Orange Risdon
and the Original Islands Survey

The maps used in this essay, are adaptations of maps created about one-hundred fifty years ago by government cartographers working in the General Land Office. They were drawn up according field notes recorded by Deputy Surveyor Orange Risdon, during his surveys on North and South Manitou Island in 1847.

Risdon and his crew came to the islands late that summer, a season that surveyors customarily found more agreeable when having to cope with the underbrush, pollen and bugs. He was sixty-one years old at the time, and had distinguished himself in several roles, most notably as a master surveyor working for the U.S. Government.

Survey crews included the deputy-surveyor, one or two pairs of chainmen, a compassman, and an axeman or two. The deputy-surveyor was in charge and responsible for recording required details about each section on the land.

Under the Public Land Survey System, survey measurements were expressed in chains and links, a chain having 100 links and being exactly 66-feet long. Eighty chains therefore equaled one mile, which was the length of one section; forty per half-section, and twenty per quarter-section. Thus, a parcel measuring 20-chains by 20-chains amounted to a quarter-section, or 160-acres.

Locations were determined using a compass. The Meneeley compass, made by a surveyor for surveyors, was popular at the time. Recognizing the need for precision instruments, Andrew Meneeley went into business in West Troy, New York, eventually offering a variety of brass products, including surveyor's compasses of all kinds, theodolites, levels, and even church bells and town clocks.

But since the magnetic compass was subject to the earth's natural magnetic variation, and also local anomalies such as resulting from iron deposits, its use was restricted after the development of a better instrument, which became known as the Burt Solar Compass. William A Burt was another Michigan surveyor and, coincidentally, a shirt-tail relation of South Manitou's Burtons on Mrs. Burton's side. In September of 1844, while surveying in Marquette County, he found his magnetic compass so unreliable that he felt it necessary to suspend the work until they could figure out what was going on. They discovered rich deposits of iron ore, and thus

William Burt is also credited with the discovery of the Michigan-Minnesota iron range. A prolific inventor, that episode also led to his invention of the solar compass, which immediately became required equipment on GLO contracts. His device used the sun's position to establish true North, and that was the responsibility of the compassman.

The axeman marked trees and rocks, split hardwood for use as markers, and cleared brush as needed. The government's purpose in surveying public domain lands all across the country, was to establish legally recognized boundaries that would permit the distribution of land in an orderly manner, and facilitate the settlement of disputes. Thus surveyors placed markers at the corners of each quarter-section, These corner monuments often consisted of whatever was most handy at the site, such as a fortuitously located tree, a large rock, or mounds of stone. More often, posts made of cedar or hardwood were used as corner monuments, and these were often made up in the field – something useful to do while sitting around the camp fire on fall evenings, when darkness came early.

Recognizing the possibility that these markers would eventually be obscured, or disappear altogether, the locations of one or two nearby, accessory markers, were noted as a means of helping future searchers locate the position of the actual corner monument. These were usually trees, referred to as bearing trees, but could also be boulders or other natural features.

As an interesting side-note, Orange Risdon's field notes make reference to certain "McComb's Observatory Stations" on South Manitou Island. The name was actually "Macomb," referring to Army Lieutenant John N. Macomb Jr., who was assigned to the government's U.S. Corps of Topographical Engineers at its inception in July of 1838.

In his early years, Lieutenant Macomb, an Army Academy graduate and great-grandson of Declaration of Independence signer Philip Livingston, served as Aide-de-Camp to his father in-law, Major General Alexander Macomb. General Macomb, a hero of the War of 1812, was placed in charge of the construction of military roads in Michigan in the 1830's, and became the namesake of today's Macomb County. Risdon had gained prominence as chief surveyor for several such projects, and was therefore apt to have been closely associated with the Macombs. As a result of increasing maritime activity on the Great Lakes, the Corps took up a systematic surveying of the Lakes in 1841. This was long overdue, since maps available at the time were crude, and notoriously inaccurate. Lt. Macomb was assigned as one of the engineers on that project, and took over as head of that activity ten years later. He became widely known and respected, especially among shipping interests, for his work in charting the Western Great Lakes.

What Risdon was referring to were permanent markers previously placed by the topographical engineers at points with known elevations and coordinates, which could subsequently be used to accurately locate other points by means of

trigonometric triangulation. Today, they are called triangulation stations, and are usually associated with the U.S. Coast and Geodetic Survey.

If Risdon was really a colleague and close friend of the Macombs, how could he have misspelled their name? A plausible explanation for the discrepancy is that although the Macombs were actually of Irish descent, the name is usually associated with Scotsmen, with alternate spellings such as "McComb," beginning with "Mc," and "MacComb," with "Mac." Writers of the time, especially those of Scottish ancestry (Risdon, by the way, was English), frequently presumed a Scottish spelling. In any case, the pronunciation of the name is the same.

The Public Land Survey System was originally proposed by Thomas Jefferson, but was not widely instituted until the passage of the Northwest Ordinance of 1787.

Under the PLSS, land was platted using a rectangular system, with reference to a particular starting point. The line extending north and south from that point is called the principle meridian, and the east-west line is called the base line. The land is divided into six-mile squares called townships, and each township is further divided into one-mile squares called sections. (Civil townships are not to be confused with survey townships, the two designations having noting to do with each other.)

The Michigan Meridian, established at a result of an Indian treaty, runs south from its origin at Sault St. Marie to what used to be Fort Defiance, in Ohio. Eight-Mile Road, on the northern boundary of Detroit, was arbitrarily used to establish the Michigan Baseline, which extends west across the state to a point about one-mile north of South Haven. It generally follows a latitudinal line, but is physically present here and there as the route of State highway M-102 and various other roads with names like "Baseline Highway" or "Baseline Road."

Locations on the rectangular grid are specified with reference to this primary intersection according to their north-south, east-west distance from it, and are given in six-mile increments, called "townships" and "ranges." Hence, the principle intersections for designating land on South Manitou Island are T30N-R15W and T31N-R15W … representing points thirty to thirty-one townships (about 183-miles) north of the baseline, and fifteen ranges (about 90-miles) west of the meridian. North Manitou, the larger island about six miles north and five miles east, lies within four townships: T31N-R14W, T31N-R15W, T32N-R14W and T32N-R15W.

Public domain lands were originally divvied up mostly for farming purposes, and in even incremental fractions of a section. For example, 160-acres was a quarter-section, 80-acres was half of a quarter-section, and 40-acres a quarter of a quarter-section. The location of a 160-acre farm in the southwest quarter of Section 9 would be designated in brief as "SW-9/T31N,R15W." If that was divided into east and west halves, the 80-acre parcel on the east side would be "E½SW-9/T31N,R15W," reading 'the east half of the southwest quarter of Section 9, in the Township which is 31st north of the Michigan Baseline, and 15th west of the Michigan Meridian.' If that

parcel was halved again, the 40-acres in its south half would be "S½E½SW-9/T31N,R15W."

Geography sometimes fails to cooperate with this neat rectangular grid system. Under U.S. law, navigable waterways cannot be privately owned, so Great Lakes shorelines, inland lakes, and rivers frequently create irregular boundaries for some parcels of land. In the PLSS this is dealt with on a ¼¼Section (40-acre) basis. Generally, any forth of a quarter-section having an irregular boundary, such that its total acreage is less than 40-acres, is designated as a numbered lot within that Section. However, if a lot's acreage would be less than twenty, surveyors usually adjoined it to an adjacent 40-acres, the lot number then applied to the resulting parcel, which could contain upwards of 60-acres. Lots are simply designated as, for example, "5-9/T31N, R15W," which would read 'Lot 5 in Section 9 of …' Unlike the designations for plots with regular boundaries, lot designations provide no information about the actual acreage, other than it being something between twenty and sixty acres.

The island surveys began on July 7, 1847 with the Risdon team landing on North Manitou Island at the Pickard dock, just above the southern boundary of Section 15. Here, Pickard & Co. had established a wood yard, with a fine dock, some 150-feet long and 60-feet wide. The complex, which Risdon thought was "a good establishment," included two homes, a grocery store, a blacksmith shop, a warehouse and several other smaller buildings.

The survey on North Manitou was completed in late August, and the team then moved over to the north part of South Manitou Island, beginning at what Risdon called "Burton's Harbor." Here they found the land partially cleared, "his house" (apparently referring to the home of William Burton) and a small settlement consisting of a pier, barn, grocery store, blacksmith shop and other buildings, and a small railroad system consisting of track from the pier area into the island's interior, with branches here and there; three to four miles of track all in all, used "for hauling steamboat wood."

The original survey maps produced according to Rison's survey notes, and those notes themselves, are available on the ManitouIslandsArchives.Org website.

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