in March.



Figure 4. The river as seen from the wild life sanctuary above Ann Arbor. The Main Street Bridge is visible in left center while the outskirts of the city lie in the background.

river. Here he can get a more complete picture of the scene which is, in some measure, restricted down by the river.

From Dexter to Ann Arbor the river flows through deep gaps in the morainic ridges which were deposited by the Huron-Erie lobe. It is wider than the river above, in some places being almost 200 feet across. Of course the back water from dams caused very wide places like Barton Pond and the stretch of river above it. The land now becomes more hilly and the banks along the river are steeper. In places the slope back is gentle for a short distance and then rises sharply for over one hundred feet. Because of the hills and more varied topography, this stretch of river is less monotonous than the other (Figure 4). Around Delhi are a few patches of early river gravel terraces. Peaty terraces occur in the valley of the Huron above Ann Arbor.

Climate. The climate of the Huron River Valley is characteristic of that of southern Michigan. The winters seldom have temperatures much below zero degrees Fahrenheit, and the summer temperatures seldom go above one hundred degrees. The average mean annual temperature is about forty-five degrees.³ In spite of the warm summer temperatures the air is slow in warming during the spring, and as a result the ice on the lakes does not melt until early April (Figure 3). Thus, canoeing weather does not start until this time and lasts until October.

Mean annual precipitation is thirty-one inches and is fairly well distributed throughout the year.³ January probably has the least precipitation of any month and that is

usually in the form of snow. Melting snows and early spring rains supply the river with enough water to make excellent canoeing during April and May. However, the precipitation during the summer months is not sufficient to maintain high water, so some of the rapids become impassable (Figure 13), and the river becomes shallow in places. Prevailing winds are westerly and are usually not of sufficient velocity to cause damage; yet there are evidences of windthrow along the river, especially in the marshy areas where the root systems are shallow.

Flora

To the layman the vegetation along the river bank consists merely of trees and small plants. Some of them may be a darker green than others and some of them may have smaller leaves, but they're still trees to him. And yet, what a wealth of interest and delight lies in a simple knowledge of some of the plant species. To attempt a complete list of tree species, shrubs, herbaceous plants and flowers would be impracticable in a report of this nature. However, the major types and species are important as a basis for later developments. In the low, marshy land above Dexter where the trees seem to be growing out of the water are swamp elms, soft maples, black ash, willows, and a few oaks (Figure 5). The stands are usually quite dense with all-age timber, and there is not much undergrowth. On the steep banks and higher ground the white and red oaks become very prominent and contain an admixture of white elms, hard maples, white ash,



Figure 5. Stretch of river above the bridge on State Highway 36. In spite of snow and cold weather the river has not frozen over.



Figure 6. Channel connecting Zukey and Bass Lakes. Although the water is shallow, it is navigable by canoes and provides an easy means of access from one lake to another.

and hickory, all good fuel woods for the camper's fire. In some thickly wooded tracts are hawthorne, ironwood, cherry, aspen, and basswood. Open glades and coves contain shrubs and small trees such as flowering dogwood, witch hazel, elderberry, and alder. None of the sites are very good, and as a result the trees never attained great size nor were very valuable for timber products. In the fall, though, they parade their riot of colors in full glory, and their beauty is long remembered.

Many species of flowers can be found along the moist river bank, in the wet marshes, and in the shade of the woods. Trillium, wild geranium, and violet are common and beautiful in their native habitat on the moist shady slopes. Buttercup, marsh marigold, gentian, tiger lily, blood root, hepatica, and jack-in-the-pulpit can be found on the wetter sites. Some species like pitcher plant and ladies slipper are more rare and all the better appreciated in the joy of finding one.

Possibly most people pass by the aquatic plants with little more than casual interest, but their existence affects stream conditions, kind and amount of fish life, swimming possibilities, and to some extent, canoeing. The shoreline plants provide cover and food for animals and enhance the beauty of the river bank. The sedges (Carex sp.), rushes (Juncus sp.), and grasses form food for wildfowl, marsh birds, game birds, and muskrat. Cattail (Typha latifolia), while it provides cover and is pleasing to look at, is not used for food.

Lilies form a transition from shoreline to open water and are very aesthetic in their appearance on rivers, ponds, and lakes. The old plants rot in the shallow water and build up the soil for other aquatic species. A white lily (Nymphaea tuberosa) and a yellow lily (Nuphar variegatum) are common species on the river.

The weeds in the streambed are useful to fish life in that they harbor small animals upon which the fish feed. Waterweed or elodea (Anachares canadensis) is one of these species which grow thickly in the stream and lakes: it can be a nuisance in beaches because of its heavy growth. Some of the large, bulky species which grow in the streams and hinder one's paddle when canoeing are species of Potamogeton such as pondweed (P. Americanus), largeleaf pondweed (P. amplifolius), and floating brown leaf (P. natans). The channel in Figure 6 is dug through marsh plants and bog. Its bottom has considerable elodea, but it does not show in the picture.

Fauna

Any area which has sufficient natural vegetation and either streams or lakes usually abounds in animal life. The Huron River Valley has both of these qualifications, and even one who has a great knowledge of wild life can find plenty to observe.

Not many mammals are visible from the canoe so the student of small game animals is obliged to make little onshore treks. The muskrat and mink are found along the banks of the upper, lowland marshes of the area and to a lesser extent in the lower part of the river. In the wooded tracts are opossum, raccoon, skunks, squirrels, weasels, and chipmunks, whereas mice, rabbits, and woodchucks are plentiful in the fields and brushy areas. The only species which show any noticeable decrease in the past few years are muskrat and opossum. The area also has a few fox.

Fishing is an excellent complement to canoeing and provides diversion for tired muscles after several hours of paddling. Almost all the lakes contain fish in sufficient numbers to give the angler a nice day's catch. Black bass, northern pike, wall-eyed pike, and bullheads are the larger species which one can catch: crappies, bluegills, and perch fall into the classification of pan fish. All the foregoing species are present in the river but in smaller quantity. There are large numbers of rough fish like carp and suckers which remain in the river even in the warm, summer weather.

The list of birds on the area is as extensive as that of the flowers--almost any of the Michigan species can be found here. There is anything from the tiny humming birds and warblers to the enormous bulk of the great blue heron. Blue-winged teal and black ducks sometimes nest here in summer. There is variety to be found in marsh birds, wild-

fowl, small tree birds, hawks, owls, and colorful fellows like tanagers, cardinals and orioles. This array alone is enough to draw out anyone who has an appreciation of birds.

PRESENT DEVELOPMENTS

Development along the river, while it has not been intensified at any one spot, is well distributed over most of its length but seems emphasized from the lake area down to Ann Arbor.

Commercial Development

Since the country in former years was not all forested but was intersperced with open spaces, the land yielded itself to the farmer. Soil was good and crops grew well so most of the land was soon under cultivation. Small sawmills cut the lumber for buildings and furniture, but neither supply nor demand was great enough to keep them running. Growth of wheat necessitated construction of gristmills and grain elevators, but the opening of the vast wheat belt in the prairie states made this a declining industry. Old grain elevators are still standing just southeast of Four Mile Lake near Dexter. Hence, the early farms of large size were cut up and sold, and the average size is now about eighty acres. Some of them are half a section in area, but these are few in number; most of the land along the river is in farms.

The area never had any great specialty or commodity to merit large cities. Ann Arbor with its University is the largest city along the river and yet its student population is almost half that of the town. Milford and Dexter are smaller in size, and Foster, Scio, Delhi Mills, Hudson Mills, Dover, and Lakeland consist merely of a few houses.

Many people, following the appeal of recreational beauty spots, began to turn toward the lakes for homesites. The lake region north of Dexter offered many possibilities for delightful summer homes, and soon people could be found wherever there was water. At present most of the favorable sites on Portage, Base Line, Strawberry, and Zukey Lakes are taken--only marshy ground and large unit ownership have prevented the shoreline from becoming a continuous row of cottages. Even the land along the river is quite heavily settled near the towns and around the lake region.

An extensive system of U. S., State, and County Trunk Line Highways has been easily developed in the gently rolling terrain of lower Michigan. The canoeist can put his canoe on a car or trailer and drive to whatever section of stream or lake interests him most. He can paddle up or down stream and have someone pick him up at a desirable location. Main thoroughfares from Detroit cross the river at Kent Lake (Grand River Road) and at Hudson Mills (North Territorial Road) shown in Figure 8. Smaller roads cross the river every few miles in certain well developed areas on the river.(Figure 7).



Figure 7. County Trunk Highway bridge at the upper end of Barton Pond. Even though there is not much clearance, canoes can easily pass beneath it.



Figure 8. A more modern concrete structure at Hudson Mills on North Territorial Road. Places like this offer fine vistas to the canoeist.

Though the railroad is not so important a factor as the highway in canoe transportation, it is nevertheless a factor in the use of the area. There are a few points along the river to where a canoe can be shipped by train: among these are Milford, Lakeland, and Ann Arbor. But the greatest influence of the railroad upon the area is that it is a nuisance. There is scarcely a place during the day's travel where the piercing whistle of the engine and the roar of locomotive and cars does not intrude upon the peace and quiet of the river valley. The hum of auto traffic and the blare of horns is a parallel factor and is as great a source of irritation to one who loves solitude.

Dams and channels are developments of a commercial nature which have varied effects upon the area. The dams form artificial lakes in the valley above and cause stretches of low water below. If the lake formed by the dam has a constant water level, it is a distinct asset: beaches can be formed, permanent homesites can be erected, and greater possibilities for all types of boating are available. Barton Pond (Figure 9) is a good example of such a development. But, on the other hand, if the water level varies from time to time, unsightly mud flats form, and the area loses its value. The stream bed below may become too shallow and rocky with the building of a dam, and the pleasure would be taken out of canoeing. This occurs below Geddes Dam in Ann Arbor. Water is let through twice a day during certain dry periods



Figure 9. Barton Pond above the dam. Increased property values and beautiful homes are the result of the formation of this body of water.



Figure 10. Power house and dam below Barton Pond. It is necessary to portage around this.

of the year, and then the current is very strong; but when the turbines are shut off and not much water is let through, the rocky stream bed makes canoeing a series of portages or does a good job of scraping the bottom of the canoe. Most dams are now equipped with both large and small turbines to take care of the periods of high and low water. On the river from Milford to the canoe livery in Ann Arbor are only two power dams, one just below Milford and the other at Barton Pond (Figure 10). There is also a small dam near the mouth of Mill Creek in Dexter.

The main purpose of a channel is to provide either drainage from a body of water or access to it. Many old channels are used to advantage by people who want new scenes to see. There are several channels which are worth mentioning both because of their size and the additional amount of water made available to canoeists without portaging. Ore Lake lies close to the river and is connected to it by a channel which is several hundred feet in length. In the chain of lakes are small bodies of water called Gallagher Lakes. A channel about a mile long connects the river to the southernmost lake, and another short channel connects it to the other lakes which are really widenings of the river. At Portage Lake, one of the largest in the surrounding country, is another short channel connecting it to the river. There is also the aforementioned channel connecting Zukey and Bass Lakes (Figure 6). There are other channels

and drainage ditches in the area but they will not be discussed because many of them are not navigable during a greater part of the year and to follow them all out accurately would have been impossible in the time available. However, with a few questions among farmers and old residents the canoeist can find many "trails" that are off the beaten way where he can spend his time in exploring.

Recreational Development

People are strongly attracted to land that has water of some sort when they seek relaxation over the week end; they like to look at water, play in it, and fish in it. The banks of the Huron and its accompanying lakes are far more attractive than most of the surrounding country. In spite of this there are only two parks along the area: one is called "The Woods" (Figure 11) and is located about one-quarter mile below Delhi; the other is Dexter Huron Park between Dexter and Scio.

The Woods is only a small park of a couple acres. It is bounded by the river and Huron River Drive on two sides and by woods on the other sides. There are two latrines, four open grate fireplaces, some swings, teeter tauters, one table, and a pump on the area. The young hardwood stand, which is about fifty years of age, forms a pleasing cover. Gently sloping ground toward the river provides drainage, but the area is low and doesn't dry out much until summer.



Figure 11. Small campsite one-quarter mile below Delhi bridge. It is lightly wooded and well situated between the river on the left and the highway on the right.



Figure 12. Rapids at Delhi Mills. The high water in spring makes this stretch of "white water" thrilling to shoot in a canoe.

Canoes would have no trouble landing because there are no rocks, and the beach is gently sloped. There is a small parking place for cars because motorists use the area on week ends quite heavily.

The Dexter Huron Park is considerably larger in size and serves a greater number of people. It boasts such things as a caretaker's lodge, "beer bust" tables, trailer camp, and a ball diamond. It extends along the river for about three hundred yards and contains around sixteen acres. Many of the tables have a sheltering roof for protection against rain and sunlight. There are quite a few fireplaces and small tables along with swings, teeter tauters, latrines, a pump, sandbox, and an incinerator. There is wood available for burning in the fireplaces. The cover consists of all age hardwoods except for reproduction which is deleted by the heavy use the area receives. This park is also easily accessible by canoe. The area had been leased from Detroit Edison Company, but Ford Company has recently purchased this piece with many others, and at present the park has continued to operate under Ford's permission.

Campsites are more numerous along the river than parks, mainly because they require little development or none at all. One of these, a picnic grounds just above U. S. Highway 16, is privately owned and is operated on a commercial basis. It is a grassy area with a plantation of young willows. Boats can be rented for use on Kent Lake (just above the campsite) or

on the river. Tables are scattered among the willows and can be rented at the rate of twenty-five cents for an hour and a half.

A few hundred yards below U. S. Highway 16 is a dilapidated campsite about one-half acre in size on a fairly good location. The picnic tables are in poor condition and the picnic area is not kept up. The two latrines, are not useable. Another campsite of this size but in better condition is one below Dexter. It has two latrines, a table, and a place to beach canoes.

There are many places along the river where one can see evidences of camping such as crude rock fire areas or charred embers. Here no attempt has been made at development and the canoeist or camper merely builds his luncheon fire and moves on after eating. This is a more desirable type of campsite as far as "roughing it" goes or from the standpoint of leaving out man-made structures, but one may run into difficulties of sanitation, fire hazard, and trespass problems in these stop-as-you-please campsites. If all the users would employ discretion in the use of these areas, it would be all right, but many people abuse the privileges which are granted them. And yet there is little one can do to prevent misuse of property. Owners could post their land against trespass, but campers would use the area anyhow. Education of the user would help in some cases, but there will always be the obnoxious individual who can't conform to the codes

that society has formed. It would not be practicable to police the entire area, but if the great majority of users display respect for the wishes of others, that is about as much as can be expected.

Canoeing and boating are very popular among the land-owners along the river. There is scarcely a cottage that does not have its canoe or boat or both, but there are not many places that rent them. Saunder's Canoe Livery at Ann Arbor is the largest establishment of this kind on the area and is probably the only one which depends upon its canoe rental for a livelihood. The livery has about forty canoes which are privately owned and rent space in the livery, whereas Saunders has about 215 canoes which are rented to students and townfolk. Some of the cottagers and land-owners have accumulated several boats or canoes and increase their annual income by renting them. There are no exact figures as to the number of boats and canoes along the area, but if one boat or canoe is allotted to every house along the river and lakes, there must be a great number. Most of these are used only in their own locality for fishing, and few people realize the pleasures to be had from a river trip. In connection with these trips is the question of portages, but little has been done on this matter up to the present so they will be discussed under proposed developments.

Swimming areas are confined mainly to the lakes because the river is too shallow in many places and is polluted in

others. Several places have been developed along the river, though, and now serve as bathing beaches. One of these is above Dexter where the river has been dammed, and a swimming place is the result. The municipal bathing beach above Ann Arbor serves the entire city and is used mainly by the lower income groups. The bacterial content of the river at this point is quite high. Some people don't bother about a beach but just use the deeper parts of the river, and it is at these places that we have the old swimming holes. There are several beaches on the shore of Barton Pond and the other lakes, but they are privately owned.

Wild life refuges are scarcely a recreational development; yet these two departments are closely linked, and the study of animals is a most enjoyable form of recreation to many. There is a State Wildlife Sanctuary several hundred feet below U. S. Highway 16 and another sanctuary which is just northwest of Ann Arbor (Figure 4).

PROPOSED DEVELOPMENTS

Certain developments are necessary to make this canoe route less hazardous, more convenient, and more enjoyable; but to preserve the natural beauty and wild aspect of the area to the greatest extent, the developments will be kept at a minimum and will be of a type that will not be obnoxious to the user.

Physical Developments

Streambed Improvement and Hazard Reduction. The Huron is not a deep river for most of its length yet there are not many places where one cannot get a paddle stroke to the full depth of the blade when canoeing. There are very few places through which it is difficult to get a weighted canoe because of a shallow stream bed. One of these spots is just below Dover where one is likely to scrape bottom during periods of low water. About one hundred feet of the bottom needs dredging here. Another shallow spot, but not quite so bad, is that below the Portage Lake channel. The stream bed here needs deepening for a distance of about two hundred feet. Deepening these places one to two feet would be sufficient to secure easy passage in low water.

The rapids on the river present hazards to canoeists but at the same time provide exhilarating thrills to many (Figure 12). As Reuben Thwaites puts it: "Every muscle moves responsive to each sweep and pull of the paddle; while the mental faculties are kept continually on the alert, watching for snags, shallows, and rapids."⁴ All the rapids could be cleared of rocks and other obstructions to provide smooth, safe passage, but this would eliminate the joy of the trip to those who love the test of strength and skill. All the rapids are passable in high water but may be hazardous in periods of dry weather (Figures 13 and 14). Those canoeists who do not care to risk a wetting or damage to their canoe can easily portage around the turbulent water.



Figure 13. Small rapids between Delhi Mills and Foster just above the Osborne Bridge. They are impassable in late summer because of the low water.



Figure 14. The same rapids as viewed from the opposite bank in early March. Melting snow and early spring rains have made the rapids passable.

The rapids at Hudson Mills are bad in one spot: the old foundation of the dam is still remaining, and iron rods project upward almost to water level in a few places. To hit one of these when the water was not high enough would mean tearing a terrific gash in the canoe. This hazard should be removed to prevent unnecessary accidents.

Other obstacles which hinder the canoeist are fences and fallen trees. There is a fence a few hundred feet down from the Ford Dam below Milford, but a canoe can pass underneath it if the occupants duck low enough. It would not be necessary to remove this. Below this fence, however, is a windfall which is almost entirely across the stream and should be removed. There are many other places where fallen trees have partially blocked the stream, but their presence gives a desirable variety to river travel and affords short lengths of swift water. A river which was straight, had no rocks or fallen trees, and had the same current and depth throughout would indeed make dull traveling.

Portages. The canoeist usually dislikes the idea of carrying a heavy canoe around a dam or stretch of impassable water; nevertheless, it gives him a chance to relax cramped muscles and gives the trip more variety. Of course, there is a limit to this but there are only nine portages to make between Milford and Ann Arbor in low water. This number can be lowered depending upon how daring the canoeist is in shooting rapids. Omitting rapids, there are five places



Figure 15. Portage trail around Barton Dam.
Its gentle gradient makes the portage safe and
easy even for one person.

which must be portaged: two dams, one highway bridge, and two railroad bridges. The Ford Dam below Milford can be easily portaged even though the slope is quite steep, for the footing is good and the carry is only about seventy-five feet. The Barton Dam at the lower end of Barton Pond causes a large difference in water levels: however, this drop has been taken care of by the gently sloping portage trail shown in Figure 15. The landing at the upper dock is convenient and practical (Figure 16), but the lower landing is in bad shape. In the first place the lower dock is too high for comfortable access from a canoe. Then the concrete retainer wall in back of this is about three feet high and has no steps to make going up easier. This is difficult to carry over if one is alone or if two girls must make the carry. This dock should be constructed in a manner similar to the one shown in Figure 16 but should have a slightly different treatment of back logs. There should be a series of eight low steps one-half foot in height and one foot in depth. It would be better to have them made of planking instead of concrete so that canoes would not be scratched so easily.

A low bridge about one-quarter mile below the Ford Dam makes another portage necessary. The current in the narrow river here is swift, and one must use care in approaching the bridge. The land is marshy and wet, and the bank of the road fill is rocky. A gravel fill is needed on both sides of the road so that one can land and carry the canoe without



Figure 16. Portage dock at the lower end of Barton Pond. Simple, yet effective, it consists merely of a rough plank dock backed by logs.



Figure 17. Another type of portage over the Michigan Central Railroad. Because of the low bridge canoeists must carry their canoes up the steep, rocky embankment.

wading in the bogs. A barrier fence constructed of wood runs along the bank, but a four foot gap could be cut in it to allow passage of the canoe.

The low railroad bridges present another disagreeable portage up steep banks and over treacherous rails (Figure 17). Erosion on the slopes is taking place and will grow worse with continued use. In connection with the Huron Clinton Parkway Development (to be discussed later) the Michigan Central Railroad has agreed to put in large culverts under the right of way from bank to bank. They will be at water level with about a three-foot depth below water and the same above so that a boat or canoe will be able to pass through without making the portage.

Campsites. It is one of the aims of this development to erect overnight shelters for canoeists who wish to take a several days' journey. Cost prohibits the construction of a great number of these so they will be spaced somewhat like the shelters on the Appalachian Trail--approximately one day's journey apart. It is the plan to have the campsite consist of a small, open-front log shelter with a stone fireplace and grate in front of it. The camper can then cook his evening meal here, spread his bed roll in the shelter, and spend a good night. There will also be a garbage pit with a tight fitting cover and a closed pit latrine without shelter. The latter will be screened with either natural thick-foliaged plants, or cedars if the others are not available. A sign attached to a post will designate the area as a campsite to

those who pass. The post will be about six feet above the ground and the sign board will have orange letters on a deep brown background. All structures will be stained a deep brown so as to blend well with the surroundings.

One of these campsites will be located in the meander belt above Kent Lake (Figure 18). The bank is excellent for landing, and the woods to the rear afford a good backing for the shelter which will be located in front of them. Garbage pit and latrine will be about twenty-five feet to the rear of the shelter. Drainage on the sandy soil is good, but erosion is taking place. This is probably due to grazing of cattle and could be stopped by discontinuing the grazing. Some shrub like witch hazel or elderberry should be planted around the shelter to relieve the barren appearance from the river.

The second of these sites will be about one-quarter mile below Winans Lake Road. The ground slopes up from the river, and the area is moderately wooded with hardwood growth. The bank would have to be graded down in one place to allow for landing the canoe. The shelter will be placed thirty feet back from the river, and the garbage pit and latrine will be an equal distance back from the shelter. It might be considered more desirable to have a greater distance between shelter and the two sanitary devices, but if one removes them too far, people will not use them and the place may become littered with refuse.

The third campsite is about one mile below Hudson Mills and is shown in Figure 19. No improvement of the bank is



Figure 18. Proposed campsite located on the meander belt above Kent Lake. This is one of the few suitable camping spots along this low, marshy stretch of river.



Figure 19. Proposed campsite below Hudson Mills. This rather heavily wooded place lends itself well as a camping area.

necessary because there is a natural landing. A small area will have to be cleared so that the shelter can be erected. This campsite will follow the same general scheme as the one previous except that it will be closer to the river.

Land acquisition is a problem with which every development of this kind is confronted. In this project the units of land which are required are small in size and hence are likely to incur a greater cost per unit. Land values along the river for single acre units range from \$100 up to as much as the owner can get. The area under consideration above Kent Lake is poorly located for farming purposes and lies between marsh land on either side. It could probably be purchased for \$125. The area near Winans Road, however, is located in a more heavily populated area and may run as high as \$175 for an acre of it. The third area is on Ford Company property as far as can be ascertained. Both the Ford Company and Detroit Edison have declared themselves favorably in connection with the Huron Clinton Parkway. It is reasonable to assume, in view of similar cases, that they will either sell the land at a fair rate, retaining the water rights, or will give a long term lease on areas required. In event that funds for the canoe route development are not sufficient to cover all expenditures, the location of the campsites could be changed so as to fall under these terms, even though some inconvenience may be experienced. Without proper authority we will assume that the third campsite can

be obtained at no cost by means of a long term lease from the Ford Company.

In case of need the Huron River Inn located between Placeway and Sutherland Roads could be used for lodging overnight. It is open in summer and closes in October. For those who want to sleep on a bed, lodging can be obtained in Dexter or possibly in some of the smaller towns. The parks also provide a place to sleep but without shelter. The canoeist could land wherever fancy suited him and camp there for the night if he cared to run the risk of trespass. However, in talking with farmers and landowners along the area, the consensus of opinion seems to be that there is no objection to picnickers or campers who do not damage property or make a nuisance of themselves.

Use Hazards. On an area of this kind use hazards are not present in abundance. About the only ones which cannot be avoided and which are bothersome pests are flies and mosquitoes. They are not a great nuisance while canoeing but may prove to be a source of irritation if one goes ashore. They are especially bad at night and the camper is advised to carry some protection against them. Some hazards can be avoided, but people are constantly running into poison ivy and poison sumac. The only way to avoid these is to keep a lookout for them: the ivy is recognized by its vine-like growth and three leaf effect, and the sumac is a grey woody

plant with white berries in fall. The sumac is usually confined to swampy areas, and although sumac and the ivy are scattered all along the river, neither is present in the campsite areas. There will be no direct action taken to eliminate these.

Public Relations Work

Education of User. Obviously, to contact each canoeist and have a heart to heart talk with him before he embarks on his voyage is out of the question. It would be equally impossible to distribute an educational pamphlet to all the users. Yet something must be done to give the novice the necessary information and facts regarding use of the area and use of canoes. Every year the river takes its toll on human life and, almost every time, unnecessarily so. But there are those who fail to see the value in knowledge on canoe safety, or who never expect to use that knowledge, and these are the ones who usually pay for their carelessness. There will always be this type who doesn't care to learn and won't learn; however, certain preventative measures can be taken even though they are removed from the place where the actual need arises. Courses in canoe safety are given through the Red Cross, Y.M.C.A., Y.W.C.A., and at various summer camps. These could be enlarged upon to take in more people of different types. High schools should have a short course of this sort in their gym classes; this is made

easy if a swimming pool is available. Ways of entering and leaving a canoe, of getting in from the water, of packing in duffle, and of getting to land if it tips over are some of the points which aid in canoe safety and would help the beginners to commit fewer costly mistakes.

There are other things of which the user should be aware to insure good campsites at all times and sanitary conditions along the river. At each campsite there will be a statement regarding authority of ownership of the area and the limits of use to the camper. A set of rules and regulations might be posted, but the conscientious person does not need them and others would not bother to read them. A notice will inform the user of the latrine and garbage pit and also to avoid unsanitary conditions on the area where they are not available. The best way to secure cooperation would be to have a good public relations man and some men to police the area. The project is too spread out, and this special phase is too limited in its use to warrant hiring these men, but it could be done in connection with the Huron Clinton Parkway which will be discussed under the next heading.

Correlation of the Canoe Route with the Huron Clinton Parkway. The Huron Clinton Parkway bill was passed in the November vote of 1940. It provides for a connected series of county and city parks which will follow the general water courses of the Huron and Clinton Rivers. Its need was brought about by investigations made by State and Federal agencies

which showed that the area was far behind in the development of its recreational resources. Moreover, the accepted standard of one acre of recreational area to every hundred people is very much abused because only one-fifth the necessary acreage is developed. It is planned that a network of limited access highways will radiate from Detroit to various points along the Parkway. Along the area there will be swimming places picnic grounds, hiking and bicycle trails, places for baseball, tennis, golf, and horseback riding.

The development of a canoe route would fit well into such a plan. To what other use would the river be put except as an aesthetic factor in recreation? Here would be a practical use as well. There are many items in developing and maintaining such a project as a canoe route which would not be practical alone but which could easily be worked into a larger, parallel scheme at little extra cost. The entire question of finances for one thing: alone, the canoe route might not find the necessary financial backing, but as a part of the Parkway plan it would be insured of a source of income. Land which is now privately owned would be purchased for the area and would thus be made available to canoeists. It is difficult to find out just how much land is in the hands of small home owners because during the past few years so much land has changed hands. It could be bought at proportionately cheaper rates in such large tracts by the Parkway than trying to buy an acre at a time for a single campsite. The right of

eminent domain could be used if necessary. The labor available could easily construct the necessary structures and make the improvements which in many cases could be combined with other uses. For instance; hikers, cyclers, and canoeists might all make use of the same overnight shelter because the trails of the former would follow closely along the river where the scenery is so attractive.

The question of sanitation and use of the area would be better taken care of in combination with the Parkway because there would be a regular authority making proposals for and administering the area. Part time men to police the area could act as public relations men to see that people would understand the various phases of use of the area. Recreation guards could see that the campsites were kept clean.

The Parkway would have quite a large advertising scheme because its scope would be very extensive, taking in the great area of Detroit and its outlying satellite towns. An organization with its influence would be in contact with many people, and the canoe route would therefore be brought to the attention of them. Stream pollution would also be a factor with which the Parkway would have to deal. Cleaning up the streams would do much toward increasing the fish and animal life of the streams besides giving them a more aesthetic look. The water at present has a very dirty looking color in places because of factory waste and refuse, landowners having no other means of sewage disposal, and cities using the river

as a means of sewage disposal. If the pollution were decreased, it would tend to increase use of the area.

The trend nowadays in developing any area is to achieve multiple use of that area. In so doing a greater number of people are served and the greatest possible use will be made of the area. Therefore the Huron Valley should not be limited in its development but should broaden out to include as many phases of recreation as possible. A canoe route would serve as a valuable component of such a project and would fit in well with the other uses.

CONCLUSION

The foregoing report indicates the desirability and feasibility of developing a canoe route along the Huron River. The area has the natural beauty required to attract people and enough water mileage to make the voyage worth while. A goodly current, changing country, and gently curving stretches provide a delightful variety to the area. Plant life is plentiful, and animal life abounds along the river to enhance its attractiveness. Many interesting historical and geological features help to create the required atmosphere for recreationists.

Present developments have been shown to be well distributed but in some cases objectionable. It has been suggested that certain changes be made and that some improvements are

necessary even though a natural unchanged condition is desirable. Existing parks and campsites prove to be helpful additions to proposed improvements. It has also been shown that it would be beneficial to integrate the canoe route with the Huron Clinton Parkway. At a minimum of expense a multitude of people from all walks of life will be served by such an area. Rich and poor alike will be on common footing when it comes to enjoying that which Nature has created for us and which Nature constantly builds up in spite of Man's unthinking destruction.

COST ANALYSIS OF THE AREA

In determining the cost of the area, relief labor at \$4.00 per eight hour day will be used in the calculations. Supervision will come from county men who would be connected with such a project or else from men hired by the Huron Clinton Parkway if it be the authority behind the project. The latter case is more likely.

I Dredging

Area below Portage Lake Channel

Cost of equipment (county machinery)	\$000.00
Cost of labor: 4 man days	16.00

Area below Dover

Cost of equipment (county machinery)	00.00
Cost of labor: 3 man days	12.00

II Barrier removal

Tree below Ford Dam

Cost of labor: 1 man day	4.00
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Rocks from Delhi, Osborne, and Dexter rapids

Cost of labor: 2 man days	8.00
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Concrete foundation from Hudson Mills

Cost of labor: 4 man days	16.00
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III Landing and Portage Improvement

Small road bridge below Ford Dam

Cost of gravel	10.00
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Cost of labor: 2 man days	8.00
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Dock at lower end of Barton Portage

Cost of materials (planks, posts, etc.)	13.00
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Cost of labor: 10 man days	40.00
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IV Campsites

Three shelters (Adirondack type)

Cost of materials	16.00
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Cost of labor: 8 man days per shelter	96.00
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Three latrines

Cost of materials	9.00
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Cost of labor: 3 man days per latrine	36.00
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Planting cost (screen of plants)	18.00
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Three garbage pits

Cost of materials	3.00
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Cost of labor: 2 man days per pit	24.00
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Planting job at meander camp

Cost of plant materials	4.00
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Cost of labor: 3 man days	12.00
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Improvement of bank at Winans camp

Cost of labor: 1 man day	4.00
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Three fireplaces

Cost of labor: 3 man days per fireplace	36.00
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Cost of materials	15.00
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Signs (three)

	9.00
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V Land Acquisition

Meander belt camp	125.00
Winans camp	175.00
Ford property camp	000.00

VI Maintenance Guard

Salary: 3 months @ \$100 per month	300.00
	<hr/>
	\$1009.00

The total cost of developing the area is then estimated to be \$1009.00, but it will be set at \$1100.00 to allow for those unexpected items which are bound to come up from time to time.

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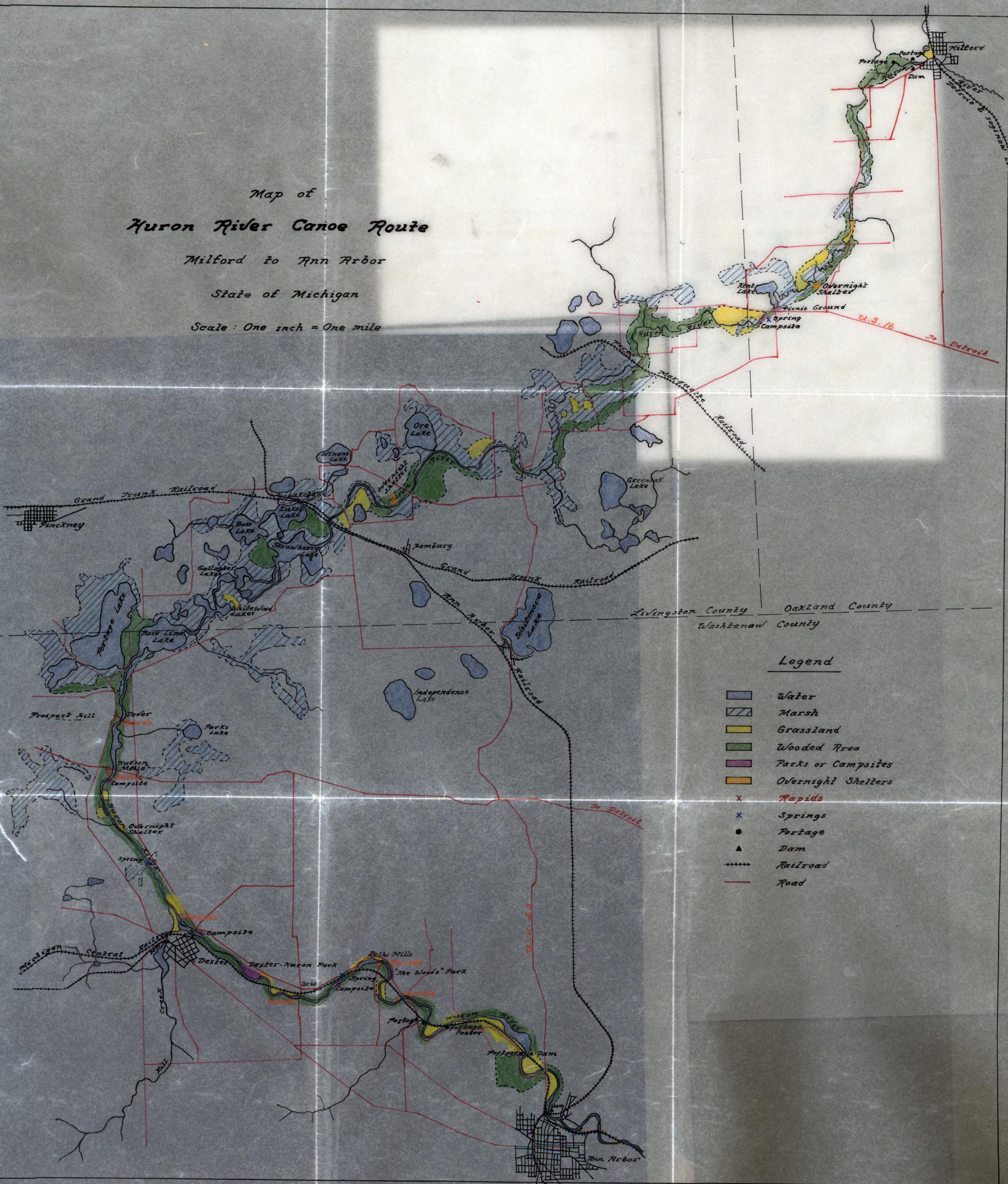
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Map of
Huron River Canoe Route

Milford to Ann Arbor

State of Michigan

Scale: One inch = One mile



Legend

- Water
- Marsh
- Grassland
- Wooded Area
- Parks or Campsites
- Overnight Shelters
- X Rapids
- x Springs
- Portage
- ▲ Dam
- Railroad
- Road

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