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The Contributions of Father Bernardino de Sahagún to Scientific Thought & Exploration of Latin America

Throughout the eighteenth and nineteenth centuries, a significant vision and desire for expansion had been widely held and imagined, influencing many, such as travelers, European scientists, encyclopedists, and authors of the Middle Ages, to pursue an inland exploration of Latin America. The prevailing goal of these pioneers had been to understand and broaden collective knowledge about the area's botany, people, traditions, and topography, ultimately allowing various regions of Latin America to become either colonized or independent from European imperial powers. In keeping with the vast and common notions and beliefs of the Enlightenment period and the idea of empiricism encompassing a decisive value and interest in the concrete and measurable, several Latin American explorers obtained their knowledge from first-hand experience. Among the more exciting and notable developments that had emerged from the numerous explorations of those who traveled to Latin America hoping to find profound discoveries about the surrounding area were the remarkable revelations and recorded descriptions of mythical places of creatures unfamiliar to antiquity.

A proliferation of written work about the natural history of the New World within the sixteenth century incited a great deal of investigation and discussion regarding the revolutionary surge of detailed evidence depicting mythical subjects that had been sustained by medieval conception since ancient times. As prominent authors such as Pliny the Elder, Suetonius,

Pomponius Mela, Saint Isidore of Seville, and Bernardo Silvestre had each spoken of and related personal encounters experienced in their respective travels to the world beyond, they had acted as major contributors to the dissemination and spreading of scientific knowledge and inquiry concerning mythological thought and descriptions. "…the Encyclopedists and travelers of the High Middle Ages had described places where there were giants; thousand-headed monsters; Cyclopes; Amazons; paradisiacal islands with milk fountains, bread trees, and medicinal plants that cured all diseases; fountains of youth; and infallible antidotes that discoveries in America made tangibly real" (Saldaña and Madrigal 34). Differing from the more common perceptions and widely-held beliefs carried before this rediscovery of unknown beings and unbelievable places, such descriptions and detailed accounts had been ordinary and not uncommon to the natural surroundings of everyday life and conversation for centuries in ancient times.

Further, in the context of scientific, mythical discovery and explorations of far-off places and unknown creatures, one person in particular named Father Bernardino de Sahagún, stands out for his radical efforts and influential contributions that ultimately helped to shape the history of scientific thought and exploration in Latin America. Sahagún was a Catholic friar, linguist, and ethnographer born in Spain in 1499. Sahagún was highly involved in the intellectual movement referred to as Renaissance Humanism that had enraptured most of Europe for decades (Curtius, 2019). Characterized by a renewed fascination with the classical world, Renaissance Humanism primarily focused on studying what it means to be human, as opposed to a strict attentiveness to religion.

Originally, Sahagún had arrived in New Spain in 1529, which is now today more commonly referred to as modern-day Mexico and incorporates Central America, Cuba, Puerto Rico, Hispaniola, the Philippines, Florida, Jamaica, and the majority of the southwestern United

States, alongside a group of Church prelates whose mission it was to convert the natives to Catholicism (Nelson, 2015). In the time spent there, Sahagún was able to pursue the Aztec language known as Nahuatl, which was a language spoken primarily by the Nahua people who occupied Central Mexico, eventually becoming fluent and granting him the ability and opportunity to travel throughout Mexico and the Mexican countryside, speaking and interacting with natives in an attempt to convert them to Catholicism.

It was at this point where Sahagún came to the grave and overwhelming realization that what he, as well as all the others in the group whom he had initially traveled with, was in many ways superficial and that these conversions only did harm to the already well-established culture and deeply ingrained customs important to the lives of the native peoples of New Spain. Outside of his earlier years spent immersing himself within Nahuatl culture and traveling throughout various parts of New Spain, Father Bernardino de Sahagún bridged the way for scientific thought and exploration, playing a pivotal role in the early 16th-century study of indigenous culture while making evolutionary strides in the field of ethnographic research. Most notoriously, Sahagún is best known for his help and conception of a 12-volume encyclopedic work titled the *Florentine Codex*, or The General History of the Things of New Spain. According to the 2015 article written by Erika Nelson, a specialist in modern and contemporary Latin American Art, with particular interest in 19th-century Mexican popular prints, “The 12 volumes document the culture, religious and ritual practices, economics, and natural history of the indigenous central Mexican peoples in the years immediately preceding the Spanish Conquest, as well as the events of the Conquest itself” (Nelson, 2015).

With approximately 1,200 pages and 2,468 painted illustrations incorporated within its dense pages, the *Codex* had been formulated and established with the help of several Nahua people who made outstanding contributions as writers and illustrators (Nelson, 2015).

Shortly after arriving in New Spain in 1529, Sahagún had already begun composing and devising plans to construct the *Codex* by instructing and priming young indigenous students to aid in the creation and who would eventually become collaborators in the fabrication of the highly prestigious encyclopedia. There were two specific groups who, in the end, participated and joined in efforts in the assembling of the *Codex* in 1549, including the *principales*, which translates to the chiefs, who were Nahua elders who were considered very wise amongst the Indigenous culture of New Spain, and the grammarians, who were a group of Christianized Indigenous nobility trained in Latin, Spanish, and Nahuatl. The *principales* would assist in answering questionnaires formulated by Sahagún to further his research and understanding of the Nahuatl culture and religion, which had been recorded in the traditional Nahua practice and

format of paintings or pictographs, which are essentially icons that communicate meaning by resembling a specific object. The grammarians, on the other hand, through their expansive knowledge and education surrounding various languages and the written word, were able to assist by interpreting and translating the recorded paintings and pictographs performed by the principales, eventually developing the answers and transcribing them into alphabetic Nahuatl (Nelson, 2015). In time, the recorded information and knowledge gained with the help of these two collaborative groups resulted in twelve books by the year 1559 and an entirely finalized project shortly after.

The Twelve Volumes of the *Codex:*

Recorded Detailed Features of Nahua Culture

Book 1	**The gods**
Book 2	**The ceremonies**
Book 3	**The origin of the gods**
Book 4	**The soothsayers**
Book 5	**The omens**
Book 6	**Rhetoric and moral philosophy**
Book 7	**The sun, moon and stars, and the binding of the years**
Book 8	**Kings and lords**
Book 9	**The merchants**
Book 10	**The people**
Book 11	**Earthly things**
Book 12	**The conquest**

With the Codex sent straight to Spain upon its completion in 1579, the diverse and ever-expanding details and inclusions within the finished encyclopedia had left those who had waited for its arrival in pure amazement, as the absorption of Nahua life and knowledge demonstrated exemplary findings and fascinating information:

> Each page of the *Florentine Codex* contains parallel columns of Nahuatl and Spanish text. The Nahuas recorded their culture and history in their own language in the right text column, and Sahagún had the Nahuatl translated into Spanish in the left text column. These translations are abbreviated, so the Spanish text is not as long as the Nahuatl. This provides numerous opportunities for the insertion of illustrations–thousands of these appear throughout the 12 volumes. (Nelson, 2015)

In our current time and society, the *Florentine Codex* is considered one of the most profoundly exceptional manuscripts created during the early modern period, from the late 15th to the late 18th centuries.

A Diagram Demonstrating Both Spanish and Nahuatl Columns

What remains a rather intriguing component and element of the Florentine Codex, and the differing translations within the volume's pages, are the Nahua perspectives and understandings of varying species and the categorization of animals, which had been expected in many native Latin American cultures. As mentioned and cited within the 2006 book *Science in Latin America: A History*, edited by Juan José Saldaña and translated by

Bernabé Madrigal, there tended to be primarily two significant categories of animals. The first category was generally associated with the intricate realm of myth or allegorical belief while remaining prevalent players in countless omens and mythological beliefs, only to be seen by very few fortunate individuals on rare occasions.

The second category of animal were "those found in the quotidian simplicity of existence without, however, ceasing to be inserted—when required—into the magical world that was an invisible part of the existential reality of those peoples" (Saldaña and Madrigal 39). One specific and noteworthy example that can be found in the 2016 work of both Saldaña and Madrigal was a translation by Sahagún of a Nahua account of what seemed to be a tiger that the Indigenous peoples had described as being able to see small things even if there was fog or darkness and could create sounds "through the air" to intimidate hunters:

> It takes great care of itself, bathes, and by night watches the animals it will hunt, it has excellent long sight, even when it is dark, and even if there is fog it can see very small things. When it sees the hunter with his bow and arrows, it does not run but sits, watching him, without getting behind anything, and then it begins to hiccup, and that air goes straight to the hunter so as to strike fear in him and make his heart faint with the hiccup, and the hunter then begins to shoot at it, and the first arrow, which is made of cane, the tiger takes in its paw and tears to pieces with its teeth and begins to scold and growl … (40)

This description and essential piece of writing demonstrates the Nahua understanding of the world and the influential and precise findings they had come across surrounding the real-world science and physics of wildlife and animals specific to the region. What may appear as a fictional

portrayal of reality may accurately represent factual discovery, which may be conveyed culturally or linguistically dissimilar to another.

The Nahua understood physics through their discovery of a tiger's sight and ocular vision when hunting for prey, as well as the physics of sound, learning and recording the noises the tiger would make to protect themselves against dangerous creates such as this one. As described in Nahuatl to Father Bernardino de Sahagún himself by the indigenous peoples, stories and instances that involve and highlight these categories of animals have been translated into sixteenth-century Spanish and recorded, fundamentally informing and assisting in present-day knowledge of the past Nahua understandings and perceptions of scientific spheres such as physics.

In closing, the descriptions found in Nahua culture encompassing mythological places and fantastical creatures during ancient times served as affluent narrative-based articulations that also presented integral frameworks for the Nahua's understanding of the natural surrounding world and knowledge of science. These mythological components played many key roles in shaping the Indigenous people's perspective and study of scientific thought while powerfully intertwining scientific observation with their surrounding environment and the interactions between human beings and nature. Far from mere legend, these narratives disseminated empirical wisdom and knowledge throughout time, permitting the Nahua people to communicate complicated scientific ideas and concepts in both a culturally and objectively effective way.

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