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**A History of the Federal Surveys
in the State of Michigan.**

**A Thesis Submitted to
The Faculty of
Michigan Agricultural College.**

By

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**Candidate for the Degree of
Bachelor of Science.**

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INTRODUCTION.

Perhaps no state in the Union can show a more varied and interesting history of its surveys than can Michigan. Extending over a period of nearly three and a half centuries, the history of the state, and consequently of the surveys in it, is one of slow development under the flags of three different nations. A history of the surveys in Michigan is naturally of interest, for the work along this line has been intimately associated with the development of the state, particularly as it is connected with the present United States of America.

The object of this thesis is a continuation of work on the same subject, but on slightly different lines, done by Messrs. Benedict and Gehring, of the classes 1910 and 1912 respectively. Their theses are each in the narrative form, giving a very interesting descriptive resume of the surveys made at various times throughout the State. In this work, it has been the aim of the writer to show by actual figures, obtained from authentic, and in most cases the original, records of such surveys on file in state offices. No attempt has been made to cover any work not done under the authority of the Federal Government, and this naturally has reduced the field to a great extent. Even then the work was of such extent that no attempt has been made beyond mere mention, to include the surveys made by such branches of the Department of the Inter-

for as the U. S. Geological Survey, the Coast and Geodetic Survey, and the department of the Lake Surveys. Their work has been of the greatest importance, especially that now being carried on in connection with the State Geological Survey Department in making a complete topographic survey of the State.

The work has seemed to fall naturally under certain heads, and these have been treated as separate chapters. The three main subdivisions seem to be the survey of the boundaries, the subdivision into land units, and the resurvey of large areas discovered originally too carelessly done. These are also naturally divided to refer to the work done in the two peninsulas and their adjacent islands. The writer has also prepared a chapter dealing with the compensation of the surveyors and the provisions for failure to perform contracts.

In many instances it has been necessary to repeat statements made by Benedict and Gehring, but only in cases where such statements were deemed necessary to the completeness of the account. In such cases the writer has attempted to give credit, but as the authorities consulted were in many cases the same, this has not always been possible, and part of this work may seem to indicate plagiarism. Most of this work has been the result of the completion of records consisting of contracts, instructions, field notes, and plats, and reports of the surveyors in person, and the results herein set forth may be considered authentic.

The writer wishes to express his appreciation for the aid given him, especially by the Public Domain Commission

the State Librarian, the Michigan Pioneer Society, without which a work of this sort could never be performed. Especially does he wish to thank the officers of the Public Domain Commission for access to all of their records, as the information obtained there could be found nowhere else.

The writer realizes as the work progresses, the inadequacy of this report, but it is believed that these results, with the reports of Messrs. Benedict and Gehring, will give the reader a clear idea of progress of "The Federal Surveys in the State of Michigan."

LAND BACK AND LAND SURVEYS.

Probably the first natural chapter in a history of these surveys would be one dealing with the establishment of the State's boundaries, yet this subject has been but lightly touched in any preceding thesis of this sort. The history of these surveys has been varied and very interesting as well as important. A brief outline of the development of the state is essential to a clear understanding of these records.

The history of the state from the period of the explorations of Nicolet, Raymbault, Dougues and Marquette, down through the periods of the early French settlements, the French and Indian War, the Revolution, and Pontiac's Conspiracy is too well known to deal with here. With the beginning of the so-called "Territorial Period" the history of the "Federal Survey" properly commenced. The famous "Ordinance of 1787" created the North-west Territory, of which Michigan was a part, but the retention of the British posts until 1796 made the latter date the practical beginning of this period.

In 1800 Congress organized the territory of Indiana, of which Michigan was a part until 1805. On the 11th of January of that year Congress passed an Act creating Michigan Territory, "to embrace all that portion of Indiana territory lying north of a line drawn east from the southerly bend or extreme of Lake Michigan, until it intersected Lake Erie, and lying east of a line drawn from the same southerly bend thro' the middle of Lake Michigan to its northern extremity, and

thence due north to the northern boundary of the United States." For a time during the War of 1812 - July 16, 1812, to Sept. 29, 1812 - Michigan was again in British hands, and it was not until the spring of 1815 that Fort Mackinaw was evacuated. The remainder of the territorial period was one of slow but steady growth, encouraged by the opening of the Erie canal, the building of roads in the southern part, and the survey and sale of public lands.

In 1802 Ohio was admitted as a state with a very indefinite boundary, and the Act of 1805, organizing Michigan territory, established our southern boundary as a line running due east from the southern bend of Lake Michigan, which included Toledo and a considerable strip of land claimed by Ohio. This eventually led to the bloodless "Toledo War," as a result of which, after intervention by Congress, Michigan accepted the priceless Upper Peninsula in place of Toledo territory, and later entered as a state with this peninsula attached.

The first record of the Michigan-Ohio boundary question is a report of the Governor and Judges of Michigan Territory to Congress. This report said, in part, that the southern boundary of the Territory was very indefinite, and that the settlers in the southern part were unsettled as to whether they were attached to Ohio or Michigan. Michigan was much more convenient, but Congress had held that a line of latitude through the southern bend of Lake Michigan would strike Lake Erie near the mouth of the Maumee, while the supposedly authentic map of Arrowsmith and Mackenzie made it appear that

such a line would pass entirely south of Lake Erie. Hence they were in considerable doubt as to whether they came properly under the jurisdiction of Ohio or Michigan.

However, not until 1812 did Congress order the survey of the line, and it was not until after the War of 1812, that the line was even attempted. In the year 1817, William Harris was employed to survey the "Boundary Lines between the States of Ohio and Indiana and Michigan Territory." This was after the admission of Indiana as a state on Dec. 11, 1816. At this time Edward Tiffin was the Surveyor General for the district comprising these states, and the work was directly under his charge. The following is a verbatim copy of the instructions by him to Mr. Harris, a certified copy of which is on file in the office of the Public Domain Commission.

"You will repair to the point at which the First Principal Meridian, surveying due North from the mouth of the Great Miami river, intersects the Indian Boundary line running S 57° E from Fort Recovery, which intersection is one mile and forty chains from the Fort." -- -- "You will at that place ascertain with the greatest accuracy, the exact quantity of the variation of the magnetic needle from the true meridian, and adjust your compass to the meridian accordingly."---- "You will thus continue the First Principal Meridian due north on the true meridian, about 105 miles, or as far as, from the best information you can obtain, would intersect a due east and west line passing the southerly extreme of Lake Michigan. It will probably be near this distance.

You will then proceed to Lake Michigan and ascertain (by meandering or otherwise) that point on the said lake which, according to the true import of the terms of the Act, may be considered the "southerly extreme" thereof. For if the border of that part of the lake should be broken by inlets or bays of such extent as to authorize a doubt whether should be considered as a part of the lake (proper) or only a bay or inlet, your own best judgement will determine as to their character.

"Having ascertained the southerly extreme of the lake he is instructed to set some permanent monument not liable to be damaged by fire or storm, and to take the bearings to some permanent land marks "in order to perpetuate the point from which your east line shall commence."

"You will then determine the latitude of this point by observation for that purpose with the sextant, taking several successive observations, in order to ascertain it with the greater certainty, and assuming their mean as the latitude of the place. You must likewise very accurately ascertain the variation of the compass at this point.

If you should find the latitude of this place to be more northerly than that of the "North Cape of Miami Bay" on Lake Erie; and that an east and west line passing the southern extreme of Lake Michigan, would certainly fall north of the north cape of Miami Bay, you will in that case run a true east line from the said southerly extreme of Lake Michigan to Lake Erie, correcting your variation at every ten miles, either by observation, or by calculation from the known variation at the point where you left the first principal meridian, and note the corrections in your field book." -- --

"At the distance of about 25 miles east of the First Pr. Meridian, it is probable you will intersect the Meridian drawn due north from Fort Defiance, which was run about a year since, as a standard line from which to commence the surveys of the Public Lands in Michigan Territory. From the best information obtained it is thought your east line will cross this Meridian near (perhaps south of) the corner of township six and seven south of the Base Line. You will, however, note particularly, the point on this Meridian at which you may intersect it, by measuring and noting the distance to some sectional or township corner thereon.

On the border of Lake Erie where you shall intersect it, you will make permanent marks at the end of the line, as may be readily found at any time hereafter, by placing a large stone in the earth, or raising a mound of earth or pile of stone, and taking bearing trees, and the bearings to such cape, point of land, island, rock, or other permanent objects that may be in view. You will note particularly the point on Lake Erie at which you may intersect it.

But if, on determining the latitude of the Southerly extreme of Lake Michigan you should find it to be South of the parallell of the north cape of Miami Bay, it will be necessary for you to run a Random Line from the former point to the latter, or such course as you may calculate would strike it. Then correct your course, if you should fall North or South, and return upon the true line, marking it and reckoning your measure from the North cape of Miami Bay to the First Principal Meridian, and from the Meridian to the Southerly extreme of Lake Michigan.

You will be careful to set posts at every mile, and take bearing trees; marking on a bearing tree or other tree, the number of miles from the beginning, and your line must be well marked as to be readily traced at any time hereafter."

A lengthy warning as to the accuracy required follows, with stipulations that all notes of every sort be carefully recorded, kept, and returned to the office. The instructions are signed by "S.T." and dated "Surveyor General's Office", December 31st, 1816.

Unfortunately a complete transcript of Mr. Harris' field notes are not on file in this state. However, those at hand show that he started at the Indiana boundary line as instructed and ran North with a variation of 5° N. to the end of the 90th mile instead of the 105th. From this point he ran a random line N $54^{\circ} 42'$ E. a distance of 67.67 miles "to a stake which stands 9 mi. 76 ch. 75 lks. north of the north cape of Miami Bay." Just how this stake was located with respect to the north point cape is not shown in his field book, for his next records show him starting at that point on the bay, where he "marked a willow 11 inches in diameter" as a meander stake, taking the bearings of five nearby trees and two rocks. Then with a compass variation of $3^{\circ} 32'$ E. he commenced a line bearing S $87^{\circ} 42'$ W "between Ohio and Michigan Territory," and ran this course a distance of 71 mi. 36 ch. 92 lin. "to the N.W. corner of the state of Ohio, the corner a pile of stones." Here he took bearings on only four trees, which seems careless, especially as he gave no other description of the corner. From Maumee Bay, at a distance of 3 mi. 25 ch. 27 lks. he intersected a meander line "50 links south

of 10 mile stake - this line was commenced at the 70 mile corner, from thence south 5 miles, thence west 2 miles, thence south 5 miles and 50 links to the above mentioned State Line running from the North cape of Miami Bay". Just what this line was is not clear. It could not have been part of his first random line of 67.67 miles and commence at the 70th mile post, and the writer has been able to find no record of any line corresponding to it. His notes show that he set a post at every mile and blazed trees on the line as instructed, and they also give very rough descriptions of the country passed over. The field notes of his line west of the N.W. corner of this are not on file, but statements made from them later to accompany those of a later survey showed that on June 29, 1817, he determined the latitude of the southern extremity of Lake Michigan to be $41^{\circ} 58' 58''$. At this point the variation of his needle was 6° E. Here he set a 6" cedar stake with two bearing trees only, and then ran due east towards Lake Erie, coming to the boundary lines between the states of Indiana and Ohio at a distance of 130 mi. 31 ch. 42 links.

This line was not satisfactory, and Congress refused to accept it. So again the line was run in June, 1818, by John A. Fulton, under instructions to run a due east line. That he did not, is shown by the following extract from Report 196 of the House Documents of the first session of the twelfth Congress: "This line was found to run about eight miles south of North Cape, to cross the Miami river some distance from its mouth, and to strike Lake Erie south of Cedar Point and east of Miami Bay. There is, manifestly, an error in the survey, or in the

observations. Where the line intersects the margin of Lake Erie, the latitude is stated to be $41^{\circ} 31' 50''$ N., and where it crosses the southern extremity of Lake Michigan, is said to be, by observation also, in latitude $41^{\circ} 33' 58''$ N. It is obvious that these cannot all be correct.

"If the southern extreme of Lake Michigan be in $41^{\circ} 33' 58''$ N., then a due east line would intersect the margin of Lake Erie $7' 20''$, or about seven miles north of where it does by the survey, and would include all of Miami Bay. The report further advises Congress to ascertain the latitude of the southerly extreme of Lake Michigan, and where the same parallel of latitude crosses the Miami River; and also, where it intersects the shore of Lake Erie, the latitude of the south point of North Cape, in Miami Bay, and the latitude $42^{\circ} 30'$ N where it intersects the western shore of Lake Michigan, and the eastern shore of the Mississippi River." It also recommended the retracing of the line and marking it, and that they be run without the use of a compass.

Fulton makes no records in his notes of observations for latitude, yet the latitudes of these points on his line are shown on his map accompanying his field notes, and even the map does not agree with the above report of the House Committee, for his map shows the latitude at the Lake Erie extremity of the line to be $41^{\circ} 28' 27''$ N. At the western boundary of Ohio he gives the latitude as $41^{\circ} 29' 41''$ and about midway between as $41^{\circ} 29' 19''$, while that of the southern extremity of Lake Michigan as determined by Harris was $41^{\circ} 33' 58''$ N.

Unsatisfactory as this was, it so remained until 1827. On March 2nd of that year, Congress passed an act "To authorize the President of the United States to ascertain and designate the Northern Boundary of the State of Indiana." Under this act a contract was made on Sept. 12, 1827, between Edward A. Mifflin, Surveyor General of the district, and Eleazer P. Hendrick, D.C. to "faithfully lay out and survey the Northern Boundary of the State of Indiana, agreeably to an act of Congress of the 2nd of March, 1827, authorizing the survey of the said Boundary line." The compensation was "four dollars per mile actually run, not to include random lines nor offsets." instead of the customary two dollars and fifty cents. Following is a verbatim copy of instructions issued to him at the same time.

"The northern boundary of the State of Indiana is a line drawn due east and west through a point ten miles north of the southern extremity of Lake Michigan.

In order to determine the point on the coast of Lake Michigan which is intersected by this boundary line, it will be necessary to commence at the southern extremity of the lake, which is designated in the foregoing extract from Mr. Harris's field notes. You will then pass around on the eastern side of the lake, either by a traverse, or by offset until you make a nothing of ten miles from the southern extremity; at the end of which ten miles, upon the margin of the lake, out of reach of the waves, and above high water mark, you are to establish a permanent pillar, of the most imperishable materials within reach. ----- From this pillar you are to take several bearing trees,

say ten or fifteen, if within a reasonable distance," - and bearings of any other objects which are permanent and would serve to locate the point.

"You are likewise, at this point, by two or more accurate celestial observations, to determine the precise quality of the variation of the magnetic needle, and to adjust your compass accordingly.

This done, you will proceed to designate the northern boundary of the State of Indiana, by running and marking a due east line, so far as will be intersected by another line drawn due north from the North-west corner of the State of Ohio.---

You will adopt such method in the prosecution of your survey, as will preserve to the boundary line, and to every part thereof, throughout its whole length, a due east course by the true Meridian. And if at any part of the line, you should discover that, through the presence of mineral, or from any other cause, you have varied, in however small an amount, from a true east course, you will return to the point where the error commenced, and correct your course, noting the same in your field book.

At the end of every mile, and on the margin of every lake of the area of fifteen or twenty acres, or up ards, and which could not be drained, you will establish a post and take bearing trees, one on each side of the line, if practicable." --

-- "The line run east from the southern extremity of Lake Michigan in 1817, by Mr. Harris, intersected the boundary line between the States of Ohio and Indiana, at the distance of 130 miles, 71 chains, 43 links. From this data, after sur-

voying around the lake to make the ten miles of northing, you will know by calculation pretty nearly the distance at which you may expect to intersect the line to be continued north from the Northwest corner of the State of Ohio.

After running out this distance east, you will then repair to the north-west corner of the State of Ohio and then ascertain in manner before directed, the exact variation of the compass. At this point Mr. Harris found the variation in July 1817 to be $4^{\circ} 12'$ E - Mr. Fulton in Sept. 1813 found the variation of the same place to be $3^{\circ} 45'$ E. That one or both of these calculations must be erroneous is evident. But by the variation found by the Surveyors in Michigan adjacent thereto, I incline to think Mr. Harris' variation the most correct.

From the North West corner of the State of Ohio, you are to run, mark and measure a line due north so far as to be intersected by the east line already run. This line must be surveyed with the same accuracy and in the same manner as the north boundary of Indiana." --

In Mr. Mendrick's report filed with his field notes he writes. "Oct. 1, 1827. Commenced at South extremity of Lake Michigan at a corner established in June, 1817. The post which was set by Mr. Harris was entirely covered with sand. Traced his line east to the first and second mile post and found them correct." He then traversed the margin of the lake to set ten miles north of Harris's line. This point located - which was to have a latitude of $41^{\circ} 47' 43''$ - he set a meander post at a distance of 2.50 chains from the beach. On the evening of Oct. 11 he found his variation to be $6^{\circ} 10'$ E, and on the 11th

he commenced at the corner and ran due east. This course was continued a distance of 105 miles, setting posts at every 80 chains, and blazing trees on the line at frequent intervals. He set a post at the 105th mile, but "Discovered that the true N.E. corner of Indiana was 40.55 chains on the 105th mile from Lake Michigan", where he set a post of white oak, six inches square, and took the bearing of eight trees near. He then started from the post locating the north west corner of Ohio, and ran North a distance of 10 miles, 64 chains, 21 lks, where he intersected the N. & W. line in the 105th mile, 30.45 chains from the 105th post and here established the N.E. corner of Indiana" as above mentioned. It is noticed that his variation at the corner of Ohio, Indiana, and Michigan was $4^{\circ} 35' N$, differing materially from the variation as determined by both Harris and Fulton.

These notes, which established our true boundary with Indiana were sent to the State Land Office by John B. Hoff, Secretary of State for Indiana in Oct. 1875, certifying them to be "a true and complete copy of the field notes of the North Boundary of Indiana, the same being certified to by Lucius Lyon, Surveyor General, dated at Detroit, Nov. 1st, 1849." Just what was done with them in the intervening twenty-two years is not clear. At the same time was sent the map made from the field notes of Harris and Hendrick, of which an exact tracing has been made by the writer, even to the style of lettering, and a print of which is attached.

Since Fulton's survey, the boundary line between Michigan and Ohio has been completely retraced, but his line stood until 1837, when a contract was issued to Andrew Porter, D.S., by Robert P. Lytle, the Surveyor General, to "Retrace the Boundary Line between the states of Ohio and Michigan and correct it with the lines of the public surveys intersected thereby." The compensation for such an important work was, strange to say, only three dollars per mile, while the standard price for exterior town lines at that time was four dollars. The notes for his line show that he ran it from the N.W. corner of Ohio on a course $N 88^{\circ} E$ to Lake Erie, and as such it still remains with the exception of that part of it in T 9 S - R 8 E. It is interesting to note that he is the first to mention his party; consisting of S. Hulse and S. Darling, Jr., chainmen, and Stephen Chishner, marker. The whole line, of approximately seventy miles, was run during the last half of June, 1837, but later (1842) the part in T 9 S - R 8 E, being the eastern extremity of the line, was run by John Mullet, D.S. His notes show that on Feb. 17, 1842, he set a post 31.75 chains south of the south town corner on the west line of this township, and ran a course $N 87^{\circ} 42' E$ a distance of 4 miles 8 chains 37 links "to Maumee Bay. Set a post in marsh marked Ohio and Michigan." Both of these men in their work ran lines north from the points where they intersected Michigan township or section lines to the nearest section of section corner to connect the line with those public surveys. As the surveyed line now stands, it measures 60 miles 60 chains, and 91 links from the N.W. corner of Ohio on a course practically $S 88^{\circ} W$ to Maumee Bay.

Our complete southern boundary may then be said to be as follows: starting at a point on Maumee Bay, thence

	mi.	ch.	lbs.	
S 87° 42' " a distance of 4 "	- 68	- 57		,thence
S 68° 30' "	65	- 52	- 54	"
W "	10	- 64	- 21	"
E "	104	- 50	- 45	

and so it stands at the present time.

THE MICHIGAN LAKE SUPERIOR BOUNDARY.

The history of our western boundary survey is not as complicated, nor did the completion of it require so much time, but it is decidedly interesting and of vital importance, for it is not settled beyond dispute even at the present time. This boundary line consists naturally of three separate and distinct parts, the navigable channel of three streams and a surveyed line joining them. I use the word "navigable" not in its usual sense, but as defined by a decision of the Supreme Court of Michigan, which defines a navigable stream as any which will float a canoe, or even a log which would be floated in a "drive". This line, then, consists of an imaginary line thro' the mouth of the Montreal River, thence through the middle of the main channel of the westerly branch of this river to its headwaters, thence in a direct line to a channel between two islands in the Lake of the Desert, thence in a direct line to the southern shore of Lake Brule, and thence down the main channel of the Brule and Menominee rivers and the center of the most usual ship channel of Green Bay. This is all defined very clearly and concisely in the Constitution of the State of Michigan, but the actual boundary as established does not agree.

In June, 1863, Congress made the first official attempt to establish this western boundary making an appropriation of three thousand dollars for the "survey, marking and designating of said boundary". At this time it was supposed that the Montreal and Menominee rivers each had their source in Lac Vieux Desert, thus forming a natural boundary,

but an exploration party under Captain Dray, of the U.S. Topographical engineers, corrected this impression. Following is a copy in part of the instructions issued to him by Col. J. J. Albert:

"The survey now committed to you is that of the boundary between the State of Michigan and the Territory of Wisconsin. The entire amount appropriated is \$8,000, but it is doubtful if this will be sufficient for the duty, under which view of the case your attention will be directed in the first instance to those parts of the boundary destitute of a physical character not easily mistaken. The boundary is described as follows --- 'to the mouth of the Montreal River (of Lake Superior) thence through the middle of the channel of said river, thence to the middle of the lake of the Desert, thence in a direct line to the head of the Menominee, thence through the middle of that fork of said river first touched by said line, down the center of the main channel of the same, to the center of the most usual ship channel of Green Bay to the middle of Lake Michigan, etc.' -----

'The line from the head of Montreal River to the head of the Menominee must, of necessity, be surveyed, as it is an undetermined line, without distinct physical characteristics. This line, it is said, must pass through Desert Lake. Recent information induces the belief that there are several lakes between the headwaters of these two rivers called Lakes of the Desert."

The report of this expedition gives the first authentic description of the character of the country through which the proposed boundary lay, and in this lies its real value. He also determined the terminal points of the surveyed line, at the cost of much valuable land to Michigan, and discovered that neither the Montreal nor Menominee had their source in Lake Vieux Desert. In 1841 he discovered the east branch of the Montreal, supposed to be the main branch. Near the source of this river he found the junction of two branches, each rising in a small "pond", and this junction he called the head waters of the Montreal. Just why he should have designated this as the source of the river is hard to understand, but as such it still stands, and so fixes one point on our boundary. The main branch of the Montreal is nearly seven miles farther west at its source, and about six miles south. If the source of this branch had been discovered, it would have meant the addition of approximately 600 square miles to Michigan.

The actual work of laying out the line, however was not done until the summer of 1847. On Aug. 6, 1846, Congress passed an act authorizing the permanent establishment of this line, and under its provisions a contract was awarded to Wm. A. Burt, bearing date of April 27, 1847. On May 1st certain instructions were issued, in part as follows: "In order to establish the boundary line correctly you will probably find it necessary to first run random lines to ascertain precisely the relative position of the different points named in the Act above referred to. When this shall have been done the true line may be run, measured, marked and established either northwesterly from the source of the Brule or southeasterly from

the source of the Montreal river, as you may find most convenient, taking care to mark the end of every mile and half-mile by setting posts and taking and noting in your field notes at least one bearing tree on each side of the line, to be marked with a notch and blaze facing towards the posts in the same manner as in the surveys of the public lands. They should also be marked with the number of miles and half miles each post is distant from the place of beginning, and the letter "M" to designate miles should likewise be marked to the right hand or below each number." The description of the line as given here is practically the same as that given to him, except that it is to go "along the southern shore of Lake Brule in a direct line to the center of the channel between Middle and South Islands in the Lake of the Desert, thence in a direct line to the headwaters of the Montreal River, as marked upon the survey made by Captain Cram."

In November of that year he returned to Lucius Lyon, the Surveyor General, his field notes for the survey, in which is the following report, here copied verbatim. To accompany it he turned in a plat, an exact tracing of which has been made, and a blue print of the same enclosed in the pocket of this book.

Mount Vernon, Mich. Nov. 20th, 1847.

Sir:-

In pursuance of a contract dated 27th April, and your instructions of the 1st of May last, I have surveyed, marked and established so much of the boundary line between Michigan and Wisconsin as lies between the source of the Brule River

and the course of the Montreal River, as defined by the "Act to enable the people of Wisconsin Territory to form a Constitution and State Government, and for the admission of such State into the Union," approved on the 6th of August, 1846, and now enclose herewith my field notes and map thereof for your approval.

In the prosecution of this work a random line was run, as represented on the map, from the center between the middle and south island, in the Lake of the Desert (Lake Vieux Desert) to the source of the Brule' River, which is the outlet of Lac Brule; and another random line from the same point in Lac Vieux Desert to the "head proper of Montreal river", as marked on the survey made by Captain Gram.

These random lines were slightly marked and posts were set thereon at the end of every mile and half mile each way from the coast of Lac Vieux Desert, but no other marks were made. The marking was found necessary to enable the trackmen to follow the line with supplies of provisions during the progress of the survey.

From data thus obtained, the true boundary line was run, marked, measured, and established in a direct line from Lac Brule', N $59^{\circ} 53'$ W - 23 miles 37 chains and 66 links (exclusive of the meanders around the southern end of Lac Brule) to the center between the middle and south Islands in Lac Vieux Desert; and also from the "head proper of Montreal river" S $74^{\circ} 27'$ E 50 miles 67 chains, and 8 links to the point above described in the last mentioned lake. The latitude and longitude at the outlet of Lac Brule', at Lac Vieux Desert, and the

head proper of Montreal River, are given in a tabular form at the close of the field notes.

This boundary line has been well blazed and a post set at the end of each mile and half mile, with two bearing trees to each post faced and notched and noted in the field notes in the same manner as in the survey of the public lands. These bearing trees and posts are also marked with figures, and the letter "M", cut in the wood with a marking tool to denote miles, the number of miles and half miles which each post is distant from the place of beginning.

In like manner posts have been set and bearing trees taken at the intersection of this line with the numerous lakes over which it passes; and on each half mile three trees in line have been notched with two notches on each side in the direction of the line, and their distances, names and diameters have been entered in the field notes.

Posts have also been set and bearing trees taken in the usual manner at the intersection of the township lines in Michigan with this boundary, and the notes thereof will be found entered in that survey.

The numerous posts thus established and the notched trees above mentioned together with the natural scenery, such as lakes, islands, and points of land, etc., as entered in the field notes, with the latitudes and longitudes of important points referred to, define and establish this boundary line in a permanent and indisputable manner.

Very respectfully

Your Obt. Serv't

Lucius Lyon, Esq. r.

Wm. L. Burt, D.D.

Surveyor General.

Place	Latitude	Longitude
	° ' "	° ' "
Outlet of Lac Brule'	46 ° 01 - 46	89 - 01 - 37
East Shore of Lac Vieux Desert	46 - 07 - 26	89 - 15 - 20
Angle between Islands in Do	46 - 07 - 47	89 - 16 - 10 *
West Shore of Lac Vieux Desert	46 - 08 - 17	89 - 13 - 37
Head proper of Montreal River.	46 - 19 - 26	90 - 17 - 58

The above latitudes are the mean of several observations made with a solar compass.

* The longitude of this place is computed from Bayfield's chart of Lake Superior by the help of Meridians or township lines intersecting the said lake, and the difference of longitude from the Eastings and Westings made on the survey.

As no instruments for the determination of latitude and longitude were furnished by the government, and they could not be obtained without great expense and delay of the work, the latitudes have been determined and the longitudes computed in the manner above stated. I have much confidence in the accuracy of the latitudes, and also of the longitudes, from the fact that the difference of longitude of various points given in Bayfield's Chart on the south coast of Lake Superior, coincides very nearly with actual measures made by myself on the survey of township lines in that region.

Note: As the lower end of Lac Brule is narrow and shoal with grass standing in the water except in the channel where there is a perceptible current, it was difficult to decide precisely where the lake ended and the river commenced. The direct line to Lac Vieux Desert was therefore made to leave Lac Brule' at a well defined point on the S.W. side of a small cove, as above stated, and the meanders of the south end of the lake were commenced below, at a perfectly contracted channel.

His field notes show that trees were blazed on the line at frequent intervals, as instructed. They show that he commenced at "the middle of the channel at the outlet of Lac Brule," thence meandered around the south shore of the lake "to a trail and landing for canoes on the south-west side of a small cove on the west side of the above mentioned lake" and thence N 59° 30' W on a direct line to the middle of the channel between the south and Middle Islands of Lake of the Desert (Lac Vieux Desert)" a distance of 13 mi. 37 ch. 66 lks. This was completed June 11th, 1847. From here he ran a random to locate "Sta. No. 2" as shown on his plat, which was the junction of two streams called the Balsam and Pine rivers, and head proper of the Montreal river, as marked upon the survey of Capt. Gram." At this point Capt. Gram had set a cedar post 6 feet long and 3 inches square set in the ground 2 1/2 feet and surrounded with stone". From this point he ran in a direct line S 74° 27' E to the center of the channel between the two islands above mentioned. His notes and plats were accepted by Lyon on Nov. 28th, 1847, and the line he established remains the true boundary.

Between the dates of Aug. 15, and Sept. 6, 1848, William Ives, a deputy surveyor much associated with the Burts, made a meander of the "Montreal River Boundary Line between the states of Wisconsin and Michigan", acting under a "Verbal understanding or agreement made in the month of April in the year 1848 with Julius Lyon" ---- "and in conformity with the laws of the United States and the General instructions of the said Surveyor General to his Deputies."

As a boundary line, the Menominee and Brule Rivers were not meandered, but this work was done by the surveyors who laid out the townships adjacent to it.

SUMMARY.

It is interesting to note the discrepancies between our boundary lines as actually determined in the field, and as described in the Constitution of the State of Michigan which has been adopted by the people of this State and accepted by the Federal Government.

This constitution established jurisdiction over all that portion of the lower peninsula north of a line "drawn from the southern extremity of Lake Michigan to the most northerly cape of Maumee Bay." This would give to Michigan an additional strip of territory of a proximately twelve hundred square miles, due to the fact that our southern boundary is drawn due east for a distance of 105 miles, starting at a point on Lake Michigan ten miles north of the extreme southern point.

Our western boundary as defined in this Constitution starts at the mouth of the Montreal River, thence down "through the middle of the main channel of the westerly branch of the Montreal river to Island Lake, the head waters thereof; thence in a direct line to the center of the channel between Middle and South islands in the Lake of the Desert." As established by Cram, Burt, and Ives, the boundary line is the east branch of the Montreal down to the junction of the line and Balsam Rivers. Island Lake is approximately seven miles farther east and six miles south, and if this were a true point on the boundary it would mean the addition of a triangular strip of

approximately six hundred square miles.

While it is not likely that any trouble will ever arise over our Southern boundary again, it is believed that soon we will be involved in a legal controversy with Wisconsin. In fact, the Attorney General several years ago prepared a brief to be used in this event, and had tracings of the original plats of the townships involved made for this purpose. The writer spent two field seasons in work along this line, and the sentiment at that time among the people there seemed to be in favor of being under the jurisdiction of Michigan. This is due to the fact that much of the lumbering being done there is in the control of Michigan capital, and also to the fact that there was an agitation to establish Vilas County, Wisconsin, as a game and fish preserve.

It is interesting to note that in the summer of 1915, our complete southern boundary is to be re-run, and permanent monuments to be set at the intersections of all sections and township lines of the three States involved. The work is to be done by the Federal Government in co-operation with the States of Michigan, Indiana and Ohio.

THE ORIGINAL FEDERAL SURVEYS.

In order to fully appreciate the beginning of the surveys in Michigan, one must understand the events leading up to the first official attempts to subdivide it into land units.

Michigan is a part of the territory west of the original thirteen colonies which was ceded to the United States at the close of the Revolutionary War, and whose boundary was established by the Treaty of Paris in 1783. Naturally the question at once arose of how to locate and dispose of this vast territory, and Congress, being anxious to avoid the evils of the unsystematic survey of the original states, at once appointed a committee to devise a system to be used in all parts of the new territory. This committee, consisting of Thomas Jefferson, Chairman, and Hugh Williamson, David Howell, Elbridge Gerry, and Jacob Read, on May 7, 1784, reported "An ordinance for ascertaining the mode of locating and disposing of lands in the western territory, and for other purposes therein mentioned." This ordinance provided for the dividing of the public lands into "hundreds" of ten miles square, and these again subdivided into lots of one mile square. This ordinance as amended was reported to Congress on April 26, 1785, and required the surveyors "to divide the said territory into townships of 36 miles square, by lines running due north and south, and others crossing these at right angles----. The plate of these townships, respectively, shall be marked by subdivisions into sections of one mile square, or 640 acres, in

the same direction as external lines, and numbered from 1 to 49." This is the first record of the use of the words "township" and "section".

This was first amended on May 3, by striking out the words "seven miles square" and substituting the words "six miles square". It was not until May 6, that it was observed that a township six miles square could not contain 49 sections one mile square, and on this date an amendment that a township should contain 36 sections was lost. However, it was reconsidered and finally passed on May 20, 1785, and the first public surveys were made under this ordinance. This ordinance also contained a provision for the reserving of section 16 in every township for the support of schools, a policy ever since maintained. Under this ordinance were laid the "Seven Ranges" of Ohio, lying north of the Ohio river. They are different from those later laid out in that ^{the} sections were numbered from 1 to 36, commencing with No. 1 in the Southeast corner and running from South to North to No. 36 in the Northwest corner of the township.

The act of Congress of May 18, 1796, established the method of numbering sections which is still in use, provided for the appointment of a Surveyor General, and directed the survey of the lands north-west of the Ohio River and above the mouth of the Kentucky River, "in which the titles of the Indian tribes have been extinguished." Under this act Rufus Putnam was made the first surveyor-general, and the first field work:

in which this history is really concerned was started. The lines in Ohio, to which the surveys in this state were subsequently tied, were commenced.

The next provision of interest is contained in an Act of Congress approved May 10, 1800, which states that "in all cases where the exterior lines of the townships thus to be subdivided into sections or half-sections shall exceed, or not extend, six miles, the excess or deficiency shall be especially noted, and added to or deducted from the western and northern ranges of sections or half-sections in such townships according as the error may be in running the lines from east to west, or from south to north." The Act of Congress approved February 11, 1805, directs the subdivision of the public lands into quarter sections, and provides that all corners and lines of any sort established by deputy surveyors shall be recognized as such. On April 25, 1812 Congress passed an act establishing in the Department of the Treasury a General Land Office, with a General Land Commissioner as its head, to whom was referred "all such acts and things touching or respecting the public lands of the United States." So by the time the work was commenced in Michigan, Congress had its machinery in working order and the methods thus established, and to the present time the system of surveys has remained substantially the same.

The earliest attempt to survey any part of Michigan was made in 1815. In April of this year two contracts were

issued for the survey of portions of the base line and of the principal meridian. The first contract was issued to Alexander Holmes for the survey of "a base line from a point above Detroit due west to the Indian Boundary." This boundary was the western extremity of all that territory relinquished by the Indian nations at the Treaty of Greenville in 1795, and was about on the line between the present Jackson and Calhoun countries. Ten days later a contract was issued for the survey of "a true meridian line from Fort Defiance due North", signed by Benjamin Hough. This line is one of twentyfour principal meridians established for the different states, and runs due north from a point at the junction of the Auglaize and Maumee Rivers in Ohio. Its longitude as determined by the Main Coast Survey is $84^{\circ} 21' 43''.4$ W. of Greenwich. The base line and principal meridian were not run continuously, as many suppose, but were run a few miles at a time as was considered necessary. In fact, it was not until 1840 that the meridian was carried across the Straits and into the Upper Peninsula.

During the year 1815 contracts were issued for the survey of practically all of that territory lying south of the base line and east of the meridian. In respect to this work, Edward Hiffin, the Surveyor General, reported to the General Land Office that the surveyors had been obliged to suspend their operations until the country should be so frozen as to bear men and beasts. In spite of adverse conditions the men had worked until both they and their horses were literally worn down with extreme suffering and fatigue." He further reported that the land was totally unfit for cultivation and

not worth the expense of surveying it. Congress had granted an appropriation for the survey of two million acres for the benefit of soldiers serving in the war of 1812, provided that the lands be fit for cultivation. As a result of this report Congress ordered the survey of 1,500,000 acres in Illinois and 500,000 acres in Missouri "in lieu of that quantity heretofore authorized to be surveyed in the Territory of Michigan as Military Bounty lands." As a result of this it became officially known that "not one acre in one hundred, if there be more than one out of one thousand of this land was fitted for cultivation, and it was not until 1830 that this impression thus created was removed by the reports of actual settlers. However, this report, while it effectually checked immigration for fifteen years, at least left the state free from land speculation, one of the worst evils of a new country.

In spite of the slight increase in population the work of subdividing the territory went slowly on, and by the end of 1820 practically all of the country lying between the north line of T. 6 N. and the Ohio line, and east of the Principal Meridian had been laid out. By this time, as a result of several treaties with the various Indian nations, the Indians titles to the land in the Lower Peninsula had been extinguished, with the exception of a large reservation on the St. Joseph River and a strip along the shore of Lake Michigan.

On Aug. 21, 1820, a contract was given to one J. C. C. Hassler to continue the meridian line north from the N. W. corner of T. 6 N. "to Saginaw Bay or River, or the place may be."

This wording indicates that the knowledge of the country was limited, for Saginaw Bay at its nearest point is over twenty miles from the meridian. During the next four years the work was pushed as rapidly as possible, and by 1825 practically one-third of the Lower Peninsula had been laid out. In 1822 the country was divided for the sake of convenience into three districts, the Detroit, the Southern, and the Monroe. The Detroit district comprised the territory north of the base line; the southern all that portion south, with the exception of a strip two townships wide lying along the Indiana boundary line, which was called the Monroe district. All of the contracts refer to these districts, though I have found them mentioned in no other reports. They seem to have been an idea of Edward Tiffin, who was Surveyor General until the summer of 1829, for they are not referred to by any one following him.

Aside from the surveying done, this period from 1815 to 1825 was important, for there being some indications of a tendency of immigration, the first land office in the territory was opened in Detroit in 1818. For the first time settlers could acquire lands outside the old French and British grants along the Detroit River. During this period Michigan was allowed a delegate to Congress, too late, however, to protest against the act fixing the northern boundary of Indiana ten miles north of the southern boundary of Michigan Territory, in violation of the Ordinance of 1787 and the act fixing the southern boundary of the Territory of Michigan in January, 1805.

The next period of five years, from 1825 to 1830 inclusive was not a period of much progress so far as the subdividing of the public lands was concerned. This is due largely to the fact that the steady tide of immigration towards Indiana and Ohio demanded that more attention be turned towards those states to the neglect of Michigan Territory. In fact, over three times as many contracts for work in Indiana and Ohio were awarded between these years than for Michigan. However, the western portion of the state below the Grand River, and a block of forty townships along the Principal Meridian were laid out. In addition to this, Bois Blanc Island, in the Straits of Michilimackinac was laid out. It is interesting to note that the contract for this work was signed, sealed, and delivered in duplicate with no consideration stipulated. Since the work seems to have been done, there must have been some sort of an understanding. In this period we first find the name of Lucius Lyon mentioned, and it was at this time that he established a name for himself as the ablest and most conscientious surveyor of his time. On the 10th of September, 1823, the famous treaty of Carey Mission, on the St. Joseph River, was signed. By this agreement the Indians relinquished their title to all that territory "which is bounded on the north-east by the St. Joseph River, on the north-west by Lake Michigan and on the south by the State of Indiana." Only three years before no surveyor had left his work unfinished, reporting to Tiffin that the hostility of the Indians made it impossible to perform

his contract, and that he had been obliged to stop under threat of murder.) This hostility arose over a misunderstanding regarding the boundaries of the reservation as established in previous treaties, but the Carey Mission treaty arranged everything satisfactorily and the deputies were allowed to continue their work unmolested.

Another factor that retarded the survey of the public lands was the inaugurating of the governmental system of building roads, which was an absolute necessity at this time. In 1826 Congress made provision for the building of roads from Detroit to Fort Gratiot, from Detroit to Saginaw Bay, and for the beginning of the famous "Chicago Road", one of the biggest factors in the development of the southern part of the state. In May, 1830, an act was approved making appropriations amounting to \$22,000 for roads leading from Detroit.

The settlers were too poor, and the territory had no means of building roads, so it had to be done under the authority of the Federal Government which was unable to carry on both kinds of work. In fact, the Surveyor General, Am. Lytle, was obliged to insert a clause in the contracts he issued providing that payment for work done should not be demanded until after Congress had passed a necessary appropriation and the funds had been placed in his hands.

Between the years 1830 and 1833 no surveying was done by the government except in the laying out of roads and the beginning of the harbor improvement in La Plaine Bay, the mouth of the River Raisin. On July 14, 1832, an act was

approved , which if carried out might have done away with a great deal of unnecessary hard feeling and controversy.

It provided "that the president of the United States cause to be ascertained by accurate observations the latitude and longitude of the southerly extreme of Lake Michigan, and that he cause to be ascertained by like observations the point on the Miami of the lake which is due east therefrom." Had this been done, the "Toledo War " might have been avoided, Michigan entered as a state two years earlier with her boundary as described in all preceding acts, and as still described in the Constitution of 1909./

During the years 1830 to 1835 only ten contracts were awarded for the surveying of public lands, all in the Saginaw Bay district, and this period is of interest only in that it introduced Wm. A. Burt as a surveyor, and that the forfeit for failure to perform contract was changed from \$1000, no matter what the work done, to "double the estimated amount due by the United States to said " . Wm. A. Burt is perhaps even more famous than Lyon, for not only did he survey personally large portions of both peninsulas, but he also invented the Solar compass. An improvement of this instrument is still prescribed ("Manual of Instructions for the Survey of Public Lands of the United States and Private Land Claims", 1902) for use by deputy surveyors.

However, the period of 1835 to 1840 saw the work pushed ahead much faster than ever before, in fact much too fast, for very nearly all of the townships laid out in this five year period were later resurveyed. By the end of 1840

all of the Lower Peninsula had been surveyed, the Principal Meridian carried across the Straits and into the Upper Peninsula, and the exterior lines of several townships in this peninsula lying between the Meridian and the line between Ranges 8 and 9 West. In this period (1837) the Ohio boundary line was finally determined by the Survey of Andrew Porter, and Michigan admitted as a state. The work in the states of Indiana and Ohio had been practically completed, and the Surveyor-General was free to devote all his time and funds to the completion of the survey here. These Surveyor-Generals, Robert T. Lytle and Ezekiel S. Haine, have been blamed for the great expense brought upon the government later in resurveying the work done in this period. They can hardly be held responsible, however, for they could not personally oversee the work and it was a perfectly simple matter for their deputies to carelessly do the work, or even not do it at all, and still escape detection. The men were well recommended and under oath, so it seems unjust to place the whole blame on the shoulders of Lytle and Haine.

On Oct. 31, 1836, the first official mention of a correction line is made in a contract for the running of the 2nd correction line from the Principal Meridian west to Lake Michigan. These are standard parallels extended east and west from the meridian in the same manner as the base line, from which corrections due to the convergence of meridians are made. At the time this state was surveyed they were established at intervals of sixty miles, so they are the north lines of Townships 10, 20, 30 and 40 North. At the

present time, in unsurveyed lands, they are established at intervals of twenty-four miles north and south of the Base Line. The north line of township 10 N had been used in the same manner, but it had not been referred to as a "Correction Line" in any official document on record. During this period it was the policy to run the exterior lines first, and later subdivide the township into sections, usually by a different party. This made the filing of field notes for section lines easy, and the writer has noted by a study of the plats of the re-surveys returned, that not more than 10% of the exterior lines were ever re-run.

In this period the last treaties relinquishing Indian titles were made, one on March 23, 1836 and the other at Detroit on Jan. 14, 1837. The first, with the Chippewa and Ottawa Indians, gave them a tract of 70,000 acres as a reserve on the ~~St. Marys~~ Marquette River. The second, with the Ojibwa Indians, relinquished claims to all lands north of Saginaw Bay.

From 1840 to 1843 no contracts were issued, and only one in 1843. But in 1844, as the result of the complaint of settlers in T. 15^S R. 7 E. that township was resurveyed by Horvey Parker. It was originally laid out in 1815 by Joseph Hampler, and his work showed a total of 253 acres less than that by Parker. It cost the government approximately \$2000 to adjust the claims of the settlers due to this erroneous survey.

In 1842 the fraudulent surveys of the country around Saginaw Bay were discovered and steps taken for the resurvey, as described in another chapter. This led to a reform in the form of contracts providing for the inspection of all work at the deputy surveyor's expense.

By a treaty with the Chippewa Indian nation made on October 4, 1842, and ratified March 23, 1843, they ceded to the government all that region to which Indian title had not been extinguished. This was a territory bounded on the north by Lake Superior, on the east by the Chocoma River, on the west by the Montreal River, and on the south by the Wisconsin boundary, and also including Isle Royale. This made the survey of the Upper Peninsula possible, and work here was at once commenced. At this time Doctor Douglas Houghton was the State geologist, and with him was entrusted a large part of the work under provisions of an act of Congress appropriating \$20000.00 for this purpose. The work was considered so important that he contracted directly with Thos. H. Blake, General Land Commissioner, instead of through the Surveyor General, William Johnston. The following is a copy in part of the contract and instructions issued to him.

"Articles of Agreement between Thos. H. Blake, Commr of General Land Office, under instructions from Secretary of the Treasury ad interim, and Douglas Houghton, Geologist of the State of Michigan - June 5, 1844."

The said Douglas Houghton, for consideration mentioned, in conformity with the rules and regulations annexed, - the laws of the United States, and such instructions as may

be received from the Surveyor General of the district, all faithfully lay out and survey with reference to mines and minerals, four thousand miles of the Township and Sectional lines in that part of Michigan south of Lake Superior, including the establishment of the 4th Correction Line; and that he will complete these surveys and return correct copies of the true and original field notes thereof to the Surveyor General at Cincinnati, by the first day of January, 1847, (Acts of God excepted) on penalty of forfeiture, and paying to the United States the sum mentioned in the annexed bond, in case of default by him.

And the said Thos. M. Blain in his capacity aforesaid, doth covenant and agree that on completion of the surveys above named, or any portion thereof, in the manner above mentioned and with the approval of the Surveyor General, there shall be paid to the said Douglas Houghton, on account of the United States, as a full compensation for the whole expense of surveying and making due return thereof in manner and form aforesaid, five dollars per mile for every mile and part of a mile actually run and marked, random lines and offsets not included, provided that not more than the four thousand miles before mentioned shall be run, marked, or paid for under this contract.

The bond was for 40,000.

Rules and regulations for the government of the Deputy employed to make the geologic surveys of that part of Michigan south of Lake Superior, under the appropriation of \$20,000, provided by the act of Congress making appropri-

ation for the civil and Diplomatic expenses of the Government approved the 17th of June, 1844."

These are substantially

(1) "Township lines only to be run except where it may be necessary to establish section lines in order to determine the character and boundaries of any mines or mineral deposits. In this case all section lines are to be run, so that no detached tracts remain unsurveyed."

The 4th correction line was to be run as far north as necessary but not to cross the probable Wisconsin boundary.

(2) "Field books will contain all information of a geological or mineralogical character in addition to the usual and necessary notes of linear surveys."

(3) "Return to the Surveyor General a fair copy of all field notes of survey, with sketches of Townships completely surveyed and diagrams of those partly surveyed. The sketches and diagrams are to show all geological information, and those sections containing mineral deposits should be designated."

(4) "All this information that can be shown on the Township plats without confusion must be on these plats."

In October of 1845, Houghton and two of his assistants were drowned off Keewenaw Point in a heavy storm and part of his records lost. His work was ably and conscientiously done, and of the highest value to the State, for it indicated the vast wealth of the mining region of the Upper Peninsula and led to the development of this rich section. In his report to the Secretary of the Treasury in 1847,

Lucius Lyon, Surveyor General, speaks in the most glowing terms of Houghton, and regrets that a great man should have lost his life when in the prime of life. On Sept. 19, 1844, Houghton, with Wm. A. Burt and Jacob Houghton first discovered the immense iron deposits near the present site of Neegaunee, south of Sault Lake. They were running the line between ranges 26 and 27, and seeking the cause of the remarkable variations of the magnetic needle, located the deposit on which was afterwards located the Lake Superior Mine. This, together with Houghton's report in 1841, on the copper deposits, led to a wonderful influx of settlers. On July 17, 1846, one hundred and four mining companies had been organized and made locations, and over 900 "locations" and leases had been made by unorganized parties.

The next four years - 1845 to 1848 inclusive - saw the Upper Peninsula completely surveyed, under the most adverse conditions and after untold hardships. Mr. Schring gives a very interesting account of some of the experiences of surveyors in this territory, as well as a history of the Solar Compass, here first used, in his chapter on "United States Surveys of the Upper Peninsula." At least the country was recognized to be so difficult to survey that Lyons used his influence to raise the standard price to \$5.00 per mile "actually run, not to include random lines and offsets" and a price of \$6.50 or \$6.00 per mile was not uncommon. Burt received \$16.00 a mile for his survey of the Wisconsin boundary line, but this was exceptionally high. All contracts for work in this territory provided that the deputy survey-

ors should place themselves under the charge of geologists working for the Federal government, and the work of the two departments was made to coincide as much as possible.

With the exception of the resurveys, described in another chapter, the whole State of Michigan had been practically subdivided into sections by the year 1850. However, the work of surveying islands in the inland lakes and rivers is still going on, and these may be surveyed at any time, provided they were shown ^{on} the original plats. Section 115 of the Revised Statutes (R.S., 2401) states that when the settlers in any township not mineral or reserved by Government, desire a survey made under the authority of the surveyor-general, certain proceedings are necessary. An application in writing must be filed, a sum sufficient for the survey must be deposited, "without cost or claim for indemnity on the United States", the surveyor-general may order the work done provided it lies in a territory "embraced by existing standard lines or bases for the township and subdivisional surveys". As late as 1912 several islands were surveyed in inland lakes in the northern part of the lower Peninsula.

At the close of this chapter are inserted several tables and maps intended to show the progress of the surveys. The maps refer only to the first surveys made, not to include any resurvey. The table of contents is one compiled from the originals on file in the office of the Public Domain Commission together with those of Indiana and Ohio and a few in Missouri during the years between 1797 and 1843 inclusive. The writer

has prepared an alphabetically arranged list of the deputy-surveyors by whom the work was performed, giving the period during which they worked, and a combination of the maps, this list and the table of contracts, should give the reader a clear idea of when and by whom any surveys were made.

The Principal Meridian and Base Line.

As the Principal Meridian and Base Line are the basis of the subdivision of the State, and so of prime importance, it has been considered advisable to treat the running of these lines under a separate heading.

These lines were not run continuously, but as they were considered necessary to the progress of the surveys. The lines were commenced in the summer of 1815, and the Principal Meridian was not completed until 1840. On April 18, 1815, Alexander Holmes was given a contract for the laying out of "a base line from a point above Detroit due west to the Indiana Boundary, which line will constitute a Meridian." The "point above Detroit" was described in his instructions of which I could find no record, but the line as Holmes located it still remains. The "Indiana Boundary" mentioned was about on the present line between Jackson and Jalisco counties.

Two days later (April 23, 1815) Benjamin Hough entered into contract with Edward Biffin, Surveyor-General of the district comprising Indiana, Ohio, and Michigan, for the survey of "Meridian, Range, and Township Lines, viz; a true meridian line from Fort Mifflin at the mouth of the Anclaise River north", agreeably with his instructions. It also called

for the survey of "four ranges of Townships North of the base line and four ranges south of said base line, each range including six townships north and six Townships south, the said Base Line to be run by Alexander Holmes."

According to the transcript of field notes of surveys in Range 1 West, south of the base line, the east boundaries of townships 3 to 7 South (the meridian line) were surveyed by Hough in 1815. The transcript field notes do not show the name of the surveyor nor the date of survey of the meridian in townships 1 and 2 South.

The next mention of either line is in a contract to J. S. Solpis Hassler, for the survey of "a true Meridian Line from the corner of T 6 N to Saginaw Bay or River, as the case may be." However, the field notes show that at present the line stands as run by Joseph Hassler in the summer of 1834, under a contract dated Oct. 31, 1835. North of the base line, the meridian was run as an exterior town line, in this case being described in the survey of T'w'p's 1,2,3,4,5, & 6 N-R 1 W.

In the winter of 1836, the Base Line was extended west to Lake Michigan by Wm. Brookfield, under provisions of a contract issued Oct. 19, 1836. This completed the location of this line.

In the winter of 1839-41, the Meridian was continued north as far as the north boundary of T 17 N, R 1 W, by Robert Clark, Jr., as the western boundary of Range 1 West between those limits. In the winter of 1845, John Brick continued the line through Townships 13 to 21 North inclusive, under a contract calling also for the running of the said Correction Line from the Meridian west to Lake Michigan, and certain exterior

lines. Sylvester Sihley and John Hodgson ran the meridian line through to the north line off 50 N in the spring 1839, and a year later it was completed as far north as the Straits of Mackinac by John Bullet. In the same year (1840) Mr. A. Dent carried it across the Straits and through the Upper Peninsula, completing the entire line.

One of the most glaring examples of careless surveying on record in this State is shown in the field notes of survey of 36 sec line between R' 1 E & 1 E., R' 3 & 4 N, by Joseph Fletcher in 1816. In Range 3 East he neglected to run the south line of either Sec. 31 or Sec. 32, T 1 N, and established the township corner at what should be the S.W. corner of Sec. 32. This line was resurveyed by Joseph Wampler in 1819, and he does not agree at all with Fletcher in any part of the line. Running west, on the first mile Wampler crossed a small lake, which Fletcher does not mention. On the second mile Fletcher mentions a branch of the Huron River, while Wampler does not cross any running water until he finds a small creek at 1.50 chains on the third mile, which Fletcher does not observe. On the fourth mile, Wampler crossed a creek at 60 chains and Fletcher at 42.00. On the south side of Sect. 32 Fletcher finds small lakes, 26.00 and 17.00 chains wide, while Wampler only finds a creek 12 links wide. Across R 4 E which was also re-run by Wampler, the discrepancy is even more marked, due to Fletcher making the line across R 3 E only four miles wide.

The following figures were obtained from the origi-

nal plots of the field notes.

Length of Base Line.

West of Principal Meridian--78 miles, 33 chains, 88 links

West " " " --97 " 34 " 40 "

Total----172 miles, 63 chains, 28 links

Length of Principal Meridian.

South of Base Line. --49 miles, 17 chains, 40 links

Between B.L. and Straits of

Machinac--325 " 73 " 00 "

North of Straits of

Machinac--61 " 25 " 48 "

Total length of surveyed

lines.---854 " 40 " 88 "

ALPHABETICAL LIST OF DEATHS IN NEW YORK.

Allard, John T. ----	1857-1859	Bytle, Ed. ----	1829
Adair, Geo. E. ----	1856	Byon, Lucius ----	1829-30 & '50
		Byon, Orson ----	1847-48
Ball, Horatio ----	1821		
Breveort, Henry, Jr. --	1840-45	Black, John H. ----	1823
Brewer, Addison P. ---	1856	Mellon, Harvey ----	1856
Brink, John ----	1839	Merryweather, A. --	1846-48
Britain, Calvin ----	1823-30	Millard, A. ----	1855-56
Brookfield, Am. ----	1824-29	Millet, Jas. H. ---	1837-47
Brookfield, Noah ----	1835-37	Millet, John ----	1823-47
Burt, Alvin ----	1858		
Burt, Austin ----	1853-47	Nicholson, Hervey --	1837-38
Burt, John ----	1845-47		
Burt, Em. A ----	1835-49	Pattison, Thos. ---	1840
		Parko, Hervey ----	1835-44
Cannon, Geo. H. ----	1852-56	Porter, Andrew ----	1837
Cannon, Levi H. ----	1856	Preston, Am. ----	1816
Cass, Geo. W. ----	1815		
Carpenter, Sam'l ----	1817	Rice, Ambrose ----	1833
Cathcart, Chas. W. ---	1837	Risdon, Orange ----	1826-55
Christmas, Chas. W. ---	1830-40	Robinson, Thos. ---	1830
Clark, Robt. Jr. ----	1823-36		
Clason, Lewis, ----	1837-39	Sibley, Sylvester --	1823-40
Coffenberry, W. K. ---	1852	Sullivan, Wm. ----	1837
Colman, Francis ----	1856	Swan, Ziba ----	1823
Coon, Am. R. ----	1839		
		Van Ness, A. E. ---	1837
Enos, Jehiel ----	1839	Videto, James ----	1838
Evans, Musgrove ----	1826		
Evans, Thos. ----	1815	Wadsworth, A. S. ---	1851-55
		Wampler, Jos. ----	1815-25
Fletcher, Joseph ----	1819-22	Wheelor, Amos ----	1815
Francis, Joseph ----	1819	Whelploy, Thos. ---	1852-56
		Whitcomb, Russell --	1837-38
Hall, Benj. F. ----	1846	Wright, Joel ----	1830
Harrison, Geo. W. ----	1829		
Hassler, J. J. S. ----	1820		
Higbee, Jas. H. ----	1839		
Higgins, Hiram ----	1846		
Higgins, Sylvester W. --	1845		
Hodgson, John ----	1853-40		
Holmes, Alex. ----	1815		
Hough, Donj. ----	1815		
Hubbard, Bela ----	1846-47		
Ives, Wm. ----	1846-47-48		

Date of Contract.	To Whom Issued.	By whom Issued.	Township.
Apr.18,1815.	Alon.Holmes.	Ed. Tiffin.	A base line from a point above Detroit due west to Indian boundary which line will constitute a meridian.
Apr.28,1815.	Benj.Hough.	Ed. Tiffin.	A true meridian line from Fort Defiance due north.
May 27,1815.	Amos Wheeler.	Ed. Tiffin.	T's 1,2,3,4,5,6 ^S of 1st and 2nd Ranges east of meridian.
Aug.7,1815.	Jos.Wampler.	Ed. Tiffin.	T's 1,2,3,4 & 5 of R's 7 & 8 East. (south of base line)
Aug.12,1815.	Thos. Evans.	Ed. Tiffin.	T's 1,2,3,4,5 & 6 of R's 1 & 2 E.(north of base line.)
Sept.27,1815.	Jos.Wampler.	Ed. Tiffin.	T's 1,2,3,4,5 & 6 N. Range 4 E.
Oct.17,1815.	Geo.W.Cass.	Ed.Tiffin.	T's 1,2,3,4,5 & 6 N. Range 5 E. T's 1,2,3,4,5,6 N. Range 6 E.
Nov.27,1815.	Am.Preston.	Ed.Tiffin.	T's 1,2,3,4,5,& 6 R 13 E. T's 2,3,4,5. R 14 E T's 3,4,5,6 R 15 E T's 2,3,4,5,6 R 16 E T's 4,5 & 6 R 17 E All north of base line.
Dec.18,1816.	Jos.Wampler.	Ed.Tiffin.	T's 1,2,3,4,5,6 N. R 10 E. T's 1,2,3,4,5,6 N. R 11 E. T's 1,2,3,4,5,6 N. R 12 E.
Feb. 1817.	Sam'l Carpenter.	Ed.Tiffin.	T's 1,2,3,4,5,6,N. R 9 E.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
April 1819.	Jos. Wampler.	Ed. Tiffin.	T's 1 & 2 S. R 4 E. T's 1, 2, 3 S. R 5 E. T's 1, 2, 3 S. R 6 E. T's 2 & 3 S. R 7 E. T's 2 & 3 S. R 8 E.
Apr. 20, 1819.	Jos. Fletcher.	Ed. Tiffin.	T's 5, 6, 7 S. R 4 E. T's 5, 6, 7 S. R 6 E. T's 5 & 6 S. R 7 E. T's 5 S. R 8 E.
May 26, 1819.	Jos. Francis.	Ed. Tiffin.	T's 3 & 4 S. R 4 E. T's 4 S. R 5 E. T's 4 S. R 6 E. T's 4 S. R 7 E. T's 4 S. R 8 E.
Jan. 3, 1820.	Jos. Wampler.	Ed. Tiffin.	All below T's 7 S in ranges 4, 5, 6, E. and all below T's 6 S. in ranges 7, 8 & 9 E.
Aug. 21, 1820.	J. J. S. Hassler.	Ed. Tiffin.	"A true meridian line from corner of T 6 N. to Saginaw Bay or River, - as case may be - and lay off 40 townships of land."
May 23, 1821.	Horatio Ball.	Ed. Tiffin.	"Five townships in Saginaw district."
Sept. 5, 1821.	Horatio Ball.	Ed. Tiffin.	T 9 N. R 6 E. T 7, 8, 9 & 10 N. R 5 E.
Sept. 10, 1821.	Jos. Wampler.	Ed. Tiffin.	T's 7, 8, 9, 10, 11, 12 N. R 4 E. T's 11 & 12 N. R 5 E. T's 7 & 8 N. R 8 E.
Apr. 19, 1822.	Jos. Wampler.	Ed. Tiffin.	"That part of public land lying east of range line dividing R's 8 & 9 E. and north of town line dividing T's 6 & 7 N. and bounded on north and east by Lake Huron."

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Apr. 26, 1822.	Jos. Fletcher.	Ed. Tiffin.	T 11 N. R 6 E. T's 10 & 11 N. R 7 E. T's 9, 10 & 11 N. R 8 E.
Dec. 14, 1822.	Jos. Wampler.	Ed. Tiffin.	T 1 N. R 4 E. T 1 N. R 5 E. T 1 N. R 6 E. T's 3, 4, 6 N R 7 E. T's 1, 2, 3, 4 N R 8 E. "all lying the land District of Detroit."
March 3, 1823.	John Mullet.	Ed. Tiffin.	T 5 & 6 N. R 3 E. T 5 & 6 N. R 4 E. T 6 N R 5 E.
March 3, 1823.	Harvey Parks.	Ed. Tiffin.	T 4 & 5 N. R 5 E. T 4, 5 & 6 N. R 6 E.
March 3, 1823.	Syl. Sibley.	Ed. Tiffin.	T 4 N. R 4 E. T 2 & 3 N. R 5 E. T 2 & 3 N. R 6 E.
Mar. 29, 1823.	Lucius Lyon.	Ed. Tiffin.	T 7 N. R 14 E. T 7 & 8 N. R 15 E. T 7, 8, 9 N. R 16 E. T 7, 8, 9 N. R 17 E. (situated in Detroit land District.)
Sept. 5, 1823.	Wm. Brookfield.	Ed. Tiffin.	T's 7, 8, 9, 10 & 11 N. R 2 E. (in Detroit land District.)
Oct. 21, 1823.	Jos. Wampler.	Ed. Tiffin.	T's 1 & 2 S. R's 1, 2, 3 E. T's 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 S. of R's 1, 2, & 3 W. T's 1, 2, 3, 4, 5, 6 N. R's 1 & 2 E. T's 1, 2, 3, 4 N. R 3 E.
Dec. 8, 18 ²³ ₂₂ .	Lucius Lyon.	Ed. Tiffin.	T 7 N. R 11 E. T 7 & 8 N. R 12 E. T 7 & 8 N. R 13 E. (in Detroit land District.)

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Dec.9,1823.	Eiba Swan.-	Ed. Tiffin.	T's 7,8,9,10 S. R 1 E. T's 8,9,10 S. R 1 E. "Lying in Southern Land District of Michigan Territory."
Dec.9, 1823.	Syl. Sibley.	Ed. Tiffin.	T's 7 & 8 N. R 9 E. T's 7 & 8 N. R 10 E. T's 8 N. R 11 E.
Dec. 9,1823.	John Mullet.	Ed. Tiffin.	T's 7,8,9,10 S. R 2 E. T's 7,8,9,10 S. R 3 E.
Dec. 9,1823.	Hervey Parke.	Ed. Tiffin.	T's 2,3,4,5,6 S.R 2 E.
Dec. 9,1823.	John M.Mack.	Ed. Tiffin.	T's 2,3,4,5,6 S.R 3 E.
Dec. 9,1823.	Robt.Clark Jr.	Ed. Tiffin.	T's 4 & 5 S. R 1 E. T's 5,6,7 S. R 1 W.
Feb.18,1824.	Wm.Brookfield,	Ed. Tiffin.	"An Island in Lake No.2 in T 2 N. R 9 E.
Dec.15,1824.	Wm. Brookfield,	Ed.Tiffin.	T 4,5,6 S. R 2 E. T 4,5,6,S. R 3 E.
Dec.15,1824.	Robt.Clark,Jr.	Ed. Tiffin.	T 7,8,9,10 S. R 2 W. T 7,8,9,10 S. R 3 W.
Dec.15,1824.	Lucius Lyon.	Ed. Tiffin.	T's 1,2,3. S. R 2 W. T 1,2,3 S. R 3 W.
Dec.15,1824.	Wm.Brookfield,	Ed. Tiffin.	T's 4,5,6 S. R 2 W. T's 4,5,6 S. R 3 W.
May 6,1825.	Hervey Parke.	Ed. Tiffin.	T's 1 & 2 N. R 1 W. T's 1 & 2 N. R 2 W. T's 1 & 2 N. R 3 W.
May 6,1825.	Syl.Sibley.	Ed. Tiffin.	T's 1 S & 1 & 2 N. R 4 W. T 1 S & 1 & 2 N. R 5 W.
May 6,1825.	Lucius Lyon.	Ed. Tiffin.	T's 2 & 3 S. R 4 W. T's 2 & 3 S. R 5 W. T's 2 & 3 S. R 6 W.
May 6, 1825.	Robt.Clark Jr.	Ed. Tiffin.	T's 4 & 5 S. R 4 W. T's 4 & 5 S. R 5 W. T's 4 & 5 S. R 6 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
May 6, 1825.	Wm. Brookfield.	Ed. Tiffin.	T's 6 & 7 S. R 4 W. T's 6 & 7 S. R 5 W. T's 6 & 7 S. R 6 W.
May 28, 1825.	Jos. Wampler.	Ed. Tiffin.	T's 1, 2, 3, 4 S. R 2 E. T's 1 S. R 1 E. T's 1 S. R 2 E. T's 1 S. R 3 E.
June 27, 1825.	Lucius Lyon.	Ed. Tiffin.	Eastern boundary lines of T's 1 & 2 N T's 1, 2, 3, 4, 5, 6, 7 S. R's 7, 8, 9, 10, 11 .
Dec. 11, 1825.	Lucius Lyon.	Ed. Tiffin.	Eastern Boundary lines of T's 3, 4, 5 & 6 N in R's 1, 2, 3, 4, 5, 6, 7, 8 & 9 .
Dec. 15, 1825.	Syl. Sibley.	Ed. Tiffin.	T's 1, 2, 3, 4 N. R 3 E. T's 2 & 3 N. R 4 E.
Dec. 15, 1825.	Wm. Brookfield.	Ed. Tiffin.	T's 7, 8, 9, 10 S. R 2 W. T's 7, 8, 9, 10 S. R 3 W.
Dec. 15, 1825.	Henry Parker.	Ed. Tiffin.	T's 1, 2, 3, 4 S. R 1 W. T's 2 & 3 S. R 2 W.
Dec. 17, 1825.	John Mullet.	Ed. Tiffin.	Eastern boundary lines of T's 1, 2, 3, 4, 5, 6, 7 S. of R's 4, 5, 6 W and T's 1, 2, N of R's 1, 2, 3, 4, 5, 6 W.
Dec. 29, 1825.	Jos. Wampler.	Ed. Tiffin.	T's 1, 2, 3, 4, 5, 6 N. R 1 E. T's 4, 5, 6 N. R 2 E.
Dec. 31, 1825.	Wm. Brookfield.	Ed. Tiffin.	T's 6 & 7 S. R 7 . T's 6 & 7 S. R 8 W. T's 6 & 7 S. R 9 W. T's 6 & 7 S. R 10 W.
Feb. 20, 1826.	John Mullet.	Ed. Tiffin.	T's 5 S. R 8 W. T's 5 S. R 9 W. T's 5 & 6 S. R 10 W. T's 5, 6, 7 S. R 11 .
Feb. 20, 1826.	Robt. Clark Jr.	Ed. Tiffin.	T 4 & 5 S. R 7 . T 3 & 4 S. R 8 W. T 3 & 4 S. R 9 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Feb. 20, 1826.	Syl. Sibley.	Ed. Tiffin.	T's 1 S. R 6 W. T's 1, 2, 3 S. R 7 W. T's 1 & 2 S. R 8 .
Mar. 2, 1826.	Musgrove Evans.	Ed. Tiffin.	T's 1 & 2 N. R 6 . T's 1 & 2 N. R 7 W. T's 1 & 2 N. R 8 .
Oct. 5, 1826.	Lucius Lyon.	Ed. Tiffin.	T's 5 & 6 N. R 4 . T's 5 & 6 N. R 5 W. T's 5 & 6 N. R 6 .
Oct. 5, 1826.	Musgrove Evans.	Ed. Tiffin.	T's 3 & 4 N. R 1 . T's 3 & 4 N. R 2 . T's 3 & 4 N. R 3 .
Oct. 5, 1826.	Orange Hisdon.	Ed. Tiffin.	T's 3 & 4 N. R 4 . T's 3 & 4 N. R 5 W. T's 3 & 4 N. R 6 W.
Oct. 5, 1826.	Syl. Sibley.	Ed. Tiffin.	T's 1 & 2 N. R 9 W. T's 1 & 2 N. R 10 W. T's 1 & 2 N. R 11 W.
Oct. 5, 1826.	Robt. Clark Jr.	Ed. Tiffin.	T's 3, 4 S. R 10 W. T's 3 & 4 S. R 11 .
Oct. 5, 1826.	John Mullet.	Ed. Tiffin.	T's 1 & 2 S. R 9 . T's 1 S. R 10 . T's 1 & 2 S. R 11 .
Oct. 5, 1826.	Henry Parke.	Ed. Tiffin.	T's 5 & 6 N. R 1 W. T's 5 & 6 N. R 2 W. T's 5 & 6 N. R 3 .
Oct. 12, 1826.	Am. Brookfield.	Ed. Tiffin.	T's 1 & 7 S. in R's 12, 13, 14, 15, 16, 17 (exterior boundary lines.)
May 5, 1827.	Lucius Lyon.	Ed. Tiffin.	"The Island known as Bois-Blanc, in the Strait of Michill Mackinac."
Jan. 23, 1828.	Robt. Clark Jr.	Ed. Tiffin.	Fract. T's 3, 9, 10 S. R 4 W. Fract. T's 8 S. T's 6, 7, 8, 9, 10, 11, 12, 13, 14 .

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Jan. 23, 1828.	Wm. Brookfield.	Ed. Tiffin.	T's 6, 7, 8 S. R 15 W. T's 6, 7, 8 S. R 16 W. T's 6, 7, 8 S. R 17 W. T's 6 & 7 S. R 18 W.
Mar. 8, 1828.	Calvin Britain.	Ed. Tiffin.	T's 6 & 7 S. R 12 W. T's 6 & 7 S. R 13 W. T's 6 & 7 S. R 14 W.
May 8, 1828.	Lucius Lyon.	Ed. Tiffin.	"Private Land Claims at Prairie du Chien."
May 8, 1828.	John Mullet.	Ed. Tiffin.	Private Land Claims at Green Bay.
April 9, 1829.	Lucius Lyon.	Ed. Tiffin.	"The Tract of land ceded to the U. S. by the treaty of 20th Sept. 1828, held at Carey Mission on the St. Joseph's, which is bounded on the North-east by the St. Joseph river, on the North-west by Lake Michigan and on the South by the State of Indiana."
April 14, 1829.	Orange Rindon.	Ed. Tiffin.	"The unsurveyed parts of T's 6 S. R's 5 & 6 T's 2 S. R 11 W; being as much of said townships as are covered by Indian Reservations lately relinquished to the United States."
Oct. 25, 1829.	Wm. Brookfield.	Wm. Lytle.	T's 3 S. R's 13, 14, 15, 16, 17, 18 W.
Oct. 26, 1829.	Ed. Lytle.	Wm. Lytle.	T's 3 S. R 12 W. T's 4 S. R's 13, 14, 15, 16, 17 W. T's 5 S. R 12 W.
Oct. 26, 1829.	Geo. Harrison.	Wm. Lytle.	T's 3 S. R's 13, 14, 15, 16, 17, 18 W.
Nov. 4, 1829.	John Mullet.	Wm. Lytle.	T's 5 S. R's 1, 14, 15, 16, 17 W. T's 4 & 5 S. R's 18 & 19 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Nov. 4, 1829.	Robt. Clark Jr.	Wm. Lytle.	T's 1 S. R's 12, 13, 14, 15, 16, 17 W.
Aug. 25, 1830.	Lucius Lyon.	Wm. Lytle.	All the townships in R's 12 & 13 W. situated between base line and Grand River, and also to survey the unsurveyed exterior town lines above described.
Aug. 25, 1830.	Wm. Miblog.	Wm. Lytle.	T's 1 & 4 N. R's 7, 8, 9, 10, 11 W.
Aug. 25, 1830.	John Mullet.	Wm. Lytle.	T's 5 & 6 N. R's 7 & 8 W. and such of following townships as lie south of the Grand River viz:- T's 5 & 6 N. R 9 T's 5, 6, 7, 8 N. & 10, 11 W.
Nov. 17, 1830.	Lucius Lyon.	Wm. Lytle.	Exterior township lines in tract of land situated between the base line and Grand River and between R 15 W. and Lake Michigan.
Nov. 23, 1830.	Robt. Clark Jr.	Wm. Lytle.	Exterior lines of T's 7-17 N. R 1 E. T's 18-17 N. R 2 W. T's 14-17 N. R 3 W. T's 7-17 N. R 1 W. T's 7-16 N. R 2 W. T's 7-14 N. R 3 W. T's 7-12 N. R 4 W. T's 7-10 N. R 5 W. T's 7 & 8 N. R 6 W. T's 7 N. R 7 W.
Nov. 28, 1830.	Calvin Britain.	Wm. Lytle.	Townships bounded on the East by line between R's 13 & 14 W. on South by base line, on West by Lake Michigan, and on North by Grand River.

Date of Contract	To Whom Issued.	By Whom Issued.	Township.
Nov. 30, 1830.	Orange Resdon.	Wm. Lytle.	T's 8,9,10,11,12 N. R 4 W. T's 7,8,9,10 N. R 5 W. T's 7, 8 N. R 6 W. T's 7 N. R 7 W.
Dec. 1, 1830.	Jool Wright.	Wm. Lytle.	T's 14,15,16 N. R 2 W. T's 7,8,9,10,11,12,13, 14 N. R 3 W. T 7 N. R 4 W.
Dec 1, 1830.	Rob. Thomas.	Wm. Lytle.	T's 7,8,9,10,11,12, 13, N. R 1 E. T's 7,8,9,10,11,12, N. R 1 W.
Dec. 2, 1830.	Hervey Parke.	Wm. Lytle.	T's 14,15,16,17 N. R 1 E. T's 12,13,14,15,16, 17 N. R 2 E. T's 14,15, N. R 3 E.
Dec/ 16, 1830.	C. W. Christmas.	Wm. Lytle.	T's 13,14,15,16,17 N. R 1 W. T's 7,8,9,10,11,12, 13 N. R 2 W.
Aug. 31, 1833.	Ambrose Rice.	M.T. Williams,	See Notes.
Nov. 22, 1833.	Hervey Parke.	M.T. Williams.	"Exterior town lines in that tract of land, bounded on the <u>south</u> by the surveys hereto- fore made in T's 9 & 10 N; on the <u>west</u> by line heretofore sur- veyed between R's 8 & 9 E, on the <u>north</u> and <u>east</u> by Saginaw Bay and L. Huron.
Nov. 25, 1833.	Wm. A. Burt.	M.T. Williams	T's 9, 10, 11 N. R 13 E. T's 8, 9, 10, 11, N. R 14 E. T's 9, 10, 11, N. R 15 E. T's 10 & 11 N. R 16 E. T 10 N. R 17 W.
Nov. 25, 1833.	Hiram Burnham.	M.T. Williams.	T's 9, 10, 11 N. R 9 E. T's 9, 10, 11 N. R 10 E. T's 9, 10, 11 N. R 11 E. T's 9, 10, 11 N. R 12 E.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Nov. 25, 1833.	Orange Risdon.	M.T. Williams.	T's 12, 13, 14 N. R 6 E T's 12, 13, 14, 15 N. R 7 E T's 12, 13, 14, 15 N. R 8 E T's 12, 13, 14, 15, 16 N. R 9 E.
Aug. 11, 1834.	N. Brookfield.	M.T. Williams.	T 12 N. R's 12, 13, 14, 15, 16 E. T 14 N. R's 12, 13, 14, 15, 16 E. T 16 N. R's 14, 15, E
Aug. 11, 1834.	Jehiel Enos.	M.T. Williams.	T 13 N. R's 12, 13, 14, 15, 16 E. T 15 N. R 12, 13, 14, 15 E. T 16 N. R 12, 13, E.
Aug. 11, 1834.	Hervey Parke.	M.T. Williams.	T's 12, 13, 14, 15, 16 and such fractional town- ships as may be north of these in R's 10 & 11 E.
Feb. 16, 1835.	Jehiel Enos.	M.T. Williams.	T 18 N. R's 12, 13, 14, 15 E. T 19 N. R's 12, 13, 14, E.
Feb. 16, 1835.	N. Brookfield.	M.T. Williams.	T 17 N. R's 12, 13, 14 15 E.
Oct. 31, 1836.	Robt. Clark Jr. and H. Brookfield.	Robt. T. Lytle	"Exterior boundary lines of townships situated north of Grand River and south of 1st. correction line (between T's 10 & 11) including said line; also exterior town lines in tract lying west of and in- cluding line between R's 12 & 13 W., -includ- ing the same, and between 1st. corr. Line and 2nd Correction line between T' 20 & 21- the said surveys situ- ate West of Principal Meridian and North of Base Line.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Oct. 31, 1836	N. Brookfield.	Robt. T. Lytle.	T's 9 & 10 N. R 6 W. T's 8, 9, 10 N. R 7 W. T's 7, 8, 9, 10 N. R 8 W.
Oct. 31, 1836.	Robt. Clark Jr.	Robt. T. Lytle.	T's 7, 8, 9, N. R 11 W T's 6, 7, 8, 9, 10 N. R 12 W T's 6, 7, 8, 9, 10 N. R 13 W
Nov. 4, 1836.	John Brink.	Robt. T. Lytle.	Principal Meridian line thro' towns 18 to 24 inclusive; the 2nd correction line between towns 20 & 21 N. from said meridian west to Lake Michigan, and all the exterior town lines north of said correction line, west of said meridian south of and including the line between towns 24 & 25, and east of Lake Michigan.
Jan. 4, 1837.	W. B. Burnett.	Robt. T. Lytle	T's 6, 7, 8, 9, 10 N. R 9 W. T's 6, 7, 8, 9, 10 N. R 10 W T's 10 N. R 11 W
Jan. 4, 1837.	John Mullet.	Robt. T. Lytle.	Townships situated west of line between R 13 & 14 W. South of line between T's 11 & 12 N. East of Lake Michigan and North of Grand River.
Jan. 12, 1837.	John Hodgson.	Robt. T. Lytle.	Unsurveyed exterior town boundary lines lying west of Principal Meridian in Range 3, 4, 5, 6, north of the 1st Correction line between T's 10 & 11 N and south of line between T's 17 & 18 N; also unsurveyed town lines in T's 7, 8, 9, 10, 11, 12 west, extending from said correction line to 2nd. correction line (between T's 20 & 21.)

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Mar.1,1837.	C.W.Gathcart.	Robt.T.Lytle.	T's 6,7,8,9,10 N.R 9 W T's 6,7,8,9,10 N.R 10 W T 10 N. R 11 W
May 4,1837.	Andrew Porter,	Robt.T.Lytle.	"Retrace the boundary line between the States of Ohio and Michigan and connect it with the lines of the public surveys intersected thereby.
June 22,1837.	Rass.Whitecomb.	Robt.T.Lytle.	T's 7,8,9,N. R 11 W T's 6,7,8,9,10 N.R 12 W T's 6,7,8,9,10 N.R 13 W
July 7, 1837.	John Milroy.	Robt.T.Lytle.	T's 13,14 N. R 4 W T's 11,12,13,14N.R 5 W T's 11,12,13,14N R 6 W
July 19,1837.	Lewis Clason.	Robt.T.Lytle.	"The exterior town lines in all that tract of land lying north of line between towns 17 & 18 N, east of principal meridian, south of line between T's 24 & 25 (including that line) and west of Lake Huron and Saginaw Bay.
July 17,1837.	John Mullet and N.Brookfield.	Robt.T.Lytle.	"Unsurveyed exterior lines - - -situate north of Grand River, south of 1st.Corr.line between T's 10 & 11 - also the exterior lines ---- lying west of(and including) line between R's 12 & 13 W and between 1st and 2nd correction lines.
July 18,1837.	Wm.Sullivan.	Robt.T.Lytle.	T's 11,12,13,14,15 N. R 7 W. T's 11,12,13,14,15 N. R 8 W.
July 22,1837.	Ab.E.VanNess.	Robt.T.Lytle.	T's 11,12,13,14,15 N. R 9 W. T's 11,12,13,14,15 N. R 10 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
July 28, 1837	John Mullet.	Robt. T. Lytle.	T 13 N. R 13 W. T's 12, 13 N. R 14 W T's 12, 13 N R 15 W T's 12, 13 N R 16 W T's 12, 13 N R 17 W T's 12, 13 N R 18 W
July 28, 1837	John T. Allard	Robt. T. Lytle	T's 15, 16 N R 11 W T's 15, 16 N R 12 W T's 14, 15, 16 N, R 13 W T's 14, 15, 16 N, R 14 W
July 28, 1837	H. Nicholson.	Robt. T. Lytle	T 17 N. R 2 W T's 15, 16, 17 N R 3 W T's 15, 16, 17 N R 4 W T's 15, 16, 17 N R 5 W
July 28, 1837	Jas. H. Mullet	Robt. T. Lytle	T's 11, 12, 13, 14 N. R 11 W. T's 11, 12, 13, 14 N. R 12 W. T's 11, 12, 13, 14 N. R 13 W.
Jan. 30, 1838	Jas. Vedeto	Robt. T. Lytle	T's 18, 19, 20 N. R 1 W T's 18, 19, 20 N. R 2 W T's 18, 19, 20 N. R 3 W
Jan. 30, 1838	Jas. Vedeto	Robt. T. Lytle	Exterior town lines to wit:- S. boundary of T 18 N R's 2, 3, 4, 5, 6, W. S. boundary of T's 19 & 20 N. R's 1, 2, 3, 4, 5, 6 W E. boundaries of T 18, 19, 20 N. R's 1, 2, 3, 4, 5, 6, W.
Jan. 30, 1838	I. N. Higbee	Robt. T. Lytle	T's 18, 19, 20 N. R 4 W T's 18, 19, 20 N. R 5 W T's 19, 20, N. R 6 W T's 19, 20, N. R 7 W
Jan. 30, 1838	Syl. Sibley	Robt. T. Lytle	T's 19, 20, N. R 8 W T's 19, 20 N. R 9 W T's 19, 20 N. R 10 W T's 19, 20 N. R 11 W T's 19, 20 N. R 12 W
Jan. 30, 1838	John Modson	Robt. T. Lytle	T's 16, 17, 18 N. R 9 W T's 16, 17, 18 N. R 10 W T's 17, 18 N. R 11 W T's 17, 18 N. R 12 W

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
July 10, 1838.	Rass. Whitecomb	Ezk. S. Haine	T's 13, 14 N. R 4 W T's 12, 13, 14 N. R 5 W
July 16, 1838.	Jas. H. Mullet	Ezk. S. Haine	T's 14 N. R 15 W T's 14 N. R 16 W T's 14, 15 N. R 17 W T's 14, 15 N. R 18 W T's 14, 15 N. R 19 W
July 16, 1838	John Hodgson	Ezk. S. Haine	T's 17 N. R 13 W T's 17 N. R 14 W T's 15, 16, 17 NR 15 W T's 15, 16, 17N R 16 W T's 15, 16, 17N R 17 W T's 16, 17, N R 18 W
July 16, 1838	Syl. Sibley	Ezk. S. Haine	T's 18, 19 N. R 13 W T's 18, 19 N. R 14 W T's 18, 19 N. R 15 W T's 18, 19 N. R 16 W T's 18, 19 N. R 17 W T's 18, 19 N. R 18 W
July 16, 1838	John P. Allard	Ezk. S. Haine	T's 21, 22 N. R 8 W T's 21, 22 N. R 9 W T's 21, 22 N. R 10 W T's 21, 22 N. R 11 W T's 21, 22 N. R 12 W
July 20, 1838	N. Micholson	Ezk. S. Haine	Exterior lines between following Tw's. 18, 19 N. R 1, 2, 3, 4, 5 W 19, 20 N. R 1, 2, 3, 4, 5, 6 W 18, 19, 20 N. R 1 & 2 W. 18, 19, 20 N. R 2 & 3 W 18, 19, 20 N. R 3 & 4 W 18, 19, 20 N. R 4 & 5 W 19, 20, N. R 5 & 6 W
July 20, 1838	N. Brookfield	E. S. Haines	T's 11, 12, 13, 14, 15 N. R 7 W. T's 11, 12, 13, 14, 15 N. R 8 W.
July 20, 1838.	H. Nicholson	E. S. Haines	T's 18, 19, 20 N. R 1 W T's 18, 19, 20 N. R 2 W T's 18, 19, 20 N. R 3 W
Aug. 26, 1838	Alvin Burt	E. S. Haines	Exterior town lines, viz:- East boundaries of T8s 25 & 26 N. of R's 9, 10, 11, 12, 13, 14, 15, 16 W South boundaries of T8s 26 & 27 N. in same ranges

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Aug. 28, 1838	Alvin and Austin Burt.	E. S. Haines	T's 25, 26 N. R 11 W T's 25, 26 N. R 12 W T's 25, 26 N. R 13 W T's 25, 26 N. R 14 W T's 25, 26 N. R 15 W T's 25, 26 N. R 16 W
Jan. 26, 1838	Syl. Sibley & John Hodgson	E. S. Haines	All those townships situated north of line between townships 26 & 27 N. 1 west of line between R's 6 & 7 W; south of line between T's 30 & 31, and east of Lake Michigan.
Jan. 26, 1839.	John P. Allard	E. S. Haines	T's 23, 24, 25, 26 N. R 8 W T's 23, 24, 25, 26 N. R 9 W T's 23, 24, 25, 26 N. R 10 W
Feb. 16, 1839.	John Mullet	E. S. Haines	Tracts of land, situated in State of Michigan aforesaid, described in the first article of the Treaty of Detroit, 1837, between the United States and the <u>Saginaw</u> tribe of the Chippewa nation of Indians, and enumerated in the special instructions to the said John Mullet.
Feb. 18, 1839.	Jas. H. Mullet & H. Brevoort, Jr.	E. S. Haines	T's 28, 29, 30 N. R 1 W T's 28, 29, 30 N. R 2 W T's 28, 29, 30 N. R 3 W T's 28, 29, 30 N. R 4 W T's 28, 29, 30 N. R 5 W T's 28, 29, 30 N. R 6 W
Feb. 18, 1839.	John Brink	E. S. Haines	T's 20, 21, 22 N. R 13 W T's 20, 21, 22 N. R 14 W T's 20, 21, 22 N. R 15 W T's 20, 21, 22 N. R 16 W T's 20, 21, 22 N. R 17 W T 20 N. R 18 W

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Mar.19,1839.	Lewis Clason.	E.S.Haines	Exterior town lines; east boundaries of R's 1,2,3,4,5,6,7,8, 9 E. in T's 25,26,27, 28,29,30 N.-and south boundaries of T's 26, 27,28,29,30 N. in R's 1,2,3,4,5,6,7,8,9,10 E.
Mar.20,1839.	Lewis Clason	E.S.Haines	All townships numbered 29 & 30 N, and in R's lying east of principal meridian, extending from meridian to Thunder Bay and Lake Huron, including all Islands in said bay and adjacent Lake coast which could be embraced in T's 29 & 30.
Mar.22,1839.	Jas.F.Higbee	E.S.Haines	T's 23 & 24 N.R 11 W. T's 23 & 24 N.R 12 W T's 23 & 24 N.R 13 W T's 23 & 24 N.R 14 W T's 23 & 24 N.R 15 W T's 23 & 24 N.R 16 W
May 21,1839.	Wm.R.Coon	E.S.Haines	T's 25,26,27,28 N.R 1 E T's 25,26,27,28 N.R 2 E T's 25,26,27,28 N.R 3 E
Nov. 9,1839.	John Brink	E.S.Haines	T's 23,24,N. R 11 W T's 23,24,N. R 12 W T's 23,24,N. R 13 W T's 23,24,N. R 14 W T's 23,24,N. R 15 W
Nov.30,1839.	N.Brookfield	E.S.Haines	T's 21,22 N. R 1 W T's 21,22 N. R 2 W T's 21,22 N. R 3 W T's 21,22 N. R 4 W T's 21,22 N. R 5 W T's 21, H. R 6 W T's 21, H. R 7 W
Dec.13,1839.	John Brink	E.S.Haines	T's 23, H. R 1 W T's 23, H. R 2 W T's 23,24 N. R 3 W T's 24 N. R 4 W T's 24 N. R 5 W T's 22,23 N. R 6 W T's 22,23 N. R 7 W

Date of Contract	To Whom Issued.	By Whom Issued.	Township.
Dec. 13, 1839	Jas. H. Mullet	E. S. Haines	T's 24, 25, 26, 27 N. R 1 W T's 24, 25, 26, 27 N. R 2 W T's 25, 26, 27, N. R 3 W T's 25, 26, 27, N. R 4 W T's 25, 26, 27, N. R 5 W T's 24, 25, 26, 27 N. R 6 W T's 24, 25, 26, N. R 7 W
Jan. 15, 1840	John Mullet	E. S. Haines	Exterior lines of townships situated North of 3rd Correction line and west of, and including principal meridian; excepting the lines west of (and including) the line between T's 32 & 33 N, which have been surveyed.
Jan. 15, 1840.	Wm. A. Burt	E. S. Haines	Exterior boundary lines of several townships situated east of and including the line between ranges 8 & 9 west of principal meridian, in the Northern Peninsula of the State of Michigan.
Jan. 15, 1840.	John Hodgson	E. S. Haines	Exterior boundary lines of townships North of and including 3rd. cor. line, and east of principal meridian.
Feb. 25, 1840.	Thos. Pattison	E. S. Haines	T's 26, 27, 28 N. R 4 E T's 27, 28, N. R 5 E T's 27, 28, N. R 6 E T's 27, 28, N. R 7 E T's 27, 28, N. R 8 E T's 27, 28, N. R 9 E
April 1, 1841.	Wm. A. Burt	E. S. Haines	That portion of the Upper Peninsula situated west of Range 8; north of and including the line between T's 42 & 43, and east of the Chocolate River.
Aug. 11, 1840.	Syl. Sibley	E. S. Haines	T's 32, N. R 10 W T's 31, 32, N. R 11 W T's 31, N. R 12 W

Date of Contract.	To Whom Issued.	By Whom Issued.	Township.
Aug. 11, 1840	C. W. Cathcart	E. S. Haines	T's 33, 34 N. R 3 W T's 33, 34 N. R 4 W T's 33, 34 N. R 5 W T's 33, 34 N. R 6 W T's 33, 34 N. R 7 W T's 33, 34 N. R 8 W T's 33, N. R 9 W
Aug. 11, 1840.	John Mullet	E. S. Haines	T's 35, 36, 37, 38, 39 N R 4 W. T's 35, 36, 37, 38, 39 N R 5 W. T's 35, 36, 37, 38, 39 N R 6 W. T's 36, 37 N. R 7 W
Aug. 11, 1840.	Jas. H. Mullet	E. S. Haines	T's 35, 36, 37, 38 N. R 1 W T's 35, 36, 37, 38, 39 N R 2 W T's 35, 36, 37, 38, 39 N R 3 W.
Aug. 11, 1840.	H. Brevoort, Jr.	E. S. Haines	T's 34, 35, 36, 37, 38 N R 1 E. T's 34, 35, 36, 37, 38 N R 2 E. T's 34, 35, 36, 37, N R 3 E.
Aug. 11, 1840.	Syl. Sibley	E. S. Haines	T's 33, 34, 35, 36 N, R 4 E T's 33, 34, 35, 36 N, R 5 E T's 33, 34, 35, N, R 6 E T's 33, 34, N, R 7 E T's 33, 34, N, R 8 E T's 33, N, R 9 E
Aug. 11, 1840.	Syl. Sibley	E. S. Haines	T's 32 N. R 10 W T's 31, 32 N. R 11 W T's 31 N. R 12 W
Aug. 11, 1840.	John Hodgson	E. S. Haines	T's 31, 32 N. R 4 E T's 31, 32 N. R 5 E T's 31, 32 N. R 6 E T's 31, 32 N. R 7 E T's 31, 32 N. R 8 E T's 31, 32 N. R 9 E
Aug. 11, 1840.	John Hodgson	E. S. Haines	T's 31, 32 N. R 6 W T's 31, 32 N. R 7 W T's 31, 32 N. R 8 W T's 31, 32 N. R 9 W

Date of Contract	To Whom Issued.	By Whom Issued.	Township.
May 27, 1843.	John & Jas. Mullet & John Burt	Wm. Johnston	T's 18, 19, 20 N. R 1 & 2 E T's 16, 17, 18, 19, 20 N. R 3 E. T's 15, 16, 17, 18, 19, 20 N R 4 E. T's 16, 17, 18, 19, 20, 21, 22 N. R 5 E T's 18, 19, 20, 21, 22, 23, 24 N. R 6 & 7 E T's 22, 23, 24, 25, 26, N R 8 & 9 E
Oct. 9, 1844.	Hervey Parke	Wm. Johnston	T 1 S, R 7 E
Oct. 19, 1844	John Mullet & Jas. H. Mullet	Wm. Johnston	T's 21, 22, 23, 24, 25 N, R 5 E T's 23, 24, 25, N, R 6 E T's 24, 25, N, R 7 E
Jan. 1, 1845	John Mullet	Wm. Johnston	T's 23, 24 N. R 4 E
Feb. 26, 1845	John Burt	Wm. Johnston	"The exterior boundary lines of townships throughout the tract of land situated in the Upper Peninsula of the State of Michigan, bounded on the north by the line between T's 42 & 43 N, heretofore surveyed by Wm. A. Burt, on the west by the Escanaba River and on the south and east by Lake Michigan and its bays."
April 2, 1845	John Mullet	Wm. Johnston	"Exterior boundaries of townships in the public lands on 'Drummonds Island'"
April 2, 1845	Jas. H. Mullet	Wm. Johnston	T's 41, 42, 43, 44, 45, 46, 47 N. R 1 W T's 42, 43, 44, N, R 2 W T's 40, 41, 42, 43, 44 N R 3 W T's 40, 41, 42, N, R 4 W "Excluding such Islands and other lands as may be reserved to the Indian Tribes."

Date of Contract.	To Whom Issued.	By Whom Issued.	Townships.
Apr. 2, 1845.	H'ry. Brevoort.	Wm. Johnston	T 43 N. R 4 W. T's 41, 42, 43 N. R 5 W. T's 42, 43, 44 N. R 6 W. T's 42, 43, 44 N. R 7 W. T's 42, 43, 44 N. R 8 W.
Apr. 2, 1845.	Jno. Mullett.	Wm. Johnston.	"All those townships situate in the eastern part of the Northern Peninsular of Michigan, which lie east of the principal meridian, and north of Lake Huron.
July 19, 1845.	Syl. W. Higgins.	Lucius Lyon.	T's 44, 45, 46, and fractional T's 47, 48 N. R 18 W. T's 44, 45 and fractional T's 46, 47, 48 N. R 19 W. T's 44, 45, 46, fractional 47 N. R 20 W.
Jan. 14, 1846.	Benj. T. Mull	Lucius Lyon.	T 20 N. R 5 & 6 E T 21 N. R 1, 2, 3, 4 E T 22 N. R 1, 2, 3, 4 E
Jan. 14, 1846.	Jno. Mullett.	Lucius Lyon.	T's 16 & 17 N. R 3 E. T's 18 N. R 1, 2, 3, E T's 19 N. R 1, 2, 3, E T's 20 N. R 1, 2, 3, 4 E
Jan. 14, 1846.	Jas. H. Mullett	Lucius Lyon.	T's 23 & 24 N. R 1, 2, 3, E. T 25 N. R 4 E T 26 N. R 5, 6, 7 E.
Apr. 23, 1846.	Syl. Higgins Hiram Higgins Bela Hubbard	Lucius Lyon.	T's 53 & 54 N. R 34 W T's 52, 53, 54, 55, 56 N. R 35 W. T's 52, 53, 54, 55 N. R 36 W T's 51, 52, 53, 54 N. R 37 W T's 51, 52, 53 N. R 38 W T 51 N. R 41 W T 51 N. R 42 W T 51 N. R 43 W T 51 N. R 44 W
July 10, 1846.	Algermon Merryweather.	Lucius Lyon.	T 41 N. R 21 W T's 38, 39, 40, 41 N. R 22 W T's 37, 38, 39, 40 41 N. R 23 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Townships.
Sept.7,1846.	Bela Hubbard & Wm. Ives.	Lucius Lyon.	T 49 N. R's 25 & 26 W. T 50 N. R 26 W T 51 N. R 26,27,28,29, 30,31 W. T 52 N. R 27,28,29,30, 31 W. T 53 N. R 30 & 31 W.
Sept.7,1846.	Wm.A.Burt, Jno.Burt & Austin Burt.	Lucius Lyon.	"Unsurveyed exterior boundary lines of T 41 N. R 24,25,26,27, 28,29,30,31,32,33 W. T's 42 N. R's 24,25,26, 27,28,29,30,31,32,33, 34,35,36 W. T's 43,44,45,46,47 N. R's 27,28,29,30,31,32, 33,34,35 W. T's 49 & 50 N. R's 27, 28,29,30,31,32,33,34, 35,36 W. T's 45,44,45,46,47 N. R 36 W.
Apr.14,1847.	Orson Lyon.	Lucius Lyon.	T's 21 & 22 N. R 1 W. T's 21 & 22 N. R 2 W. T's 21 & 22 N. R 3 W. T's 21 & 22 N. R 4 W. T's 21 & 22 N. R 5 W. T's 15,16,17,18 & 21 N. R 6 W. T's 11,12,13,14,15,16, 17,18, & 21 N. R 7 W. T's 11,12,13,14,15,16, 17,18,21,22,23,24,25 & 26 N. R 8 W. T's 21,22,23,24,25, & 26 N. R 9 W. T's 21,22,23,24,25 & 26 N. R 10 W. T's 21 & 22 N. R 11 W. T's 21 & 22 N. R 12 W.
Apr.23,1847.	Wm.Ives.	Lucius Lyon.	"Exterior and subdivi- sion lines on Isle Royle and adjacent islands, and a geolo- gical surveys with reference to minerals."

Date of Contract.	To Whom Issued.	By Whom Issued.	Townships.
Apr. 27, 1847.	Wm. A. Burt.	Lucius Lyon.	"So much of boundary between the States of Michigan and Wisconsin as lies between the source of the Brule River and the source of the Montreal River, as defined by the Act to enable the people of Wisconsin Territory to form a Constitution and State government, and for the admission of that State into the Union."
Apr. 27, 1847.	Wm. A. Burt & Austin Burt.	Lucius Lyon.	Exterior township lines "Embraced in that portion of the Northern Peninsula of Michigan which is bounded" by the 4th correction line and Lake Superior, the west boundary of T 35 W and the Michigan, Wisconsin State line.
Apr. 27, 1847.	John Burt.	Lucius Lyon.	Exterior township lines "in all that portion of the State of Michigan lying between Green Bay and the Menominee River, bounded on the north by the 4th correction line,
Apr. 29, 1847.	Orange Risdon.	Lucius Lyon.	T's 21 & 22 N. R's 14, 15, 16, & 17 W. Also the Maitou Islands and such other islands in vicinity of Grand Traverse Bay as may be worth surveying."
June 26, 1847.	Jno. Mullett.	Lucius Lyon.	Exterior town lines "in all that portion of State of Michigan lying between Green Bay and the Menominee River, bounded on north by 4th correction line and on the N. by the west line of R 23 W.

Date of Contract.	To Whom Issued.	By Whom Issued.	Townships.
Feb. 23, 1848.	Algernon Merryweather.	Lucius Lyon.	T 38 N. R's 18, 19, 20 & 21 W. T 39 N. R's 17, 18, 19, 20 & 21 W. T 40 N. R's 16, 17, 18, 19, 20 & 21 W. T 41 N. R's 13 & 19 W and also in all unsurveyed islands in Green Bay and Lake Michigan lying between R's 16 and 24 W.
Mar. 30, 1848.	Orson Lyon.	Lucius Lyon.	T 21 & 22 N. R 1 W. T 21 & 22 N. R 2 W. T 21 & 22 N. R 3 W. T 21 & 22 N. R 4 W. T 21 & 22 N. R 5 W. T 21 N. R 6 W. T's 11, 12, 13, 14, 15 & 21 N. R 0 W. T's 21, 22, 23, 24, 25, 26 N. R 9 W. T's 21, 22, 23, 24, 25, 26 N. R 10 W. T's 21 & 22 N. R 11 W. T's 21 & 22 N. R 12 W.
Apr. 22, 1848.	John Mullet.	Lucius Lyon.	Survey all lines and meander navigable water in T 35 N. R 24 W. T's 33, 34, 35 N. R 25 W. T's 32, 33, 34, 35 N. R 26 W. T's 31, 32, 33, 34, 35 N. R 27 W. T's 32 & 22 N. R 28 W.
Apr. 29, 1848.	Orange Risdon.	Lucius Lyon.	T's 19, 20, 21, 22, 23, 24 N. R 11 W. T's 19, 20, 21, 22, 23, 24 N. R 12 W. T's 20, 21, 22, 23, 24 N. R 13 W. T's 20, 21, 22, 23, 24 N. R 14 W. T's 20, 21, 22, 23, 24 N. R 15 W. T's 20, 21, 22, 23, 24 N. R 16 W. T's 20, 21, 22 N. R 18 W.

THE REASONING.

In 1842, it was discovered that a large tract of land, lying to the west and north of Saginaw Bay, had been very carelessly and even, in places, fraudulently, surveyed by the Deputy Surveyors who had been intrusted with the work by the Government. These errors were discovered when it became necessary to start new lines from the points already established. It was a very simple matter to make these "fake" surveys at any time, for the exterior to a line were usually run sometime before the subdivision lines, and by different surveyors. In practically every case the exterior lines were run conscientiously and accurately, and very seldom were they re-run.

But when a contract was let for the surveying of section lines, a plat was furnished to the deputy surveyor showing a small map of his district. On this were marked the length and bearing of each township line, the variation of the needle, a table of bearing trees and a description of each corner, and the principal streams and lakes crossed. From these he could easily make field notes of any unsurveyed township and still run little risk of detection for some time to come. All that was necessary was to run along the boundaries of the township and note the direction of crossing streams and the general character of the country. From these rough notes he could make a plat of the country, and from this plat these notes could be made which had all the appearance of being genuine.

This was the method used by most of the deputies making the fraudulent surveys. Some of them admitted that they had been careless, and gave as their excuse that the land was practically of no value, no one would be injured by the carelessness, and so it was impracticable to be un-^{der}minely accurate in the work." However, when the lands came to be sold, the discrepancies were so numerous that the surveys were of no value at all, and resulted in a large loss to the State.

After the discovery of the frauds the Legislature petitioned the President to have the lands re-surveyed. The President referred the petition to J. M. Huntington, the General Land Commissioner, and he in turn blamed A. C. Haines, the District Surveyor General. Haines replied that, being located at Cincinnati, he could not have personal supervision over the work, and that the men employed had been well recommended and he had had no occasion to question their results. He recommended that agents be employed to cover the ground supposed to be fraudulently surveyed, and examine it thoroughly. He also suggested that such a fraud be made a criminal offense. This suggestion was acted upon, and as a result, where something of importance was to be done, Mr. J. C. Burt was employed.

He was instructed to make a full examination and report, even to re-running and marking the courses where necessary. In his report he stated that very little dependence could be placed on the surveyed lines on the field notes which had been returned. In many cases the bearing and corner trees had been erroneously marked, the lines were run where the country

made it easiest, and such subdivisions as were made were run by blasing a ^{new} line across each side of a corner.

As a result of this investigation a resurvey of very nearly four hundred townships was begun, and other reforms were made. Under William Johnston, who succeeded Haines as Surveyor General in 1843 as a result of this trouble, a clause was added to all contracts, reserving the right to have any work inspected at the expense of the Deputy Surveyor "when public policy may demand." The actual work of resurveying this tract was begun in 1845, and was not completed until 1858, with the exception of three townships which were resurveyed as late as 1877, by petition of the residents.

When it was realized that for every full township surveyed, not including the exterior lines, there were between fifty and sixty miles to be run and marked, and that there were about two hundred fifty of these and about fifty fractional townships, it can be seen that a great amount of work was done over and when it is remembered that this work cost an average of \$4.00 per mile, the expense to the state due to the carelessness of the few surveyors, men who were under oath to perform their work conscientiously and according to the letter of their contract and the instructions given them, seems on many.

I have selected at random ten townships which were resurveyed, and shown by the actual figures taken from the field notes and plats of the re-survey how much work was required to correct the errors. These may serve to make the magnitude of the work more apparent.

Township.

Miles Re-Run.

			Miles	Chains	Links.
T 21 N.	R 12 E		60	04	73
T 26 N	R 10 W		80	43	88
T 29 N	R 11 W		42	00	68
T 22 E	R 1 W		63	32	54
T 19 E	R 5 E		3	56	87
T 21 N	R 4 E		63	15	33
T 24 E	R 8 E		59	52	54
T 28 N	R 10 E		38	69	27
T 2 E	R 6 W		67	91	54
T 30 N	R 14 E		1	82	74

Unfortunately the field notes and plats of the original surveys are not on file, so I have not been able to make any true comparisons between these and the resurveys, but a few of the plats showing the lines as drawn from the original field notes show a very big discrepancy, often as much as a half mile.

Following is a table compiled from the notes on the plats of the re-surveys on file with the Public Domain Commission. It shows in what years the large part of the work was carried on, and by whom it was done. The larger part was completed in the years 1855 and 1856, very little being done between 1850 and 1855. It seems strange that after the succeeding of Jms. Noble to the office of Surveyor General, replacing Marcus Lyon, Lyon still was interested enough to take several contracts for work in the upper part of the lower peninsula, and did it with his usual accuracy.

Year	Townships	Deputy Surveyors.
1843	T's 16 and 17 N R 5 E	James H. Mullett.
	T's 18 and 19 N R 4-5-6-7-E.	John Mullett
	T 21 N R 5-6-7 E	and
	T 22 N R 6-7-8-9 E.	William A. Burt.
	T 23 E R 7-8-9 E	
	T's 24, 25, 26 N R 8-9 E	

Year	Township	Deputy Surveyors
1844	T 22 N T 23 N T's 24-25 N.	R 5 E R 6-6 E. R 6-6-7 E John Mullett James H. Mullett.
1845.	T's 22-24 N.	R 4 E John Mullett.
1846	T 16 N T 18 N T 19 N T 20 & 21 N T 22 N T's 23-24 N/ T 26 N	R 3 E T's 1 - 3 N. T's 1-2-3 E T's 1-2-3-4 E. T's 5-4 E T's 1-2-3 E T's 5-6-7 E James H. Mullett and B. N. Hall
1847	T 15 N T's 16 & 17 N T 20 N	R 6 R 6-7-8 E R 16E Orson Lyon
1848	T 15 N T 21 N T 22 N	R 6-7-8 E R 9-10-11-12 E R 11-12 E Orson Lyon and Orlando Risdon
1849	T 22 N	R 3 E Wm. A. Burt
1850	T 16 N T 17 N T 21 N T 27 N T 28 N. T 29 N T 30 N T 31 & 32 N	R 1-2-5 E R 4 E R 1-2-3 E R 7 to 15 E R 7-8-9-10-11-12-13-14-15 E. R 7-8-11-12-13-14-15 E R 13-14 E R 1 E Lucius Lyon and Wm. A. Burt
1851	T 21 N	T's 11-12 E A.S. Wadsworth and Orlando Risdon.
1852	T's 8-9-10-11-12-13 N. T's 13,14-15-16 N. T's 21 N. T's 22 N. T's 23-24-25-26 N. T's 27 N. T's 28 N. T's 29 N. T's 30 N.	R 2 E R 1 W R 4-5-6-8 W R 1-2-4-5-6-7-8-9-10 E R 1 to 10E. R 1-2-3-4-5-6-9E. R 9 E R 12 E R 3-11-12 E V.W. Cawkin W.S. Seranton A.S. Wadsworth O. Risdon Geo H. Cannon W.H. Joffinberry Austin Burt Wm. A. Burt Jos. Helploy Artemus Curtis.

Year	Township	Deputy Surveyors.
1854.	T 37 N. R 1 E T 38 N R 1-2 E	Geo. H. Cannon.
1855	T 29 N R 9 W T 30 N R 7 W T 31 N R 4-5-6-7-E T 32 N R 5 E & R 10-11 W. T 33 N R 4-5-6-7-9 E T 34 N R 1-2-3-8 E T 35 N R 1-2-3 E T 36 N R 1 E	Orange Risdon Geo. H. Cannon A. Millard A. J. Andrews
1856	T 14 N R 15-14 W T 15 & 16 N. R 11-12-13-14 W. T 18 N R 3-4 W T 19 N R 2-3-4-6-7-8 T 20 N R 1-2-3-5-7- W T 21 N R 7 W T 22-29-30 N. R 1-2-3-4 W T 30 N R 10 E T 31 N R 6-7-8-9 W & 8-9 E T 32 N R 6-7-8-9 W T 33 N R 8 E T 34 N R 4-5 E T 35 N R 6 E T 35-36-37-38 N. R 1-2-3 W T 39 N R 3 W T 36 N R 1-2-3-4-5 E	A. Millard Geo. H. Adair Levi H. Cannon Francis Coleman Hilton Hye Thomas Whelpley Harry Hellen Addison P. Brower Geo. H. Cannon

COMPENSATION AND FORFEITURE.

The subject of the surveyor's compensation and provision for penalty in case of failure to perform his duties is naturally of interest in a work of this sort and the writer has made a careful study of some twelve hundred contracts for work in the State of Michigan, Indiana, Illinois and Ohio. The original copies of these contracts, dating from the year 1795 to 1848 are bound and on file in the office of the Public Domain Commission and they show conclusively just how the work progressed.

The first contract of interest issued to Alexander Holmes, a deputy surveyor, by Edward Tiffin, Surveyor General, and bearing date of April 18, 1815. It called for the survey of "A base line from a point above Detroit due west to the Indian boundary, which line will constitute a Principal Meridian", and also for the laying out of forty eight townships, being the first six north and south of the base line in ranges 5, 6, 7 & 8, east of the Principal Meridian. Ten days later a contract for the survey of "A true Meridian line from Fort Defiance due North" and "six townships deep both north and south of the Base Line in Ranges 1, 2, 3, & 4 east of the Principal Meridian" was signed by Benjamin Hough. The price agreed upon was \$5.00 per mile on the Base Line and Principal Meridian, and \$2.50 per mile on the township lines "actually run, not to include random lines or offsets." The contract provided for a forfeit of one thousand dollars to the federal government in case the work of each was not fin-

ished and the field notes and accompanying plats accepted by the surveyor General within four months from the date of contract.

All during the year 1815 this same price of \$2.50 per mile actually run" was agreed upon, but in November, 1816, contracts were made which called for the payment of \$3.00 per mile actually run". This remained the standard until 1824 when lack of funds for this purpose forced the deputy surveyors to accept contracts agreeing only on \$2.50 per mile. The work was all carried on by provisions of Congress, which made appropriations of a few thousand ^{dollars} each year to be used as the Surveyor General saw fit. He would naturally be interested in getting as much done as possible for as little as possible, and moreover as the consideration seems, his ^{deputy}s must have considered it better than nothing, for all of them accepted the old standard again. Out of this \$3.00 per mile he must pay his axman and other assistants, allow for bad weather and unforeseen difficulties, run in all necessary random lines and offsets, and figure on the time spent in traveling and making plats, and complete everything at the average rate of six townships completely surveyed in one month. On failure to do this, he must pay over the sum of one thousand dollars in cash to the Surveyor General's office, though most of the contracts did state a time limit with a provision for "Acts of God excepted."

For four years-until Jan. 28, 1828,- this price was agreed upon, but in this month it was again dropped to \$2.00 per mile. This was the lowest it ever reached, and

only three contracts were signed, all for work in the extreme southwestern part of the State along the Michigan-Indiana State Line. On May 8, 1828, two contracts were issued, one to Lucius Lyon and the other to John Hullet, for the laying out of certain private land claims authorized by an Act of Congress passed on April 17, 1828, entitled "An Act to conform certain claims to lands in the Territory of Michigan". For this work they were to receive \$4.00 per mile though just why it should have been of so much greater importance, or required so much more accuracy is not clear. The reputation of these men may have had something to do with it, for they were two of the best of the early surveyors and had much to do with the early development of the state. Lucius Lyon, in particular, was a very prominent figure, for he was not only the most conscientious and accurate surveyor of his time but he was also a delegate from the Territory to Congress, a member of the Constitutional Convention in 1835, one of the two first Senators, and Surveyor General of this district for many years. However, both Hullet and Lyon in 1829 signed contracts for work at the rate of "\$2.50 per mile actually run", and all of their associates until the year 1833.

In the summer of this year Micajah E. Williams succeeded William Lytle as Surveyor General, and instituted some sweeping reforms along this line. Until this time the forfeit for failure to fulfill terms of contract had always been \$1000.00, no matter what the nature of this work or its magnitude. Also in most cases the deputy received \$2.50 per mile actually run for both exterior township lines and subdivi-

vision lines. Williams changed the form of the printed contract and had attached to it a bond for "double the estimated amount due by the United States to said -----" signed by the surveyor and one or two bondsmen. He also fixed the remuneration to \$3.50 per mile on exterior lines and \$2.75 per mile for interior lines. This policy was continued by Robert T. Lytle, who became surveyor General in 1846, with a few exceptions. This second Lytle seemed to be inclined to show partiality to some of his deputies. For instance, on Nov. 4, 1846, he contracted with John Brink for the survey of parts of the principal Meridian and the second Correction line, as well as certain exterior town lines, at the rate of \$4.00 per mile, while on Jan. 12, 1837, he agreed to give John Hodgson only \$3.50 per mile for certain "unsurveyed exterior town boundary lines". In as much as Brink's contract called for the survey of part of the Meridian and a Correction Line, this is not so glaring an instance as his contracts with the two Kelleys, James and John. While every one else received \$2.75 a mile for interior town lines, they received \$2.85, and for exterior town lines, \$4.00 per mile while the others received \$3.50. It is interesting to note that a contract dated May 4 1837, signed by Andrew Porter, to "Retrace the Boundary Lines between the States of Ohio and Michigan and correct it with the lines of the public surveys intersected thereby" names only \$3.00 per mile as a good consideration.

During the summer of 1838 Robert T. Lytle was succeeded by Eschiel S. Maino, and he set a standard price of \$2.75 for interior lines and \$4.25 per mile for exterior lines.

It was under instructions from this Maine that the northern part of the lower peninsula was surveyed, to the neglect of Indiana and Ohio, for there was very little work done in these States while he was Surveyor General. At the same time the surveying of the Upper Peninsula was commenced, the Principal Meridian being carried across the Straits of Mackinac and a few townships on each side laid out.

After Maine came William Johnston and then Lucius Lyon, who was probably more responsible for the successful subdivision of our State than any other one man, not even excepting Am. A. Burt or the Hallet Brothers. It was under these men that the resurvey of large portions of the State was started, and the discovery in 1812 of the fraudulent surveys north and west of Saginaw led to the insertion of a new clause in the contracts. This provided, in addition to the bond of double the estimated value of the work actually done, for the inspection of the field work at the expense of the deputy surveyor signing the contract, "if consideration of the public policy demand it." Under Johnston the price for subdividing townships was set at \$4.00 per mile, but this was not fixed. From this time on the contract price per mile was varied, but generally it was much more liberal, even reaching \$16.00 per mile for Am. A. Burt's survey of the Michigan-Mississippi state line, while \$6.50 and \$8.00 per mile were common. The country in the Upper Peninsula, where most of the work was done, was so rough and broken, that it was impossible to do even fairly accurate work at the former low price, and Lyon was instructed by the General Land office to raise this

to \$5.00 per mile for all classes of work in 1846. In his report to the Secretary of the Treasury in 1847, however, he stated that even this was much too low, and from that time on he was allowed to use his own judgment.

The precedents established by the early Surveyor Generals have been lived up to until the present time, and the contracts now issued are of substantially the same form. The bond attached is for double the estimated value of the work, the price is fixed at so much per mile, and practically the same provisions are made for the retention of field notes and plats. At the present time there are no deputy-surveyors but the government may contract with any qualified citizen for work done.

It is figured that the maximum mileage to be actually run in any township, unless the meandering of navigable streams is included, is seventy-two miles. At \$5.00 per mile as a rough average, and figuring on six completely subdivided townships per month, this would mean approximately \$1560.00 for a month's work. Out of this the deputy must pay his chain man and axman and cook, if he had one, provide "chuck", pay all traveling expenses, and still pay his salary. When it is remembered that all of the work done was in unopened country, and much of it in country so swampy, rough or heavily timbered that it was for a long time thought to be of no value at all, and even in winter when the snow was deep enough to make cross-country traveling easier and the foliage of the trees gone, this was little enough. Add to this the danger of hostile

Indians, the dangers of accident and illness the men were naturally exposed to, and the troubles caused by faulty instruments and untrained assistants, and it seems almost absurd. The wonder is that more of the work was not fraudulently done, for it was a comparatively simple matter to fake field notes and plates, and the chances of detection for several years to come was slight.

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