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Mathematical Quotations in Melville's *Moby-Dick*

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Introduction

This is a supplement to my article [1] on the mathematics of *Moby-Dick*.

This document collates all the quotations I could find in *Moby-Dick* referring to mathematics, or mathematicians, or using mathematical imagery in some way. Note that in addition to these, there are numerous references to nautical instruments in the text. For example, quadrants are mentioned eight times. I have not included every one of these mentions as they are not explicitly mathematical. Page numbers refer to the 2003 Penguin Classics edition [2].

I reproduce here the brief summary from that paper of the plot and main characters of the novel.

In *Moby-Dick*, the narrator ('Call me Ishmael') is employed as a deck-hand on a whaling-ship, the *Pequod*, with its captain, Ahab, first mate Starbuck (latterly of coffee-shop fame) and second mate Stubb. It becomes gradually clear that for Ahab the purpose of this voyage is revenge: he is hell-bent on hunting and killing Moby Dick, the great white whale who was the cause of his lost leg. This fixation gradually takes over the whole mission; Ahab becomes increasingly obsessive and irrational, ultimately sealing his own fate and that of his crew with him. Ishmael alone lives to tell the tale. Right from the start it is clear that this is no ordinary seafaring yarn. The first chapters consist of 'excerpts' describing mentions of whales and whaling from a vast array of sources from the Bible, to Shakespeare, to books of natural history. Ishmael and others break off into philosophical musings; there are numerous chapters on the anatomy and physiology of whales, and much else besides. The book is dense with meaning and metaphor, as Ishmael says it must be when the subject, Leviathan itself, is so huge. 'Give me a condor's quill!' says he, 'Give me Vesuvius' crater for an inkstand!' [Ch 104, pg 497]

The Quotations

[1] Chapter 1: Loomings, Page 7

I always go to sea as a sailor, because of the wholesome exercise and pure air of the fore-castle deck. For as in this world, head winds are far more prevalent than winds from astern (that is, if you never violate the Pythagorean maxim)

[2] Chapter 3: The Spouter-Inn, Page 15 (on the landlord of the Inn)

Abominable are the tumblers into which he pours his poison. Though true cylinders without—within, the villanous green goggling glasses deceitfully tapered downwards to a cheating bottom. Parallel meridians rudely pecked into the glass, surround these footpads' goblets.

[3] Chapter 16: The Ship, Page 78 (describing a tent on the deck of the *Pequod*)

It was of a conical shape, some ten feet high; consisting of the long, huge slabs of limber black bone taken from the middle and highest part of the jaws of the right-whale. Planted with their broad ends on the deck, a circle of these slabs laced together, mutually sloped towards each other, and at the apex united in a tufted point, where the loose hairy fibres waved to and fro like the top-knot on some old Pottowottamie Sachem's head. A triangular opening faced towards the bows of the ship, so that the insider commanded a complete view forward.

[4] **Chapter 26: Knights and Squires, Page 124** (on Starbuck, first mate of the Pequod)

Starbuck seemed prepared to endure for long ages to come, and to endure always, as now; for be it Polar snow or torrid sun, like a patent chronometer, his interior vitality was warranted to do well in all climates.

[5] **Chapter 32: Cetology, Page 151** (describing a whale's fin)

Even if not the slightest other part of the creature be visible, this isolated fin will, at times, be seen plainly projecting from the surface. When the sea is moderately calm, and slightly marked with spherical ripples, and this gnomon-like fin stands up and casts shadows upon the wrinkled surface, it may well be supposed that the watery circle surrounding it somewhat resembles a dial, with its style and wavy hour-lines graved on it. On that Ahaz-dial the shadow often goes back.

[6] **Chapter 34: The Cabin-Table, Page 161**

[Ahab], sitting in the lee quarter-boat, has just been taking an observation of the sun; and is now mutely reckoning the latitude on the smooth, medallion-shaped tablet, reserved for that daily purpose on the upper part of his ivory leg.

[7] **Chapter 35: The Mast-Head, Page 169** (on manning the mast-head)

There you stand, lost in the infinite series of the sea, with nothing ruffled but the whales.

[8] **Chapter 35: The Mast-Head, Page 171** (Melville is describing the invention of the 'Crow's Nest' – 'Captain Sleet' here actually refers to the real-life Captain William Scoresby, not a member of the Pequod's crew.)

Now, it was plainly a labor of love for Captain Sleet to describe, as he does, all the little detailed conveniences of his crow's-nest; but though he so enlarges upon many of these, and though he treats us to a very scientific account of his experiments in this crow's-nest, with a small compass he kept there for the purpose of counteracting the errors resulting from what is called the 'local attraction' of all binnacle magnets; an error ascribable to the horizontal vicinity of the iron in the ship's planks, and in the Glacier's case, perhaps, to there having been so many broken-down blacksmiths among her crew; I say, that though the Captain is very discreet and scientific here, yet, for all his learned 'binnacle deviations,' 'azimuth compass observations,' and 'approximate errors,' he knows very well, Captain Sleet, that he was not so much immersed in those profound magnetic meditations, as to fail being attracted occasionally towards that well replenished little case-bottle, so nicely tucked in on one side of his crow's-nest, within easy reach of his hand. Though, upon the whole, I greatly admire and even love the brave, the honest, and learned Captain; yet I take it very ill of him that he should so utterly ignore that case-bottle, seeing what a faithful friend and comforter it must have been, while with mittened fingers and hooded head he was studying the mathematics aloft there in that bird's nest within three or four perches of the pole.

[9] **Chapter 35: The Mast-Head, Page 172**

Beware of enlisting in your vigilant fisheries any lad with lean brow and hollow eye; given to unseasonable meditateness; and who offers to ship with the Phaedon instead of Bowditch in his head.

[10] **Chapter 44: The Chart, page 216** (N.B. the asterisk and footnote are Melville's)

So assured, indeed, is the fact concerning the periodicalness of the sperm whale's resorting to given waters, that many hunters believe that, could he be closely observed and studied throughout the world; were the logs for one voyage of the entire whale fleet carefully collated, then the migrations of the sperm whale would be found to correspond in invariability to those of the herring-shoals or the flights of swallows. On this hint, attempts have been made to construct elaborate migratory charts of the sperm whale.* Since the above was written, the statement is happily borne out by an official circular, issued by Lieutenant Maury, of the National Observatory, Washington, April 16th, 1851. By that circular, it appears that precisely such a chart is in course of completion; and portions of it are presented in the circular. "This chart divides the ocean into districts of five degrees of latitude by five degrees of longitude, perpendicularly through each of which districts are twelve columns for the twelve months; and horizontally through each of which districts are three lines; one to show the number of days that have been spent in each month in every district, and the two others to show the number of days on which whales, sperm or right, have been seen."

[11] **Chapter 69: The Funeral, Page 336** (describing a whale's carcass)

The vast white headless phantom floats further and further from the ship, and every rod that it so floats, what seem square roods of sharks and cubic roods of fowls, augment the murderous din.

[12] **Chapter 73: Stubb and Flask kill a Right Whale; and then have a talk over him, Page 356**

"How old do you suppose Fedallah is, Stubb?" "Do you see that mainmast there?" pointing to the ship; "well, that's the figure one; now take all the hoops in the Pequod's hold, and string along in a row with that mast, for oughts, do you see; well, that wouldn't begin to be Fedallah's age. Nor all the coopers in creation couldn't show hoops enough to make oughts enough".

[13] **Chapter 74: The Sperm Whale's Head – Contrasted View, Page 359**

In the first place, you are struck by the general contrast between these heads [of the Sperm Whale and Right Whale]. Both are massive enough in all conscience, but there is a certain mathematical symmetry in the Sperm Whale's which the Right Whale's sadly lacks. There is more character in the Sperm Whale's head. As you behold it, you involuntarily yield the immense superiority to him, in point of pervading dignity.

[14] **Chapter 74: The Sperm Whale's Head – Contrasted View, Page 361**

How is it, then, with the whale? True, both his eyes, in themselves, must simultaneously act; but is his brain so much more comprehensive, combining, and subtle than man's, that he can at the same moment of time attentively examine two distinct prospects, one on one side of him, and the other in an exactly opposite direction? If he can, then is it as marvellous a thing in him, as if a man were able simultaneously to go through the demonstrations of two distinct problems in Euclid. Nor, strictly investigated, is there any incongruity in this comparison.

[15] **Chapter 77: The great Heidelburgh Tun, Page 371** (N.B. asterisk and footnote are Melville's)

Regarding the Sperm Whale's head as a solid oblong, you may, on an inclined plane, sideways divide it into two quoins* whereof the lower is the bony structure, forming the cranium and jaws, and the upper an unctuous mass wholly free from bones; its broad forward end forming the expanded vertical apparent forehead of the whale. At the middle of the forehead horizontally subdivide this upper quoin*, and then you have two almost equal parts, which before were naturally divided by an internal wall of a thick tendinous substance. * Quoin is not a Euclidean term. It belongs to the pure nautical mathematics. I know not that it has been defined before. A quoin is a solid which differs from a wedge in having its sharp end formed

by the steep inclination of one side, instead of the mutual tapering of both sides.

[16] **Chapter 80: The Nut, Page 381**

IF the Sperm Whale be physiognomically a Sphinx, to the phrenologist his brain seems that geometrical circle which it is impossible to square. In the full-grown creature the skull will measure at least twenty feet in length. Unhinge the lower jaw, and the side view of this skull is as the side view of a moderately inclined plane resting throughout on a level base. But in life—as we have elsewhere seen—this inclined plane is angularly filled up, and almost squared by the enormous superincumbent mass of the junk and sperm.

[17] **Chapter 96: The Try-Works, Page 461**

Removing this hatch we expose the great trypots, two in number, and each of several barrels' capacity. When not in use, they are kept remarkably clean. Sometimes they are polished with soapstone and sand, till they shine within like silver punchbowls. During the night-watches some cynical old sailors will crawl into them and coil themselves away there for a nap. While employed in polishing them—one man in each pot, side by side—many confidential communications are carried on, over the iron lips. It is a place also for profound mathematical meditation. It was in the left hand try-pot of the Pequod, with the soapstone diligently circling round me, that I was first indirectly struck by the remarkable fact, that in geometry all bodies gliding along the cycloid, my soapstone for example, will descend from any point in precisely the same time.

[18] **Chapter 99: The Doubloon, Page 472**

Halloa! here's signs and wonders truly! That, now, is what old Bowditch in his Epitome calls the zodiac, and what my almanack below calls ditto. I'll get the almanack; and as I have heard devils can be raised with Daboll's arithmetic, I'll try my hand at raising a meaning out of these queer curvicies here with the Massachusetts calendar.

[19] **Chapter 99: The Doubloon, Page 473**

Book! you lie there; the fact is, you books must know your places. You'll do to give us the bare words and facts, but we come in to supply the thoughts. That's my small experience, so far as the Massachusetts calendar, and Bowditch's navigator, and Daboll's arithmetic go.

[20] **Chapter 102: A Bower in the Arscides, Page 491**

The skeleton dimensions [of the whale] I shall now proceed to set down are copied verbatim from my right arm, where I had them tattooed; as in my wild wanderings at that period, there was no other secure way of preserving such valuable statistics.

[21] **Chapter 103: Measurement of the Whale's Skeleton, Page 493**

[A]ccording to my careful calculation, I say, a Sperm Whale of the largest magnitude, between eighty-five and ninety feet in length, and something less than forty feet in its fullest circumference, such a whale will weigh at least ninety tons; so that, reckoning thirteen men to a ton, he would considerably outweigh the combined population of a whole village of one thousand one hundred inhabitants.

[22] **Chapter 104: The Fossil Whale, Page 497**

Give me a condor's quill! Give me Vesuvius' crater for an inkstand! Friends, hold my arms! For in the mere act of penning my thoughts of this Leviathan, they weary me, and make me faint with their

outreaching comprehensiveness of sweep, as if to include the whole circle of the sciences, and all the generations of whales and men, and mastodons, past, present and to come, with all the revolving panoramas of empire on earth, and throughout the whole universe, not excluding its suburbs.

[23] Chapter 118: The Quadrant, Page 543

At length the desired observation was taken; and with his pencil upon his ivory leg, Ahab soon calculated what his latitude must be at that precise instant.

[24] Chapter 118: The Quadrant, Page 544

Then gazing at his quadrant, and handling, one after the other, its numerous cabalistical contrivances, he pondered again, and muttered: "Foolish toy! babies' plaything of haughty Admirals, and Commodores, and Captains; the world brags of thee, of thy cunning and might; but what after all canst thou do, but tell the poor, pitiful point, where thou thyself happenest to be on this wide planet, and the hand that holds thee: no! not one jot more! Thou canst not tell where one drop of water or one grain of sand will be to-morrow noon; and yet with thy impotence thou insultest the sun! Science! Curse thee, thou vain toy; and cursed be all the things that cast man's eyes aloft to that heaven, whose live vividness but scorches him, as these old eyes are even now scorched with thy light, O sun! Level by nature to this earth's horizon are the glances of man's eyes; not shot from the crown of his head, as if God had meant him to gaze on his firmament. Curse thee, thou quadrant!" dashing it to the deck, "no longer will I guide my earthly way by thee; the level ship's compass, and the level dead-reckoning, by log and by line; these shall conduct me, and show me my place on the sea. Aye," lighting from the boat to the deck, 'thus I trample on thee, thou paltry thing that feebly pointest on high; thus I split and destroy thee!'

[25] Chapter 124: The Needle, Page 563

For a space the old man walked the deck in rolling reveries. But chancing to slip with his ivory heel, he saw the crushed copper sight-tubes of the quadrant he had the day before dashed to the deck. "Thou poor, proud heaven-gazer and sun's pilot! I wrecked thee, and to-day the compasses would feign have wrecked me. So, so. But Ahab is lord over the level loadstone yet. Mr. Starbuck – a lance without the pole; a top-maul, and the smallest of the sail-makers needles. Quick!"

[26] Chapter 126: The Life-Buoy, Page 571

I like to take in hand none but clean, virgin, fair-and-square mathematical jobs, something that regularly begins at the beginning, and is at the middle when midway, and comes to an end at the conclusion.

[27] Chapter 129: The Cabin, Page 581

True art thou, lad, as the circumference to its centre.

References

[1] Hart, Sarah, 2019. *Ahab's Arithmetic; or, the Mathematics of Moby-Dick*. [uploaded to arxiv.org March 2019]

[2] Melville, Herman, 1851. *Moby-Dick, or, The Whale (Penguin Classics Edition)*. Penguin, 2003.