OAK ISLAND

MYSTERY TREES

and other Forensic Answers

Book Cover

The book cover was created by Designer and Illustrator Anna Orel. She also created several of the images within the book. Using a jigsaw puzzle motif, several of the photographs, illustrations, and images symbolically represent the varied forensic issues and artefacts analyzed within these two volumes. They include; an original photograph of the tall mystery canopied-trees of Oak Island, taken during the Bowdin Expedition, circa 1909, an artistic illustration of the Oak Island trees with a Freemason temple by our co-author, Robert W. Cook, and a telescopic photograph of an existing stand of the same canopied-trees recently found on another island. On the back we find a box made of sycamore wood, filled with red clover, a chunk of rotted and decayed oak wood, a listing of the twenty questions asked and answered within these works, and all laying on a bed of coconut coir fiber. Held together by crime scene investigators tape with six black carpenter ants looking for more answers, the cover reflects the efforts to address and solve the Oak Island treasure story and the enigmatic puzzle it is.

San Antonio, Texas

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The mystery canopied-trees on Oak Island

The mystery canopied-trees on another island - 2022

Oak Island's fuzzy history.

The idea of fuzzy logic or fuzzy math came along not because people did not want accurate numbers or facts, but because they realized that there are few finite things in this world. A perfect example of this is water, which can be described as cold, warm, or hot. It would seem that one degree before freezing into ice would be as "cold" as water could get, and one degree before boiling into steam would be as "hot" as it could get. As for "warm," that's always been a subjective thing. Water actually boils sooner at higher elevation. Something similar is true for freezing water. So there is no exact point at which water freezes or boils everywhere, but there is a typical or average point at which it does, and this is generally accepted as the truth, even though it has been shown to be a fuzzy truth. Fuzzy truth, fuzzy logic, and fuzzy math were adopted in order to take into consideration the minute variables that can change an equation, or even a historical fact, if we could drill down to the absolute truth in the absolute moment, in the absolute point in the Universe, etc. Add "Time" and previous disruption (by Nature and by Man) into the equation and determining the exact history behind any artifact or structure, or anomaly, becomes extremely difficult. Assumptions can be made that are dramatically inaccurate, but they are the most obvious at the time. However, fuzzy history needs to be applied. The same is true with words written in books. Was the previous consulted author fully informed and can we take his or her words verbatim, or were those words based on assumptions made by others or even incorrectly entered information? All of this type of stuff has to be taken into consideration and a few "probablys," "might have beens," and "perhapes" need thrown in as fuzzy qualifiers, in our attempt to discover the "most likely" truth. It's just the way it is - for mathematicians, archeologists, historians, and treasure hunters.

- James A. McQuiston

Author of: *Oak Island Missing Links*; *Oak Island 1632*; *Oak Island Knights*; *Oak Island Endgame*; *Oak Island The Novel; Oak Island and the Mayflower*; *Oak Island and New Ross*; and *Oak Island Curses, Codes and Secret Societies;* and out in August - *Oak Island Knights Templar and Freemasonry.*

Oak Island, Mystery Trees

and Other Forensic Answers

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Dedication

Like any victorious football player, valedictorian, academic graduate, or someone who has beaten the odds to reach a milestone – they often dedicate these victories to their mother. Someone who undoubtedly brought *their day* to fruition. Similarly, I honor my Mother. I honor her work, her caring, her sacrifices, and the confidence she inculcated within me to think… *why not?*

My mother passed away before my interest in the legend of Oak Island germinated. Had she been alive, I most definitely would have tried to use my interest in the legend, to stoke her dementia-riddled mind into thoughts and dreams taking her to far-off destinations of sandy beaches with adventures abound. Perhaps, I could have read her that 1965, *Reader's Digest* article of a treasured island, with the hopes her mind may have grasped the lure and struggles of the quest and clung longer to happy memories before slipping away.

As she looks down upon me now, I know one thing… my Mother has seen every episode of "*The Curse of Oak Island*" on the History Channel; and has probably mumbled in my ear that Rick and Marty look malnourished and should eat more. *Steve Guptill and Dan Henske Too!*

A very good friend of mine was the one who convinced me to act on – *why not?* Why not gather my thoughts and evidence and add them to the library of postulated theories, solutions, and conjecture so the public can take them even further? Joel and Carol Siskovic joined me weekly to engage in our nine-hour "Oak Island" meetings. Together we have done extensive research in the topics we felt were not addressed in any written or televised documentation of the Oak Island story. They have helped me in so many avenues in putting this document together. Like true professionals, they have hinted, suggested, threatened, and even slapped me silly – like in the movie "*Airplane*", when veering off course and careening into the world of theories and lore. Having published themselves, their support and rationale, mixed with the ease in publishing in today's world, I found myself also saying – *why not?*

Dedicated in Memory of Joel Elias Siskovic, 1940-2021

Acknowledgements

I strongly acknowledge my interest in this topic is based on the writings of authors' Randall Sullivan ("*The Curse of Oak Island"*), Graham Harris with Les MacPhie ("*Oak Island and Its Lost Treasure"*), D'Arcy O'Connor ("*The Secret Treasure of Oak Island"*), and Joy A. Steele with Gordan Fader ("*Oak Island Mystery Solved"*). This acknowledgment includes their earlier writings, versions, and editions. They are true professionals who have brought a tremendous amount of exhaustive research and eloquent narrative to tell the story, the legend, and the theories of this centuries-old mystery. They represent the expertise in writing and investigative journalism; the importance of developing connections with those 'in the know'; and bringing it all together in an understandable and intriguing chronicle.

Hammerson Peters, I thank profusely for being the Historian for everything "*Curse of Oak Island*," the History Channels' cable television show. His dedicated loggings of the shows' activities, findings, failings, and personalities, in both volumes of his "*The Oak Island Encyclopedia, Volumes I & II*;" have become a very valuable source about the modern-day hunt. His YouTube videos on all subjects Oak Island are fantastic and must be watched. I would iron that background sheet though.

I would also like to thank Kerrin Margiano for her heart-felt telling of the stories of the McGinnis sisters; Jean, Joan, and Joyce, in her book, "*Oak Island Connection*." As descendants of the man in the center of that depression in the ground 227 years ago; the saga of the McGinnis family members put both a face and the heart into a deeper and richer story which has unfolded. Likewise, the telling of the Restall story by relative Lee Lamb, in "*Oak Island Obsession: The Restall Story,*" quickly brings the awestruck treasure reader down to the realities of what such a slog entailed. Lamb's inclusions of Mother Mildred Restalls accounting in "*The Reluctant Treasure Hunter*" adds the clarity with which an eyewitness can provide without being addicted to the hunt.

I must mention the "Blockhouse Blog," written and maintained by Doug Crowell on the former website, "Oak Island Compendium." Here he housed the MacPhie Archives and other documentation, representing an invaluable source from previous scientific, engineering, and historical

articles, and searcher activities. This was a must-go resource for anyone truly wanting to learn and understand how this legend has unraveled, and why. His blogs provided insight from someone who is as familiar with Oak Island as anyone there today! I believe his body of works has been moved to a new venue.

Though I mentioned them at the top of the previous page, I would like to again acknowledge the excellent documenting of searchers' efforts – *core by core and shaft by shaft*, as laid out in "*Oak Island and It's Lost Treasure*," by Harris and MacPhie. Not only did they provide the historical reportage but brought the aspects of engineering to make it all more understanding. It helped explain why things were accomplished the way they were.

I made one huge mistake by waiting to read James A. McQuiston's *EIGHT* volumes on Oak Island, half-way through my writing this book. I may not have needed to write my story and definitely not to the length I have gone. Mr. McQuiston has captured and so much regarding the Oak Island conundrum, I am surprised he has not gone insane.

Finally, and foremost, one must acknowledge the impact Marty and Rick Lagina, and their Fellowship members have had on those of us mesmerized by the unraveling of this mystery. The History Channel and Prometheus Productions, along with the Lagina Fellowship, have provided us amateurs front-row seats in their exploration of Oak Island. We can complain about the narrator, the wood, Gary Drayton not digging, and why is the show not on nightly! Kidding aside, the character and dedication of the Lagina's, along with their sober understanding of the engineering options available and the value of notating the proper historic record – is entertaining, educational, and fascinating. This is exactly what convinced me I might be able to offer something to the quest. This is not a financial endeavor in the least, but the product of a flame of passion and interest that was kindled by the sparks emanating from Rick, Marty, and the venerable fellowship. *Toast to all!*

Introduction

A seasoned reader and writer told me I had a problem with my manuscript, as I would have two different audiences. One audience would be the Oak Island aficionado or fully-invested sleuth ready to pounce on any and all findings for veracity and applicability. I assumed this was the *only* audience. The writer informed me the draft simply contained chapter after chapter of mind-numbing and ponderous colligation of forensic applications with historical records and research. So? *Exactly,* I thought! Soon I was educated on the need to appeal to the second audience with the storification of my findings in an absorbing and intriguing manner. *Huh?* I need to turn soils analysis of clayey glacial till and its equations on settlement, compaction and consolidation into a riveting read? I about gave up. The advice given, however, was to park all the technical drivel into chapter-specific appendices for the sleuths to gorge on, while summarizing the findings in a light and breezy read for the second audience. *So it shall be!*

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Experts in engineering and scientific fields have analyzed before me. Skilled investigative writers with deep contacts related to every aspect of this story have provided pages and pages of narrative. Dozens of television shows, documentaries and theory-chasers have made Oak Island a well-known topic. Millions of would-be amateur sleuth's debate artefacts, core samplings, personalities, and future excavations. I admittedly am from the latter group. Yet while munching on popcorn in my 'COOI' T-Shirt and sipping my Mari Vintage Michigan wine… there were simple issues left unaddressed and completely unanswered which kept gnawing at me. These may not have been "BobbyDazzlers" as Gary Drayton would exclaim, but I felt answers to these tangible forensic questions could definitely be "Top Pocket" evidence - *as valuable as any other carbon-dated artefact so far found*.

The first thing about this legend that really annoyed me was… "Hey, those are really impressive trees from way back when. What are they?" The question evokes five different answers caveated by – *"but their nonnative."* Then the whole issue of coconut fibers really seemed odd. The answer to that fascinating find was simply, "it's dunnage from a ship."

None of it passed my smell test. Soon the vestiges of my previous professional analytical world kicked in like the resurrection of Arnold Schwarzenegger in the Terminator! Suddenly the questions kept coming to mind. Time to find the answers! The main thrust of ***this book*** is to provide the answers to the following questions:

- *What was the species of those unique, canopied-trees of Oak Island?*
- *Why were they never felled for valuable timber during this entire saga?*
- *Did those towering canopied-trees cover Oak Island as the legend goes?*
- *Why were those trees on this one island and nowhere else in Nova Scotia?*
- *Did the trees die off one by one… or en masse by disease, ants, or old age?*
- *Why never any mention of the canopied-trees foliage in the autumn?*
- *How many trees did it take to build the platforms within the Money Pit?*
- *Can a timeline of the original depositors be created by studying the rate-of-compaction of soils on top and within the Money Pit?*
- *Can a timeline of the original depositors be created by studying the rate-of-rot of the oak logs making up the platforms within the Money Pit?*
- *When was the Money Pit on Oak Island, filled in?*
- *Why was red clover foreign to being on Oak Island and in Nova Scotia?*
- *Can red clover help determine who was on Oak Island when the Money Pit was filled in?*
- *How much coconut fiber was used in the constructs found on Oak Island?*
- *Where in the world did the coconut fiber come from?*
- *How did the coconut fiber get to Oak Island?*
- *What does the testing of those coconut fibers from Oak Island tell us about their true source and impact on the treasure story?*
- *How much dirt was dug out of the Money Pit and where did it go?*
- *What is true or not about the block and tackle, big oak trees, and the story of digging into the Money Pit in 1795?*
- *Using the forensic analysis from this research, can we postulate a When, a How, and a Who to the Oak Island saga? And will this lead us to a What?*

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I introduce this non-fiction composition to answer these questions and follow their evidential trail to learn WHEN and HOW. This in turn, helps add to our deduction of the probable WHO, and the WHO leads us to the WHY. No doubt, the 20th question of WHAT, can ultimately be answered.

Additionally, this book was written not to outright *solve* the Oak Island Mystery, but to explain the impacts of determinable forensic findings which may lead to that final goal. Perhaps you too have questions which seek answers you can generate through engineering, botanical, and navigational formulas, and other scientific calculations. Each bit of evidence can piece together the puzzle, advancing the understanding of the image of what happened on Oak Island. So please join the fray, correct me whenever possible and ask yourself – *why not?*

I have solicited the involvement of two gentlemen who have for a much longer time than I, involved themselves into studying the enigma of Oak Island. They each will provide a chapter on their investigations, and I am honored to have them along and hope you are intrigued by their research. Welcome Robert W. Cook and Christopher L. Boze to this endeavor. All credit goes to me, they get the critics!

NOTE

For those of you arborists, botanists, ecologists, and dendrologists – *warning!* I have bastardized the proper usage of Latin and common names for tree species throughout this book. In doing my research, I quickly ran into scenarios where the word "oak" was not only used as a species name, a group name, a product name, and a familial name for wood-type features – but as a descriptive name. I was getting confused. Likewise, their Latin names were presented in wide variation such as "Q. rubra," "Quercus rubra," and with other additional determiners such as "Quercus rubra L.," spanning over the hundreds of years of biological research literature. Hybrids confounded the confused. However, since they are not germane to our 1795 chronology, they are not used at all. Not wanting to confuse the general public more than I had become, I decided to follow the Latin name construct when it helped to distinguish the plethora of unique tree species being discussed. As with common name titles like Black spruce, or fir, or Burr oak, or bur oak… I decided to always capitalize both common names when discussing a species specifically. So within this book, you will see "Black Spruce", "Fir", or "Northern Red Oak" when those species are specifically discussed. Therefore, indulge me if you can and go for the "*heartwood*" of the issue and not "*shake like a leaf*" as I go "*against the grain*."

- R E M I N D E R -

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"OAK ISLAND: MYSTERY TREES" BOOK OWNERS

The *Compendium* of sixteen APPENDICES, made of the assemblage of more than 450 textural pages, hundreds of original black/white and colored photographs, scientific illustrations and graphs, and an anthology of comments, conversations, calculations, and conclusions revolving around the creation and printing the book "*Oak Island, Mystery Trees and other Forensic Answers*," is provided as a bonus and free to you the owner of this product. For access, go to the website,

"**www.oakislandmysterytrees.com**"

This is the repository of the above mentioned material and is available for you to read and review if you have legally purchased this product, allowing you access to the website, for however long it remains active.

Upon searching and locating the website, when prompted, enter the secret code

"**C O I R**"

In CAPITAL letters to enter, peruse, read, and review all the materials and photographs which were used to base the forensic determinations discussed in the book. The website has the same material as in the second volume of the two-volume complete set, and is called the…

"***Oak Island, Mystery Trees and other Forensic Answers - Compendium***."

This *Compendium* looks similar to this volume but its pages are in color, doing justice to all the colored images related to the forensic research summarized in this volume. The Compendium volume is available by retailers and wherever you purchased the first volume. We hope you enjoy both volumes and the website.

GLOSSARY

ABACA: (Musa textilis) Species of Banana plant uniquely native to the Philippines. Used to make many items.

AMS: Acceleration Mass Spectrometry process.

ALKEBULAN: Ancient name for the African continent.

ANDESITE: Name of fine-grained rocks between granite and basalt.

ANGIOSPERM: Any of the flower-producing plants, producing seeds within "fruits."

ANHYDRITE: A soft, neutral, grayish, or light purple colored, rock which can evaporite when reacting to water, or saltwater. Most common with strata of gypsum sedimentary rock.

AUSTRONESIANS: Of or relating to Austronesia or its peoples, languages, or cultures. A member of any of the peoples speaking these languages. First people to invent oceangoing sailing technologies (catamarans, outrigger boats, lashed-lug-sewn boat building, and the crab claw sail), which enabled their islands of the Indo-Pacific.

AZORES: An archipelago of nine volcanic islands, located in the center of the Atlantic Ocean. An autonomous region of Portugal.

BATHYMETRIC: Bathymetry is the study of the "beds" or "floors" of water bodies, including the ocean, rivers, streams, and lakes.

BEACH RIDGE: Elevated formation of sand or other material running parallel to a shoreline.

BILGE: The bilge of a ship or boat is the part of the hull that would rest on the ground if the vessel were unsupported by water. The "turn of the bilge" is the transition from the bottom of a hull to the sides of a hull. Internally, the bilges is the lowest compartment on a ship.

BIOME: A uniquely identifiable ecology or natural area or habitat.

BOLE: The main stem of a tree; usually covered with bark; the bole is usually the part of that is commercially useful for lumber.

BLOCKHOUSE: A fortified building, jail, or meeting place made of squared timbers with a projecting upper story.

BLOWDOWN: Examples of Windthrow or Wind snap.

BRACKISH: Generally understood that brackish groundwater is water that has a greater dissolved-solids content than occurs in freshwater, but not as much as seawater.

BRECCIA: Rock/boulders composed of sharp-angled fragments embedded in a fine-grained matrix. A conglomerate in which the fragments, instead of being rounded or water-worn, are angular.

BRYOPHYTE: Bryophytes is the informal group name for mosses, liverworts, and hornworts. They are non-vascular plants, which means they have no roots or vascular tissue, but instead absorb water and nutrients from the air through their surface (e.g., their leaves).

BROWSER: Foraging animals which are picky and selective in what parts of a plant or which plant to eat.

BUTT LOG: A log cut from the bole immediately above the stump.

CANOPY: Cover of branches and foliage formed by the trees crown of foliage. Crown.

CAREENS: To deliberately list a vessel so that part of its bottom was exposed for caulking, cleaning, & repairing.

CAVINGS: Pertaining to small cave-ins within a tunnel or shaft. The collapse of smaller side walls or tops of tunnels that have not been cribbed effectively.

CENTRAL LEADER: The dominant upright branch which leads the trees growth height, while other branches appear secondary and grow at angles.

CLASTICS: Pertaining to rock or sediment composed mainly of fragments derived from preexisting rocks or minerals and moved from their place of origin. The term indicates sediment sources that are both within and outside the depositional basin.

CLAYEY: Any soil sample which contains at least 54% clay.

COCONUT CUPS: Were once also known as Treens (see definition). Often religious items in the possession of popes, cardinals, archbishops and bishops and the wealthier of society. Made from the shell of a coconut and most frequently adorned with jewels and precious metals. As in the procession of the Bishop of Durham in 1259 AD. Also sometimes called "coconut decanters with some found in Constantinople. These artefacts are now referred to as "Masers."

COFFERDAM: A cofferdam is a watertight, temporary, dam-like structure that is installed to enclose an area that is submerged under water to create dry conditions for workers to carry out their work. Also known as caissons, these temporary structures are used in trenchless technology where deep installations are involved or the soil is water bearing.

COIR: The outer protective husk and fibers or exocarp of the coconut, which shields the seed (nut) until time for germination. This does not include the nut (which we know as the coconut) but all the organic material outside the nut and within the exocarp (outer skin).

COIR FIBER: Also known as coco coir, coco fiber, and coir fiber. The end by-product fibers of retting coconut husks and used for manufacturing of cordage, netting, bedding, fabrics, plant medium and many more items. These fibers are chemically altered during the retting process to give the coir fibers their outstanding characteristics.

CONNATE: From the Latin *connatus* meaning 'born together', water that has remained trapped in a sedimentary rock since the original sediments were laid down in that water, prior to lithification. Connate water may be very old and saline.

CONTINENTAL SHELF: A shallow submarine plain of varying width forming a border to a continent and typically ending in a comparatively steep slope to the deep ocean floor.

COPRA: The meat or white edible internal flesh or mesocarp of the coconut seed (called the nut, or fruit).

CONIFERS: A tree that produces cones or certain berries. Most are evergreens with some exceptions. Soft resinous softwood. Any tree that produces seeds in cones.

CONIFEROUS TREE: Commonly called softwood or evergreen, trees that have cones and keep their needles throughout the winter, except for tamarack. Trees that are conifers.

COPSE: A thicket or grove of small trees, bushes.

CORDAGE: A general term for ropes and cables.

CRADLE HILL: Known also as "Cradle and knoll Topography." Currently called, "Tree Top Pit Mound Topography": The formation of pits when trees fall from windthrow or other causes and their root ball is torn or lifted from below ground, creating a pit or depression or hollow. Overtime, multiple occurrences cause a topography which appears to be multiple mounds and pits.

CRIBBING: A constructed frame, in this reference by lumber, used as a protective erect shell to allow miners access within a shaft or tunnel.

CROP ROTATION: The agricultural protocol to rotate various crop farming on a specific plot of land, and to include fallow or non-planting periods to maintain the health of the soil within that plot of land.

CULLING: Removing unwanted or undesirable plants from a landscape.

DAMASKS: Damask is a reversible figured fabric of silk, wool, linen, cotton, or synthetic fibers, with a pattern formed by weaving. Damasks are woven with one warp yarn and one weft yarn, usually with the pattern in warp-faced satin weave and the ground in weft-faced or sateen weave. Twill damasks include a twill-woven ground or pattern.

DEAD CARBON DIOXIDE: Volcanic eruptions release large quantities of CO2 which contain no C14, diluting the ratio of C12 to C14 in the atmosphere. This is called the "Dead carbon dioxide." This variance can alter the dating of radiocarbon-dating of vegetation where volcanic erupted debris is located as well as in the atmosphere.

DECIDUOUS TREE: Commonly referred to as hardwoods or broad leaf trees, in most cases, they lose their leaves in the fall.

DENDROLOGY: The science and study of wooded plants, specifically their taxonomic classifications.

DETRITUS: A collective term for rock and mineral coarse fragments occurring in sediments, that are detached or removed by mechanical means (e.g. disintegration, abrasion) and derived from pre-existing rocks and moved from their place of origin. Compare - clastic, epiclastic, pyroclastic.

DBH: Diameter of a tree measured at breast height (4.5 ' above ground).

DOLOMITE: A carbonate sedimentary rock consisting chiefly of (more than 50 percent by weight or by areal percentages under the microscope) the mineral dolomite.

DRIFTER: Individual buoys set afloat in water to track currents, salinity, speed and other datasets.

DRUMLIN: Piled overburden in an elongated or oval hill of glacial drift, creating hills, islands, or topographical relief above the normal terrain.

DRUPE: In botany, a stone-fruit; a fruit in which the outer part of the pericarp becomes fleshy or softens like a berry, while the inner hardens like a nut, forming a stone with a kernel, as the plum, cherry, apricot, and peach. A fruit consisting of pulpy, coriaceous, or fibrous exocarp, without valves, containing a nut or stone with a kernel.

DUFF: The shallow layer of organic soil and litter of the forest floor which lies over the general mineral soil.

DUNNAGE: Loose or moveable material like boards, partitions, mats, blankets, planks or netting used to secure cargo from shifting, tipping, getting wet or damaged, while in a hold of a ship.

EDDY: A water current moving contrary to the direction of the main current, especially in a circular motion.

EEL GRASS: A member of the Zosteraceae family, which is spread worldwide. It exists only in saltwater environments. It is of little economic importance but was once used as packing and for cushion stuffing. A tidewater marine plant.

EMOLUMENTS: A payment for a job, employment, or grant of land; whereas the payment is made in cattle, livestock, harvested grains, or produce, and can include items made, milled, or woven.

EPICORMIC BRANCHING: Branches that grow out of the main stem of a tree from buds produced under the bark. Severe epicormic branching increases knottiness and reduces lumber quality.

ERRATICS: A rock fragment carried by glacial ice, or by floating ice (ice-rafting), and subsequently deposited at some distance from the outcrop from which it was derived, and generally, though not necessarily, resting on bedrock or sediments of different lithology. Coarse fragments range in size from a pebble to a house-size block.

EVAPORITE DEPOSITS: Are rocks or deposits precipitated from saturated surface or near-surface brines by hydrologies driven by solar evaporation.

EVERGREEN: (in reference to Oak species) Oaks which have evergreen growth habits, can be considered to be a type of oak tree, only as far as that they are in an evergreen type of oak class.

EXFILTRATION: Refers to a loss of water form a drainage system as the result of percolation, absorption, or reverse flow.

EXOCARP: The outermost layer of the pericarp of fruits; the skin or epicarp.

EXTIRPATED: Having reached a state of population, where the species is not growing in an area, close to extinction.

FELLING: The cutting of standing trees.

F.I.F.O.: An inventory method assuming the oldest products in a company's inventory are to be sold first. The costs associated with those older products are the ones used in calculating the cost to the buyer.

FILIPINO: People who are native to or citizens of the country the Philippines.

FISHERY: Either the enterprise of raising or harvesting fish, building where fish are processed for sail, or today, known as the site where fishing is performed. Fishing ground.

FLOATON: Floating islands of organic material, usually made of pumice and other sea-borne plants & debris.

FLOTSAM: Debris in the water that was not deliberately thrown overboard, often as a result from a shipwreck or accident.

FRENCH DRAIN: A construct to manage surface water and groundwater. With most French drains, the idea is to take water that could threaten a structure and move it to a place where it is no longer a threat. Usually a subterranean or trenched waterway, often filled with rocks or methods to keep soils from being eroded.

GEOENGINEER: The subfield of engineering concerned with designing and constructing tunnels, mines, and other human-designed geologic structures within and on earth. The artificial manipulation of the environments of the earth, especially as a means of counteracting global warming.

GEOPETAL: (geopedal) A feature in a rock that allows the observer to determine which direction was up in the past.

G.I.G.O.: Acronym for Garbage In, Garbage Out.

GIN SYSTEM: It was used at the head or a shaft or pit to raise coal, dirt, or spoils to the surface. Once excavated, dirt or material was hauled up by raising a container by a rope attached to a rope drum that was turned by the horses in the gin.

GLORYHOLE: A large hole, either at the surface or underground. When used to describe a surface feature the term is often derogative, thereby suggesting a large excavation made in an irresponsible and non-engineered fashion.

GRABENS: a portion of the earth's crust, bounded on at least two sides by faults, that has dropped downward in relation to adjacent portions.

GRAVING: The practice of cleaning a hull's bottom by burning barnacles, grass, and other foul material preparatory to recoating it with tar, Sulphur, etc. The vessel was careened or drydocked to perform this task.

GRAZZER: Foraging animals which are not selective when eating – cattle, sheep, horses.

GREATER ANTILLES: The Greater Antilles is a grouping of the larger islands in the Caribbean Sea, including Cuba, Hispaniola, Puerto Rico, Jamaica, and the Cayman Islands. Six island states share the region of the Greater Antilles in total, with Haiti and the Dominican Republic sharing the island of Hispaniola.

GREEN TIMBER: Also known as 'wet timber' is newly felled and is 50-60% of dry timber strength. Humid conditions underground promote decay. Timber from which the bark is removed has a longer life than the unpeeled variety.

GYPSUM: A widely distributed mineral consisting of hydrous calcium sulfate: $CaSO_4 \cdot H_2O$. It is the commonest sulfate mineral and is frequently associated with halite and anhydrite in evaporites, forming thick, extensive beds, especially in rocks of Permian and Triassic age.

GYRE: An endless, circular movement of water on the side of a stronger flow of water. Large water system of rotating ocean currents

HACKLE: To remove any unwanted fibers or material by using paddling, combing, or rubbing to further align the fibers into a continuous sliver for spinning.

HALIFAX GROUP: A slate-rich Acacia Brook Formation and overlying metasandstone-dominated Bear River Formation. Units in the overlying Halifax Group include the black slate-rich Cunard Formation and overlying grey slate-dominated Feltzen Formation. The upper part of the Government Point Formation farther east has yielded early Middle Cambrian trilobite fossils of Acado-Baltic affinity.

HAMMERGRAB: A device used on jobs where drilling has to be carried out free of vibrations or where partially cased or uncased drilled shafts are to be produced. The large dead weight in conjunction with the high closing force ensures maximum efficiency. The hydraulic turning device enables the grab to be turned ± 100 degrees to ensure calibration of the borehole. Device grabs loose material within shaft.

HANKS: A skein, as of threat or yarn. A definite length of thread or yarn looped onto a board, coiled into predetermined lengths, or knotted.

HARD MAST: Refers to hard coverings, like acorns, pinecones, hickory nuts, walnuts. See MAST.

HAWSER: A heavy rope or cable made of Manila hemp and used in mooring, warping, or kedging. Attaching a ship to a wharf bollard.

HOLOCENE HIGHSTAND: The maximum flooding surface and the overlying sequence boundary. Progradation results in basinward downlapping onto the maximum flooding surface. Basin centers may still be sediment starved if shelves are broad. Coastal depositional systems tend to be wave to fluvially dominated, thin, and widespread.

HYDROLOGY: A science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere.

HYGRADING: Taking best quality trees, leaving the rest. Hygrading is the slow destruction of a forest via removing the higher quality trees and leaving the poorest quality trees. Hygrading is one of the main forest ailments that foresters fight against.

HYGROSCOPICITY: The capacity of a product or material to react to the moisture content of the air by absorbing or releasing water vapor. The significance of the absorption or release of water vapor is the water content. The water content is the percentage of the total mass of a product constituted by water.

INFLORESCENSE: The arrangement of flowers in a cluster on the stem of various plants. The arrangement helps to facilitate sexual reproduction in various ways.

IN SITU: "on site" or "in position." It can mean "locally", "on the premises", or "in place" to describe where an event takes place and is used in many different contexts. For example, in geology or biology, *in situ* may describe the way a measurement is taken, that is, in the same place the phenomenon is occurring without isolating it from other systems or altering the original conditions of the test.

IRON MONGER: A dealer in ironware or other hardware. Seller of products made my blacksmiths or foundries.

JAGGERY: A course, brown sugar made from the sap of palm trees or cane using evaporation, then often formed into bricks or cakes. From Portuguese *"jagara."*

JETSAM: Debris that was deliberately thrown overboard by a crew of a ship in distress, most often to lighten the ship's load.

KARST: A kind of topography formed in limestone, gypsum, or other soluble rocks by dissolution, and that is characterized by closed depressions, sinkholes, caves, and underground drainage. Various types of karst can be recognized depending upon the dominant surface features: karst dominated by closed depressions (sinkhole karst – temperate climates; cockpit karst – humid tropical climates), closed depressions and large rivers (fluviokarst), bare rock dominated by dissolution joints (pavement karst), tropical cone-, tower- or domed-hills (kegel karst), or karst thinly mantled with glacial drift (glaciokarst), etc.

KRUMMHOLZ: Trees severely stunted due to ice, severe winds and salt spray.

LAMBANOG: A traditional Filipino distilled palm liquor made from coconut palm sap. It is derived from tubâ that has been aged for at least 48 hours. It originates from Luzon island in the northern Philippines. It is commonly described as "coconut vodka" due to its clear to milky white color and high alcohol content.

LATERAL ROOT: Root system which emanate horizontally from the tree, not far below the soil level.

LEADER: The main shoot of a tree. Will form the trunk as the tree grows

LEOPOLDNIA: A mostly monoecious genus of flowering plant in the palm family from northern South America, where they are known as jará palm or pissava palm. The two known species are commercially important, especially L. piassaba, which yields sustenance and construction material. The genus is named for Maria Leopoldina, archduchess of Austria, and Brazilian empress.

LESSER ANTILLES: The Lesser Antilles are a group of islands in the Caribbean Sea. Most of them are part of a long, partially volcanic island arc between the Greater Antilles to the north-west and the continent of South America. The islands of the Lesser Antilles form the eastern boundary of the Caribbean Sea where it meets the Atlantic Ocean.

LIGNICOLOUS FUNGI: Types of fungi which destroy wood, Brown, White and Soft rot fungus.

LIMBERS: Watercourses or channels alongside or central to the keel or keelson, through which water could drain into the pump well.

LIMB SHEAR: The break or loss of a limb due to stress or force, like wind or snow.

LITHOLOGY: The study of the make-up of boulders

MACROPHYTE: An aquatic plant that grows in or near water and is either emergent, submergent, or floating. Floating, aquatic, hyperaccumulating plants absorb or accumulate contaminants by its roots, while the submerged plants accumulate metals by their whole body.

MANILLA GRASS: ***(****Zoysia matrella)* commonly known as Manila grass, is a species of mat-forming, perennial grass native to temperate coastal southeastern Asia and northern Australasia, from southern Japan, Taiwan, and southern China south through Thailand, Indonesia, Malaysia, and the Philippines to northern Australia, and west to the Cocos Islands in the eastern Indian Ocean.

MAPPILLA: A community of people who live in the Laccadive Islands off the southwestern coast of India, and part of the Indian State of Kerala. Term mappilla is a combination of two words: maha, which means great, and pilla, which is an endearing term that means child.

MAST: The reproductive bodies of plants and trees. Refers to the shell or covering of such.

MEANDERS: Water current in a winding path analogous to troughs and ridges in atmospheric jet streams.

MERLIGASH: Name of settlement which became Lunenburg.

MESOCARP: The edible part of the fruit with a pulp rich in fatty acids, amino acids, and vitamins. The middle layer of the pericarp of a fruit, between the endocarp and the exocarp. 'The fruit is a one-seeded drupe consisting of a fleshy exocarp and mesocarp and a hard endocarp that is united with the seed coat.

MESOSCALE ACTIVITY: Mesoscale is the study of phenomena with typical spatial scales between 10 and 1000 km. Examples of mesoscale phenomena include ocean currents, thunderstorms, gap winds, downslope windstorms, land-sea breezes, and squall lines. Many of the weather phenomena that most directly impact human activity occur on the mesoscale.

METAGRAYWACKE: A derived term of greywacke. A hard dark sandstone with poorly sorted angular grains of quartz, feldspar, and small rock fragments in a compact, clay-fine matrix.

METASILTSTONE: A metamorphosed sedimentary rock called siltstone. Since it has been metamorphosed, the prefix meta- is added to the rock name. The rock contains thin layers of clay and silt sized sediment.

MESTIZOS: (See Sangley)

MISSISSIPPIAN WINDSOR FORMATION: Vast marine evaporite deposits that currently have no modern analogues and remain of the most enigmatic of chemical sedimentary rocks. This group (ca 345 Ma), Maritimes Basin, Atlantic Canada is a saline giant that consists of two evaporite-rich sedimentary sequences that are subdivided into five subzones.

MUSHAMUSH: Is a lake and river aquatic region in the center of Lunenburg County. This area was an integral part of the Mi`kmaw territory. The area of today's Mahone Bay was called Mushamush because the river and lake system was known as Mushamush and empties into Mahone Bay Harbor.

MYRMECOLOGIST: A branch of entomology which specializes with ants.

NEAF: New England Acadian Forest ecoregion or biome.

OAK EVERGREEN: Live oak name given to different oak species have evergreen growth habits. Thus evergreen oaks (live oaks) can be considered to be a type of oak tree, only as far as that they are an evergreen type of oak.

O HORIZON: The upper layer of the topsoil which is mainly composed of organic materials such as dried leaves, grasses, dead leaves, small rocks, twigs, surface organisms, fallen trees, and other decomposed organic matter. This horizon of soil is often black, brown, or dark brown in color.

OROGENY: Process of mountain formation, especially by a folding and faulting of the earth's crust.

OVERBURDEN: Rock or soil overlying a mineral deposit, archaeological site, or other underground feature.

OVERSTORY: The higher foliage canopy of dominating trees in a stand of trees.

PACHYDERM: Any of various nonruminant mammals (such as an elephant, a rhinoceros, or a hippopotamus) of a former group (*Pachydermata*) that have hooves or nails resembling hooves and usually thick skin; especially : elephant.

PALYGORSKYTE: A type of Attapulgite clay, prized by Mayan culture.

PEDOLOGY: Study of soils formation, evolution, and theoretical frameworks through which to understand a soil body in context of the natural environment.

PHYTOGEOGRAPHY: The study of the geographic distribution of plants; correlated with zoogeography.

PHYTOPATHOLOGY: The science of plant diseases, an account of the diseases to which plants are liable; mycology.

PLANK: A piece of lumber (timber) rectangular in shape and thicker than a board, which is 1-1.5 inches thick and more than 4 inches wide.

PLASTICITY: The ability to be modified into a different shape or be shaped. The propensity of a solid material to undergo permanent deformation.

PLEISTOCENE DEPOSITS: The Pleistocene is the geological epoch that lasted from about 2,580,000 to 11,700 years ago, spanning the earth's most recent period of repeated glaciations.

POLE: Unit of measurement, 1 pole = 198", 300 poles = 1 mile. 5.5 yards. Equal to a perch. Not related to forestry.

POLE STAND: A stand of trees made up of pole timbers, which have 4 to 10 inches DBH growth.

POMOLOGY: The study of fruit, specifically the science of growing fruit and nuts.

PORPHERY: An igneous rock texture in which large crystals ae set within a very fine-grained matrix. Often a dark Swedish granite with an olive tinge, as described on OI.

PRIVATEER: A captain or commander or one of the crew of a privately owned vessel authorized by a government during wartime to attack and capture enemy vessels. This armed vessel was licensed to practice piracy for the betterment of the permitted government, and it carried Letters of marque showing authorization for such maritime behavior.

PUDDLED CLAY: Clay that is deliberately wetted and reworked by mechanical means to obtain a plasticity suitable form forming plugs, seals and caulking.

PUMP WELL: The cavity or compartment in the bottom of a hull, usually near amidships, where bilgewater collected and from which it was pumped out or bailed. Wells ranged from simple sumps between frames to watertight compartments extending the full height of the hold.

QUARTERNARY: The Quaternary is the current and most recent of the three periods of the Cenozoic Era in the geologic time scale of the International Commission on Stratigraphy. It follows the Neogene Period and spans from 2.588 ± 0.005 million years ago to the present.

QUERCUS: The genus Latin name for most "oak" tree classifications. Contains over 600 species within class.

RAISED BEACH: An area of land above the shore that is higher than the tideline.

RAN: In Norse mythology, Rán is a goddess and a personification of the sea. Rán and her husband Ægir, a jötunn who also personifies the sea, have nine daughters, who personify waves. The goddess is frequently associated with a net, which she uses to capture sea-goers.

RED OAK TREE: (Quercus rubra) is a member of the oak family that is deciduous. Known as Northern Red Oak.

RED OAK WOOD: Broad 'red oak group' (black oak, blackjack oak, pin oak, northern pin oak and shingle oak. This group is characterized by having bristles or points on the leaf lobes and acorns which mature in two growing seasons and sprout in the spring after maturity. Usually a lighter in weight, less hard than white oak wood.

RED CLOVER. *(Trifolium pretense)* A member of the Legumes family. Red flowers. Adds nitrogen, phosphorus, and potash back into the soil revitalizing it. Also a forage plant.

RESIN: Thick hydrocarbon liquids exuded by many members of the plant kingdom including a large number of the world's tree species. Tree resin plays an extremely important function in trees by rapidly sealing over wounds used as introductory pathways by invading insects and fungal disease agents. Also known as sap, pitch, rosin, amber or gum.

RESINOUS: Has or produces lots of resin, rosin, or sap. See RESIN.

RETTED: An old process whereby coconuts have the seed (nut removed) from the husk sack, and then soaked for +10 months in saltwater. Then beaten so it degrades into fibers. Which are dried and sorted for production.

RHIZOMES: In botany and dendrology, a rhizome is a modified subterranean plant stem that sends out roots and shoots from its nodes. Rhizomes are also called creeping rootstalks or just rootstalks. Rhizomes develop from axillary buds and grow horizontally. The rhizome also retains the ability to allow new shoots to grow upwards.

SANGLEY: Sangley and Mestizo de Sangley are archaic terms used in the Philippines to describe a person of pure overseas Chinese ancestry and mixed Chinese and native Filipino ancestry respectively during the Spanish Colonial Era in the Philippines.

SARGASSUM SUDS: Large, pelagic mats of *Sargassum* in the Sargasso Sea act as one of the only habitats available for ecosystem development; this is because the Sargasso Sea lacks any land boundaries. The Sargassum patches with a novel phosphodiesterase enzyme, produces suds which are used by bacteria to unstick themselves from seaweed. The bacteria release an enzyme which breaks down the sticky molecules (suds), naturally present on the seaweed surface act as a refuge for many species in different parts of their development, but also as a permanent residence for endemic species that can only be found living on and within the *Sargassum*.

SCOTIAN SHELF: A geological formation, part of the Continental shelf, located southwest of Nova Scotia, Canada. It covers an area of 120,000 square kilometers, is 700 kilometers long and ranges in width from 120 to 240 kilometers. It has an average depth of 90 meters.

SEA STEADING: Seasteading is the concept of creating permanent dwellings at sea, called seasteads, in international waters outside the territory claimed by any government. No one has yet created a structure on the high seas that has been recognized as a sovereign state.

SEA WRACK: Part of the common names of several species of seaweed in the family Fucaceae. It may also refer more generally to any seaweeds or seagrasses that wash up on beaches and may accumulate in the wrack zone.

SILVICULTURE: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society such as wildlife habitat, timber, water resources, restoration, and recreation on a sustainable basis.

SINKHOLE: A hole that has been created by solution of water-soluble rock which overlaying soil has collapsed.

SISAL: The botanical name *Agave sisalana*, is a species of flowering plant native to southern Mexico but widely cultivated and naturalized in many other countries. It yields a stiff fibre used in making rope and various other products.

SLOOP: A single-masted, fore-and-aft-rigged sailing vessel, with or without a bowsprit, having a jib-headed or gaff mainsail, the latter sometimes with a gaff topsail, and one or more headsails.

SLUICE: Artificial channel for conducting water with a gate or valve to regulate flow.

SMACK: A smack was a traditional fishing boat used off the coast of Britain and the Atlantic coast of America for most of the 19th century.

SNAG: Standing dead trees.

SOFT MAST: Refers to soft coverings, like melons, apples, droops. See MAST.

SSSA: Soil Science Society of America.

STAND: A group of trees, with similarities in species composition, height/diameter distribution, and age composition.

STOWAGE: In nautical terminology, stowage is the amount of room available for stowing materials aboard a ship. The act of stowing cargo with cargo holds.

STULL: Platforms of timbers between levels for strengthening the mine by supporting the walls, and for storing ore and depositing wall rock and waste materials.

SUBAQUEOUS: Formed, living, or occurring under water.

SUPERFICIAL SOIL: Glacial clayey till of silty sand and clay.

SURFICIAL GEOLOGY: Refers to the study of landforms and the unconsolidated sediments that lie beneath them. The majority of the unconsolidated sediments found at the land surface were deposited during the late Wisconsin glaciation, 21,000 to 13,600 years ago.

SYNCLINES: In structural geology, a syncline is a fold with younger layers closer to the center of the structure, whereas an anticline is the inverse of a syncline.

TANNIN: Found commonly in the bark of trees, wood, leaves, buds, stems, fruits, seeds, roots, and plant galls. Tannins help to protect the individual plant species and is stored in the bark of trees and protect the tree from being infected by bacteria or fungi.

TAP ROOT: A deep root growing down into the ground which helps anchor the tree and maintain a water supply in dry soils.

TEPHROCHRONOLOGY: Is a geochronological technique that uses discrete layers of tephra — volcanic ash from a single eruption—to create a chronological framework in which paleoenvironmental or archaeological records can be placed.

THOR HEYERDAHL: a Norwegian adventurer and ethnographer with a background in zoology, botany, and geography. Heyerdahl is notable for his Kon-Tiki expedition in 1947, in which he sailed 8,000 km across the Pacific Ocean in a hand-built raft from South America to the Tuamotu Islands.

TODDY: A milky-white sour alcoholic drink made from fermented coconut milk.

TREE CROWN: See Canopy.

TREEN: The coconut shell was once known or referred to, when in the form of gold or silver mounted cups, drinking flasks and other objects which are called treen by antiquarians. Between 1250 and 1800 records show that these items were found in cathedrals and in castles from the Tyrol to Scotland. The term Treen is not a reference to handcrafted or homemade wooden house wares smaller than a spinning wheel. See Coconut Cups or Masers.

TRIASSIC PERIOD: The Triassic is a geologic period and system which spans 50.6 million years from the end of the Permian Period 251.902 **m**illion **y**ears **a**go, to the beginning of the Jurassic Period 201.36 Mya. The Triassic is the first and shortest period of the Mesozoic Era

TUBA: A Filipino alcoholic beverage created from the sap of coconut palm trees. During the Spanish colonial period, tubâ was introduced to Guam, the Marianas, and Mexico via the Manila Galleons.

TUCKAMORE: See 'Krummholz.' Specifically related to trees located in Newfoundland.

TURBUDITES: Sediments which are transported and deposited by density flow, not by tractional or frictional flow. The distinction is that, in a normal river or stream bed, particles of rock are carried along by frictional drag of water on the particle (known as tractional flow).The water must be travelling at a certain velocity in order to suspend the particle in the water and push it along.

UMBRELLA PINE: Known as Rome Pine, Italian Pine, or Stone Pine. Lives up to 180 years.

UNDERSTORY: The smaller trees, saplings, shrubs, and vegetation that grow beneath the large trees in woods or forests which make up the overstory or canopy.

VICTUALER: Someone or entity that provisions an army, a navy, or a ship with food, material or sundry goods as contracted or appointed.

VORTICITY: The measurement of the rate of rotational spin in a fluid. The state or condition of the rotating portions of a fluid in which vortex-motion occurs.

VUG: A small cavity in a rock or vein, often with a mineral lining of different composition from that of the surrounding rock. A hollow in a rock or in a lode. A geode. Small to medium-sized cavity inside rock that may be formed through a variety of processes.

WHITE OAK WOOD: A heavy, strong, fine-grained hard wood (burr oak, live oak, white oak, chinkapin oak). Rot resistant.

WHOI: Woods Hole Oceanic Institute. Prestigious research organization on ocean-related issues.

WINDSOR FORMATION: A geologic formation in Newfoundland and Labrador. It preserves fossils dating back to the Carboniferous period.

WINDTHROW: Uprooting a tree by wind.

WOLF TREE: A large older tree with a spreading crown and little or no timber value, but often great value for wildlife.

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SECTION F: RESEARCHED MATERIAL