



LOOKING FOR THE FAT CATFISH EN BUSCA DEL PEZ GRASO (*Rhizosomichthys totae*)



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REPORT

2nd December 2021 – 12th January 2022



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Muisca Boy.

Picture taken by Luis Benito Ramos in 1935. This photograph was influenced by the ideals of the Colombian nationalist movement known as “Los Bachués”, or “Los Hijos de Bachué”.

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©Muisca Mummy, GoldMuseum,
Bogotá.

ANTHROPOLOGY AREA



1.

Pre Columbian Period

During the first phase of the project, a search for information concerning Lake Tota and its ichthyofauna began from the pre-Columbian period with the indigenous Muiscas that inhabited the cundiboyacence highland region and later in the period of European conquest and colonization through chronicles and historical documents. In this second phase in the anthropological approach, this search was concluded with a visit to the Museo del Oro (Gold Museum) in Bogotá. This visit was carried out in order to identify if there were traces of elements related to fish and fishing in the indigenous Muiscas.

The collection of the Museo del oro has a variety of pieces both in gold, silver and copper as well as in ceramics, and other materials collected in the national territory. These pieces belonged to the different indigenous people of the country according to the region. The zoomorphic pieces made of gold that were most frequently found were birds, amphibians (especially the frog, since this was a sacred animal since it augured the rainy season), and reptiles such as snakes. And with less frequency, pieces of mammals and fish were made. These zoomorphic representations undoubtedly vary according to the region and the indigenous people of each of these. In communities located near rivers there are some fish figures made of gold, for example, in the Zenú community on the banks of the Córdoba River.



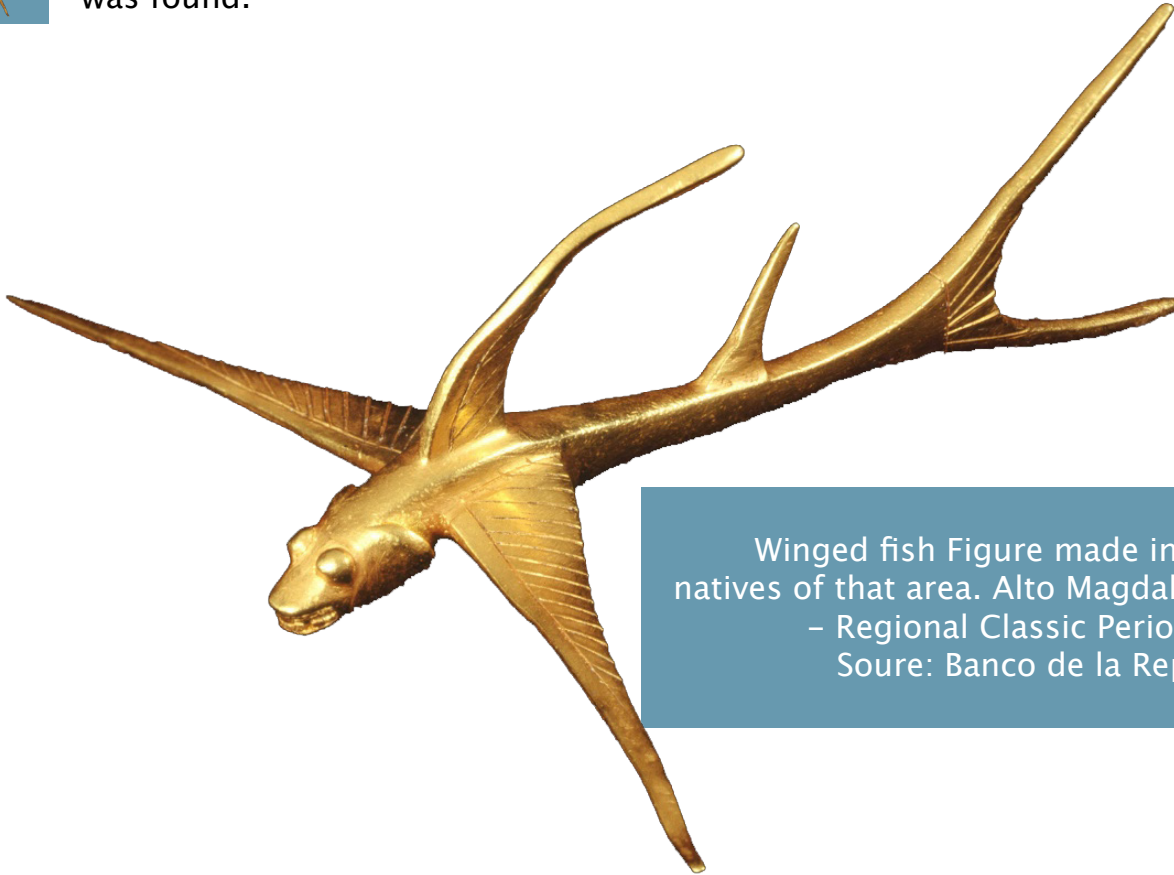
Goldfish made by Zenu.
Found on the banks of the Córdoba River

Goldfish made by Zenu.
Found on the banks of the Córdoba River





Also, in the San Agustín region, in the department of Huila. The famous winged fish was found.



Winged fish Figure made in gold by the natives of that area. Alto Magdalena – San Agustín – Regional Classic Period 1/900. Source: Banco de la República

“A beautiful and unique winged fish found in a tomb in San Agustín, in the Andean mountains, would have had to fly enormous physical distances – but above all cultural ones – to travel from the Pacific Ocean, where fish with wings abound, to the summits where the Magdalena and Cauca rivers are born, which flow to the north, and those that descend to the Amazon rainforests. Why would a winged fish hang around the neck of an ancient chief from the Isnos period of the San Agustín region? It is wonderful that an object cast in gold with such a graceful and free form corresponds to the same societies that carved massive statues out of blocks of volcanic stone, men with aggressive jaguar fangs wearing nose rings and headbands like the metal ones found in their graves.

In fact, when you look closely, this fish also has very marked teeth. And some very prominent eyes, when what least attracts the attention of a fish – and of many birds, except those of prey – are the eyes. Teeth and eyes –and without a doubt the color yellow– are characteristics that define in the pre-Hispanic American world the icon of power par excellence, the feline, epitomized in the largest American feline, the jaguar. Fish, bird and jaguar. There are three cosmological symbols: for many current Amazonian and Andean indigenous peoples, our world is shaped like a disk; upwards there are other discs where mythical beings live to which the shaman –the religious leader– agrees by transforming into a bird, and downwards other humid, feminine and nocturnal discs which are reached like a fish. The pendant would give the jaguar–man of Saint Augustine the access and powers of the cosmos¹.”

1. Taken description from <https://artsandculture.google.com/asset/colgante-en-forma-de-pez-alado/-QGGobANePo-Zg?hl=es>



In the Andean region of the Cundiboyacense Highlands, a region inhabited by the Muisca and Guanes indigenous peoples, the only representation of fish in the Gold Museum is the following:



Gold fish from the Muisca-Guanes
from 600 AD - 1600 AD

Although in our study region we only find the above figures of fish in the Museum, and almost no allusion to fishing in the area, we do find representations of other animals referred to in the myths and legends of Lake Tota, this is the case with deer.

According to legend, the Muisca prince and warrior named Toquechá was visited in his dreams by creatures never seen before accompanied by a girl. One day, after an illness that he suffered, he left his town and went to a little house on the shores of Lake Tota. While there he hears a voice that said to him: "Get up, Toquechá, and go up to that little hill that is in front of you; Bring water from the sacred lagoon and water that land and with your hands make two figures like the ones you are going to see stamped on the rock ". This is what the prince did, he raised the water towards the hill and when he arrived he saw in the rocks of that place the shape of the animals that were dreamed of every night. "The legs are thin, the hooves are short and black, the loins are perfect, the neck is lofty, the head is fine, the eyes are black and meek, the ears are small, and a majestic cluster of horns sprouted from the forehead of the oldest, like the crown of a great king. . next to her, the companion of the same figure, however, lacked the superb antlers "(Montaña, 1951).



This is how the deer that are called **Chihicas** in the Muisca language originate. The prince decides to hunt them but when he shoots one of his arrows the girl who appeared in his dreams named Toquilla (name that was later given to one of the moors that surrounds the lake) intervenes, the girl dies instead of the deer and the prince entered repentance, from that moment these animals became sacred and it was not allowed to consume their meat but only for some great caciques, in addition, deer that were not adults could not be hunted.

The deer were so important for the Muisca that today we can see the silhouette of the deer that they drew in red, on a rock in the Municipality of Mongua, Boyacá. In addition, they were also represented in figures made with gold thousands of years ago.



Pictograms. Mongua, Boyacá.



The foregoing is relevant to this research because it confirms that the myths and legends of indigenous communities, in this case of the Muisca, in many cases, have their own evidence that supports the symbolic importance of different aspects of natural life for the Muisca. Therefore, these stories can and should also be considered as relevant sources of information. In this investigation, the Muisca myths and legends have allowed us to know the sacred relationship that existed between the Muisca with the bodies of water such as lakes and lagoons, the offerings that were carried out in each of these and specifically in Lake Tota, It allowed us to know that, in large part, due to the myth of the monster of Lake Tota, there was a general fear that prevented people at that time from navigating the waters of this lake.



2. The contemporary period (20th century)

In this second phase, a reconstruction of a panorama of the economic, political and social situation of the country during the first half of the 20th century began. This in order to identify the changes that occurred at that time in relation to **the use of land and water sources** in the country, but mainly in the inhabitants of the municipalities surrounding Lake Tota.

Along with these transformations in the use of water and land come changes in cultural and productive practices that could have directly influenced the extinction of the fat catfish, such as the practice of fishing. Hence the relevance of this contextualization, in addition to serving as a broad description of what was the apparent habitat of the fat catfish.

The timeline that was taken into account to make this characterization was considering four fundamental milestones for the research between the years 1900 to 1950. The first is the decade of the 20s where in Boyacá (and Colombia) the coffee economy was booming. The second is the 1930s where the rise of liberalism to power meant the strengthening of the industry in the country, in this framework appears the third milestone which is in 1939 with the introduction of rainbow trout to Lake Tota and finally the year 1942, the year where the fat catfish was first described by the English ichthyologist Cecil Miles.



Timeline of the main events analyzed in the period 1900 - 1950

1900

Leprosy period with special affectation in Boyacá.

1920

It was the boom of the coffee economy in the country. This crop also started in Boyacá región.

1935

- Publication of the study on the possibility of acclimatizing freshwater fishes in Lake Tota by father Alonso María Navia.
- End of Leprosy period.

1942

Fat Catfish discovery by Cecil Miles.

1930

- A liberal candidate assumes the presidency after 44 years of conservative hegemony.
- The liberals rise to power and with this the bussiness sector in the deparment of Boyacá is activated.
- Global economic depression.

1939

The introduction of trout to Lake Tota begins with the Salmoculture Station in Alto de Las Cintas.



3.

Review 1920s

Lake Tota is located in the department of Boyacá, Colombia in the province of Sugamuxi, it is one of the 32 departments that Colombia has. It comprises part of the territory of the municipalities of **Aquitania**, **Cuitiva** and **Tota** and has an area of 22,388 hectares. Its height above sea level is between 3,000 and 3,700 meters above sea level. and it is part of the Orinoco river slope through the Olarte and Cusiana rivers.





The department of Boyacá, in which the lake is located, is characterized by the fertility of its lands and the ideal climatic conditions for the development of agriculture. For this reason agriculture is one of the main economic activities of the department. However, this practice has had different changes over time. During the decade of the 20's in the 20th century, the economic boom in the country was that of the development of coffee and therefore of the coffee plantation. The lands suitable for the cultivation of coffee were the areas that during the colony constituted the most important geographical barrier between the east and the west. This implied the rapid valorization of the uncultivated lands and the economic integration of the country. (Tovar, 1975).

Since the period of conquest and colonization, land and land tenure in Colombia has been a subject of disputes, this has led to different conflicts and triggered different episodes of violence, some of which prevail to this day. One of these is the uneven distribution of land ownership. In this, the figure of the peasant should be highlighted, who works the land, lives off it and contributes to the strengthening of the national economy but in turn his wealth is much lower than that of the owner of vast amounts of land. This led to different agrarian struggles for the peasant's right to land tenure in the 1920s.

In the department of Boyacá, the process of selling indigenous reservation lands had created an increasing number of owners in this department at the expense of indigenous lands in areas where there was a high predominance of this population. It is also undoubted that this period is a great stimulus for agriculture and a time for the settlement of people in new lands (Tovar, 1975). Departments such as Boyacá and Cauca were some of the most backward in economic terms compared to other departments in the country, the agriculture that was carried out in these departments did not represent higher income for the country and this led to the fact that in many places coffee cultivation will be implemented from these departments.



To this add that in the department of Boyacá during the first decades of the 20th century, there was a strong outbreak of leprosy that scandalized the country and some foreign countries due to the number of infected in relation to the number of inhabitants in the country. Although the number of infections was high, the lack of knowledge of the disease, added to the few rigorous studies on the real number of infected, caused these figures to be exaggerated and the consolidation of Boyacá was being considered as “the national lazaretto”. This, instead, had strong repercussions on the export economy of agricultural products for fear of transmitting the disease through these. “Leprosy was seen as an obstacle to the process of modernizing the country, [...] which favored isolation policies, abundant legislation, the creation of lazaretos, state control of them, and the spending on leprosy of the majority of the country’s budget. public hygiene ”. (Martinez, 2005).

“Leprosy is seen by doctors, in the second half of the 19th century and the first years of the 20th, as a disease of poverty, rural, which is associated with wars, forced displacement, hunger and misery, to the diet and climate ”, (Martínez, 2005)

Therefore, the department of Boyacá suffered from segregation due to the disease added to great consequences in its economic growth. This changed as research on the disease progressed and as its control mechanisms evolved, added to the creation of the Ministry of Hygiene in 1936. The unfavorable economic situation of the department of Boyacá changed significantly in the years after this period thanks to the development of the industry.



4. Review 1930s

The Colombian economy in the late 1920s had experienced the growth and expansion of public works. Investment by foreign capital had reached significant levels. After the world-wide crisis of the depression, the national economy suffers a paralysis and as a consequence of it; the increase in the number of unemployed in urban centers constitutes a serious social problem for the country (Tovar, 1975). This was combined with a change in the political regime within the country, since in 1930 a liberal came to power after 44 years of conservative hegemony. The arrival of liberalism to power brought with it the rapid development of national industries, which was able to somewhat remedy the effects of the depression crisis.

In 1934 the liberal candidate Alfonso López Pumarejo came to the presidency under his slogan to carry out the proposed “revolution in progress” that considered different reforms and a readjustment to the conditions already established. Within these was the law of 1936 which favored the strengthening of the national industry and its export as well as making the lands that were only being accumulated productive.

Despite the government’s favor in the economy, it also increased the disputes that existed between conservatives and liberals, serving as the beginning of what was later consolidated as the period of La Violencia in 1946.



Alfonso Lopez Pumarejo. Source: El Colombiano

La Revolución en marcha



www.haylibros.com

Aspectos políticos
del primer gobierno de
ALFONSO LOPEZ PUMAREJO
1934-1938

Alvaro Tirado Mejía



The period of Violence was a period of persecution and assassinations between liberals and conservatives. Its moment covers came on April 8, 1948 with the assassination of the liberal presidential candidate Jorge Eliécer Gaitán. At that time, sections such as these found in the press archive of the Luis Ángel Arango Library newspaper archive could be found in the dam in the department of Boyacá:

**Lista de los comunis-
tas de Tunja. Un par-
tido traidor a la Patria**

Para que el público conozca a los comu-
nistas de Tunja, que tienen carnet, pagan
sus cuotas y figuran en las listas oficiales
de partido comunista, los damos a conocer
por medio de la lista que a continuación pu-
blicamos. Como comunistas los conoció el
pueblo pasado la ciudad cuando asaltaron con-
ventos, apedrearon la capilla del Seminario
y a los señores Canónigos en el atrio de la
Catedral de Tunja. Los crímenes de Bogo-
tá los pintan nuevamente.

Luis A. Galán, chofer; Ismael Parra P.,
empleado, C. de C. N° 2004003 de Chocon-
tá; Julio Hernán Barón, estudiante quími-
ca, reside en Sogamoso, C. de C. N° 23462-
67 de Tunja; Hugo Prieto Bustamante, diri-
gente militar en Bogotá, C. de C. 2304901
de Tunja; Luis Buitrago Segura, chofer, do-
micilio Tunja, C. de C. N° 2145681 de Tun-
ja; Carmen Buitrago Segura, Tunja; José
Agustín Reyes, empleado, Tunja, C. de C.

Newspaper "El Demócrata" Tunja,
1947



In Boyacá, the economy began to strengthen. Although business development in Boyacá was incipient and limited, the few projects developed in this period meant a change that boosted trade, the connection with other regions, the arrival of new inhabitants and the settlement of urban centers (Plazas, 2012). The Bavarian brewery in the department and with this agriculture turned its attention to the sowing of products such as barley, wheat and corn serving as raw material for beer. At the same time, a process of migration from the countryside to the cities occurred, since the number of peasants who began to be workers in companies increased. It was the moment when the liberals, in addition to their experience as businessmen during the first years of the 20th century, achieved significant changes in the economic, political and social development in the regions. (Plazas, 2012)

“The political situation of the moment strongly influenced the election of representatives to public office, mainly due to the concern of the Liberal Party to lead to the modernization of the State from the development of business and industrial projects. At that time, President Alfonso López, from a family of businessmen, launched various projects that promised to modernize the country, something not consolidated during the conservative hegemony, despite the fact that the first stage of industrialization took place under the reins of conservative presidents ”(Plazas, 2012).

The previous appointment is important because it was in this framework that the **trout was introduced to Lake Tota**. The desire to put natural resources to produce, added to the urgency of activating the industry in the country led to the promotion of the idea of its introduction to the lake. The promise of economic prosperity through strengthening industry became the banner of liberalism. Under this promise, the department of Boyacá, which was traditionally conservative, began to turn into some liberal sectors, which is why it would not be surprising that the promise of the introduction of trout served as a strategy to increase voters to the liberal candidates.

Colombians Peasant in 1939.
Source: Andres Tobar





Pictures of Lake Tota taken in 1930 by the colombian photographer Gumersindo Cuéllar Jiménez (Tinjacá, Boyacá, 1891–Villeta, Cundinamarca, 1958). The following pictures belong to the photographic collection of Gumersindo Cuéllar Jiménez (1891–1958) and stored in the Banco de la República Virtual Library, through Fundación Montecito we share six photographs of Lake Tota. The description in the caption corresponds faithfully to what is reported in the library¹.



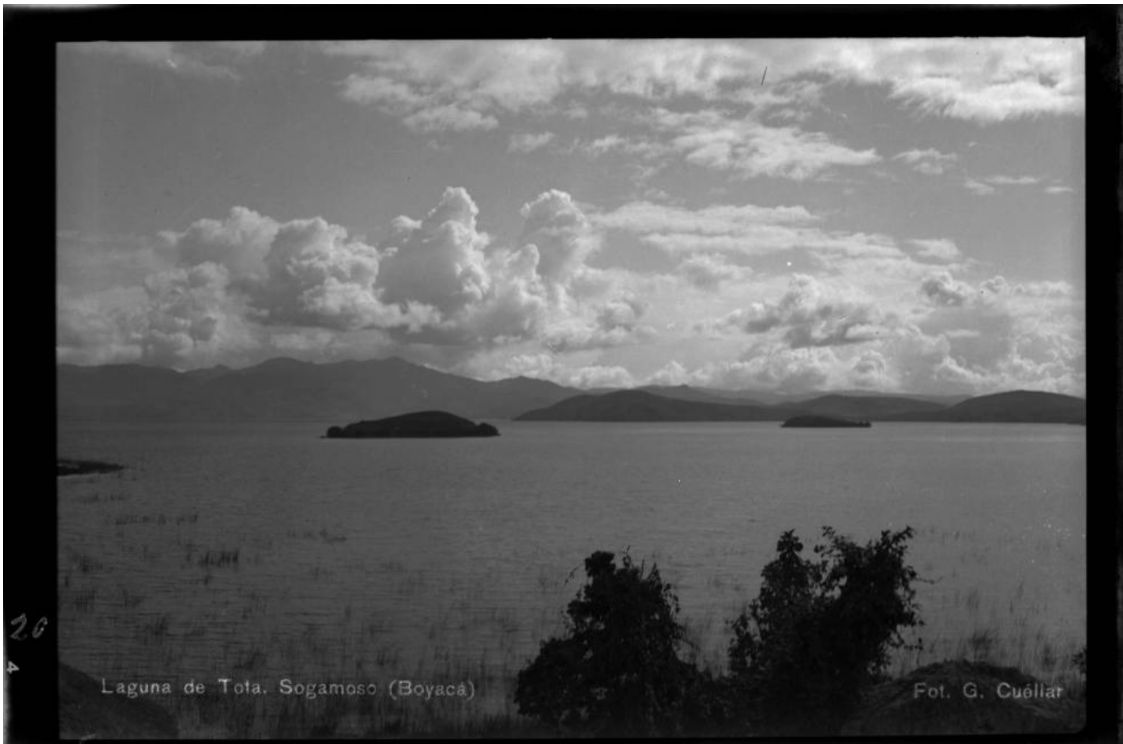
Gumersindo
Photographe
Cuéllar



Lake Tota
1930

1. Available in <https://babel.banrepcultural.org/digital/collection/p17054coll19/id/900>







Horst Martin (1902–1962) was a German photographer who traveled through Mexico, Ecuador, and Colombia where he immortalized landscapes and scenes from everyday life. During his passage through the highlands in the 1930s, he took countless photos of the Fúquene Lagoon (like this one), unfortunately, he did not travel or take pictures of the Tota Lake. His collection of photographs is housed in the Ethnological Museum in Dresden, Germany, and they are available to the public on the Deutsche Fotothek website¹.



¹ Available photos in <http://www.deutschefotothek.de/>.









5. Origin of fish farming in Lake Tota (1939).

In the presidential period of Alfonso López Pumarejo (1934–1938). The liberal Hernán Salamanca Medina, a native of the city of Duitama, Boyacá, was appointed Governor of that department. At his request, the Lazarist priest Alfonso María Navia from the Tunjan seminary, who was at that time in Tota as a mission priest, was asked to carry out a study of the lake in order to determine the viability of acclimating usable fish species for human consumption.



Father Alfonso María Navia



Father Navia, who was an “illustrious wise man – who was already famous for another scientific investigation that he had carried out in conjunction with Professor Antonio María Barriga, on the thermo–medicinal waters of Paipa (1929)” (Camargo 1982) He elaborated then said study in Lake Tota and this was published in the year 1935. In this study, Navia describes and analyzes “the temperature of the lake of Tota and the means of subsistence that some fish farming could have in said lake” (Navia 1935 in Molano Campuzano 1960).

He also offers several suggestions regarding some species that could be cultivated in the lake, the way of incubation of these fish and the creation of spawning ponds and hatcheries. Among the species suggested by Navia in her report, given the height of the lake and its cold waters, she suggests rainbow trout, **lake trout (Trutta Lacustris)**, and **carp (Cyprinus Carpio)**. And other species such as the Coréogomus Wartmanni, the Corégonus Albus Lesueru or White fish and the Perca Fluviatilis. However, Navia assures that “several species of fish should not be cultivated in Lake Tota, but only one, or when more than two that do not make war, of those that acclimatize better and offer greater advantages due to their size, the fineness of its meat, etc.” (Navia 1935 in Molano Campuzano 1960).

Accepting the conclusions of Father Navia, the distinguished doctor from Boyacá, Dr. Guillermo Alfredo Escobar, who at that time was Representative to the Chamber for the Boyacá constituency, presented and achieved ordinance No. 4 of 1936 on the implementation of the idea and in that same year, this ordinance was crystallized in Law 147, with which it was possible to give way to fish farming in the country, starting at Lake Tota with the implantation of rainbow trout. The motivation for this bill was raised by this doctor, with specialized knowledge in dietetics and justified “the possibility of enriching the average nutrition of Colombian man making good the extraordinary capacity of our maritime and river heritage, in terms of fish wealth” (Molano Campuzano, 1960).

This law was implemented three years later, in 1939, the year in which the first advances in fish farming operations began in Colombia in Lake Tota. The minister of economy of the moment hired the services of the technician in fish farming Jorge Ubidia Betancourt, of Ecuadorian nationality specialized in Switzerland, who led the project to create the first Salmon farming Station in the Alto de “Las Cintas” (3,483 meters above sea level and 7 C temperature) and incubated in 1942 the first 100,00 Californian embryos of Rainbow Trout with an achievement of 30,000 fingerlings, which were sown in the lake as a genetic nest of their species in Colombia (Camargo, 1982).



"ARCO IRIS"

Primeros ejemplares de la *Trucha Arco Iris* cobrados en Tota, cuyo peso alcanzó a las 30 libras en 1943.

Source: (Camargo 1982)



On his part, the English ichthyologist Cecil Miles, who was in the country at that time, was summoned to participate in the “Las Cintas” fish farming station. While that was happening, he was appointed head of the Hunting, Fish-farming and Fisheries Section of the Ministry of Agriculture and under that position he led the project and concentrated his interest in the activity of the “Los Pozos” Station. In the Miles administration, a record was obtained in the stocking of fingerlings, on a national scale and in the places where the technique advised it (Molano Campuzano, 1960) In this position he remained until 1951.

As we know, Cecil Miles was the person who is credited with the discovery of the Fat Catfish in 1942. Although there is no detailed information about his biography, nor are the reasons for his arrival in Colombia, we can find a part of the legacy that he left in the country in addition to his description of the Fat Catfish. Miles also contributed to the project to introduce trout to Lake Tota and subsequently to the introduction of goldfish to the lake as part of the trout feed on April 12, 1951 (Molano Campuzano, 1960). Although Miles could be considered the first person to identify the fat catfish, Father Alfonso Navia, mentioned above, in his determining study for the introduction of other species in the lake, may have described this fish for the first time as part of the characterization that made of the ecosystem inside the lake.

In this study, referring to the food that the introduced fish could have, Navia states that:

“It seems at first glance that Lake Tota, due to the clarity of its waters and the relative lack of vegetation on its shores, was devoid of sufficient amount of food for a valuable species of fish; but this is not the case: the abundance of ducks and two or three plump little fish indicate that on the beaches and in the very heart of the lake it has a sufficient means of subsistence”. (Navia 1935 in Molano Campuzano, 1960). In addition, he adds that: “Among the animals in addition to the aquatic insects that swarm in the backwaters, there are small fish, frogs, crabs, snails, worms, etc. That they were anywhere on the edge of the lagoon ”(Navia 1935 in Molano Campuzano, 1960).

The above quote, although not an affirmation of the existence of the Fat Catfish, does contain data on the apparent existence of a few fish in the lake and other small animals. The “plump” description of the fish is striking. The truth is that, following Molano Campuzano “Until 1940, Lake Tota constituted a body of water without any economic, sports, tourist, and human interest. From that year on, fish farming aroused real interest in the country ”(Molano Campuzano, 1960). Paradoxically, the trout, which could be one of those responsible for the extinction of the fat catfish, was also, indirectly, the reason why it was “discovered” or at least described for the first time. This, because the trout or rather its possible introduction turned the gaze and interest of rulers and scientists to the lake. Undoubtedly, this shows us the great impact that the political and economic interests of a region have on natural aspects.



On July 20, 1941, the Fisheries and Fish Farming Association was founded: PISPESCA whose founding members: Ichthyologist Celil Miles, Carlos Winz Larsen, Jorge Ubidia Betancourt, Augusto Romero padilla and Antonio Molina Uribe began fish farming activities closely linked to the Las Cintas fish station on Lake Tota. Data and Photo and logo taken from the Pispesca Fishery and Fish Association.





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HISTORIAN AREA



Las tareas zoológicas de la Real Expedición Botánica del Nuevo Reino de Granada (1783-1816)

The zoological tasks of the Royal Botanical Expedition to the New Kingdom of Granada (1783-1816)

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Resumen

La literatura relacionada con las tareas zoológicas de la Expedición Botánica en el Nuevo Reino de Granada es muy escasa y, a diferencia de las labores realizadas en botánica, es indiscutible que no se produjo el mismo nivel de conocimiento. Pese a que existen registros del inventario de material zoológico neogranadino enviado a Madrid y a otros museos de Europa entre 1776 (primera remesa zoológica hecha por José Celestino Mutis) y 1816 (repatriación a España del material que había conformado la Expedición), se desconoce el destino final de la mayoría de las muestras y sus ilustraciones. Sin embargo, gracias a los manuscritos, cartas, diarios, actas y memorias publicadas por autores contemporáneos de la obra mutisiana, es posible reconstruir los hechos más notables de los trabajos zoológicos realizados en el marco de la Expedición Botánica (1783-1816). Aunque Mutis creó la sección de Zoología, los estudios llevados a cabo no fueron producto de un trabajo colectivo sistemáticamente planificado, ni con grandes asignaciones de recursos físicos o financieros.

En este ensayo se detallan los principales reportes zoológicos de acuerdo con la cronología de la Expedición y con base en los trabajos de José Celestino Mutis, Jorge Tadeo Lozano, Juan Diego García y Francisco José de Caldas, considerados los artífices del conocimiento faunístico en la Nueva Granada en la transición del siglo XVIII al siglo XIX. También se dan a conocer algunas especies animales registradas en los inventarios de la época, con lo que, sin lugar a dudas, se cumplieron labores importantes, como la recolección, preservación, clasificación, descripción e identificación de especímenes, con anotaciones geográficas y de comportamiento de las especies reconocidas.

Palabras clave: Colombia; Expedición Botánica; Zoología; fauna.

Abstract

The literature related to the zoological reports of the Botanical Expedition to the New Kingdom of Granada is very scarce and, unlike the work done in botany, it is undisputed that the same level of knowledge was not produced.



In the historian area, we will offer the research results. In the present report we complemented the information cataloged in the first report, in addition, **we abandoned the emphasis on the colonial period** of the territory of present-day Colombia (16th and 17th centuries) **to focus on the 19th and 20th centuries**, to connect our investigations with those carried out by the Anthropology Area.

Once the search for archival sources on Lake Tota has been completed, much of the data presented in this document comes from secondary bibliography. In this second part, we made out a historical analysis about the flow of modern sciences in present-day Colombia, spotlighting **Ichthyology**, then we reviewed the 19th-century scientific explorations carried out to the lake Tota, to collect the information that they obtained about the lake environment and if there were freshwater fishes.

Royal Seal of Carlos IV.
National Historical Museum of Spain. 1789. ID 3-1057





Joannes Janssonius. Terra Firma et Novum Regnum Granatense et Popayan. Colección Cartografía Histórica. Banco de la República. Signatura H278.



1. History of Science (18th and early 19th centuries) and the emergence of ichthyology.

The purpose of the following text is to analyze the surge of science in the period before the arrival of Alexander Von Humboldt to the Viceroyalty of New Granada in 1802, emphasizing in ichthyology. In the second half of the 18th century, the Enlightenment thoughts arrived in Hispanic America, promoted by the Spanish crown.

The Enlightenment was a transformation of science and knowledge that took place in Western Europe during this period. This philosophical movement tried to confront the Scholasticism school of thought (based on the observation of the world from the precepts of Catholic doctrine) secularizing the sciences and promoting reason and empiricism as a fundamental principle of the explanation of reality through observation and the experience. Although this does not mean that science stopped taking theological precepts as axioms of the explanation of the knowable world, though, there was a profound transformation of the worldview of the thinkers of the late colonial period.¹

Although in Santafé, present-day Bogotá, there were universities since the end of the 16th century, these institutions were administered entirely by religious orders. The scientific debates resulting from the transformation imposed by the Enlightenment and the aim to establish modern sciences in the viceroyalty gave a secular character to teaching, although the catholic control on education was never put in doubt. Added to this, the incipient project to build a public university in New Granada during the late colonial period was not successful, developing it until the Republican period² .

1 Luis Carlos Arboleda y Diana Soto Arango, "Textos y polémicas sobre el pensamiento científico moderno en Santa Fe, Quito y Caracas", en Juan José Saldaña (ed.) *Historia social de las ciencias en América Latina* (México: UNAM: 1996), 209.

2 Diana Elvira Soto Arango. "Estudio bibliográfico y de fuentes de las universidades y colegios mayores de Santafé de Bogotá en el siglo XVIII." *Estudios de Historia Social y Económica de América* 16 (1998): 124–125.



In this way, we must remind that, during this period, higher education was limited to the mestizos and Spanish elites of Nueva Granada destined to occupy positions in the colonial administration. There was no such thing as education directed to the general population even though the scientific initiatives of the Crown tried to extend the scope of the expeditions and debates, this was not fulfilled. However, the college's syllabus was transformed after the reforms mentioned at the beginning, where the emphasis on philosophical and theological doctrines was lost, giving priority to the discussion on mathematics, physics, astronomy, and empirical observation as science procedures. This new paradigm shift produced the development of botanical expeditions by Europeans in their overseas territories.

During the final years of the 18th-century, three botanical expeditions led by Madrid have been carried out in America to inventory the American flora, transplanting useful plant resources for the pharmacopeia and overseas gardening to the Madrid Botanical Garden focused on spreading the Linnaean model of classification of nature. These expeditions were made in Peru, New Spain (present-day Mexico), and the one that concerns us, the José Celestino Mutis expedition, The Royal Botanical Expedition of the New Kingdom of Granada, a project that started in 1783, and culminated until the beginning of the century XIX. However, before the Mutis expedition, scientific exploration missions of the territory of present-day Colombia were carried out, the first of them, done by Louis Feuillé in 1704, considered the first naturalist to arrive in the region, later, José de Joaquín (1752) and Juan de Gertrudis Sierra (1756) taxonomically analyzed the flora of the area. All these expeditions were limited to analyzing the flora and fauna of the coast of the Caribbean Sea, without going into the Andean zone¹.



Louis Feuillée. Engraving of Boettiger (1763–1825). Based on a portrait of the Marseille painter Joachim Guénin



José de Joaquín/ José Joaquín Benegasi y Luján. Drawing by Jerónimo Antonio Gil, illustration from *Obras Metricas*, Madrid, s. to. National Library of Spain.

¹ Luis Carlos Arboleda y Diana Soto Arango, "Textos y polémicas...", 222.



About the figure of José Celestino Mutis, we can affirm his relevance as the most important intellectual of the Viceroyalty of New Granada. He arrived as the viceroy personal doctor (the highest administrative figure after the king) from Spain in 1760, promptly He became a professor of mathematics in 1762, highlighting his work as a scholar until he was finally named in 1781 as director of the Royal Botanical Expedition of New Granada, where he took a decisive role ¹.

Now let's delve into this expedition, whose main objective was to identify and classify part of the natural resources of the territory of the Viceroyalty of New Granada. The central axis of the expedition lies in the elaboration of draws representing the herbage of the country. The total number of draws is 5,607, representing 79 genera and 252 species. Anonymous drawings: 3961, signed: 1646, tempera: 3086, black: 1139, cuttlefish: 1352 and pencil: 30.



¹ Antonio Lafuente y Leoncio Lopez-Ocón, "Tradiciones científicas...", 262-263.



Francisco Escobar
 Villaruel *Odontoglossum*
luteopurpureum Lindl.
 (Orchidaceae)
 empera drawing
 on paper; 540 x 380 mm
 Roya Botanical Expedition
 of the New Kingdom
 of Granada (1783-1816)
 Archive of the Royal
 Botanical Garden,
 CSIC. Div. III, 495

Odontoglossum grande



Declared as a flagship flower and symbol of Bogotá, capital of Colombia to the scientifically known species as *Odontoglossum luteopurpureum* Lindl, art. 1. through the "Agreement 109 of 2003 Council of Bogotá D.C.". The Ministry of Education, the Botanical Garden and the District Institute of Culture and Tourism, promote since 2003 an educational establishments and cultural events, that encourage students and citizens to know and cultivate it as a flower symbol of the city, art . 2. Validity



Now, considering the focus of our research, we will talk about zoology (and, particularly, ichthyology) around the expedition, taking as a starting point the limited information compared to botany based on the article by Amat-García and D. Agudelo Zamora. As the botanical expedition is the first properly scientific experience developed in present-day Colombia, analyzing the taxonomic work carried out with animals is essential to understand the first steps of this science in the country. Mutis studied the freshwater fishes before the development of the expedition:

“He carried out the first inventories of birds and fishes that are known for the country; On this occasion, Mutis classified under vernacular names about 81 species of birds and **39 species of fish**, all associated with the Magdalena River. Listed for the first time species of fish currently registered for the Magdalena and Cauca basins, such as the **Bocachico (*Prochilodus magdalenae*)**, the **bearded (*Pimelodus* sp.)**, The **Maiden (*Sorubim cuspicaudus*)**, the **Dorada (*Brycon* spp.)**, The **mojarra (*Caquetaia* sp.)**, Among others. He drew up a list of valid scientific names based on the vernacular fish names recorded by Mutis for New Granada and related the common names to those validated by current taxonomy.”¹

In turn, Mutis described freshwater fishes from the Andean zone, thanks to the description of fish made in two regions, the Magdalena River and Girón (current Santander), this is described in an article in the approval process written by Henry Darío Agudelo Zamora². It should be noted that, in the process of the expedition, Mutis had multiple disciples like Jorge Tadeo Lozano, Francisco José de Caldas, and Fray Diego García.

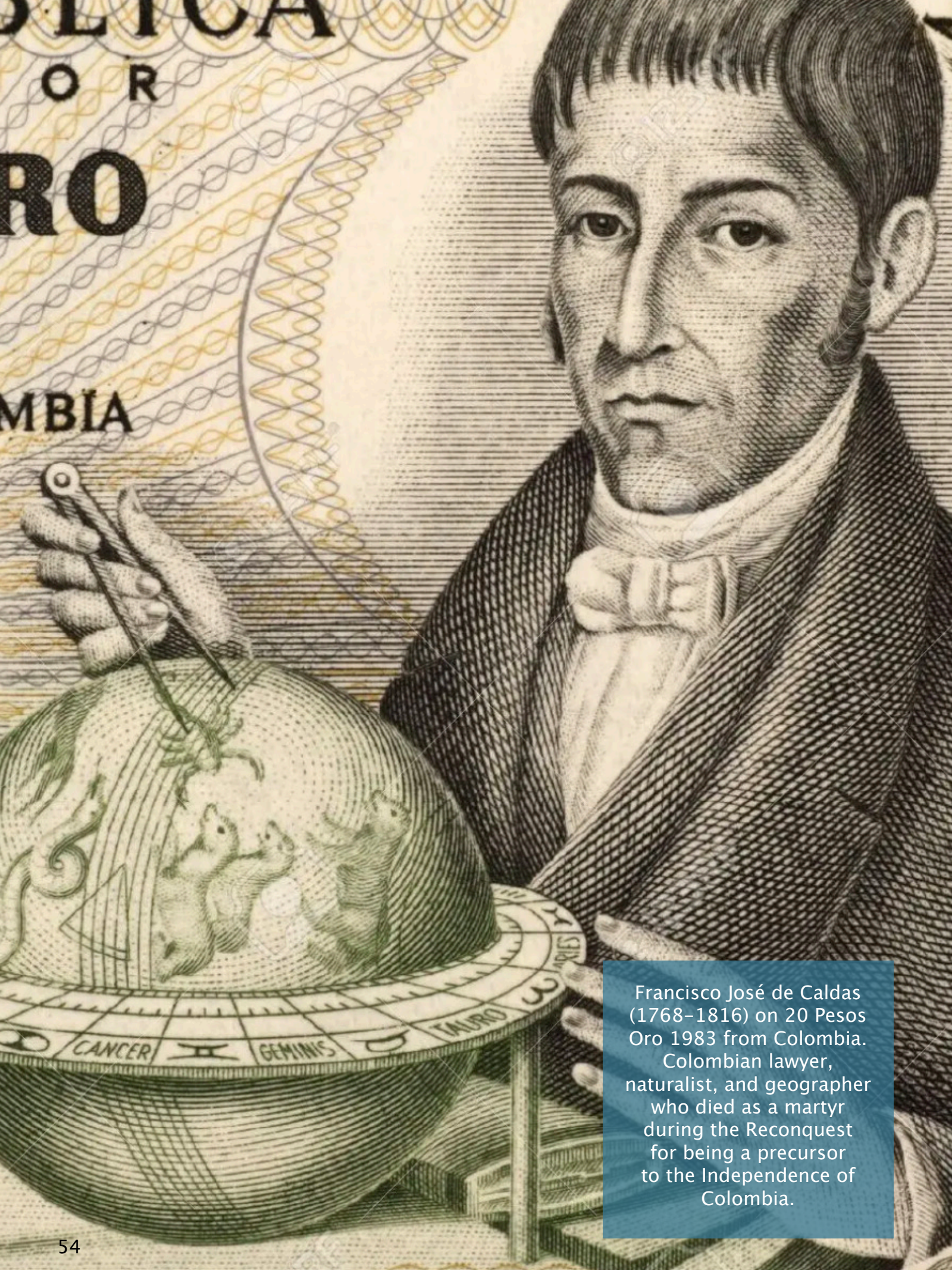
**List of fish identified by Mutis,
some later taxonomized by Humboldt.
Source:Amat García and Agudelo-Zamora (2020).**

Clase taxonómica	Nombre común citado por Mutis	Nombre científico	Referencia
Osteichthyes	Bocachico	<i>Prochilodus magdalenae</i>	Mutis (1761), Mutis (1953), Agudelo-Zamora (2019)
	Pataló u Hocicón	<i>Ichthyoelephas longirostris</i>	Mutis (1761), Mutis (1953), Agudelo-Zamora (2019)
	Guapucha	<i>Grundulus bogotensis</i>	Mutis (1761), Humboldt y Valenciennes (1821), Agudelo-Zamora (2019)
	Capitán	<i>Eremophilus mutisii</i>	Mutis (1761), Humboldt (1805), Agudelo-Zamora (2019)
	Dorada	<i>Brycon</i> spp	Mutis (1761), Agudelo-Zamora (2019)
	Doncella	<i>Sorubim cuspicaudus</i>	Mutis (1761), Agudelo-Zamora (2019)

1 G. Amat-García, H. D. Agudelo-Zamora, H. D, “Las tareas zoológicas de la Real Expedición Botánica del Nuevo Reino de Granada (1783–1816)”. En RACCEFYN 44(2020), 198.

2 Henry Darío Agudelo Zamora, “José Celestino Mutis and the gestation of ichthyology in the Viceroyalty of New Granada” en Caldasia 44 (2021), 19–22. Disponible en <https://revistas.unal.edu.co/index.php/cal/article/view/91655/81754>

REPUBLICA
OR
RO
MBIA



Francisco José de Caldas (1768–1816) on 20 Pesos Oro 1983 from Colombia. Colombian lawyer, naturalist, and geographer who died as a martyr during the Reconquest for being a precursor to the Independence of Colombia.



Jorge Tadeo Lozano (Bogotá, 1771 – 1816)
Colombian naturalist and politician. (Taken
from Jorge Tadeo Lozano : estudios c, who died
as a martyr during the Reconquest for being
a precursor to the Independence of Colombia.
ientíficos / UTadeo. -- Bogotá : UTadeo, 2014.
172 p. : il. col. ; 22 cm.



Now, in the complete list of fish identified by Mutis provided by Agudelo–Zamora, we found an interesting data and is that not all the freshwater fishes named by the expeditionary today have a taxonomic name, striking if we frame it within the central objective of this research. We must emphasize the freshwater fishes described in the Girón region, given its relative proximity to Lake Tota, however we do not have the evidence to affirm that one of these species is the Fat Catfish, although we must take this element into account: the existence of the freshwater fishes with common names listed by Mutis that have not yet been identified. Here is the list provided by this ichthyologist:

ZOOLOGY

<http://www.revistas.unal.edu.co/index.php/cal>

<https://doi.org/10.15446/cal.44n3.91655>

Caldasia 44(3):xx-xx. September-December 2022

Table 1. List of common names of fish registered by Mutis and their actual scientific names. Species from the Magdalena, Luisa and Cumaná, and Girón areas in the 18th–19th centuries in the Viceroyalty of New Granada. *: unpublished name; +: Castellanos-Morales (2011); #: Class; l: Marine species; ^: Common names are related with different scientific names and regions. ARJBM-CSIC: Archivo del Real Jardín Botánico de Madrid.

Fish common names used by Mutis	Current scientific names ^	Name listed in		
		ARJBM-CSIC (1761) Fishes of Magdalena	ARJBM-CSIC (1760–1808a) Luisa and Cumaná	ARJBM-CSIC (1760–1808b) Fishes of Girón
Anguila - Anguilla	<i>Symbranchus marmoratus</i> Bloch, 1795	X		X
Bagre blanco	<i>Sorubim cuspicaudus</i> Littmann, Burr & Nass, 2000	X		
Bagre pintado	<i>Pseudoplatystoma magdaleniatum</i> Buitrago-Suárez & Burr, 2007	X		
Barbudo	<i>Pimelodus grosskopfii</i> Steindachner, 1879	X		
Benton, Mohino	<i>Megaleporinus myscorum</i> (Steindachner, 1900)	X	X	
Bocachico	<i>Prochilodus magdalenae</i> Steindachner, 1879	X	X	X
Capaz	<i>Pimelodus</i> spp		X	
Capitán	<i>Eremophilus mutisii</i> Humboldt, 1805		X	X

Capitanejo	<i>Trichomycterus nigromaculatus</i> Boulenger, 1887 +	<i>Astroblepus</i> spp	X	
Chas	<i>Curimata mivartii</i> Steindachner, 1878		X	
Choque o Caraguala	<i>Chaetostoma</i> spp	<i>Dolichancistrus</i> spp		X
Ciegucecito	<i>Cetopsis othonops</i> (Eigenmann, 1912)			X
Corcobata				X
Coron_coron	<i>Pterygoplichthys undecimalis</i> (Steindachner, 1878)		X	
Corunta	<i>Parodon magdalenensis</i> Londoño-Burbano, Román-Valencia & Taphorn, 2011	<i>Leporellus vittatus</i> (Valenciennes, 1850)		X
Corvinata	<i>Plagioscion magdalenae</i> (Steindachner, 1878)		X	
Cuchara	<i>Sorubim cuspidatus</i> Littmann, Burr & Nass, 2000			X
Cuchinito	<i>Parodon suborbitalis</i> Valenciennes, 1850			X
Cucho	Loricariidae			X
Cutumbi			X	
Doncella	<i>Ageniosus paralis</i> Lütken, 1874		X	
Doncellita vieja			X	
Doneon				X
Dorada	<i>Brycon moorei</i> Steindachner, 1878		X	X

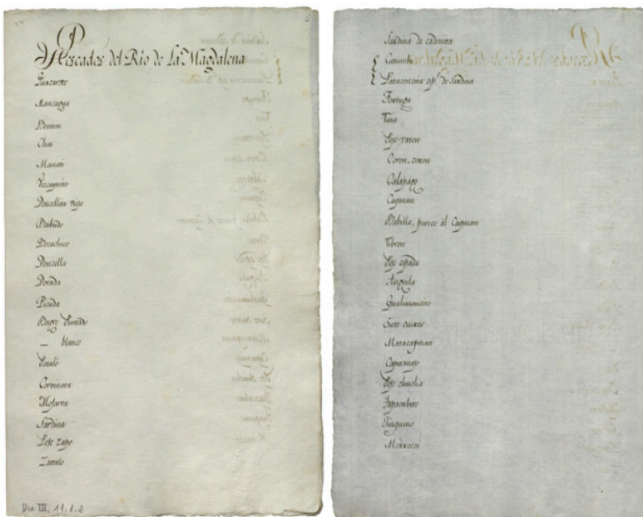
Guabina	<i>Hoplias malabaricus</i> (Bloch, 1794)	<i>Lebiasina</i> spp		X	X
Gua carote	<i>Lastancistrus</i> spp		X		
Gualimoncito			X		
Guapucha	<i>Atherina guapucha</i> *	<i>Grundulus bogotensis</i> (Humboldt, 1821)	X		
Jabonero	<i>Hemibrycon</i> spp	<i>Trichomycterus</i> spp	<i>Astroblepus</i> spp		X
Jinguemo			X		
La mprea					X
Machete				X	
Mancagua			X		
Matacayman	<i>Centrochir crocodili</i> (Humboldt, 1821)		X		
Mojarra			X	X	X
Nicuro	<i>Pimelodus yuma</i> Villa-Navarro & Acero, 2017			X	
Pataconcita, especie de sardina	<i>Gasteropelecus maculatus</i> Steindachner, 1879	<i>Astyanax</i> spp	X		
Pataló, Hocicon	<i>Ichthyoelephas longirostris</i> (Steindachner, 1879)		X	X	X
Peje chucha	Loricariidae		X		
Peje espada	<i>Xiphias gladius</i> Linnaeus, 1758 !		X		
Peje raton, Peje Varon, Culebrino, Cipata	<i>Sternopygus</i> spp	<i>Apteronotus</i> spp	X		X
Peje Zapo	<i>Pseudopimelodus</i> spp		X		X



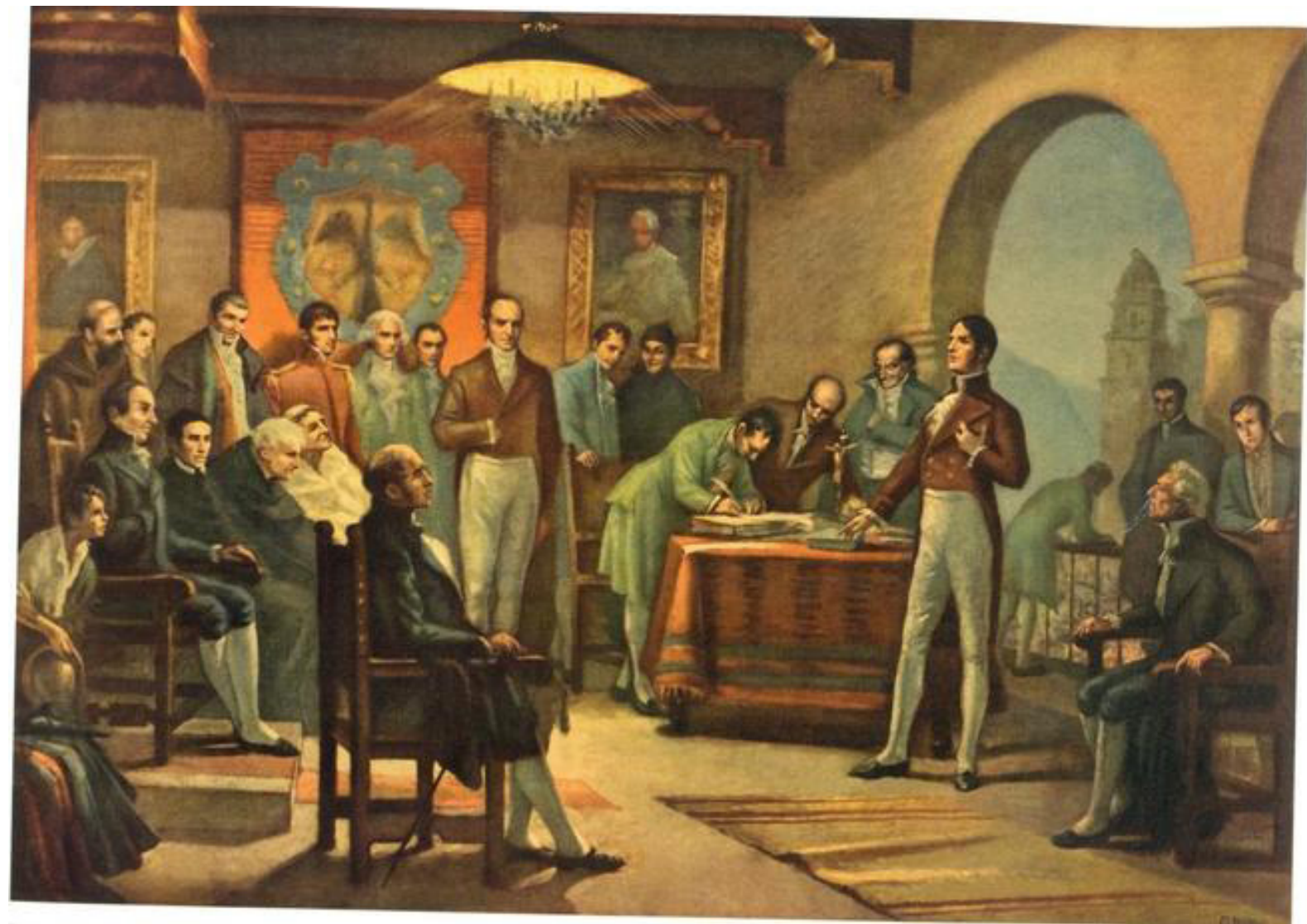
Picuda	<i>Sphyræna barracuda</i> (Edwards, 1771) !	<i>Salminus affinis</i> Steindachner, 1880	X	X
Quinquín - Kin Kin	<i>Pimelodella</i> spp +			X
Sabaleta	<i>Brycon</i> spp		X	
Sardina	<i>Astyanax</i> spp		X	X
Sardina blanca o grande	<i>Astyanax</i> spp			X
Sardina de cadenita	<i>Astyanax</i> spp		X	
Sarina pequeña	<i>Astyanax</i> spp	<i>Hemibrycon</i> spp	<i>Eretmobrycon</i> spp	X
Siete cueros	<i>Pimelodus</i> spp		X	
Tapacubito			X	
Tibron-Taburon	Chondrichthyes # !		X	
Tuna - Atún	<i>Thunnus</i> spp	<i>Katsuwonus pelamis</i> (Linnaeus, 1758)	X	
Vizcaynito	<i>Pseudocurimata</i> spp	<i>Curimata mivartii</i> Steindachner, 1878	X	
Volador	<i>Lebiasina</i> spp	<i>Gasteropelecus</i> spp		X
Zapatero	<i>Sturisomatichthys</i> spp		X	
Zapo grande, Zapo pequeño o rojo, Zapo ordinario o mediano	<i>Pseudopimelodus</i> spp			X
Zavalo	<i>Megalops atlanticus</i> Valenciennes, 1847 !		X	

List of common names of fish made by Mutis. Agudelo-Zamora (2021).

In this way, the reforms established at the end of the 18th century in the colonial world let Mutis become the leader of the botanical and naturalism methods as the head of science in Colombia during this period. Despite his death in 1808, his legacy was translated into the beginning of a scientific tradition complemented with new political discussions that produced as a result, the impulse of the independentist project and the emergence of the republic.



Fresh water fishes from the Magdalena River, made by José Celestino Mutis (1761), which includes reptiles. Source: Archive of the Royal Botanical Garden-CSIC 1761. Div. III, 11, 1, 2



Signature of the Independence Act of Santafé de Bogotá. July 20, 1810. Coriolano Leudo, 1938 Museum of Independence.



2.

Humboldt, Mutis and their ichthyological research

Here we will review the journey of Alexander Von Humboldt and Aimé Bonpland linking it with the ichthyological research of Mutis. The first question is, what was the reason that led Humboldt visit the Viceroyalty of New Granada? This question, of course, is framed in the initiative to visit America. In this regard:

“the decision and the opportunity to carry out such a long scientific expedition throughout the New World was the result of a long chain of not always related personal and professional circumstances that motived him to trip. Everything seems to indicate that the main reason was to live an experience that was previously unique and hardly repeatable in the world at that moment¹”.

In turn, we must consider the relevance of the port of Cartagena and the need to cross this region to reach the territories of present-day Ecuador and Peru. Now, we can then explain Humboldt's interest in crossing the central highland region, founded on his wish to meet José Celestino Mutis in Bogotá, in one of the stages of his American journey. In Cartagena, upon arrival in April 1801, they recommend the most difficult way to get to Guayaquil, crossing the Viceroyalty of Nueva Granada through the course of the Magdalena River, where he takes the opportunity to draw the cartography of New Granada and meet Mutis personally, which was a friend of Linnaeus and whom he considers then a connoisseur of American taxonomy and flora. Mutis himself is notified of the visit to be made by the Prussian².

1 Alberto Navas Sierra. “Personalidad, ciencia y contexto histórico en un sabio ilustrado: Humboldt y el Virreinato de la Nueva Granada (1801–1829).” en *Arbor* 163.642 (1999): 246.

2 Armando Dugand, “El Primer Arribo De Humboldt a La Nueva Granada”, en *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 43(2019):210–213.

Taken from:
“Itinerario de dos etnografías:
Alexander Von Humbolt
y Gregorio Hernández de Alba”
by Mariana Alejandra Moscoso
y Alejandro Garcés. Universidas

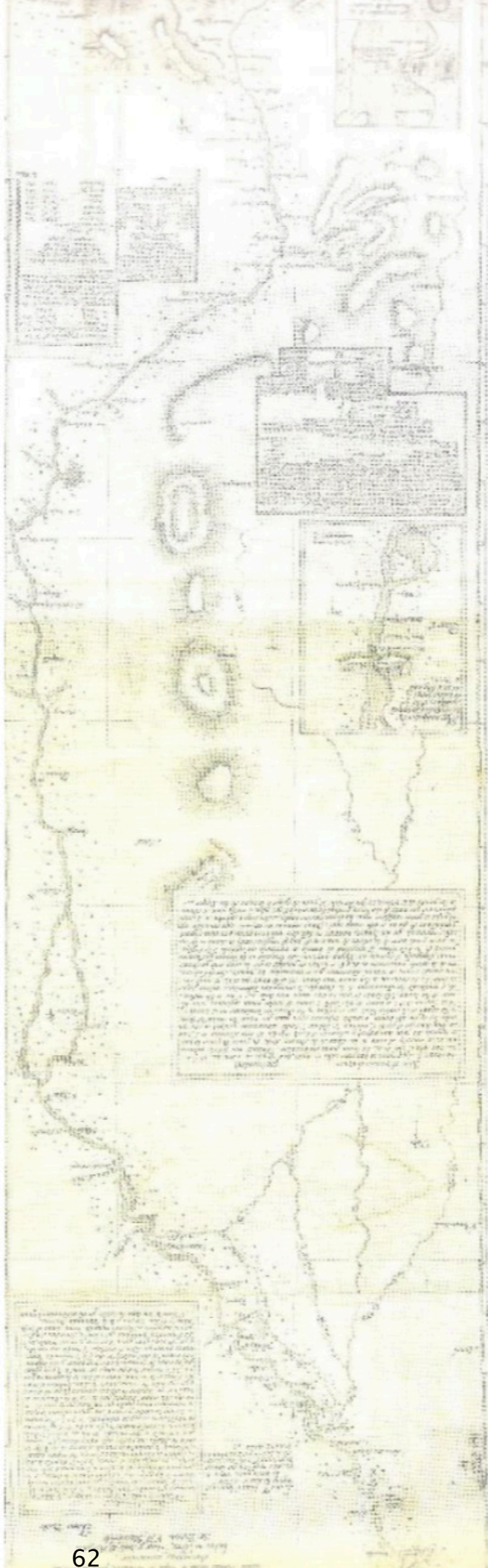


“Yes, my dear friend, I am a young and happy old man, living among flowers and loved ones. This wonderful America, full of contrasts, has tied me with strong ties.”

-Alexander von Humboldt (1769-1859)

A handwritten signature of Alexander von Humboldt in cursive script, written in dark ink. The signature is located at the bottom center of the page, overlapping the background image of Humboldt's portrait.

Nacional de Colombia



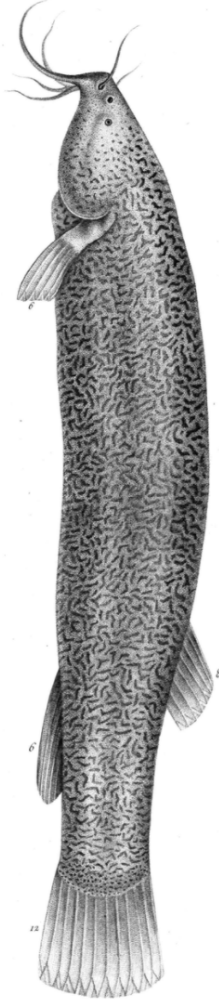
Map of the Magdalena River made by Humboldt. Source: Humboldtiana NEOGRANADINA Alberto Gómez Gutiérrez.



By July 1801, Humboldt and Bonpland arrived in Santa Fe, the capital of the Viceroyalty, where they met with the main scientists and enlightened people of New Granada. Both stayed at the house of José Celestino Mutis (in the current Bogota sector of San Victorino) and were in the city for about two months due to a discomfort suffered by the French expeditionary. This photograph was dated 1866, when the property belonged to Soledad Acosta de Samper. Source Humboldtiana NEOGRANADINA Alberto Gómez Gutiérrez.

EREMOPHILUS MUTISII.

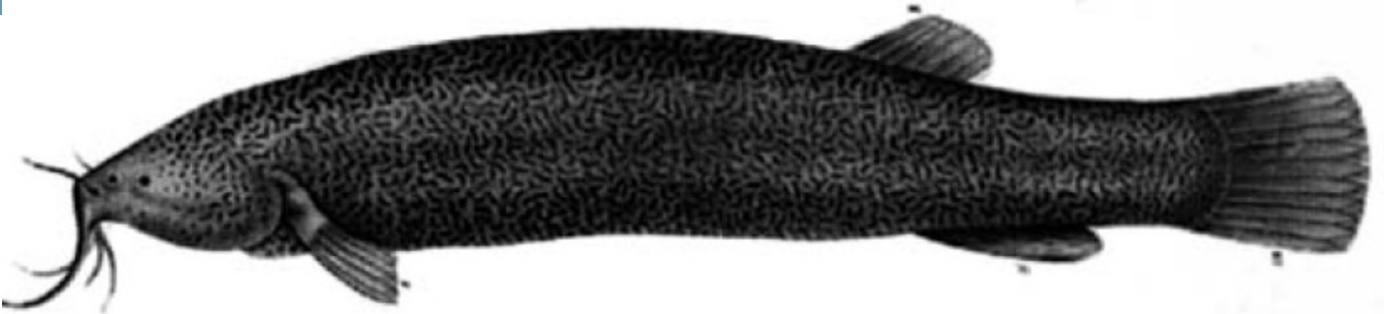
Pl. VI.



Humboldt and Bonpland toured the Sabana de Bogotá and recorded their impressions of the mountainous landscape, flora and fauna. In fact, the German naturalist first described the captian of the Sabana, a native fish of the Bogotá River, and named him Eremophilus mutisii in honor of Mutis. Upon reaching Guatavita, he was pleasantly impressed by the landscape of the lagoon, to the point of not only illustrating it but also briefly commenting on its past (the hole with which the conquerors tried to dry it out to extract the gold pieces that the natives deposited in their rites) but also examine the chemical composition of its waters. Source Humboldtiana NEOGRANADINA Alberto Gómez Gutiérrez.



Original illustration of *Eremophilus mutisii* by Alexander von Humboldt (1805)



(*Eremophilus mutisii*), emblematic fish of the Cundiboyacense highlands, was the first species of freshwater fish scientifically described for Colombia by Alexander von Humboldt in the year 1805.

The name *Eremophilus* is translated as “lover of solitude” and is clearly allusive to the perception of stillness that Humboldt experienced in the place where he first captured a specimen of this species; and the name *mutisii* was his recognition of José Celestino Mutis.

Humboldt describes the place where he found the species as follows: “it lives in the small river of Bogotá, which forms the famous Tequendama waterfall”, thus defining the typical locality of the species and highlighting one of the main aesthetic attributes of the Bogotá river. Humboldt also assures that “the captain is a very pleasant meal” and draws attention to its importance during the celebration of Lent for the inhabitants of the capital, Santa Fe at that time. In the same way, it presents a very reliable illustration of the appearance of the fish, which complements its very detailed morphological description. Sou Instituto de Investigación de Recursos Biológicos



Capitán de la sabana . Credit: Carlos DoNascimento

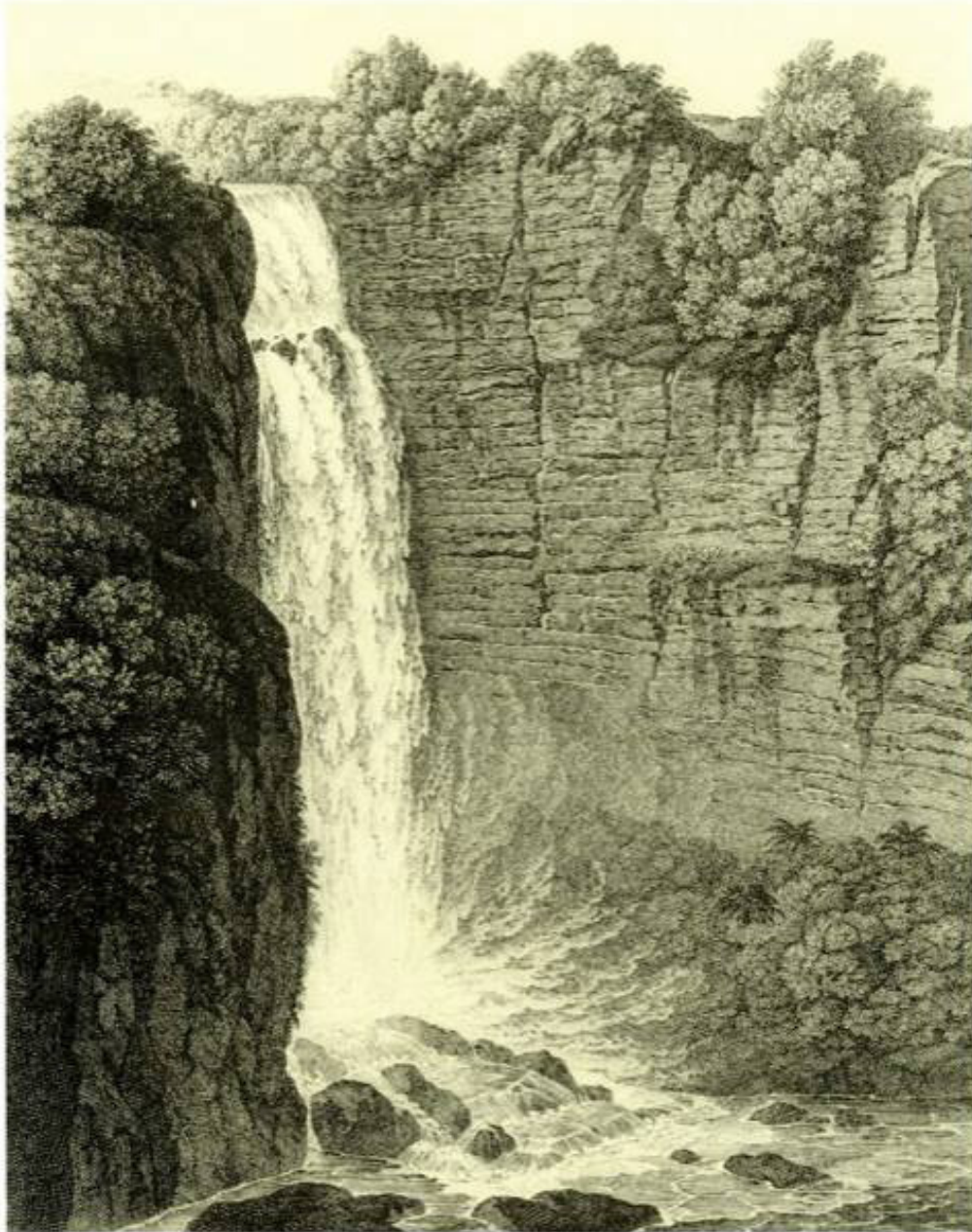
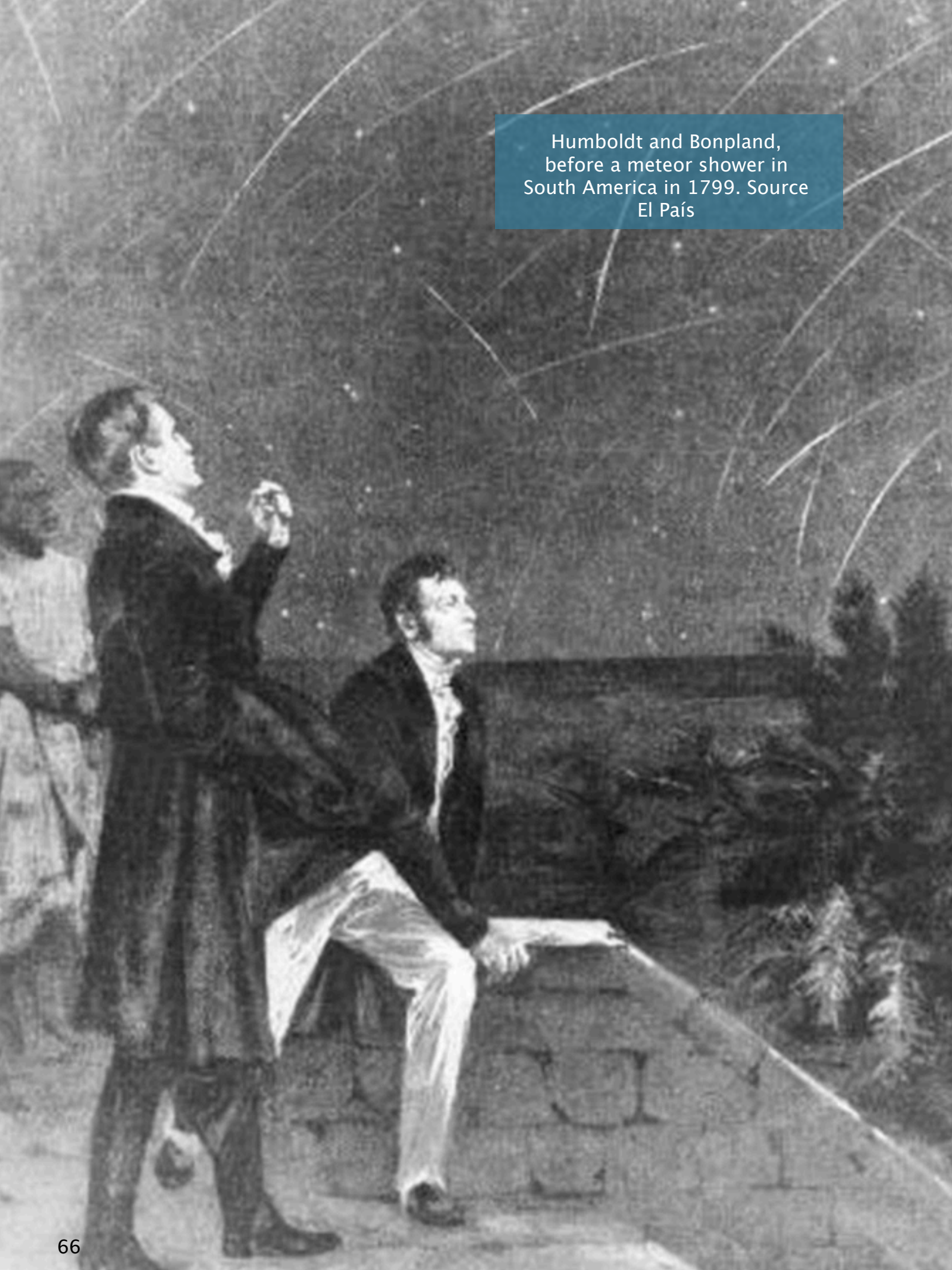


LÁMINA 6

Chute du Tequendama

By Alexander von Humboldt. 1810. Vues de Cordillères et monumens des peuples indgènes de l'Amérique. Paris: J. H. Stone, plate 6.

Humboldt and Bonpland,
before a meteor shower in
South America in 1799. Source
El País





Let's blur the route followed by Humboldt in present-day Colombia during his stay between 1801 and 1802, based on some of his observations about the territory. The Prussian, after arriving in Cartagena, passed through Turbaco, a nearby town and there he embarks on his journey along the Magdalena River until he reaches Honda, a town adjacent to the river, where he begins the ascent of the Andes until he reaches Santafé. His arrival was adorned with a great reception from the Viceroyalty authorities. Later he continued to Popayán bound for Ecuador.

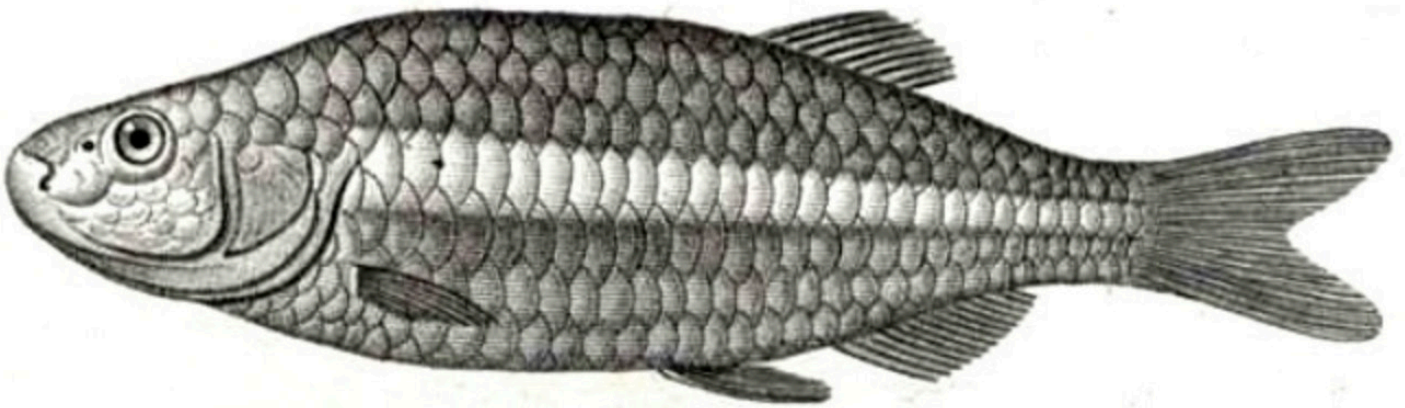
Regarding Humboldt's inquiries about the ichthyofauna of the Cundiboyacense highlands, we know that, during his visit to Mutis in Santafe, he showed him in detail his entire inventory of the botany and zoology of the region, therefore and considering that Humboldt and Bonpland did not visit the current Boyacá region, we can infer that the knowledge in this matter developed by the European explorer is a direct product of Mutis's findings. He would show him a collection of his folio drawings, which ranged from 2000 to 3000, high-value work for Humboldt who came to Santafé to draw a map of the northern region of the Amazon and compare his drawings with those of Mutis¹. To his surprise, he found a team of herbalists and painters working as a team for the Botanical Expedition.

Regarding the ichthyological information provided by Mutis to Humboldt, **Agudelo Zamora** assures that the New Granada herbalist voluntarily provided a large amount of data to both Humboldt and Bonpland, within which were notes and drawings of the botanical work. While Mutis never published his findings: "Humboldt and Bonpland published almost all their own in a great 30-volume work of their trip in America, therefore, it is clear who has the taxonomic authorship. When Humboldt met Mutis in Santafé, Humboldt (then 32 years old) could have considered Mutis (69 years old) an old man with little probability of publishing his findings".

In Humboldt's description of the Guapucha, he indicates: "Lorsque je dessinai ce poisson à Santa-Fe de Bogota (in July 1801), dans la maison de M. Mutis, je le pris pour une Atherine de Linné, genre de poissons à nageoire dorsale double ou simple, qui ... [When I drew this fish in Santa Fé de Bogotá (in July 1801), in the house of Mister Mutis, I took it for a Linnaean Atherine, a fish genus with a double or simple dorsal fin fish, that...] (Humboldt and Valenciennes 1821)²".

1 M. A Puig-Samper, J. L. Maldonado y X. Fraga, "Dos cartas inéditas de Lagasca a Humboldt en torno al legado de Mutis", en *Asclepio* 56(2004), 65-86.

2 Henry Dario Agudelo Zamora, "José Celestino Mutis...", 10-11.



1.

Guapucha /*Grundulus bogotensis*. Humboldt, 1821.



Therefore, this author establishes that Humboldt's ichthyological findings are, to a great extent, the product of Mutis' work and observations, which the Prussian baron complemented. Therefore, we can conclude that the pioneer of ichthyological knowledge in the territory of present-day Colombia is José Celestino Mutis, it is very importante to highlight that Mutis aquere most of his knowledge and observations that he developed, derived of his experience with indigenous communities and afroamericans.

Later, at the end of the 19th century and the beginning of the 20th century, new European scientists ventured into the description of freshwater fishes in the region (Steindachner, Boulenger, and Eigenmann), although the ichthyological studies themselves began with the work of Andrés Posada Arango (1839–1922) along with a new wave of foreigners in the middle of the 20th century (Shultz, Fowler, and Miles). Finally, in the second half of the 20th century, ichthyological studies have multiplied in the country up to the present ¹.

1. Maldonado–Ocampo, Javier A. y José Saulo Usma. “Estado del conocimiento sobre peces dulceacuícolas en Colombia.” en Informe Nacional sobre el avance en el conocimiento y la información sobre la biodiversidad 1998–2004. (Bogotá: Instituto Alexander Von Humboldt, 2006): 174–176.



3.

Scientific expeditions to Lake Tota.

The emergence of scientific disciplines in the country was generated by an expeditionary tradition imported from Europe, in this section, we will review expeditions made by travelers to Lake Tota to check if there was any mention of the ichthyofauna of the region. Although the first scientific explorations of present-day Colombia were carried out at the beginning of the 18th century, they did not cover the Andean region, as we previously said, therefore the first mentions of tours of the lake and its surroundings date from the 19th century.

Four accounts of explorations to the site were reviewed and transcribed, carried out by the French Gaspard Theodore Mollien in 1823, the Granadino (Colombian) Manuel Ancizar in 1852, the Spanish José Gutierrez de Alba in 1871, and the German geologist Emil Grosse in 1926. In 1823, the French explorer Gaspard Theodore-Mollien toured several towns in the Cundiboyacense highland region, among those places, he visited Lake Tota, which made the following description:

“Its extension is considerable since it can’t be turned around in one day. Superstition has not ceased to populate these places with dreadful wonders: indeed, the rugged aspect of the region; the waters suspended, to say in some way, at such a height and they’re always agitated by the wind that blows from Tvxillo [Toquillo-Toquilla], a moor higher than Lake Tota; the mucilaginous substance, oval in shape, and full of insipid water that is in the sand of its beaches, everything tends to arouse the strangeness. According to the rumors of the region people, the lake is not navigable; the malefic geniuses inhabit its depths, in dwellings in which, they say, the porticoes can be seen when one moves away from the shores of the lake inwards, and even you can barely see, they add, a monstrous fish emerge from its depths. that can only be noted for a few moments¹” .

¹ Gaspard Theodore Mollien [1823], El viaje por la República de Colombia en 1823 (Bogotá: Ministerio de Educación Nacional, 1944), 79–81.



This quote of Gaspard–Mollien let us confirm the information previously showed in the anonymous Description of the Tunja region made two hundred years ago, in 1620, where it was stated that Lake Tota was not navigated due to the intense waves of its waters (in addition to all the beliefs around it), in turn, in this story the presence of fish or other fauna in the lake (ducks or birds) is not mentioned. However, this seems to have changed in the mid–nineteenth century, as the Colombian writer Manuel Ancizar tells us in his Pilgrimage of Alpha (Alpha was the pseudonym by which Ancizar referred to himself), who assures that this belief remained until a European ventured to sail the lake:

“This hoax of the freshwater devil has been considered so real that no one dared to explore the lake, of which, and of its islands, they told worse stories than those of Piedrahita, until recently an Englishman fearless of the devil arrived. Which, making a raft of reeds, approached the main island, where it fought a bloody battle with ... the timid deer, who peacefully possessed it. Following the example of the English, other navigators entered, in rafts and canoes, occupied the islands and denied the supposed enchantment of the lake, which today has no other dangers but those caused by the winds of the Toquilla mountains when they shake the three–square leagues of surface that they offer the waters to the action of the gales”¹.

Our research group tried to trace who was the Englishman mentioned that first sailed the lake, and although we cannot establish his identity, we hypothesize that the person mentioned here is Edward Walkhouse Mark, the author of the only painting made of the lake and attached to the first report. This Conjecture was made from three elements, the first one, the relative temporal proximity between Mark’s exploration (1846) and Ancizar’s text (1852), Mark’s nationality, and the certainty of his journey through the Lake as a result of the painting that he left for posterity. Unfortunately, the presence of the Fat Catfish in this extensive wetland is also not reported.

¹ Manuel Ancizar, Peregrinación de Alpha: por las provincias del norte de la Nueva Granada en 1850 y 51 (Bogotá: Imprenta de Echeverría Hermanos, 1853), 302.

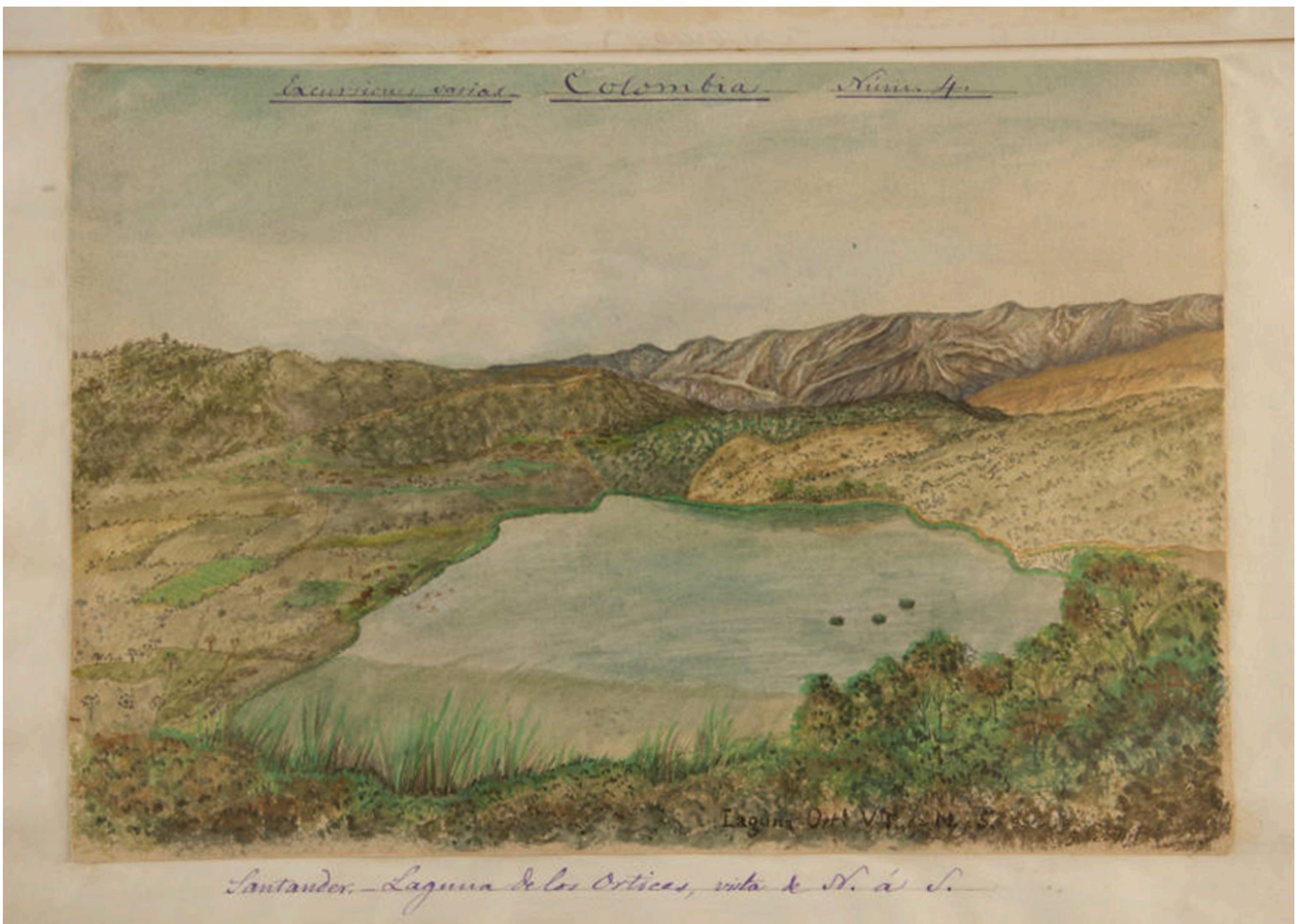


José Gutierrez de Alba. Laguna de Siecha. [1872]
Banco de la República Art Collection. Watercolor,
15 x 26cm.

These explorations, the most detailed one was carried out by the Spanish traveler José Gutierrez de Alba in December 1871, the author narrates that he was invited to sail by Joaquín Diaz Escobar, a wealthy landowner who was allowed for the government to occupy the islands of the lake to navigate them frequently. In one of his boats, Gutierrez de Alba and his companions arrived at the largest island of the Tota and returned to shore during the night. Regarding the lake he wrote:

“The lagoon has an extension of about three leagues from northeast to southwest and almost the same in its greatest width, with several extensive inlets, four islands, and three large peninsulas, between which there are narrow and deep channels, corresponding to the recesses of the mountains submerged in the lake, totally or partially. The water is extremely crystalline and the ripples on its surface, ruffled by a strong breeze, formed waves like those of the Ocean, which they seemed to mimic, although in minute proportions”.

However, in Gutierrez de Alba’s extensive trip, he did not skimp on making drawings of numerous lagoons in the Colombian Andes region, representing the Guatavita, Siecha, and Los Ortices lagoons on his visits, nevertheless, he claimed not to have been able to make a painting of Lake Tota due to its large size, which is why we, unfortunately, do not have a representation of its authorship. Although this story mentions the presence of reeds on the banks, as well as plantations of wheat, potatoes, corn, and barley, again we lack descriptions of the fish fauna.



José Gutierrez de Alba. Laguna de los Ortices. [1878]
Banco de la República Art Collection, Watercolor,
18 x 26cm.

Ultimately, we have the scientific observation of the lake made by the German geologist Emil Grosse, director of the National Scientific Commission in the 1920s. The author of the geological map of 1929 exposed in the previous report and is of great importance for this investigation. In this report, there is no mention of any species of fish inhabiting the lake, or other fauna and flora of the region, possibly because of the author's interest in analyzing the geology of the place¹.

In conclusion, in the review of these expeditions in Lake Tota throughout the 19th century and the beginning of the 20th century, there are no descriptions of any type of ichthyofauna or Fatty Fish before the introduction of trout in 1940. However, this observation must be carried out with great care since the fact that no fish have been described in the area does not imply its non-existence and it may simply be a product of the bias of the explorers of this period.

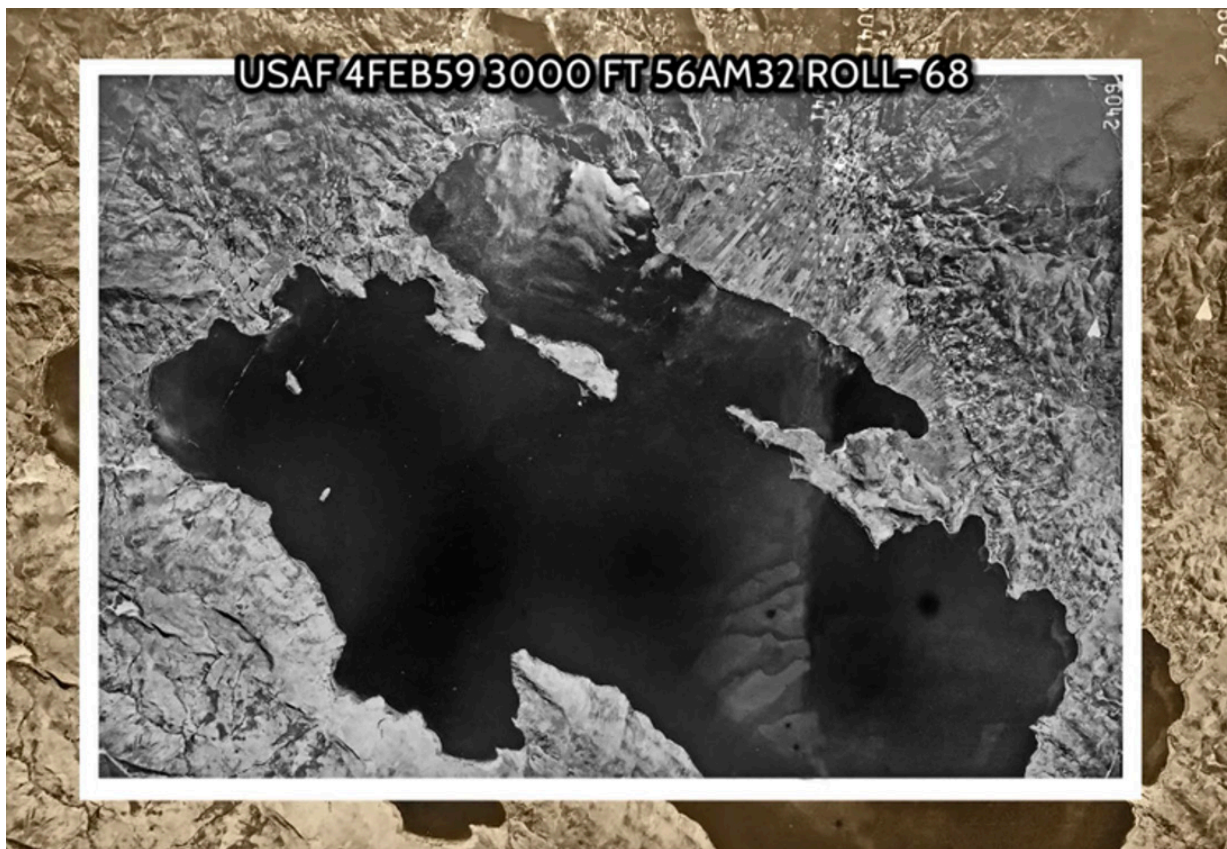
¹Emil Grosse, Informe geológico sobre la hoya hidrográfica de la Laguna de Tota (octubre de 1928), en CEGOC, Tomo III (Bogotá: Imprenta Nacional, 1935): 233-243.



5.

The possible craters on the lake.

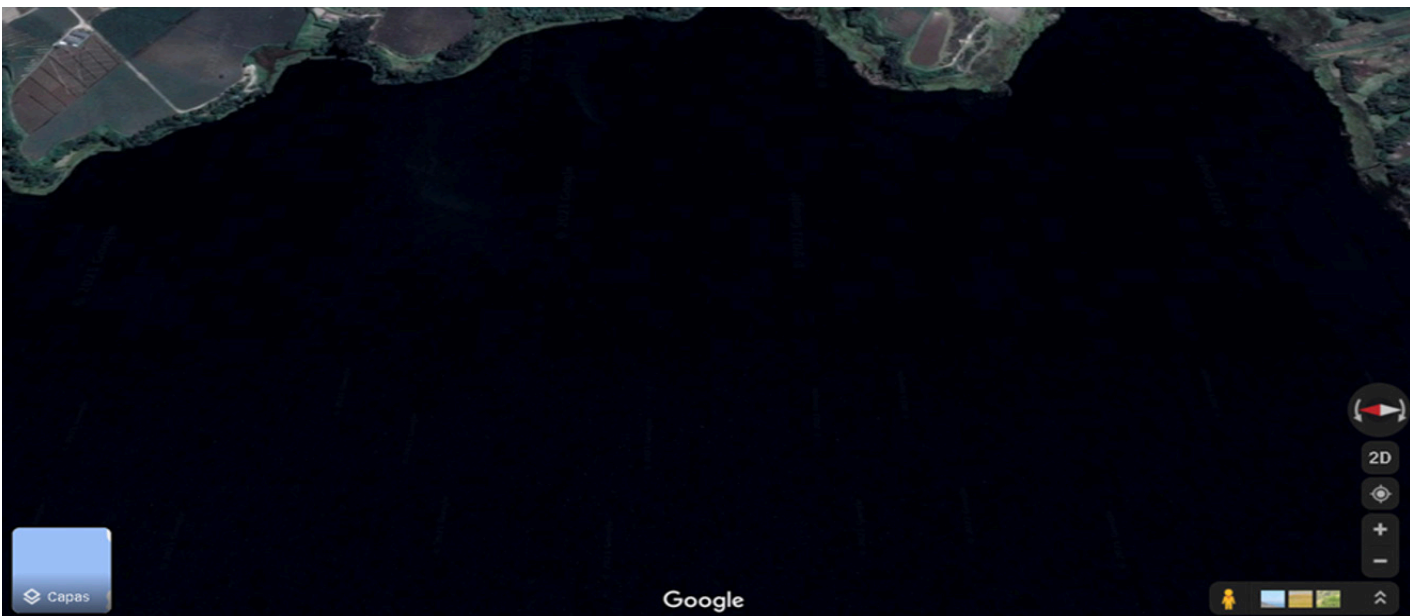
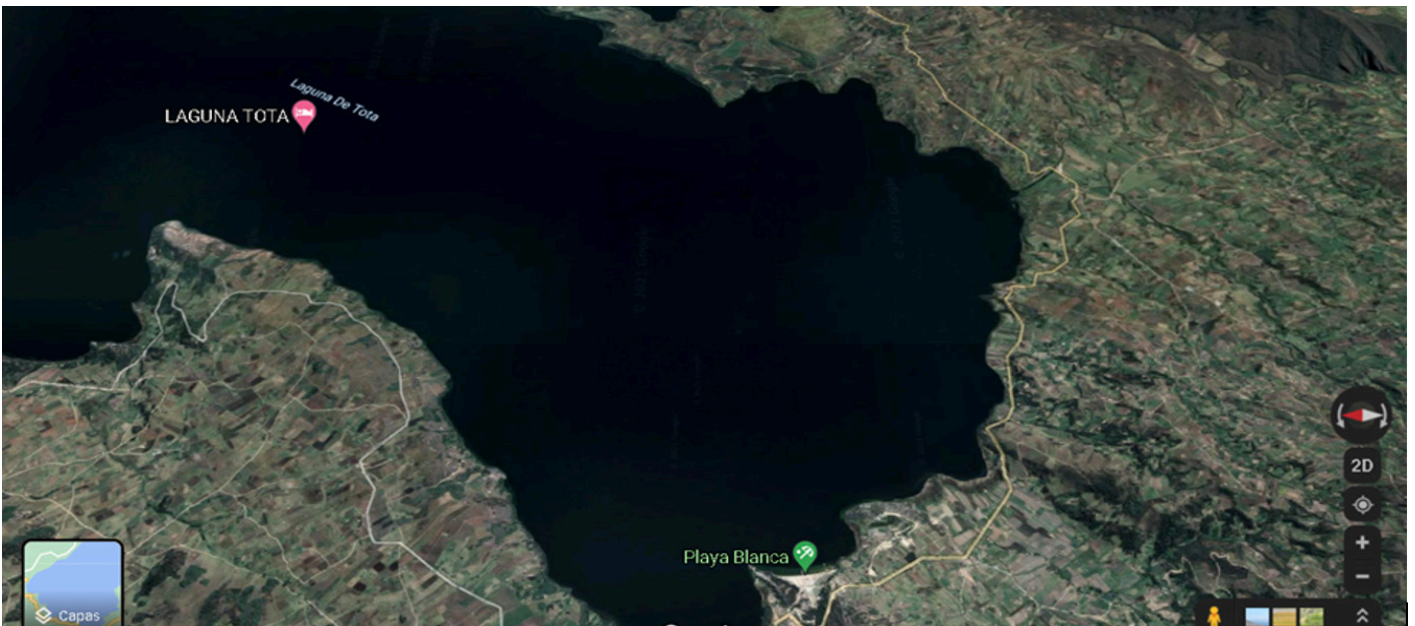
In one of the referenced audiovisual materials, an edited documentary from 1991 uploaded to YouTube, entitled “Forgotten files. Lago de Tota” by **Roberto Tovar Gaitán**, it is claimed that, on February 4th, 1959, a United States Air Force plane flew over the lake taking aerial photographs of the Colombian Andean region¹. In one of these, Lake Tota appears, with an astonishing detail, the angle of the light seems to reveal the bottom of this enormous body of water, in which several craters can be observed at the lake’s south bottom.



¹ As a hypothesis, these aerial photographs could be a mission commissioned and authorized by the Agustín Codazzi Geographical Institute to the US technicians, to develop new cartographies. Given the existence of other aerial photographs on the internet (of the El Garcero Reserve in Mompox, for example) with a USAF signature, but referenced as property of the IGAC. In addition, in the IGAC aerial photography database, multiple photos of that day taken in Santander and Boyacá are referenced.



Although we could not access the original image, this map was contrasted with the satellite images of Google Maps to corroborate the presence of these craters as places where the Fat Catfish could be located. However, these craters were not identified in the satellite images, just as they were not identified in the diving carried out by the authors of the documentary, completely nullifying this hypothesis.



Taken though Google Maps.



6.

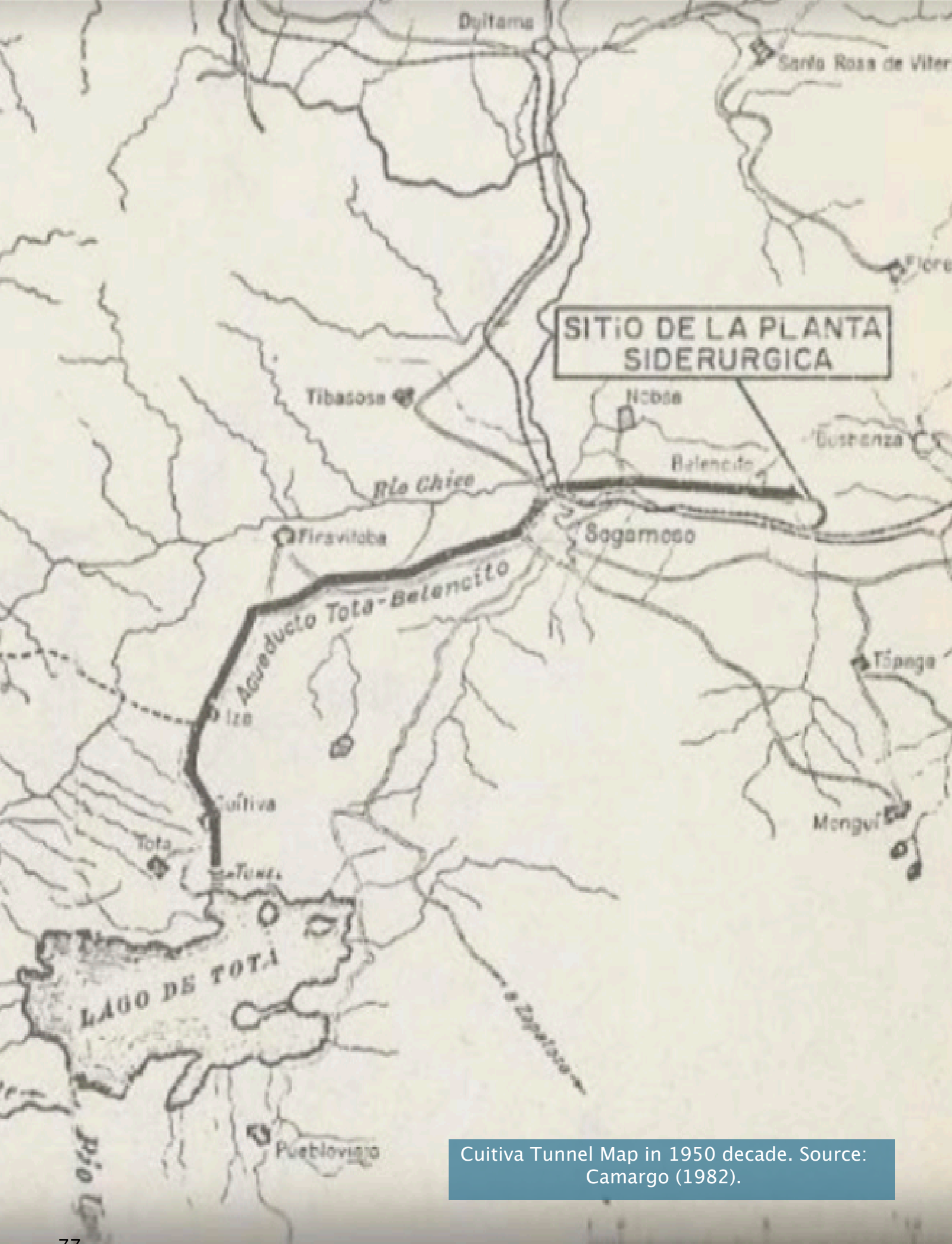
The 20th century: The Cuitiva Tunnel

The modernization and the search for the use of the country's natural resources by the elites and the local and national politics implied a series of works and projects to improve the conditions of the inhabitants in rural regions. The ideal of progress, translated into infrastructures such as railways, telegraphs, canals, and tunnels, was seeded as the main goal of public policies in the second half of the 19th century. Lake Tota would not escape these new projects. Manuel Ancizar had already written in 1852 about the possibilities of exploiting the lake's waters from the channeling of the Upía River drain, located to the south of it. However, a different project was considered, the possibility of irrigating the waters of the Lake to the crops in the nearby towns of Cuitiva, Iza, Tota, Tibasosa, and Sogamoso through a tunnel located on the western shore.

In 1876, Joaquín Díaz Escobar, a wealthy landowner authorized by the government to take advantage of the water level, and the Cuban engineer Basilio Angueira proposed the digging of a tunnel in the Boquerón de Cuitiva, however, this construction was postponed indefinitely.

At the beginning of the 20th century, in 1926, Alfredo Sanchez Franco, another wealthy landowner, financed the construction of this tunnel to irrigate his lands, however, his tunnel was destined by the local government to be used by the peasants of the region. In the 1950s, the tunnel was renovated and extended, with the intervention of the main steel company in the country: Acerías Paz del Río, which occupied an enormous volume of the water extracted by the tunnel, seriously affecting the water levels in the lake during dry spells¹. Regarding the search for the Fat Catfish, the existence of this tunnel may indicate the possibility that ichthyofauna from the lake may have passed through this tunnel, however, we do not have evidence to support that this occurred.

¹ Camilo Andrés Martínez Manrique, "Sentidos de lugar y conflictos socioambientales en el territorio acuático del lago de Tota-Boyacá." (Tesis de Antropología, Universidad Externado, 2018), 26-35.



Cuitiva Tunnel Map in 1950 decade. Source: Camargo (1982).



6.

An appetizer of the history of anthropology in Lake Tota

Another discipline that visited the lake and that made great contributions to its biography was anthropology. Before anthropology was institutionalized in the country, there was the National Ethnological Institute that was created in 1941 and which graduated the first professionals in ethnology. With this, began the institutionalization of anthropology as a discipline in the country. Within this first court of graduates is **Eliecer Silva Celis (1917–2007)**¹. **Mr. Silva**, also an archaeologist, made great contributions to the anthropology and archeology of the department of Boyacá not only because of his different investigations carried out in this region (but also in 1942 he founded the Archaeological Museum of Sogamoso and was a cofounder of the one of the Pedagogical and Technological University of Colombia (UPTC) of Tunja (Boyacá), in 1953.

His wife, **Lilian Montaña de Silva**, published in 1970 the book “**Myths and legends Myths, Legends, traditions and folklore of Lake Tota**”. This book has been very relevant to our research, since in this **Montaña** she not only collects myths, legends, verses and poems, but also makes ethnographic notes on the lake towns. Beyond being the wife of Silva Celis, she was known for her work and for the contribution that she also made to the Sogamoso museum. Both husbands were the first Colombian anthropologists to do social research on Lake Tota, however, one of Silva Celis’s texts that could be the first anthropological study on Lake Tota was impossible to find.

In most of the sources consulted, this text is cited. However, like the Fat Catfish, the origin and destiny of this book seems to be a mystery. The name is: “Social Anthropology Research in Tota, 1951”. In one of the songs collected by the author of this book we can identify the importance of the introduction of rainbow trout in Lake Tota in 1940, for the inhabitants of the region at a socioeconomic level this freshwater fish boosted the fishing activities there:

1. Eduardo Restrepo et al, Antropología hecha en Colombia. Tomo I. (Popayán: Universidad del Cauca, 2017), 18.

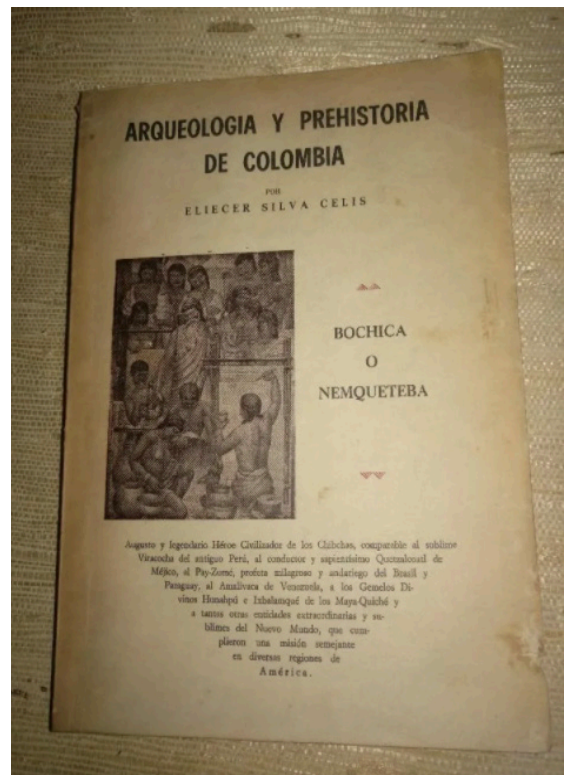


En el páramo 'e Toquilla se pueden cazar venados
Y en la laguna los patos, chivatos los condenados
Cazando yo los venados en el páramo 'e Toquilla
Bregando y por cogerlos y vos comu un' estampilla.
Pa' ir a la cacería al Páramo de Toquilla,
Hay que llevar 'güen' avío y güevos pa' la tortilla.
Cuando a cazar voy venados yo siento mucha emoción,
Es tanto el gusto que siente que me ahoga el corazón.
Quando yo voy a pescar me gasto la noche entera
A veces saco truchitas pero a veces una mera.
Pa' la laguna de Tota la trucha jué bendición
Pa' poder ir a pescar y sentir gran emoción.

In the Toquilla Paramo you can hunt deers
And ducks in the lake, slippery devils.
Hunting deers in the Toquilla Paramo
Struggling for catch them, and you like a stamp
To go hunting at Toquilla Paramo
You must carry food and egg to the tortillas
When I go hunting, I feel many emotions
It's so pleasurable that I feel my heart drowns
When I go fishing, I spent all night
Sometimes I fish little trout's but others just one
To the Tota Lagoon the trouts were a bless
So, we can go fishing and feel such thrill.



Eliecer Silva Celis and Lilian Montaña de Silva



EL TEMPLO DEL SOL EN SOGAMOSO

Taken from
Repertorio Boyacense

Tomado del Repertorio Boyacense

Dr. ELIECER SILVA CELIS
Academia Boyacense de Historia
Director Museo Arqueológico de Sogamoso

1. LOCALIZACION

Sitio: Terrenos del Parque Arqueológico, correspondientes a una parte del emplazamiento mismo que fuera el de la legendaria ciudad del Sol; y situado al Este de la moderna Villa de Sogamoso, a 300 metros adelante del Barrio Mochacá. (Fig. 1).

Altura: 2.570 metros sobre el nivel del mar. Temperatura media: 15°C. Latitud Norte: 5° 42' 59". Longitud: 1° 08' 54" Este, = 0 meridiano de Bogotá.

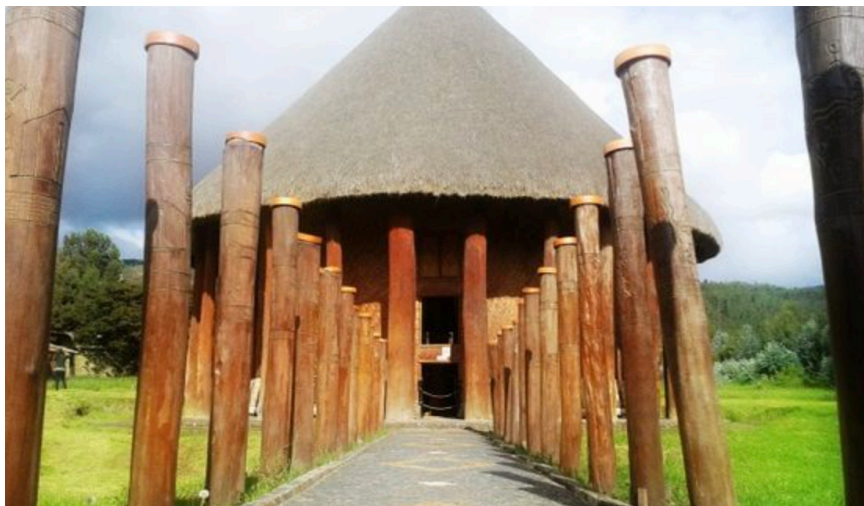
La ubicación de la vieja Suamox fue un hecho afortunado, ya que ella reunió condiciones muy favorables para la vida y desarrollo de la ciudad, a saber: protección, abundancia de aguas, suelo altamente productivo, temperatura benigna, buena irradiación lumínica, exposición, etc. La arquitectura levantada en tales condiciones ambientales y climáticas estuvo muy bien adaptada tanto con respecto a recursos naturales utilizables como en relación a exigencias de una activa y fecunda vida espiritual.

2. ANTECEDENTES HISTORICOS

Desde lejanos tiempos precolombinos la legendaria Suamox, ciudad abierta a propios y extraños aún en tiempos de guerra, se convirtió en un lugar de atracción social y cívico por excelencia. A ello contribuyeron no solo la bondad de sus moradores, la belleza de sus paisajes y la fecundidad de sus campos, sino también la abundancia de recursos naturales de su suelo, como el del carbón mineral, que los Chibchas descubrieron y del cual se beneficiaron



Archaeological Museum of Sogamoso



Taken from Gobernación de Boyacá



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