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Pytheas of Massalia: Roman Reactions to a Greek Explorer

On the Historical Assessment of Notable Women

Loom Weights, Water Jars and Catastrophes

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Pytheas of Massalia: Roman Reactions to a Greek Explorer

The discovery of the Americas was intensively reviewed during 1992, as we looked back over the five hundred years since Columbus sighted land far to the west of Europe, and returned to tell of his discovery. 1492 was indeed a dramatic year. But it was hardly the first time that complacent humans were startled to find the world larger and stranger than had been supposed. As a matter of fact, Romans of the first centuries before and after Christ also found the familiar stretched, as the boundaries of their empire were pushed farther from the Mediterranean in all directions. People and places that had been exotic, even imaginary, to their grandparents suddenly became real.

Educated Romans were rightly proud of the intellectual knowledge they had acquired, and most of them were surprisingly open to new information. There was a long tradition in the Mediterranean world of exchanging ideas and building upon the achievements of previous peoples.

An example of the process can be seen in the handling of astronomical data. Accumulated practical observations of the stars (Babylonian), methods for calculating workable calendars (some Egyptian), and advances in mathematics (mostly Greek) provided Greek astronomers with the tools to make several important discoveries between the 4th and the 2nd centuries BC. It was understood that celestial bodies are spherical, including the earth. The oblique angle between the earth's axis and the observed position of the sun was calculated. It was also discovered that the location of the celestial north pole does not remain constant, but precesses as the earth's axis slowly rotates so that the appearance of the night sky also changes with the passage of time.

The Romans accepted this accumulated body of knowledge, and while they added little to the theories which tried to explain phenomena, they continued to record new information as they obtained it in the process of administering their extensive empire. An educated Roman had a clear mental picture into which he could fit new information about the physical world, and if he was hazy about the country where his great-uncle Antonius had fought an exciting battle, he could go and read about it in a textbook of geography.

Romans had a deep respect for geography: generals and governors alike were keenly aware that people and products are dependent upon geographical circumstances. An educated Roman knew that the world was spherical, like the sun and the moon, but the "inhabited world"--the part with people--was the most interesting. That part made a kind of rectangle twice as long east to west as it was from north to south, with the Mediterranean Sea in the middle.

Everybody knew that if you went too far south it was too hot to live, and if you went too far north, it was much too cold. Homer had suggested this, and Homer still represented a level of wisdom that few men dared to criticize. Besides, there were other writers besides the geographers and poets, like Homer, who told of strange and distant places. Both romantic adventure novels and utopian fantasies could be found in the local libraries and booksellers' stalls. And then there were the accounts published by learned

travelers. Almost all of these were Greeks, and most would have been called "philosophers" by our enlightened Roman. That is, they actively collected information about the world, driven by a sense of inquiry and the need to understand. Unfortunately, since educated Romans, like great-uncle Antonius and his well-meaning nephew, found the writings of such philosophers too dull to put in their own libraries, few copies of such learned works survived. What we have today from the scientific writing of Greeks or Romans are fragmentary: bits that were quoted because they were puzzling or memorable in some way.

One of the more interesting (and puzzling) of these authors was also one of the earliest Greeks whose explorations were known in the Roman period, a man from Massalia named Pytheas. We call his city Marseilles today. Founded in the 7th century, it was 300 years old when Pytheas was born early in the 4th century before Christ. The city made its living from trade, sending items, ~~traveled~~ north along the river valleys of France by barge and donkey, or southwest to Massalia's colonies on the coast of Spain, and much cargo to Italy and the eastern Mediterranean by ship.

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We do not know why Pytheas boarded a ship around 360 BC and traveled westward out through the Straits into the Atlantic ocean beyond areas familiar to Greeks. He made his way northward past the "hump" of Europe (Spain and Portugal) into the Bay of Biscay, north past the peninsulas and capes and islands of Brittany; north past the Isle of Scilly, which was larger, and one island rather than the many small ones as now); north past Land's End, on into the Irish Sea between Ireland and Britain.

Pytheas circumnavigated Britain and proved it to be a huge island. He estimated its perimeter in days of sailing time, and claimed to have traveled extensively in the interior. He went farther north, making observations of the sun's shadow at summer solstice to fix his position and estimates of the sun's height above the horizon at winter solstice. In the clear brilliance of the night skies he accurately observed that there was no star marking the celestial north pole (which was quite true in his century.)

Pytheas told of the precious resin, amber, and islands where people used it for burning instead of wood. He noted extremes of wind and water undreamed of in the Mediterranean, storm-driven waves north of Britain like those that sank the *Breac* in the Shetlands last month. He tried to describe a strange phenomenon in which water and earth and mist were so mixed that they could not be separated: a mixture that neither a man nor a ship could pass through.

He observed the lingering twilights of the far north--the midnight sun--and people who lived in places too damp for grain to be threshed outdoors. He brought back the name of the very last place with a name, Thule. He said that he had traveled to the very edges of the cosmos.

When he came home, he wrote a book entitled *Concerning the Ocean*, which was read by quite a number of scholars. Several important astronomers used his observations in their own works, and were sufficiently impressed to mention his name. Geographical writers also quoted him with approval for information on Britain and the islands of the Atlantic Ocean. Then a Greek historian named Polybius referred to Pytheas only to ridicule his account: Polybius wanted to make his own short trip beyond the Straits seem to be the first taken by a Greek. Later writers became dubious and decided

Pytheas had combined pure imagination with his scientific data when they could not find other eyewitnesses to confirm what he reported from so far beyond their Mediterranean world. Almost no one could believe what he reported about water conditions in the Atlantic Ocean until late in the First century A.D., when similarly dramatic reports came in concerning the Indian Ocean, and Roman admirals had had some experience with Atlantic storm conditions.

But the big problem, the one that may explain why Pytheas' eyewitness account of the North Atlantic areas didn't survive except in odd fragments, goes back to that comfortable mental framework into which Romans were accustomed to put new information.

That framework was based on the text of Homer, which was interpreted allegorically if necessary. The scientific insights of Greek scholars who worked in the eastern Mediterranean (Eudoxus, Dicaearchus, Theophrastus and Aristotle) had allowed the basic notions to be expanded, and Aristotle had begun the process of organizing these concepts into a coherent framework.

In addition to notions of how the physical world operated, educated men were trained to think in the logical patterns formulated by several schools of Greek philosophy. Stoic, Epicurean and Cynic philosophies were known, and most Romans knew of both Plato and Aristotle. Early in the 1st century BC interest in Aristotle's ideas was revived by a Roman edition of some newly discovered works. In these writings, Aristotle insisted upon an earth-centered universe. He also denied the possibility of human existence much beyond the Black Sea and what is today Ukraine; he also doubted that humans could live south of Sri Lanka.

The Mediterranean Sea was central to this conception. Included was the assumption that the highest degree of civilization was close to the Mediterranean, with increasing barbarism the farther away one went. "Barbarians" didn't live in proper cities, were organized in tribes, if at all, and didn't build permanent houses or plant crops. If one also assumed, as at least one geographer did, that climatic conditions are similar at any point along a given latitude, then almost *anything* Pytheas reported about the northern lands he visited would have contradicted this framework.

Now, 20th century archaeological discoveries have made it clear that the North Atlantic coasts were well populated with settlements that had a high culture, and lived in organized tribal communities with a respectable level of technology. Agriculture, while not quite as developed as in the Mediterranean, still provided surpluses that made trade feasible, and indeed the trading networks that linked the European coasts from Spain to Denmark with the British Isles were old. Aided by marine archaeology, we are also beginning to understand the development of ship construction in the Atlantic area which made all this possible. The metal technology of this Pre-Roman Iron Age European area is most impressive. Strange this world may have been to a Mediterranean observer: barbarian or primitive it was not.

If you read Pytheas' book *Concerning the Ocean*, and believed what he said he had seen, that neat rectangle of habitation was badly out of square in the northwest. There were people living and growing things and storing them in houses hundreds of miles too far north.

And then there was The Ocean. It was water, one of the primary elements, the same water as the Mediterranean, which some geographers considered just a huge bay of the ocean. Everyone knew that a homogeneous body should show similar behavior throughout. Pytheas, however, reported enormous differences between ebb-tides and flood-tides in the Outer Ocean, while tides in the Mediterranean usually varied only by inches. Instead of being frozen solid all year long, as Aristotle had said they should be so far north, places near Britain had rather mild wet winters. Even today palm trees grow rather well in the Scillies, and Bergen, Norway at roughly 61° N. has average winter temperatures not unlike those of Seattle. The winds didn't behave properly in the northwest of Europe; Aristotle's explanation of the sun's effect on weather patterns didn't work at all there, either.

What was to be done with all of this? Sources that quote Pytheas in the Roman period take one of two approaches: use the pieces that are consistent with other known facts and ignore the rest, or take the work as a whole and conclude that the writer perpetrated a terrible fraud, throwing in a few truths to disguise the deception.

The largest number of quotations from Pytheas' work come from a geography text written for Roman administrators by a man named Strabo. He had broad philosophical training, and certainly tried to approach his sources in a rational manner. He was not able to accept the discrepancies he found between what he assumed to be true and what Pytheas said. It was much easier for Strabo to label Pytheas' reports fraudulent than to question any of his own basic assumptions: they were a coherent set of explanations that encompassed most observable physical phenomena, and they worked well for the Mediterranean conditions.

Denouncing Pytheas' reported observations, however, involved another difficulty. All of the authorities used by Strabo who mention Pytheas make it clear by the way they do so that he was an important scientific figure with the proper credentials to be included with other leading philosophers. How can a man make difficult astronomical observations with great precision and care, and then mix these with wild deceptive claims about ordinary things, such as like the way people live? Why would any scholar do such a thing?

It was deeply disturbing to an academic who felt the responsibility of writing accurately about intellectual subjects. Strabo, who had extensive training in Greek philosophy and a commitment to educating prospective Roman administrators, took his writing very seriously. He needed to use shadow lengths so that he could orient his map of Europe with parallels of latitude; only Pytheas had made such observations for northern Europe. Also, the star observations Pytheas reported were clearly accurate, and they provided important proof that the earth was indeed spherical. Strabo, however, was so certain that Pytheas had falsified the details of habitation in the far north that he transmitted his quotes from Pytheas as lies. He agonized over whether he should even use the data on northern Europe, and every reference to the far north reveals his deep concern about the ethical dilemma he felt Pytheas had created.

Our Roman gentleman with the military relative, on the other hand, was not likely to be concerned over such things. Great-uncle Antonius had seen some extraordinary things in his years with the legions: he knew what he had seen and had no hesitation in

describing them, but pragmatic men didn't need to understand the why of everything in order to *use* new data.

Besides, it was endlessly fascinating to collect intriguing bits of information, especially if you were intelligent and liked to read a great deal. By the First century AD, when Paul and fellow missionaries were carrying the Gospel through the Roman Empire, the men who administered that Empire were often aware of the importance of trivia. The second major source for our understanding of Pytheas was such an administrator.

Pliny the Elder felt so strongly about the value of noting down important information for future reference, that he was never without his notebooks, and published several massive collections of these excerpts from earlier writers.

Possibly he knew enough about northern Europe that he had no doubts that Pytheas had told the truth. We know that he commanded troops along the Roman border in central Europe who fought Germanic tribes; he learned enough about them that he wrote a history (it is lost, unfortunately). In his *Natural Histories*, which did survive, he mentions Pytheas in several contexts without the slightest hint that he mistrusted his veracity.

Pliny's geographical summaries were tremendously popular, and much quoted by subsequent writers who wished to describe the world. And because the *Histories* survived into the Middle Ages, people who could read Pliny's Latin continued to know that Pytheas, a Greek from Massalia, was the first to write about circumnavigating Britain and to speak of the lands where the sun does not really set in the summer and to tell of Thule, the last named place known to the inhabited world.

Independently of Pliny and Strabo there were also a few astronomical writings in which Pytheas' name was mentioned. The context was usually a discussion giving the proofs that the earth was spherical, where his observations about the shadow ratios and the sun's height above the horizon were necessary to the argument. Most of us who have traveled have seen the same phenomena that Pytheas demonstrated scientifically: if you go farther north the winter days become shorter, and if you go south they become longer. In the summer, the sun is much higher above the horizon at noon in southern latitudes than it is in northern latitudes. Pytheas simply measured these phenomena with accuracy, and by doing so made it clear that the earth is truly a sphere. Since the astronomical texts never quote any other authority for these observations, it is reasonable to assume that he was accepted by such scholars as the ultimate authority.

What then did he actually say, according to Strabo and Pliny and the others who quoted the passages that survive? Let me share with you several of the most intriguing fragments. This one comes from Strabo, the passage in which he is quoting from Polybius who didn't believe Pytheas had made the voyage at all:

Polybius says that many people have led astray by Pytheas, first by the statement that he 'traversed the whole of Britain accessible by foot,' then by his giving the island more than 40,000 stades as perimeter, and in addition describing things about Thoule and those places 'in which earth was not in existence by itself nor yet sea nor vapor, but instead a sort of mixture of these similar to a marine lung, in which' (so he says) 'the earth and the sea

and all things together are suspended and this mixture is as if it were a fetter of the whole, existing in a form impassable foot or by ship.' The thing like a lung he himself had seen, but other things he told from hearsay.¹

Here is another one, also from Strabo:

The very last of the known Scythians living beyond Borysthenes are the Roxolani, and [they are] farther south than those known [to be] the last beyond Britain. In fact, places yet beyond are uninhabitable because of the cold; even the Sauromati beyond Maiotis are farther south than this, and so are [all] the Scythians as far as the East Scythians. However, the Massaliote Pytheas says that the very last regions are those around Thoule, the most northern of the Brettans, near which the summer tropic circle is the same as the arctic circle. But from other [writers] I ascertain nothing: neither that there is any 'Thoule Island' nor whether areas indeed are habitable as far as this point where the summer tropic becomes the arctic circle. I think this northern boundary of the habitable world is much farther south, because current investigators speak of nothing beyond Ireland (which lies to the north off Britain nearby), [it being a land of humans] who are utterly uncultivated and live with difficulty because of the cold, so that I think the boundary ought to be placed there.²

Strabo's reference to the summer tropic being the same as the arctic circle is really a key element here. In his terminology, the arctic circle is an imaginary circle drawn to enclose the stars that circle the north pole during the course of a night and do not set. It varies: as one goes north, there are more and more stars that stay visible all night and move around the celestial north pole. The summer tropic is another imaginary circle, drawn through the sun's most northern location: that is, its position on the longest day of the year, at summer solstice. The two coincide when the observer can see that the constellation Cancer (where the sun was located at solstice in the 4th century BC) is visible rotating the pole. One would have seen this only above 61° N. or north of Scotland.

One more from Strabo:

About Thoule, the information is even less clear because of its remoteness, as this is the place writers put down as the very farthest north of named locations. The things Pytheas said about it and other places nearby are fabrications, as is clear from [his] comments about familiar areas. He lied about most of these, as was said earlier, so it is clear he is an even worse liar about out-of-the-way places. Regarding sky phenomena and mathematical theory, he would appear to have made use of the facts, but regarding people near the chilly zone, he says that the same situation holds for both common fruits and creatures, namely that there is a complete lack of some, and scarcity of others, and that the people are nourished by millet and other herbs, fruits and roots. Among those who have little grain and honey even the resulting drink holds high regard. The grain, since they do not have pure

sunlit days, they thresh in large houses after gathering the ears together there, because threshing floors become unusable from lack of sun and the rainstorms.³

Let us shift to Pliny the Elder. Here is a piece from his comments on the ocean:

However, all tides in the Ocean cover over and lay bare greater areas than in the remaining sea, whether because movement over the broad whole is more vigorous than over a portion, or because the open expanse feels the power of the star--(he means the moon here)--advancing without restraint, more effectively throughout its tremendous size. The same [power] is kept out by narrow confines, this being the reason why lakes and rivers are not caused to move like the Ocean --i.e. there are no tides--. Pytheas of Massalia is the authority that above Britain tidal waters swell to a height of 80 cubits.⁴

That's roughly 36 meters or 108 feet, and obviously real tides don't reach those proportions. But Pytheas was wrestling to describe phenomena never observed in the Mediterranean, and if one were to add this comment to the one about the "marine lung" phenomenon, I think it possible that he witnessed the sort of North Atlantic storm conditions that destroyed the 'Brear': tremendous winds that pick up ocean swells and cause the spray to travel at speeds that make it almost solid. There are a number of areas at the latitude necessary for the solstice observations in which wave action can be almost unbelievable: The Shetlands, the Faeroes, the Outer Hebrides, some of the Norwegian fjords, the Orkneys.

How did he make this trip? Not in a Greek vessel: they would not have stood up to Atlantic conditions. I think he shipped in vessels already plying existent trading routes, with captains and crew who had connections and permits and knew the conditions. From one ship's most northern port of call to the next ship headed yet farther north, I suspect Pytheas traveled as a passenger or as a crew member. It would have been far the safest way to travel into that well organized and alien world beyond the Pillars of Heracles.

Rather astonishingly, he survived to get home again. He not only wrote about his researches, a good many brilliant scholars came to know about them and to use some of his data in their own work. But the times were not like those in which Columbus reported his discoveries. No one seems to have followed Pytheas. We find no evidence that his city Massalia opened new trade routes to the north, or that new items of trade made their way south into the Mediterranean. By the time that his work became known Alexander the Great was disturbing the balance of power far in the east, and the small aggressive city called Rome was beginning to be noticeable in Italy.

There were no compelling reasons to retrace the voyage Pytheas had taken into previously unknown areas of the world. Mediterranean cities in the Third and Second centuries BC were not impelled to go looking either for trouble or treasure in the strange lands to the north and west. Besides, there was that disturbing problem with much of the information that Pytheas had reported: it didn't fit into the accepted understanding of how the natural world worked. The mind shied away from dealing with the implications of this.

It is both sad and amusing that Strabo, who was so very wrong about Pytheas' truthfulness, has preserved just enough of his work to prove that Pytheas reported accurately. He has also distorted a high percentage of the bits by his certainty that the explorer mixed lies with truth. I am inclined to think that he may have had a copy of the text of Pytheas' work. It is less likely that Pliny had seen one; I think he probably worked from quotes he found in other writers, although perhaps there was still a copy in existence. If there was, there is still faint reason to hope that somewhere (perhaps in unexcavated material from Herculaneum or the sands of Egypt) some pages from Pytheas' work *On the Ocean* may await future scholars.

I feel certain that he would be gratified to know that we still honor his extraordinary accomplishment in a small way. For many years, Thule marked a far northern outpost in Greenland as the last named place. Now, almost 2360 years after Pytheas brought that name back from the edges of the world; Thule beckons further exploration from a location on the back of the moon.

NOTES

1. Roseman 1994:125 My translation of Strabo, *Geography* 2-4.1
2. Roseman 1994:131 (Slightly adapted). Strabo, *Geography*, 2.5.7-8.
3. Roseman 1994:133. My translation of Strabo, *Geography*, 4.5.5.
4. Roseman 1994:81. My translation of Pliny, *Natural History*, 2.217

The material in this lecture was derived from my edition of the surviving passages associated with Pytheas:

Roseman, C.H., *Pytheas of Massalia: On the Ocean. Text, Translation and Commentary* (Chicago, 1994)

SUGGESTED READING

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Heidel, W.A., *Frame of the Ancient Greek Maps* (New York, 1937)
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