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Lake Superior notes 2.

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T
Washington
D.C.

The best agate forms in cavities in basaltic rock. Quartzite is metamorphosed marble, sandstone. Like marble is a massive.

Notes from The Trips

- The agate was first found on the shores of a river in Sicily and named by the Greeks. It's in the Bible - Exodus.
- A rock is made of minerals constantly on the move and changing from heat, cold and pressure.
- The journey of the rock is never ended. In every tiny part of any living thing are materials that once were rock that turned to soil. (Plant roots take minerals out of soil. Our bones were once coral. The water - clouds over Asia or African waterfalls.
- So - how-do-you-do to an agate.
- The North is one vast, massive, glorious corruption of rock and language. Granite underlaid with limestone or sandstone; gneiss is made-over granite, shale or sandstone. Agate is chalsedony, a cryptocrystalline quartz, with a banded or irregular, variegated appearance. Bands may be wavy or parallel, from differences in disposition. Petrified wood is usually an agatized wood. Agate may be artificially colored. Could it be artificially - commercially dyed?
- Language - French, English, Indian, Norwegian, Swedish, Scotch, all have changed the language like weather has changed the rocks. Soo for Sault (Ste. Marie); bosho for bon jour, Gooseberry for Groseilliers (brother-in-law of Radisson), MANisty for Manistique, Rum River (misnamed, the early explorer Carver) of mis-translation of French name which included the word desprits, already and correctly, no doubt, a translation of the Indian word for spirit, god or creator's creators.
- Mackinac of Michilimackinac
- At water's edge at the Soo - if you saw a freighter or an ore-car-rying boat you saw in front of it on shore an arrowed rest room sign. The arrows of our day and the momentary, unsinging pause.
- At Sault Ste. Marie, Canada heard French spoken like a brook over pebbles and British-English. My pocket-book broke from weight of notebooks and stones. Bought another - made in Hungary. Bought Al a shirt a "Calcutta fabric" made in Hong Kong. International. The journeying, the mixing, the changing.
- saw granite beside the road, whitish with splashes and flows of pink-red
- bought a brilliant carnelian from Uruguay
- MOOSE CROSSING
- Birch, purple flowers (wild sweet peas?) and the common white daisy and ferns beside new gravel roads in the sunlight beside birch woods.
- TV without commercials
- Port Arthur with trolley buses

so lucky as to pick up a piece of good agate

later

sign

distinctive

sign 2 We saw

3. sign the agate shop

4. sign of the cross telephone poles - 7 of 10

sign of the cross & Scotland

The Orest now looking for a passage to the NW

Indians who felt that good & bad spirits resided here

balcony impurities - reds

moose crossing sign

the green patina that appears on copper bronze is in reality a thin tarnish of malachite

X green marble in fact, often almost solid serpentine

Radisson's beautiful words - spoke of the new world around the Great Lakes as "a laborinth of pleasure.. the country so pleasant and fruitful and beautiful" it grieves me to see ye world could not discover such inticing countryes to live in. This I saw because the Europeans fight for a rock in the sea against each other." Chequamegon Bay, the first known white man's dwelling on the lake. The winter of 1659-60 they spent up a little inland lake, probably Lac Court Oreilles in Sawyer County, Wis., to which a trail led long after these men were dead and gone. Radisson had no fingernails - pulled off by the Mohawks when they bound him to a stake for slow killing. Knife Lake - Rendezous of Radisson and Grosseilliers and small bands of Chippewa, Huron and Ottawa Indians, following the Frenchmen's wintering along Lake Superior. A great feast was held which many Sioux attended. Lake is said to have been so named because Radisson gave them the first steel knives any had ever seen.

Brulé around 1610 was among the 200 Indians who paddled their canoes in orderly formation down the Ottawa River to meet Champlain at the rapids of Montreal. Brulé got on handsomely with the Indians. "He dressed in their clothes, ate their vile mess, and thrived on it." However, he was murdered by his Huron friends.

The Griffon - La Salle's - the first commercial vessel in the new world, sailed down the Lakes, starting below Niagara - 60 ft. long, 45 tons burden, 5 small cannon looking out from her portholes. Down to Green Bay, loaded with furs and went out from there never to be seen again. (went out from Michilimackinac) No vessel again for 100 years.

Corundum a primary aluminum mineral found in metamorphosed limestones and in schists. Hexagonal crystals common. Also occurs as dark granules with magnetite - a form known as emery and used as an abrasive tho by now there is a synthetic abrasive called corundum. Asbestos, m carried from serpentine is also a Canadian product.

Ore of the Vermilion Range deposited when lava flowed thru Archaen rock. The great schists of St. Louis and Itasca Counties are lava flows changed by the mountain-building process.

Schoolcraft -

leaving Mackinac with 3 canoes (32 or 35 ft. long), with masts, sails, a US pennant on each one, chanting "canoe men" and accompanied by a 12-oar barge and 22 soldiers. At St. Mary's R. between the two Soo villages, "our glags flying - Candian boatmen singing a song" Those on shore "fired a salute and stood ready to greet us with their customary bosho." (their pronounciation of bon jour)

Here (Minnesota) on the Fond du Lac R. (St. Louis) out of Duluth) they found a man with cows and it was a great treat ~~KXXGXK~~ in the wilderness to get this milk.

A lake in or near the St. Louis R. remarkable for its fine carnelians an agates. They named it Carnelian Lake. Over in the scrub oak prairies they spent a day and a half hunting buffalo - "The buffalo meat is rather inferior to that of the bear." White sandstone overlaid with secondary limestone appears at St. Anthony's Falls - the first time since Lake Superior.

Do entering St. Mary's - two islands in an island of the St. Mary's - 200 feet across a garrison. At night we heard their music playing.

*the red deer and stag and hind country of the absolute head
of the Mississippi River*

The joyous discovery - Lake Le Biche (Elk). Letters of Itasca from the latin veritas caput, meaning true source. On July 13, 1832 he raised the American flag on an island in the lake now known as Schoolcraft Island. A vast evergreen and birch woods. Nicolett soon after - to determine latitude and longitude. and height above sea level. while trudging across a portage - sextant, barometer, cloak over the barometer over a shoulder - portfolio under the arm, basket in hand with thermometer, pocket-compass, artificial horizon, tape-line etc. Somewhere on him a spy-glass, powder flask and shot bag; in the other hand a gun or an umbrella"

wild roses - spoken of by Schoolcraft and by Al: Not anywhere so big and healthy and rose-like as in northern Minn." Speaks of

reminding of itself for only a moment

sweet little swampy place (Itasca) where the great river rises, a pond with water rushing into it from a culvert over rocks. Here 1475 ft. above the ocean the mighty Mississippi begins to flow on its winding way 2552 miles to the Gulf of Mexico." "Glaciers went over this area 4 times in the last million years". White-throat nests here as does Scarlet Tanager, also ruffed grouse.

Is there only one source? You have sources of sources - sources of tributaries.

I picked up a greenish stone and a flat black pebble has traveled.

It may have been hot at one time, may have been carried thousands of miles by a slowly moving glacier that finally melted and left it there to be washed up. It has traveled to many places and has been part of many things.

The sea went over - the mind bulged I'm parched for knowledge. A part of the Earth. How? - the body, the unconscious. Let us sing, as they say in *feel the* church.

Meanwhile, knock about some more, touch the rough stones, the color, and run your finger over the polished agate, carnelian, jasper, sodilite.

I was sorry to miss ~~Carnelian Lake and Sandy Lake~~ but Al says we'd seen it before - he watched a gopher there. he remembers it

S's treaty with Indians meeting - S records that a party of Indians came from Rainy Lake but had recently resided at Springing Bow-String Lake. "The chief had heard the Americans say 'Peace, Peace' But he thought that advice resembled a rushing wind. It was strong and went soon. It did not abide long enough to choke up the road." a fine gun, worth ten guineas was sold to a chief at one of the northern posts for 120 lbs. of beaver, say \$480.

pipelighter to the chief

S's definition of an Indian: -

Vermilion Lake - Birch and aspen with pines in the distance. Tamarck a frequent tree on the shores, and the pond lily, flag and Indian reed, appear in the stream.

Sibly Lake - "Lake which the River passes through one End of".

The eye is always searching for something new... novelty; an
a canoe allège and a crew of voyageurs.

In 1851 8000 persons met at Traverse des Sioux at the mouth of the Minnesota River. Chief Sleepy Eyes from Swan Lake and 34 other chiefs signed away approximately 30 million acres in Iowa and Minnesota retaining only a 20 mile strip as a reservation along the upper Minn. R.

And Traverse des Sioux - "It is the home of picnic tables.

Lake St. Croix "If 'Loch Katrine' presents a more attractive outline of sylvan coast, ... " monn out. "We went up, turning point after point with the pleasure that novelty imparts "

St. Croix Falls - "The river tears its way through a vast bed of greenstone, whose black and square masses stand on either side, an in the bed of the stream. Common quartz imperfectly crystallized is seen in the mass and is the sole mineral apparent.."

Pine City - the Snake R. runs thru the town, and along the river from its lake source in the St. Croix are basaltic lava flows.

Copper prospectors have gone.

Toward home. The gravel along the highway lost its sparkle. Hit the expressway below Tomah - cars passed us at 90 miles an hr. So tired we thought at one time as the sign loomed we were coming to the town of DO NOT PASS. Fast-moving out of slow geologic time.

And it wasn't long before the caravan fur traders of the Red River country - a terrific screeching that could be heard 3 miles away. Axle grease became an unknown luxury. When the carts were within half that distance (above said 3 mi.) their racket was frightening - two hundred greaseless wheels.

Pond: "Hundred wate appease all made of Birch Bark and White Seder for the Ribs" to Prairie du Chien fr m New Orleans and Mackinac Games with the Indians -

Head to the road at 90 per

Pond 1700's

Next morning to River Portage - sailed 5 AM miles before breakfast

Snow jackets

Doty on Pictured Rocks - "graywacke, or sand and pebbles cemented by lime; and the minerals and other matter between the strata have run out, and given the rocks various and very singular colours. A green like that running from copper is seen in several places. The appearance of iron is more frequent." These rocks - from 2 to 300 ft. - from the deep caverns a roar like that of cannon, occasioned by the waves rolling in. The Doric Arch.

"The Chocolate river is 15 miles from the Laughing Eish river and three miles farther is the river of the dead, a little below Presque Isle. Farther - "Large confused masses of granite interspersed with hornblende" all peaks thrown up by some volcanic eruption, it seems. Garlic river.

Portage Lake "This morn I rose at 4, and walking on the shore of the lake found several fine specimens of carnelian and agate."

Passed Graveyard's River where the trader Graveyard had been murdered. *generally graveyard - the face of the earth is a grave*

gentle from left of trees: Sugar maple, beech, birch, Hemlock & Spruce
LN: nature placed them in botanical order.

Granite on top of the mts. based with red sandstone. So many pigeons flying so low. At Grand Portage on the river Brule "at the end of the second pause on the bank of the river was a strata of breccia (fragmentary, cinders, ash or quartz.) "It lay at an acute angle shelving towards the river." They got everything finally across the portage "for all which we were blessing our stars over a piece of ham and a good dish of chocolate."

Pictured Rocks gets its many colors from the soluble mineral oxides which the waves and the rains have dissolved and used to tint the formations of the escarpment.

George Catlin, painter - and a companion "We are two poor men, traveling to see the Sioux, and to shake hands with them..." He visited the quarries where the Indians found the clay for their pipes. Red Pipe Quarry "a perpendicular wall of close-grained compact quartz stratified in several distinct layers of light grey, and rose or flesh colour quartz in any and all parts of which the Indians procure the red stone for their pipes, by digging through the soil and several slaty layers depth of 4 or 5 ft. Catlin took a sample of the stone (Indians wdn't have allowed this, their quarries being sacred) and sent it east. It got the name Catlinite.

as much
Frank Mayer - he saw beauty in the squaws' feet (withal their hard work) as he did in those of Venus de Medici.

Early wheat-raising days - took 40 hrs. to get the wheat to the mill - the woman spelling the man in driving the team. "The moonlight with the shadows of the clouds on the prairie, was magnificent. We never saw a human being."

+

Doty: Mackinaw country - Island : Many of the rocks are crusted over with ~~XXXXXXXXXX~~ calcareous spar, particularly at Robinson's Folly.

St. Mary's R. Here are whitefish of superior quality

white, red and grey sandstone in river at Soo

Grand Marais, 21 miles from the Two Harted river (Michigan)

"as the season shifts"

S: "no ardent spirits shall be hereafter introduced under any pretence, into the Indian country"

Schoolcraft River

a lake, Plantagenette (The Rest in the Path) water fowl shot - the mallard, wood-duck, and sawbill

Toward Rainy R. from North Shore - ospreys dive for fish and eagles swoop down to rid them of their catch. Timber wolves, bear, beaver. Frenchmen came there early 18th century to look for the Sea of the West. Scene 20 years ago now much the same as then

The peace pipe the war chief smoked with his heart

Indians - S: "a life of want and vicissitude"

"lakes of a pondy character, redolent with nymphae odorata, thru which we successfully passed."

"the naked solitudes of Red River"

32 ft. long canoe

"a portage of four pauses"

lake - its outlet of a spreading, sandy shelly character - no Indian nor French name so as Mr. Johnston shot a deer here we named the lake after him. Sibly Lake (other notes)

un chanson du voyageur

He presented a pipe

Miss. R. Valley - the great carboniferous limestone formation which fills it.

At home we're in the drowned lands - trees standing permanently in the water.

"We slept on a kind of bog which the men call Tetes des femmes.

treaty of limits between the tribes

Pike (of Pike's Peak) when he went up the Miss. R. - north of the St. Croix R. he said the river ~~XXXXXXXXXX~~ (Miss. I take it) became "black in the depths and clear in sandy shallows."

calcite - a native calcium carbonate also called calc spar, occurring in many crystalline forms, such as chalk, marble, etc...

(carbonate iron oxide)

the impurities in the rocks, give the various colours

~~metamorphic~~ metamorphic rock which is formed by consolidation of marine invertebrates skeletons of the sea or from chemical precipitation
important uses: flux in smelting iron ore, sources of lime, ingredient of Portland cement, bldg stone. Uses: chalk, dolomite, marble

Minerals dissolve in solution carried by water. Microscopic living organisms absorb minerals from these solutions and turn them to solids within their substance. Thus the ages their remains have settled on the bottom to form vast deposits of limestone & phosphates.

Between Grand Marais and Minising (south shore) exquisitely colored rocks - Cambrian rock has been undercut by waves, leaving columns, grottoes, rocky headlands and bare vertical cliffs - Painted Rocks granite and gneiss the great schists changed by the mt. blodg process

circles of growth (seen in some stones) quartzite with its now famous catlinite deposit. Iron is one of the most common elements of the entire earth and is found not only in rocks but in most living things. Many common minerals that appear insoluble are in time dissolved.

Reddish soil pushed up from Illinois and pinkish from Labrador. From n of LS came grey-lavender but it picked up rust also. pulverized limestone for wheat-raising

Lake Duluth sent its waters into the ancient St. Croix.

In Minnesota land of sky-tinted waters wild roses, New Jersey Tea, Labrador Tea, lady-slipper carnelian - sard - a clear chalcedony - a cryptocrystalline quartz, as is jasper, agate, chrysoprase, onyx, sardonyx, chert.

Quartz changes under different temperatures - i.e. silica combined with water is opal

They decay to form something else. Momentary equilibrium, coming to rest (Lake Plantagenette (The Rest in the Path) during which we name it.

And when you get the classification, some granites may be metamorphic rocks

agate preserved in wood - spectacular - result of action of hot, silica-bearing waters.

Marbles are recrystallized limestones, normally white but often tinted by iron oxide, carbon or serpentine to attractive shades of yellow, brown, green or black.

True marbles are result of metamorphism involving heat and pressure.

igneous-metamorphic -- marble began as soft limestone - seashells - then heated by magma (lava flow) --

I spent a week in green

wilderness- road flying thru it, thru cut rock, the past in mind and the imagi ation able to project 40 million years? Reasonable to suppose that --

This is the theme: the going - even in the pause of this day's century

interrelation

interrelation of peoples, stones, boats, the changing according to a vast, overall, timeless scheme of continuous progression.

That there is an overall system, I believe of continuous creation, destruction

Vertical text on the left margin: "Rocks with minerals in them", "Pure been flung up into rocks. out of the", "Ancient sea", "By rain + frost + rain to be scattered over the earth by wind & water", "I must have had good soil but granite + quartz with better mineral in it", "a much less mineralizing environment."

Vertical text on the right margin: "Quartz crystals formed in silica", "or a more complex mineral. Such as mica or hornblende."

silicon dioxide, white or colorless mineral substance, one of the commonest of minerals, occurring as quartz, rock crystal, chalcedony, onyx, agate, flint, etc., + as sea sand: used in the manufacture of glass.

✓
This page
Last part
W

Source of Miss.

- 1. not here the river began but in the clouds in the mind, imagination which is capable of being projected not farther than 40 million years.
- 1. raining there - the leaf was once the stone in rain - spurn not the falling rain, it is the source of the source, the creator of rivers. Minerals get dissolved out of rocks by rain. (Rock is made of minerals constantly on the move and changing from heat, cold and pressure.

2. rocks dissolve into water and then flow on and later change back into rock

Grayish-blue plants called lichens grow on rocks. They ooze out special juices that make the rock soft and crumbly. Then rain water is able to dissolve the minerals in the rock so that the lichens can get them. Marriage - lichens and rock - balance of nature - triangle in fact - rain water dissolving minerals in the rock so lichens can get 'em.

The waves turn pebbles into sand. "Every wave changes the world."

Working together for millions of years, the cement-like minerals brought into the sea by the river water and the squeezing caused the layers of sediment, sand, shells, skeletons and mud to harden into layers of rock.

The Cliffs of Dover are made of millions of tiny sea-animal skeletons, packed closely together.

3. The jewels from volcanoes, the igneous many-colored (flecks of gold, silver, copper, rainbow opals, or grains of cinder-black) ~~XXXXXXX~~ - quartz-like, mica-like cooled finally over centuries. Obsidian is not always black - its shining glass sometimes dark red or green. its shining glass-green

1a. A raindrop is itself for only a moment. (arrived at Itasca in the rain)

1a. swamps give rise to big rivers + sources give rise to sources + death to rise
Natural History

Creation and destruction work hand in hand

1. NW L. S. -- Traces of the granite rim of Laurentia, the first N.A. continent. volcanic disturbances in the ancient land-mass

3. Palpitant movements rather than violent eruptions did crazy things to rocks - lava flowed between to form mineral-bearing rocks.

4. The first sedimentary rock laid upon the Archaic surface was sandstone, shales and limestone, now appearing as quartzite, slate and marble and iron formations.

For hundreds of thousands of years immense flows of lava covered the site of Lake Superior and the region immediately surrounding.

in the interbedded conglomerate copper formed

change
Does -
working
together
and

clerk

obsidian is not always black ✓

L.S. Robinson

✓
✓
5-

3
The face of the earth is a graveyard and so it has always been.

✓ My inner midwest

I was in a St. Ignace fog

Why this fascination with rock terms, name, probably because we like to think the first geologists took their finds and created them - name to thing - out of nature of things - plus sometimes their sound or reflection of colour that delighted their senses.

Gems

The color of a fine gem should be strong and clear, not muddy.

✓ Chemistry - some gems are not silicates but carbonates - they fizz in hydrochloric acid. Agates, quartz and jaspers are eroded from older rocks. Come out of sandstone, limestone and shale which have been eroded into gravel. (Creation and destruction)

✓ Thompsonite - an orbicular - eye-gleam - dark green and pink mineral. Found near Grand Marais, Minn.

✓ lapis lazuli in metamorphic limestone

Jasper - a quartz stained green by a nickel mineral. A

Archaen means fire-born

evolution - no backbone, not yet out of water

iron oxide spread the reds

bottle-cap shine on the beach

✓ all upper country built to the sign of the cross - even the telephone poles at the edge of the forest out of Sault Ste. Marie, Canada.

International - waters at the Soo working with countries of the world got up a good head of water

Planted birch trees on the streets in Ft. Wm.

and kept trolley buses in Port Arthur

and looked at TV without commercials

✓ The pebble traveled - broke away from ^{the interior} - and then returned to crystal ^{inner heat} ^{or arrived at} home.

✓ Erosion uncovers mt. ranges. A moment to say: mountain or millions of years passed. ^{defuse it}

A thickness of shale can complete an age. I find a piece of light grey stone ~~XX~~ streaked with ~~XX~~ sky-blue in a gravel pit and wonder in what millinium I stand. - with a white daisy hanging on, spreading itself, in fact, with purple wild sweet peas all over the North. escarpment

✓ The glaciers were not fast - they crept as they do today (Norway and the Alps) polishers of rocks

now an overall same formation as before ice age - vast system of continuous progression our death and our lives.

✓ Past and present linked together by the world of living things into one vast system

