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THE SCIENCE OF COLUMBUS

BY

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THE SCIENCE OF COLUMBUS.

In order to preserve peace between nations, Pope Alexander VI in 1494 apportioned the State of Indiana and other territory to Spain. At that hour the wonderful North American continent lay behind the veil as yet unlifted. As far as Portugal or Castile and Leon were informed the wester of the grey Atlantic extended unbroken north of Cuba to the Pole. Inasmuch, however, as an Italian adventurer had brought forth a marvel from the west, the Kings of these European countries were prepared for any surprise from the unknown and they went to the arbiter of national disagreements to assign to each what should be his when it was discovered.

The Line of Demarcation was drawn from Pole to Pole at 370 leagues to be measured in degrees or by another manner from the islands of Cape Verde to the west. Anything to be discovered or already discovered that lay east, north or south of this line was to belong to the King of Portugal and whatever was west, north or south of this line was to belong to Spain. Should one or the other nation discover lands within the preserves of the other he was peaceably to relinquish such lands to that party in whose domain such discoveries were made. It was a beautiful arrangement and was cheerfully ignored as many beautiful national arrangements have always been.

The blue-eyed Briton and the black-eyed Frenchman swarmed over the soil of North America planting flags and firing commemorative lombard shots which signalized possession as if the venerable Spaniard in the Vatican had not

spoken. For that reason Indiana only belonged to Spain in an unreal way. In that much the title of Indiana to the people of the commonwealth is clouded. Spain, however, had failed to deliver to Christopher Columbus the value of his portion of the territory he had discovered, according to contract, and her title, also, is not immaculate. When the matter is traced to the source the original title lies between that Italian sailor and a copper-skinned race whose seed was planted here by the winds that scattered mankind over the earth when Time was young.

When Ferdinand and Isabella entered into a contract with Christopher Columbus by which he was to set forth on a voyage of discovery, they caused John de Coloma to write in La Capitulacion that ;

"Per quanto vos, Christoval Colon vades por nuestro mandado a descubrir e ganar con çiertas fustas neustras a con neustras gentes çiertas ylas e terra firme enla mar oceana.—"

(Forasmuch as you, Christopher Columbus are going by our command with some of our ships and with our subjects to discover and acquire certain islands and mainlands in the ocean—,")

they expected to make certain concessions to the Italian for his services.

In these terms they set down plainly what they expected Columbus to discover upon representations made to them by the Italian sailor. The preamble of the Capitulation consisted of an extensive religious discussion with which most of the state documents of this royal pair opened, but the several clauses of the contract dealing directly with the expedition consisted of a straightforward bargain between an adventurer and a pair of acquisitive princes who had territory and increased revenues in mind.

Columbus had put forward arguments and inducements as many and diverse as the number and kind of people before whom he had laid his scheme. He had held out the rescue of the Holy Sepulchre and the financing of a great Crusade* to the religious; he had told of spices and gems and merchandise to the commercial minded; of the Grand Khan and Prester John to the conquistador; of a round world to the scientist. But in signing a contract he would bind himself to the most feasible task. He did not engage to prove the world was round, to find gold, gems or spices or to deliver the gorgeous Asiatic cities of Zaiton and Quinsay to his royal patrons. He bound himself by a legal instrument to deliver a landfall and nothing else. It indicates that he was sure of islands and mainlands in the ocean-sea. In the light of his positive assurance, it is interesting to examine Columbus upon the scope of his knowledge and the reach of his surmises.

Christopher Columbus was born in Genoa in 1446 (circa). His parents were Dominico and Susanna, weavers, who owned two houses in Genoa at one time and at another had a mortgage foreclosed upon them. He had brothers and at least one sister. Weavers of doubtful fortune with a family in 1446 could hardly educate a child. Ferdinand Columbus, natural and most admirable son of the Discoverer, declares that his father attended the University of Pavia.

"I say, therefore," he writes in his "Historie" "that in his youth he learned letters and studied in Pavia enough to understand Cosmography, the teachings of which science greatly

*Las Casas; *Historia*. From the Journal of the Admiral, First Voyage, under the date of December 26, 1492.

delighted him; and on account of which he studied Astrology* and Geometry since these sciences are so related to each other that one cannot be understood without the other and also because Ptolemy in the beginning of his *Cosmography* says that no one can be a good cosmographer if he is not also a good painter."

Columbus makes a claim to education in a letter written to the monarchs of Spain,

"In questo tempo io ho veduto, & meffo ftudio in vedere tutti i libri di Cofmografia, d'Hiftoria, & di Filofofia. & d'altre fcientie."

("In this time I saw and studied diligently all the books of cosmography, of history and of Philosophy and of other sciences.")

*Frequently in the Admiral's writings he confirms this claim to a knowledge of Astrology as astronomy was called in the fifteenth century. For example on Sunday, January 13, 1493, he records the following, transcribed in the *Historia of Las Casas*:

"He (the Admiral) would have liked to have gone out of the harbor, adverse winds preventing, in order to go to a better harbor because that harbor was somewhat exposed and because he wished to observe the conjunction of the moon with the sun, which he expected to take place the 17th of this month and the opposition of the moon with Jupiter and conjunction with Mercury and the sun in opposition with Jupiter which is the cause of great winds."

It is worth noting that the Journal beginning with the 17th details a comparative calm for six days.

On Monday, January 21, he writes:

"He found the winds cooler and he expected, he says, to find them more so each day the more he went to the north and also because the nights were longer on account of the narrowing of the sphere." He is explaining here the diminishing length of the degrees, from the equator to the pole.

These are not the words of a man merely guessing that the world is round.

On his second voyage he attributes the daily shower on Jamaica in July to the dense groves fringing the islands, a scientific explanation three or four centuries in advance of the times.

If Ferdinand Columbus' statements are to be credited, the Discoverer was a student of cosmography, geometry, astrology, philosophy, history and other sciences before he was fourteen years old, at which time Columbus declares he went to sea.*

The knowledge that made him the foremost explorer of all time and one of the world's greatest scientists bears too little of the academic imprint and too much of a self-acquired education to substantiate his son's claim. He began work as a weaver. During his years before the loom he might have associated with some retired instructor of the University. His biography is bright with friendships among the educated men of the time. Every sign points to an education from association rather than from instruction. When his idea of a voyage to the East by the West entered his mind cannot be determined. Perhaps it grew as he read and his reading was of the order to inspire advanced thinking and high aims. Italian was his native language and he used it extensively in his correspondence. He must have known something of Latin. He could not have successfully sailed the seas without knowing colloquial Portuguese. He knew Spanish and adopted it as his most familiar tongue. He mentions Ahmed-Ben-Kothair, the Arabic astronomer, and again Rabbi Samuel de Israel, Wolf-ridus Strabo, the German, and Gerson of the University of Paris. It is improbable that he was acquainted with their writings in the original. He had numerous friends among monks and these may have furnished a medium through which he met these writers.

*"I commenced to navigate at fourteen years and I have always followed the sea." Ferdinand Columbus, "Historie."

It is not too much to conclude that Columbus was better educated at forty than he was at twenty-five; that an absorptive mind, association with men of all nations and all ranks, travel and reading gave him learning more and more each year, sound, serviceable, broad, better than a mediaeval university could have afforded him in a whole course, much less a few months snatched under the age of fourteen.

He spent twenty-six years on the sea before he went to the court of Spain with his project of a westward route to India. He claimed to have visited Frisland and Iceland*; he was bound to have known the islands of the Mediterranean and he had hugged the African coast as far as San Jorge de Mina. The sea was his highway. Familiarity with the wandering face of the waters begot in him understanding and confidence in it. He was unconsciously equipping himself with the trade previous believers in a round world lacked. He became a navigator. Toscanelli, Aristotle or Thales might have believed the earth a globe and believed it for reasons grounded in science but they could not handle a tiller nor hoist a sail.

Sometime in his young manhood while he lived in Portugal he married Phillipa Moniz, daughter of Pietro Moniz de Perestrello, governor of the island of Porto Santo. According to Ferdinand Columbus the mother-in-law presented to the Italian his father-in-law's collection of charts, maps and logs such as a sea-captain, a small explorer and the governor of an

*"I navigated in 1477 in the month of February 100 leagues beyond the island of Thule," he says in a letter quoted by Ferdinand in his *Historie*, to which Ferdinand adds: "and this by moderns is called Frislanda."

*"I was at the fortress of St. George of the Mine belonging to the King of Portugal, which lies below the equinoctial line." Ferdinand Columbus. "*Historie*."