Lake Mendota : origin and history. 1936

Bean, E. F.; b. 1882 ; (Earnest F.)
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LAKE MENDOTA
Origin and History

THE TECHNICAL CLUB
of Madison

1936

LAKE MENDOTA
ORIGIN AND HISTORY

CONTENTS

INTRODUCTION

IN THIS BOOKLET you will find the life story of our beautiful Lake Mendota, how it came into being, how it developed into the colorful body of water that we see today and, how the Indians lived upon its wooded shores and fished in its depths.

This mystery is told in an interesting and enlightening way. Mr. Ernest F. Bean, our State Geologist, tells how the glacier influenced the formation of the lake. Dr. Edward A. Birge, President Emeritus of the University of Wisconsin in charge of the Natural History Division of the Wisconsin Geological and Natural History Survey, describes the biological aspects. Mr. Charles E. Brown, Director of the State Historical Museum, presents facts on Indian lore. Mr. Adolph Kanneberg, Counsel for the Wisconsin Public Service Commission, brings up to date the legal history of Lake Mendota.

To these men, each an authority in his chosen line, the Directors of the Technical Club of Madison wish to express their gratitude and appreciation for the contributions and to Mr. Ernest F. Bean for the time and thought given to compiling this history.

MARSHALL W. HANKS, *President*
Technical Club of Madison

Geological History of Lake Mendota

by **ERNEST F. BEAN,** State Geologist

THE PRESENT DAY TOPOGRAPHY of the Madison region has been produced by two major processes—stream erosion and glaciation. Prior to the ice age, the region had the same general appearance as the country south of Mazomanie and Arena at present. There were no lakes or swamps. All topographic features were due to stream erosion. The main stream (Pre-Glacial Yahara) headed near Arlington and flowed southeasterly to join the Rock River north of Janesville. A tributary flowed eastward from the divide four miles west of Middleton to join the Yahara a short distance east of the packing plant. (Figs. 1 and 4*.) This stream (Pre-Glacial Middleton) had numerous tributaries.

The modern geological map (Fig. 2) gives a fairly accurate picture of the pre-glacial distribution of rock formations which are sediments deposited in the sea some 400 million years ago.

	GEOLOGICAL COLUMN VICINITY OF MADISON	
System	*Formation*	*Character*
Quaternary	Glacial Drift	Sand, gravel, clay, and bowlders
Ordovician	Platteville	Shaly blue gray dolomite
	St. Peter	White, yellow, and red sandstone
	Lower Magnesian	Gray, thick bedded dolomite
Cambrian	Madison	Fine grained sandstone used as a building stone
	Jordan	White sandstone
	Trempealeau	Mottled, sandy dolomite and sandstone
	Franconia	Sandstone with some greensand beds, with limy and shaly zones
	Dresbach	Thick bedded, white to yellow sandstone
	Eau Claire	Sandstone with some shaly zones

All of the rocks dip southward at a rate of less than 50 feet to the mile.

* The Madison Technical Club gratefully acknowledges their indebtedness to the Wisconsin Geol. & Nat. Hist. Survey for the loan of the cuts used in this article. Drawings were made by Mr. H. B. Doke whose excellent work is appreciated.

The Yahara and the Middleton flowed in relatively broad valleys cut in Cambrian sandstones. Near Madison, the streams were probably flowing in the Eau Claire sandstone (Fig. 3). In some places at least, the Dresbach sandstone formed cliffs along the sides of the valley, as it does

today in the Driftless Area. Above this cliff was the gentle slope of the Franconia sandstone and shale. The Trempealeau dolomitic sandstone formed cliffs such as we see today at Maple Bluffs. Being less resistant than the Trempealeau below or the Lower Magnesian dolomite above, the Jordan-Madison sandstone formed a gentle slope. The outcropping edge of the Lower Magnesian dolomite made steep slopes bordering the upland. Bowlders from this formation in many places rather completely covered the gentle slope below the cliff. On the upland were flat or gently sloping areas of St. Peter sandstone capped by small patches of Platteville

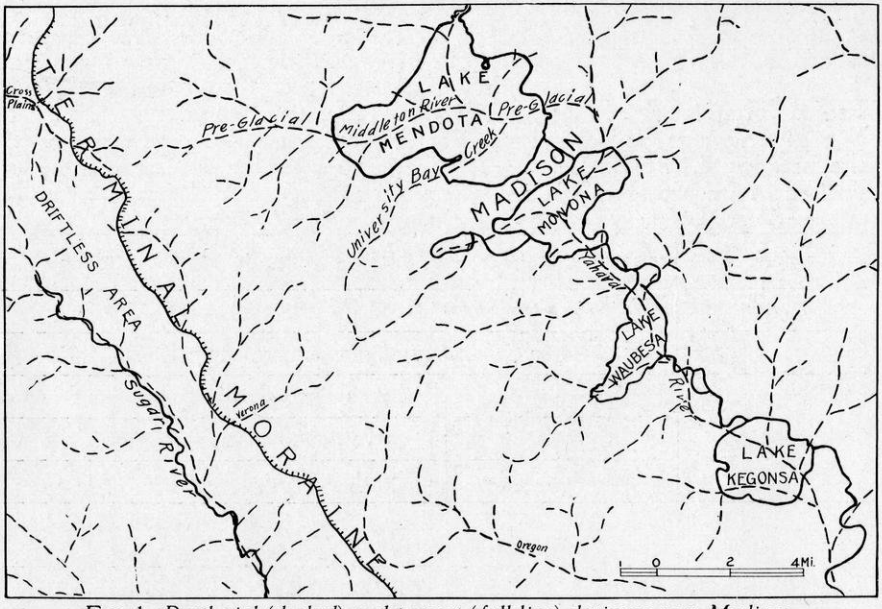

FIG. 1. *Preglacial (dashed) and present (full line) drainage near Madison*

dolomite. The scenery of this area was as striking as that along some of the streams in the Driftless Area today. Castellated cliffs with isolated buttes outlined the valleys. Picnic Point was then a rocky intervalley spur which stood at least 250 feet above the stream. From the highest part of Shorewood Hills there was an abrupt descent of 400 feet to the valley bottom to the south. The higher hills on the divide west of Middleton were 600 feet above the Yahara valley, an average fall of over 40 feet to the mile. In periods of heavy rainfall the area was subject to floods similar to those experienced in western Wisconsin today.

During the Wisconsin glacial period the ice advanced into the area from the northeast, covering the Yahara valley and flowing westward across the divide until the ice front stood near the present site of Cross Plains (Fig. 5). The cross section indicates that the thickness of ice in the valley near the packing plant at the east end of Madison was about

1,600 feet. Ice over one-fourth of a mile in thickness stood over the rocky divide at the present site of the Capitol. This slowly moving mass of ice was a powerful erosive agency stripping weathered rock and soil from the hilltops and widening the valleys. Data obtained from wells indicate that the ice did not extensively deepen the pre-glacial valleys but there was some local bottom scour. The debris thus acquired was incorporated in the ice, providing a large amount of material for later deposition. Part of this material was carried away by streams flowing from the ice front. The gravel pits now operated near Cross Plains were deposited by such

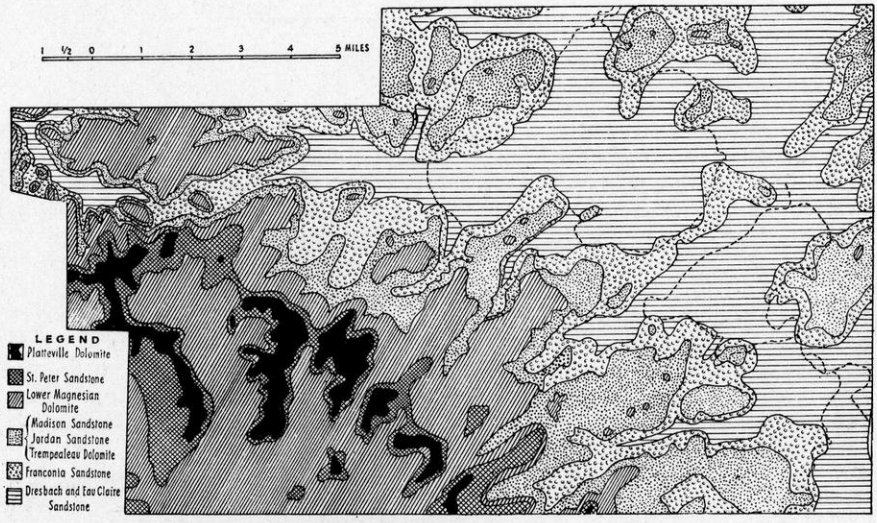

FIG. 2. *Geological Map of Madison Area*

streams. Part was deposited at the ice front to form a terminal moraine, an area characterized by irregular ridges, hummocky hills, and undrained depressions called kettles, due to the melting of buried ice blocks or to depressions inclosed by drift ridges. The limit of advance is marked by the Johnstown terminal moraine (Fig. 7). When ice accumulation was exceeded by melting and the ice front retreated, the retreat was not at a uniform rate, a series of minor moraines within the outer moraine indicating stages of halt or of readvance and halt. Fig. 6 is the geologist's conception of the appearance of the area at the Wingra stage of glacier retreat. As drainage to the east was blocked by ice, a lake (Glacial Lake Middleton) was held in between the ice and the upland to the west. This lake stood for a time at an elevation about 70 feet higher than the present Mendota and discharged its waters westward thru a low spot in the divide west of Middleton.

When the ice finally melted out of the Yahara drainage basin, the general appearance of the area was profoundly changed. Instead of the systematic drainage pattern of pre-glacial time (Figs. 1 and 4), the post

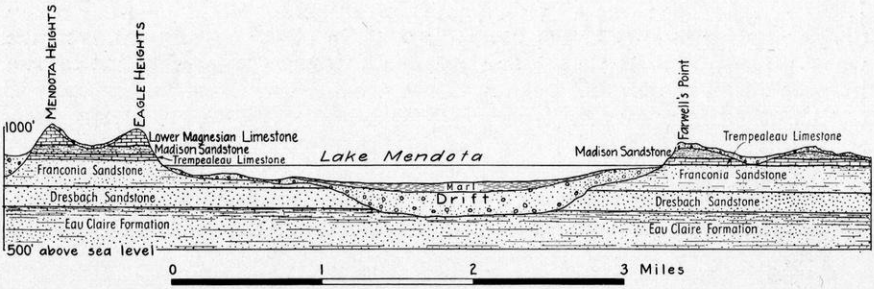

FIG. 3. *Cross section of Lake Mendota showing the wide pre-glacial valley in the Cambrian sandstone*

glacial drainage was characterized by numerous lakes and swamps and an aimless stream pattern. The basins of the Madison lakes are due in large measure to the blocking of the stream valleys by glacial drift. At first, Lake Mendota occupied a considerably larger area. Maple Bluff, Darwin, and Mendota were on a large island surrounded by a large northeastern arm of the lake. University Bay extended a half mile farther west. The northwest shore of Lake Mendota probably extended to the border of the present marsh at Pheasant Branch. Lake Wingra was twice as large as at present. The rock surfaces in the vicinity of Madison had been stripped of all projecting points and isolated towers. Large numbers of foreign bowlders, such as granite, porphyry, and gneiss had been brought in from regions far to the northeast. The large bowlder on

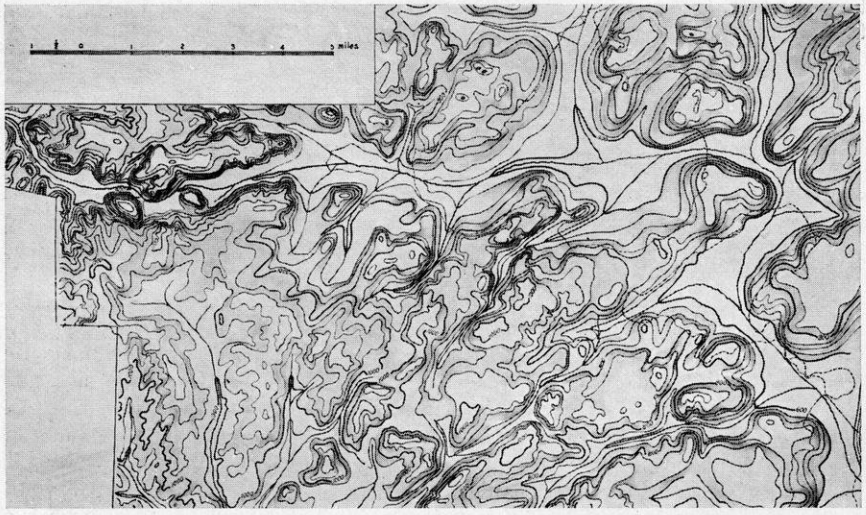

FIG. 4. *Pre-glacial topography of the Madison Area. Present drainage is shown in phantom for the sake of location*

Observatory Hill illustrates the transporting power of the ice, because this rock was imported from far to the northeast in northern Michigan or Canada.

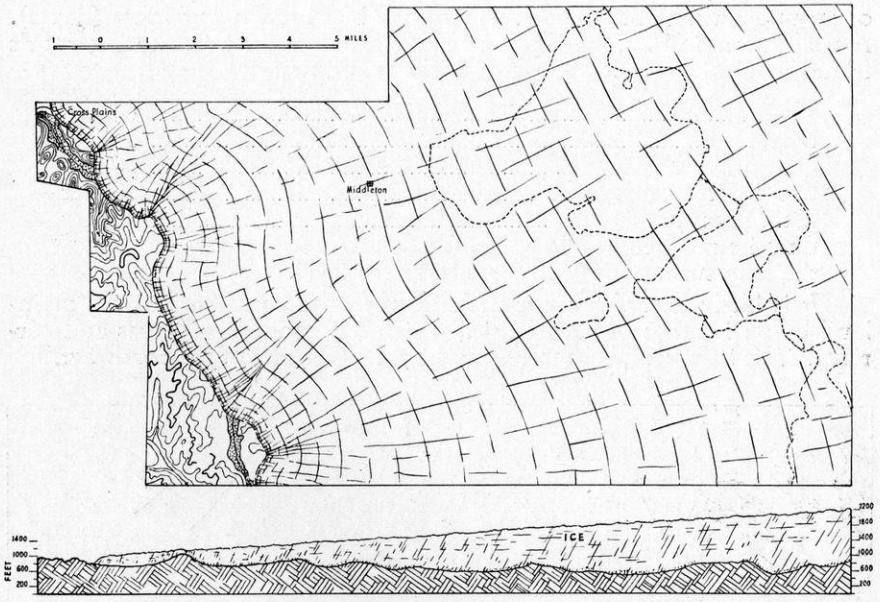

FIG. 5. *The Madison area at the maximum stage of glacial advance. Present drainage and the sites of Cross Plains and Middleton are shown for the sake of location. The cross section A-B indicates the thickness of the ice sheet*

The region was made less hilly than it was before glaciation because glacial deposits are much thicker in the valleys than on the ridges. At the Post farm west of Madison, the valley tributary to Middleton River is almost entirely concealed by 240 feet of drift. At the packing plant, there is 372 feet of glacial drift. Fig. 7 shows the glacial geology of the Madison area. In this figure are large areas of ground moraine, which is glacial drift deposited in a broad sheet by the melting ice. A drumlin is an oval hill which has its longer axis parallel to the direction of ice movement. It is composed of glacial drift molded by moving ice. The Langdon Street hill is a typical drumlin.

Since all lakes are ephemeral features of the landscape, it is to be expected that the modern Mendota gives evidence of the work of destructive agencies. The cutting down of the outlet reduced the lake level and the size of the lake, since largely restored by the dam in Tenney Park. Wave cut cliffs in both solid rock, as at Maple Bluff and Black Hawk Cave, and glacial drift indicate that a considerable amount of sediment has been washed out into the lake. The accumulation of vegetable and animal remains is an important destructive agency. Vegetation accumu-

lates most rapidly in shallow water, although plants are detached and carried out into deeper water.

In Mendota the bottom consists of bowlders, gravel, and sand in the shallower water. In deeper water the bottom is covered by a marl deposit of an undetermined thickness, which may be as much as 35 feet (Fig. 3). A well drilled in the lake about one-fourth mile southwest of Governor's Island would have a log approximately as follows:

Water	84 feet
Marl	35 feet
Glacial Drift	130 feet
Eau Claire Sandstone	220 feet
Mt. Simon Sandstone	250 feet

Granite reached at about 720 feet below the lake surface and 130 feet above sea level.

It is likely that Governor's Island was once connected to the mainland by an isthmus of glacial drift, which was eroded by waves and currents. The isthmus has been restored by the building of the roadway.

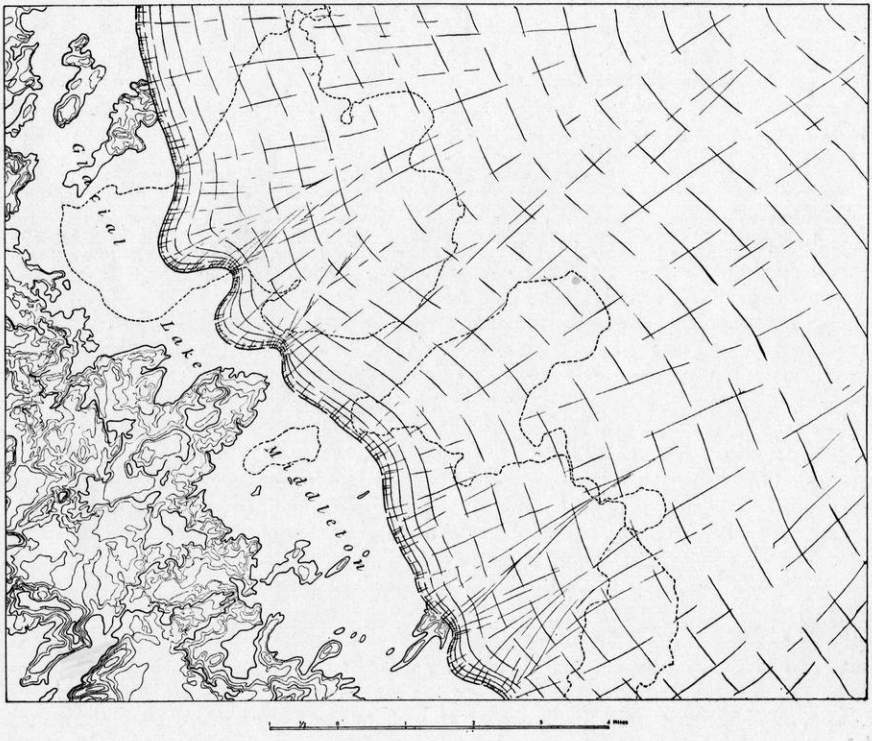

FIG. 6. *The Mendota area at the Wingra stage of glacial retreat*

Lake Mendota today is the result of a long geological history in which the principal events were: (1) Erosion by a stream tributary to the pre-

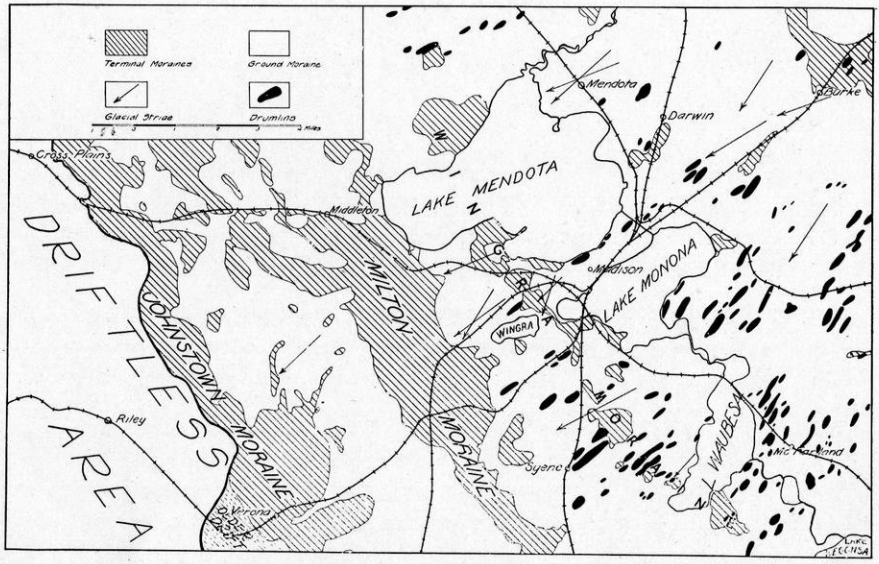

FIG. 7. *Terminal and recessional moraines and drumlins near Madison*

glacial Yahara; (2) glaciation which partly filled the valley and left a dam of glacial drift across the valley, thus creating the lake basin some 40,000 years ago; (3) erosion of the exposed bluffs, building of bars, deposition of sand, gravel, bowlders, and marl in the lake are processes which have been active since the creation of the lake basin.

FOREWORD

To Biology of Lake Mendota

VERY FEW MADISON RESIDENTS realize that Lake Mendota is better known to scientists than any other lake in the world. This pre-eminent position is due to the sixty years of research conducted by Dr. Birge. The physical, chemical, and biological data collected and published by him have made this lake a mecca for limnologists from all over the world. Dr. Birge has studied the conditions which determine the amount of organic material produced in the lake that may serve as food for fish. This study is fundamental for the rational use of the water just as the study of soil fertility is necessary for the rational use of the land. Similar study has been made of numerous other lakes of the state. Since the recreation industry in Wisconsin has an annual turnover of $120,000,000, the practical value of the work of Dr. Birge is very great.

ERNEST F. BEAN.

Biology of Lake Mendota

by **EDWARD A. BIRGE,** Biologist
Wisconsin Geological and Natural History Survey

LAKE MENDOTA has been studied along many different lines during the past 60 years; the most active period was from the middle 1890's to about 1915, when methods were being worked out that could be applied in the general study of lakes. Here are a few of the interesting results.

The surface of the lake measures 15.2 square miles; its margin is almost exactly 20 miles long; the greatest depth is 84 feet; the average depth is 40 feet. The volume is about 1.7 billion cubic feet measured as Congress measures dollars.

This mass of water is warmed by the sun with a yearly cycle of gain and loss of heat. In early April the temperature is about 34°; it rises to about 70° in August. This gain may be expressed as an *heat budget*, which automatically balances itself annually. The annual income and outgo of heat of the whole lake is equal to that which would be supplied by burning 1,350,000 tons of anthracite coal.

This heat is delivered by the sun to the surface of the lake; the wind is the main agent for distributing it through the mass of the water. In April the wind carries the heat through all the depths of the lake; but since heat makes water lighter as well as warmer, the sun soon "gets the jump" on the wind and most of the heat is confined to the upper 30 feet or so of the lake. Thus, in summer there is a warm lake floating on a cooler lake below; as fall advances this warm lake cools, the wind gets a chance at deeper water, and about October 1 the lake "*turns over*" and full circulation is reestablished until the lake freezes in December.

The summer withdrawal of deeper water from circulation has a great effect on the life in the lake. The stock of oxygen in the lower water cannot be renewed and it is all used up before mid-summer. No fish can spend the summer in the deeper water; this excludes from the population such fish as lake trout, which live in the deep, cold water.

Lake Mendota supports a large population of minute, microscopic plants and animals in its open water, amounting to some 214 lbs. per acre, dry weight, or about one ton per acre, wet weight. This material is rapidly renewed, different kinds of plant and animal at different rates, but perhaps it may be renewed some 20 times a year. This would give about a ton of dry food stuff per acre as an annual production. In addition, the lake bottom is inhabited by numerous edible animals, such as worms, snails, and insects, which aggregate about 40 lbs. per acre. In shallow water there grows a crop of larger, rooted plants, whose yearly crop is about 1,800 lbs., dry weight, per acre of that region. This region of shallow water is a little more than one-fourth of the area of the whole lake; so that this crop would be some 500 lbs., per acre of the whole lake

or about one-fourth of the crop of algae, etc. But only very little of this 500 lbs. is available as food for animals.

This material is the grand total which may be made available as fish food. The total fish population has not been determined. The perch of the lake have been estimated at about 10,000,000. This would give a net weight of some 200 lbs. per acre. Thus, it would not be a bad guess if we should say that a standing crop of 10 acre-pounds of potential food will support about 1 acre-pound of fish. Large game fish will add little or nothing to total weight since it probably takes at least 10 acre-pounds of smaller fish to maintain an acre-pound of larger game fish.

History of the Lake Mendota Region

by **CHARLES E. BROWN**, Director
State Historical Museum

THE Winnebago Indian name for Lake Mendota or Fourth Lake is Wonk-shek-ho-mik-la, meaning "where the man lies". The name Mendota, given to this lake in 1849 by Frank Hudson, a Madison surveyor, is a Sioux Indian name meaning "the mouth of the river". The Prairie Potawatomi called the lake Mantó-ka, "snake maker", referring perhaps to the early abundance of rattlesnakes at different places along its shores.

The Four Lakes region, was known to the Winnebago Indians as Tay-cho-pe-ra. The other three lakes are Monona, Waubesa and Kegonsa. Lake Wingra, a smaller lake, is connected with Lake Monona by a creek. The length of Lake Mendota is 6 miles and its greatest breadth 4½ miles. Its area is 15.2 square miles. The walking distance around the lake is 24 miles. The greatest depth of the lake is 84 feet and the average depth 37½ feet. The Yahara or Catfish river (Myän-mek) flows into Lake Mendota on its north shore. This stream connects the four lakes with each other.

The earliest American travelers to visit the Four Lakes were James D. Doty (afterwards territorial governor of Wisconsin). Morgan L. Martin of Green Bay, and Lieut. Jefferson Davis (afterwards president of the Southern Confederacy), then stationed at Fort Winnebago, at Portage. John Catlin and Moses Strong staked out the center of the plat of Madison in February, 1837. Mr. and Mrs. Eben D. Peck, the first white settlers, came to the site of Madison from Blue Mounds, April 15, 1837.

They erected a log cabin near present King street, overlooking Lake Monona. Here the men who came to erect the first Madison state capitol building were boarded. Oliver Armel, a Frenchman, then had an Indian trading cabin between the capitol site and the Lake Mendota shore. At west point, on the northeast shore of the same lake, Wallace Rowan, another Indian trader, had a cabin in 1832. In 1833 he disposed of this post to Michel St. Cyr, a French Canadian. He traded with the Winnebago Indians until after the building of Madison. The Sauk chief Black Hawk with his warriors and women retreated over the site of Madison on his way to the Wisconsin river in July, 1832. A monument on the Upper University campus marks the line of his pursuit by U. S. troops.

Winnebago Indian villages and camps were located at a number of places on the shores of Lake Mendota before and after white men came to this region. Their dome-shaped wigwams consisted of a framework of bent saplings covered with strips of bark or rush matting. They grew corn at all of their villages. In 1837 one of their large villages was located on the shores of a large marshy area, now Tenney Park, on the east shore of the lake and the adjoining lake shores. It had several hundred inhabitants. Its name is given as Chee-nunk, "village".

Another village was located on the banks of the Yahara river and the adjoining lake shores, on the north shore of the lake. This was Ne-o-sho. One of its planting grounds was on the lake shore lawn of the State Hospital and another at the eastern boundary of Morris Park. Some Indian corn hills remain at the latter locality and traces of some at the former place. The best known village was at the mouth of Pheasant Branch on the northwest shore of Lake Mendota. This was known as the "Four Lake village" or Tay-cho-pe-rah. It had at times, it is reported, from several hundred to five hundred inhabitants. White Crow, Kaw-ray-kaw-saw-kaw, was one of its chiefs. Other Winnebago camp grounds were at Mendota Beach, Merrill Springs, Second Point, Picnic Point bay, and below Observatory Hill on the Wisconsin University grounds. From these village and camp sites and from other lands about the shores of Lake Mendota

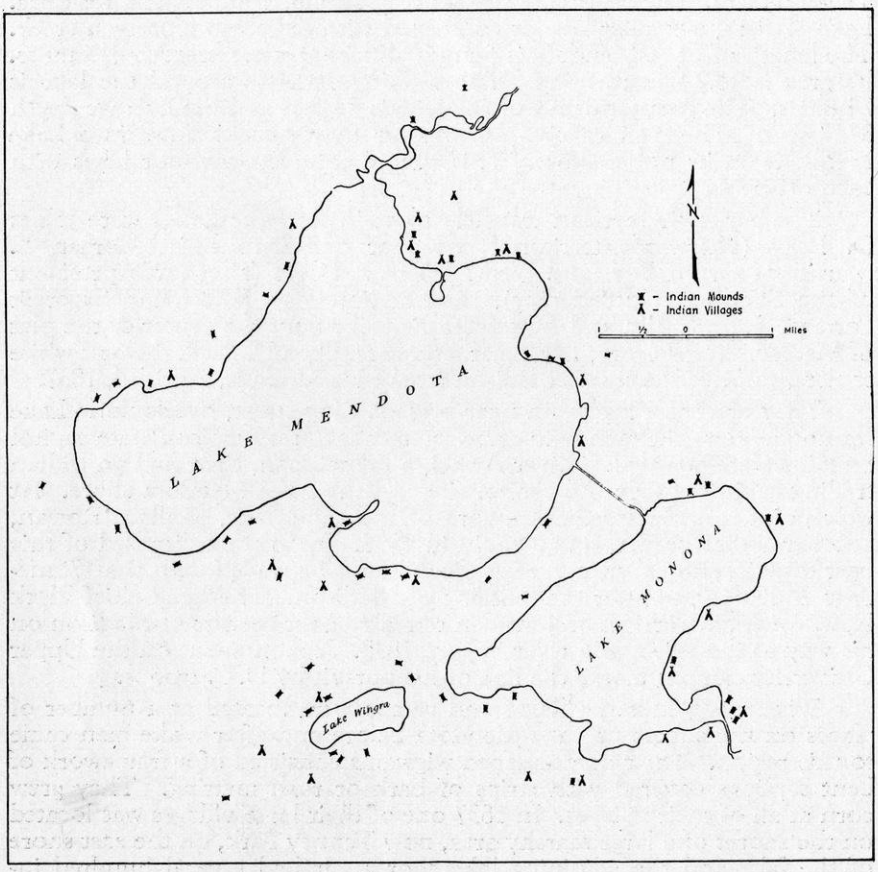

FIG. 8. *Sketch map showing location of Indian mounds and camp sites in the Madison area*

large numbers of stone and some native copper and other implements, ornaments and ceremonials have been collected. Many of these are preserved in the exhibition halls of the State Historical Museum, in the Historical Library building. Some are attributed to an Indian people who occupied some of these sites in prehistoric time, before its occupation by the Winnebago. The Yellow Thunder, Wa-kun-zah-gah, was the war chief of the Winnebago of the Four Lakes villages. His oil portrait hangs in the Museum. The Winnebago call themselves Ho-chun-ga-ra, "fish-eaters." They are a tribe of the great Siouan stock of North American Indians.

The Sauk Indians, an Algonkian tribe, whose village was located at the present site of Sauk City and Prairie du Sac on the Wisconsin river, in 1766, also camped and hunted in the Four Lakes region.

Over 11,000 Indian mounds have been located in Wisconsin by the State Archeological Survey. These earthworks consist of conical or round, oval, platform or flat-topped, linear or embankment shaped and animal or effigy mounds, pits, and enclosures. Most remarkable of these are the effigy or emblematic mounds. Two of these were constructed in human form. One of these is preserved in Man Mound Park near Baraboo. The most famous of the enclosures is known as Aztalan and consisted of the earth heaped about the wooden stockade of a stockade-protected prehistoric Indian village. Some of the outworks (mounds) of this ancient village (Cahokia culture) are preserved in Aztalan Mound Park, near Lake Mills. Among the numerous effigy mounds in southern and central Wisconsin some of the animals represented are the bear, panther, wild cat, fox or wolf, buffalo, beaver, mink, deer or elk, the turtle, frog, fish, snake, eagle or thunderbird, wild goose and other birds.

About one thousand Indian mounds were formerly located about the five Madison Lakes. Many of these have been destroyed in the cultivation of land, in road building and the growth of Madison. There were about 350 mounds on the shores of Lake Mendota. Mounds or mound groups remain on the campus of the University of Wisconsin, in Burroughs Park, at Maple Bluff, Bernards Park, the State Hospital and the State Memorial Hospital grounds, Morris Park, Fox Bluff, Kennedy Pond, West Point, Camp Sunrise, Mendota Beach, Merrill Springs, Black Hawk Country Club, Eagle Heights, and on Picnic Point. Some of these are permanently preserved and are marked with descriptive tablets, others are being protected.

The finest of these mounds are on the lawn of the State Hospital at Mendota, on the north shore of the lake. A bird effigy located there has the immense wingspread of 624 feet. It is the largest bird effigy mound in the world. Near it are two other huge bird mounds. A panther or water spirit effigy has a large tail which curves over its back. At the Y. M. C. A. Camp at Morris Park there is a large panther effigy with a large, tapering, straight tail. On a fairway of the Black Hawk Country Club there is a large wild goose effigy. Near it are three bear mounds. On Observatory Hill on the University grounds a bird effigy and a turtle effigy are pre-

served. Linear and round mounds are in some of the Lake Mendota mound groups.

Many of the mounds located here have been excavated. These contained human interments of several kinds—bone re-burials, flexed or folded burials and full length burials. One mound showed evidence of human cremation. Rude stone alters and burned stones were found in some of these mortuary mounds. A stone chamber built of large lake boulders was found in one mound. One mound was constructed of layers of several different kinds of earth. Stone and copper implements, earthenware vessels and stone and shell implements and animal bones accompanied the burials in some of the mounds investigated.

The Dam at the Outlet of Lake Mendota

by **ADOLPH KANNEBERG,** Counsel for
Wisconsin Public Service Commission

IN TERRITORIAL DAYS, the elevation of the water surface in Lake Mendota during periods of low stream flow was not much higher than the water surface in Lake Monona. During heavy runoff in summer due to natural obstructions, Lake Mendota probably rose two feet higher than Lake Monona. Originally the outlet of the lake was located somewhat westerly of its present location at approximately where the boathouse in Tenney Park now stands. The Catfish River, as it was then known, wound its shallow way from Lake Mendota in continuous curves through low marshy land, over sand banks, through floating bogs, and from the beginning of summer through grasses and weeds growing in its bed and retarding its flow for a distance of about one and one-half miles to Lake Monona. After the dam was built and the canal cut to straighten and deepen the river, the water distance between the lakes was shortened to about one mile. A deep navigable waterway between the lakes was visioned by the pioneering inhabitants at least as early as 1836, for on the map of the Town of Madison of that year the shortest street between the lakes and the widest on the map is named Canal Street. Through its middle a strip of land was dedicated for use of a future canal in anticipation of a water route along its course. After the construction of the present canal along Thornton Avenue, Canal Street was vacated and in its place Franklin and Hancock Streets were laid out.

The Act of the Territorial Legislature of Wisconsin approved February 3, 1846, incorporating the village of Madison, authorized the village to construct a dam at the outlet of Lake Mendota and to build a canal from Lake Mendota to Lake Monona. The legislature, fearing the new village might become too greatly involved in debt, provided that the cost of erecting the dam and constructing the canal should be paid by such voluntary donations as may be made to the village for that purpose, or by leasing the water power for a given number of years for the benefit of the village. It prohibited in express terms the levying of a tax for the construction of the dam or canal. The Act provided, however, that the village might use any street in the village for the purpose of locating and constructing the canal.

At the time under consideration the territorial limits of the village extended to the west banks of the Yahara River. The village did not own the dam site, or any flowage rights, or any lands through which the canal might be constructed. No donations for the construction of the dam appear to have been made to the village.

The dam was constructed by Leonard J. Farwell who later became governor of the State. In 1847 Mr. Farwell purchased a large tract of land including the dam site in what is now Tenney Park. Work on the dam and canal was probably begun in the same year. The dam consisted of

an earthen embankment studded with willows on each side, a spillway with a permanent crest across the Catfish River at the outlet of the lake, and a new outlet with dam, flumes and control works to regulate the flow of water to the water wheels in the mill. A large flour mill with eight runs of stones was built over the new outlet. The dam developed a normal head of about five feet.

The answer to the question, "Under what authority was the dam constructed?" lies in uncertainty. This question was raised in 1900 when one John Castle and other riparians on Lake Mendota whose lands were flooded by the dam brought an action against the City of Madison to abate the dam as a public nuisance.* If the stream is navigable the dam could not have been legally built without a franchise from the legislature. If the stream is non-navigable the dam could have been constructed under the Territorial Mill Dam Act of 1840, provided it was constructed prior to the repeal of the Act which took effect January 1, 1850.

The theory of the plaintiffs was that the dam was built under the Mill Dam Act for milling purposes only; that when the lake was raised and marginal and low lands flooded, it was done by the state in the exercise of its power of eminent domain through the agency of the mill owner; that the owners of lands flooded were powerless to prevent the flooding; that when the use of the dam was abandoned for milling purposes the easement to flow terminated, and that the statute of limitations did not begin to run until the abandonment.

The City of Madison in its answer to the complaint alleged that the dam was not built under the Mill Dam Act but under the Territorial Act incorporating the Village of Madison in 1846; that the village entered into a lease with Simeon Mills for the term of sixty years for the improvement of the water power, and on information and belief, that Mills assigned the lease to Leonard J. Farwell who proceeded to improve the water power by the construction of the dam in the Catfish River and the straightening of the river; that the 20-year statute of limitations began to run against the owners of the lands flooded from the date of the first flooding. No record of a lease to Mills or assignment of lease to Farwell is found in the office of the Register of Deeds for Dane County or in the office of the City Clerk of the City of Madison. An intervening defendant, Gertrude E. Slaughter, alleged on information and belief that the dam was not maintained under the Mill Dam Act, nor yet by virtue of the Territorial Act of 1846 incorporating the village, but wholly through prescription and lapse of time; that the 20-years' statute of limitations applied, and that the plaintiffs and other riparian owners had lost the right to have the water lowered. After the legal questions were decided by the court the case was remanded to the Circuit Court for further proceedings, but the case was never brought to trial.

For many years the low land between the dam and Lake Monona on both sides of the original river channel remained wet and marshy, although in the course of time many habitations arose in that area, and

* Castle et al. v. City of Madison, 113 Wis. 346.

thus it was that on April 4, 1866, a great calamity befell the dam owner and the inhabitants of the low land in the Second and Third Wards of the city. The evening before a severe thunder storm with an unprecedented downpour of rain broke over the city. By morning the earthen dam gave way and the waters from Lake Mendota poured over the low lands. By noon all the bridges over the Yahara River were carried away and all communication by teams from the east was stopped. Boats were soon provided and a fare of 25c was charged to transfer a person from one shore to the other. Regulation for ferrage was demanded; a forerunner of the Railroad Commission. For many days the marsh was under a large body of water. The distress was great. Mass meetings were held. Demands were made that the dam be removed and the waters of Lake Mendota lowered to its former natural level. One prominent citizen wrote:

> "You might as well attempt to wall the rain in the clouds as to wall the waters of Fourth Lake in a great freshet."

A few days later, when it became evident that the public meetings would probably fail to result in the abatement of the dam, he wrote:

> "The present danger having passed, the whole affair is likely to sleep until Old Neptune again wields his trident over half the city, drowning out cellars and rats and planting the seeds which are nurtured by disease and death.
>
> "God and the doctor, we alike adore
> Just on the verge of death, but not before;
> The danger past, the cure perfected,
> God and the doctor are alike neglected."

The dam was reconstructed and the mill continued in operation until it was destroyed by fire. A new mill soon took its place but it, too, was burned in March, 1894.

The City acquired the property by purchase in 1896. It had intended to use the power for a sewage pumping plant. The wooden parts of the dam were reconstructed in concrete. A boat lock was built and the canal was opened for navigation. The dam is used to maintain as nearly a uniform level of water in Lake Mendota as may be by the operation of the gates, and also to control to a limited extent the level of water in Lake Monona and Lake Waubesa pursuant to a decision of the Public Service Commission.