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International Review for Humboldt Studies
Revista internacional de estudios humboldtianos
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Inhaltsverzeichnis

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Beiträge

Humboldt as a Fountain of Inspiration: An Interview with Ottmar Ette

translated by Ottmar Ette and Haiyan REN

ZUSAMMENFASSUNG

Im Mittelpunkt dieses Interviews stehen die Motivation für die Gründung des Humboldt Center for Transdisciplinary Studies im chinesischen Changsha und die modellierende epistemologische Kraft, die von Humboldt für die wissenschaftliche Arbeit im Bereich von TransArea Studies sowie allgemein transdisziplinärer Wissenschaftskonzepte ausgeht. Hierin zeigt sich Humboldt als Quelle wissenschaftlicher Inspiration.

ABSTRACT

This interview is about the motivations behind the foundation of the Humboldt Center for Transdisciplinary Studies at Hunan Normal University in Changsha (China) and about the epistemological power created by Alexander von Humboldt in the field of TransArea Studies and, in general, in transdisciplinary scientific approaches. Humboldt is seen as a fountain of inspiration.

RESUMEN

Esta entrevista discute las razones que llevaron a la fundación del Humboldt Center for Transdisciplinary Studies de la Hunan Normal University en Changsha, China, y la fuerza epistemológica que ejerce la práctica científica de Alejandro de Humboldt sobre los Estudios Transareales así como sobre concepciones transdisciplinares en el campo de las Humanidades. Se enfoca a Humboldt como una fuerza inspiradora en este campo.

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Ren Haiyan (**Ren** for short hereafter): Many people are curious about the rationale behind the establishment of the Humboldt Center for Transdisciplinary Studies (HCTS) in 2020 at Hunan Normal University in Changsha, China. Could you please briefly elucidate the conceptual framework and vision underpinning the creation of HCTS? Furthermore, what significance does the legacy of Humboldt hold for China, and how pivotal is this significance in your eyes?

Ottmar Ette (**Ette** for short hereafter): Alexander von Humboldt has outlined and brought forward not only the first theory of accelerated globalization, he is without doubt a global figure himself. More than two hundred years ago, he studied, traveled and worked not only in Prussia and Germany, in France, Spain or Great Britain, in Poland or in Russia but also in many countries in Latin America or in the United States of America. He worked on China for several decades, throwing new light on Chinese garden culture as well as on mining experiences, on Chinese travellers as well as on temporal conceptions and on Asian calendars. For me, it seems absolutely necessary to introduce to Chinese readers and specialists the manifold scientific connections between Alexander von Humboldt and China.

Humboldt, for many reasons, was resolutely against colonialism. This was the reason why the British did not allow him to enter the British Empire in Asia. His travels through the Russian Empire in 1829 allowed him to reach the Chinese border, thus fulfilling one of his heart’s wishes. I am convinced that China, with its traumatic history of colonial occupation and anti-colonial fights, is an ideal country where Humboldt’s ideas and the Humboldtian Science can feel at home. The high esteem and respect that Alexander von Humboldt always expressed towards Chinese culture provide a good and solid foundation for mutual exchange and transcultural relations between China and Germany, China and Europe, and – in the spirit of TransArea Studies – between China and Latin America. There is no better moment than now to forge strong ties and relations on this basis.

Ren: Your professional journey commenced with a dissertation on José Martí, the Cuban poet and journalist of the late 19th century. Subsequently, you pursued a habilitation focusing on Roland Barthes, the renowned French essayist and literary critic of the 20th century. Presently, you are recognized not only as a prominent Romanist and comparatist but also as a leading scholar in Alexander von Humboldt studies. Each step in your career to the eyes of ordinary people marks a huge transformation, suggesting a continual pursuit to walk out of the comfort zone. I am wondering how you see the changes yourself and what is the internal consistency, or the logic behind the choices you have made?

Ette: The logic behind all these transformations is simply curiosity, which is a necessary ingredient of science. For if you’re not curious, you’re not scientific. And it’s an expansion. The choice of Jose Marti as a topic was a leap for me, as it took me out of my comfort zone. When I first went to Cuba and told the young people there of my plan to write a Ph.D. dissertation on José Martí, everybody said, “It doesn’t make sense. You’re German and you will never understand what José Marti means for Cubans.” This kind of response always stimulates me. As a result, I started writing my dissertation with a particular emphasis on Martí’s global significance. A year later, a group of great Latin American authors including Gabriel García Márquez, Mario

Vargas Llosa, Carlos Fuentes visited Berlin. Standing in front of a statue of a German, they were struck by the realization that the person so well-known to them, Alexander von Humboldt, was largely unknown to the German public.

That was a very important moment for me as well. When I started preparing my Ph.D. on José Martí, I was aware of the connection he had with Alexander von Humboldt. And I wrote a proposal for a project, my first proposal on Humboldt. With this proposal, I went to one of the most prestigious publishing houses. They told me, "Wilhelm von Humboldt might perhaps do, but not Alexander von Humboldt. It doesn't make sense. We would not sell any copies of him!" Again, this was stimulating for me. I am captivated by the notion that if there is such a direct refusal, there must be something lurking beneath the surface. There could be something new in the field.

Then I continued to work on my PhD thesis on José Martí and at the same time engaging with Alexander von Humboldt. Initially, I found this dual focus too complicated, but I later discovered that these two figures, though distinct, shared an array of topics. This revelation granted me a multifaceted perspective on the world, not only on literature, but on the relation of literature to the world. Finally, it helped me along in a wonderful way. This is why they are still with me on all my routes. My acquaintance with Jose Marti began over 42 or 43 years ago, and with Alexander von Humboldt, more than 40 years as well. They always come and try to teach me different understandings of the world.

From the very start, I was very lucky and happy to have these two visions: one from a Cuban, a Latin American, trying to understand the whole world akin to José Rizal from the Philippines; and the other, from a Prussian and German researcher who became European through his travels, relinquishing the confines of his native land to grasp the world more profoundly. He traveled to the West, to the Americas, and 30 years later, to the East, in order to understand the world much better because he knew that changing perspectives enriches his awareness of the things that he never saw before.

This is the logic behind my choices. Both José Martí and Alexander von Humboldt were prodigious travelers and I came to understand that I would not be able to understand anything without traveling myself. Of course, social media allows you to be more present than ever today. But you have to see it and live it. You have to live different perspectives in order to understand. Yesterday I was reading Li Shizhen and all of a sudden, I understood something very specific about doctors in Germany. Changing perspectives can reveal aspects that are once invisible. You can see something that is absolutely normal, familiar, and natural to your environment. When you change the perspective, all of a sudden you can see something, you can detect something, you can understand something that is all along but you could not see before. It is like the blind spot in your vision. By changing your perspective, you can eliminate that blind spot.

Ren: Curiosity is also the force that entices Humboldt to embark on adventurous journeys. That is what you and Humboldt have in common. I think we just touched upon a pivotal theme, that is the value of literature. Your experience with these writers enable you to think and rethink about the relation between literature and the world. For instance, literature allows you to change your perspective; and it is through engaging with these literary works that you recognize the significance of travel and it is through travel that you expand your world. Could you share some other insights or revelations you have gained?

Ette: Of course, literature is not merely about reality. It is more about lived reality. Literature is capable to lead you to a lived reality hundreds of years ago, to other linguistic and cultural contexts, and to realms where languages and cultures may even no longer exist. Literature contains the knowledge of life, the knowledge for living, and, as Marcel Proust puts it, it makes your life more intense. At the same time, the literatures of the world not only shed light upon the past. They enlighten the future, make us understand, in a prospective way, what our life could be in the future. As you know, no other discursive human expression crosses such a vast expanse of languages, cultures, areas and regions, and epochs. We are still able to grasp the rhythm and the rationale of *The Epic of Gilgamesh,* of the Chinese *Shi Jing (The Book of Poetry),* of *1001 Nights* today. These texts remain present in the literatures of the world through intertextual connections that enrich our different cultures and our ways of understanding the world.

Ren: In addition to José Martí and Alexander von Humboldt, you also dedicated significant scholarly attention to Roland Barthes. Your habilitation is on him. What does theory mean to you? Theory holds considerable importance for Chinese critics, with many scholars and students relying heavily on established theoretical paradigms in their academic writing.

Ette: Roland Barthes is a figure that is very important to my thinking in many ways. I always appreciate Roland Barthes' thought for its openness; it is not limited and it does not freeze you in a system. I never consider theory as a given or fixed system. But I understand that you need to have a clear vision and cultivate different perspectives. At the same time, the most important thing is to establish a kind of similar proceeding and procedure. Roland Barthes in a way is opening this. More than a theorist, he was always theorizing and taught us to theorize.

There is a second point that is very important for me – take literature as the most advanced theory that you can imagine. Roland Barthes is truly a theorizing theorist, but he believes in literature. Believing in literature, he is in a way highlighting the fact that as one of my favorite sentences suggests, "La littérature est toujours en avance sur tout". Literature is always ahead of everything, including theory. If there is a literary theory, it must be based upon literature. It is not so much based upon other systems, such as philosophical system, historical system, understanding and so forth. It must come from literature. All these novelists and poets, writing in so many different languages, are still grappling with how we can understand literature, the world, and the future of our lives. Again: literature is not about reality; it is about lived reality. This makes a huge difference. Historiography may talk about things that are very general, and even oral historiography is going closer to literature. But literature in itself is creating a form to understand how we live a certain reality or how we can live different realities at the same time. Of course, dreams are part of that literature, of that reality. They are as real as reality in a way.

This is perhaps why I became so interested in *Hongloumeng (The Dream of the Red Mansion).* It is based on a dream, *meng,* and Daguanyuan, a grand garden, or an island. It is a dream and it is more than reality. It is lived reality because it gives you the whole – it gives you China as a whole. Many aspects are still present today. That is why I regard Cao Xueqin as a sort of leading theorist because he has not established a clear system of a theoretical framework.

Ren: That is why I admire your writing. It transcends the confines of any singular theoretical framework. Personally, I view literary theories as tools. Or they are windows in a house, each offering unique views of this world. Instead of restricting, they should enrich our understandings of the world.

Regarding *Hongloumeng,* its foundational dream motif is deeply rooted in Chinese thought. In Buddhist sutra, there is the notion that, "人生如梦幻泡影" (Life is like a dream, a bubble, an illusion). This sentiment resonates throughout the novel, evident from the outset with the depiction of a Buddhist monk and a Taoist monk walking together – a thematic starting point shaped by Chinese perceptions of life itself. This worldview illuminates much about Chinese perseverance and tolerance towards various challenges.

And you just mentioned "lived reality," a phrase recurring in your writing. I noticed that DeepL once translated it as "experienced reality." But I sense a distinction between these terms. How would you define "lived reality," and how does it differ from reality?

Ette: Experienced reality is already a reflection. For example, it is a term in philosophy. It is disciplined. The academic discipline is taking care of it. But lived reality is not a disciplined term. It is just the presence of life. Thus there is a huge gap between experience and life, or between experienced reality and lived reality. Experience is the reflection of something, of a given reality. But a lived reality is you give the central aesthetic dimension when you read and feel something. You can feel it with your brain. You can feel it with your bones. You can feel it with your body. This is what literature does. It is a central aesthetic expression. You can say that experience is a kind of translation of a given reality as well. But it is already a chosen and a disciplined experience.

Literature is much more open than experience. For me, personally, it is superior to the experience. It is the expression of a given reality as lived, as something on the move, as something moving, both emotionally and aesthetically moving. Meanwhile, experience is something frozen or systematic. It is toward systematization and stabilization. Yet lived reality is always on the move. It is always changing. It invites you to come with this lived reality. A classical Chinese text of the 18th century invites you to join a specific reality it creates and recreates, in order to make your senses be aware of how this kind of life was in the 18th century. This is something superior to an experience of life. It is not just the frozen result of a given reality, but an ongoing reality. You can share it; you can enter it; you can live it. This is what literature does. It makes you live a lived reality, a lived reality by some other person, by some other author. This is just wonderful. It at the same time echoes the saying of Roland Barthes – literature is always ahead of other thoughts. So there is a seismographic relation of literature to reality. It makes you not only familiar with what at a given moment can be lived in a given society, but what the future or what the prospective aspects of this reality is. You can see in a way, for example, what this reality was in the 18th century, and what is the outlook for the future development of this given society, of this lived reality. You can read in *Hongloumeng* a kind of future or the consequences of this kind of lived reality. This is something invaluable. It is something that you cannot find in any kind of discipline. This is what I love most in literature. It is not discipline. It is not reduced to a framework. It is completely open.

Ren: The way you phrase "lived reality" reminds me of history. Traditional Chinese classics do not distinguish literature from history. For example, *Shi Ji (The Book of History)* is considered a literary classic. In contrast, Aristotle posited a clear distinction between literature and history, asserting that history concerns itself with the past while literature explores possibilities. How do you view this distinction between history and literature, particularly in the context of your studies?

Ette: This distinction is extremely intelligent because it opens up a huge field. History is about the general. Literature, or poetry, as he says, is about the particular. But through reducing to the

particular, reducing your understanding of the world to the particular, literature paradoxically gives you the whole picture. It is by coming to a specific person, a specific character, or a certain set of characters, as in *Hongloumeng,* that you can see immediately that it is not merely about these characters. It is not merely about the particular. If there is the constellation of love, it is not just about this kind of relationship. It is about general relationship. This is what constitutes literature, in a paradoxical way. It tells you about something particular, but it tells you much more about the whole world: it allows you to live this world. Even if it is reduced to a garden, a closed shop, circle or island, it turns out that you have the whole world there. That is how the particular becomes, paradoxically, the general, a very complex world in itself.

Ren: In that way, the garden is a fractal of the world.

Ette: Fractal is perhaps the best model for understanding the world and how literature is designing and creating this world. That means it is a miniature. It is miniaturized. It is a reduced version. At the same time, it is a model. This is something it shares with science. In science, we create models in order to understand better a given phenomenon.

But meanwhile, writers like Guimarães Rosa in Brazil, or William Faulkner in the US, or García Márquez in Colombia, created landscapes of theory by reducing the whole world to a given landscape. This is exactly what happens in *Hongloumeng* in the 18th century. It is exactly a reduction to a given landscape of theory, to a given place, and this creates something new. It creates something that is able to create a model of the whole world, a world fractal. I am fascinated with the idea of a world fractal because I think that from the very start, it was a metaphor allowing us to understand much better the model of a world we are living through. Let us say, in Can Xue, we have the same idea of a model, the Yuelu Mountain. The Yuelu Mountain is a kind of idea. It may not signify so much for somebody in northern China or southern China. It means a lot for Changsha, for somebody coming from Changsha. But you don't need to have the experience of the Yuelu Mountain in Changsha in order to understand what Can Xue is describing and is working with. There is something, a development where the Chinese idea of a huge garden of an island is then transformed later in the 20th century in a kind of archipelagic world, different islands, trying to talk about the disconnection. There is, of course, a development, a progression in literary history.

To add something to this, the difference between the 18th century and the 20th century, between Cao Xueqin and Can Xue, is that she is transareal, that is, she is familiar with writing models and fractals coming from other parts of the world. She is familiar with Kafka, with European literature, and with Latin American literature. That is the difference between the 18th century and the 20th century. There is much more relationship between different areas of the world, and so there is always something new in literature. I am always fascinated by this. In Europe we have concentrated much on the transatlantic relationships, and Europeans in general concentrate on Europe. If they want to know more about the world, they look towards the west, towards the U.S. and Latin America. They do not think much about trans-Pacific relationships. But trans-Pacific relationships are very important as well. In order to truly create a world, a globe, something round, you have to think the west as the east, and the east as the west, and then you can create a literary system that is not centered.

Ren: Yes, it is perpetually on the move, and it is always dynamic, thus the east is not the east.

Ette: At the same time, it is discontinuous, and therefore relational. I am quite fascinated by my reading of Li Shizhen. It is very interesting, because it is a little bit like the Bible, as Auerbach

says about the Bible. It is taken from different paths, from a very long tradition, and it reassembles these different paths to a continent, a whole continent of knowledge. This is very interesting for me, because it is a continental vision based upon heterogeneous paths coming from the earliest periods of Chinese medicine until the 17th century. At the same time, we are going towards relational understanding. This relational understanding will lead us, I am sure, to the century of a non-centered world. In literary theory, it is the same. For instance, the concept of world literature, as coined by Goethe, saw Germany or Weimar as a kind of center; literary theory by the French critic Pascale Casanova in the late 20th century saw Paris as the center; David Damrosch saw exactly New York as the center.

Ren: And Walter Benjamin wrote that Paris was the capital of the 19th century.

Ette: Absolutely. The concept of world literature always implies a kind of center. Let us always play around this kind of center. We have to think about possibilities to conceptualize our world without a center. Literature is creating this. Literature gives you the possibility to think about the world without a center.

Ren: That is the reason why you emphasize that we should use the term "literatures of the world" instead of "world literature."

Ette: Yes. It makes a huge difference because the plurality of different literatures is there. It is not a unique, homogeneous concept that necessarily centers the world and centers the literature. They are very different literatures. The era of world literature, of *Weltliteratur,* has faded away during the second half of the 20th century.

Ren: The ICLA conference in Macau in 2019 adopted "literatures of the world" as its theme. But I do not think they used the term as you see it. I have talked to a number of scholars about this difference between literatures of the world and world literature. Some maintain that the plural form is inherently encompassed within the concept of world literature. For them, discussions of world literature, translation, and the literary canon inherently imply a plurality of literatures. They do not acknowledge that the problem lies in the center, a centralized worldview.

Ette: Exactly. We have to leave that behind. We have to go beyond this conceptual, centralized conception of the world. We have to understand the huge world of differences, of differences between different literatures.

Secondly, there is something in literature I hold most dear, that is, it enables us to live together. There are different logics in different literatures. Taking Can Xue's work as an example. It integrates different logics, such as those by Franz Kafka or by Jorge Luis Borges, without leaving China behind. This integration results in a unique literary creation that builds upon what Borges and Kafka said and wrote. Thus there is a kind of living together between different logics in literature. How I wish that human beings would be able to do what literature does, just living together in difference!

Ren: In recent years, the study of history has experienced a notable paradigm shift, transiting from a "world" framework to a "global" framework. At its core lies the opposition to any form of centrism. Your seminal work *TransArea: A Literary History of Globalization* clearly adopts a global perspective. I am curious how the emergence and conception of "literatures of the world" intersect with this shift. While discussions of world literature often trace back to Goethe, does "literatures of the world" have a similar traceable origin?

Ette: In the context of the establishment of various Centers for Area Studies in the Berlin region, i.e. the Center for Latin American Studies, the Center for East Asian Studies, the Center for the Study of Modern Orient etc., it was evident that new disciplinary boundaries were rapidly established. In the decade preceding the creation of TransArea Studies, it became increasingly clear that Latin America or East Asia were perceived as absolutely isolated objects of research, disregarding or overlooking the manifold relations between these Areas. Over the course of more than fifteen years, I have organized TransArea symposia, formed a group of researchers dedicated to TransArea Studies, and published a multitude of books on ArabAmericas, on AfricaAmericas, on EuroAmericas and on AsiaAmericas among other, that address both the challenge and the necessity for TransArea Studies.

The outcomes of these encouraging research endeavors inspired me to write a general book about TransArea Studies which has since been translated into English and French. It is beyond the scope of this discussion to delineate the epistemological underpinnings of TransArea Studies in detail. However, the main challenge was to understand the global as a complex set of relations between different Areas, defined not by their spatial stability but by their vectorial mobility. Consequently, the global construction of TransArea Studies is centered on mobility and a changing relational structure, perceiving spaces as the outcome of movements traversing a given spatiality. In these constructions of the global – parallelling with Global Studies – we no longer need a center, we do not need centered spaces and conceptions of the global.

Yet something similar occurs when we think of the historic shift from the concept of world literature towards the literatures of the world. In every construction of the concept of world literature, since the beginning of the Goethean understanding of this term, there is a hidden guest: the construction of a center. This hidden guest pops up when we less guess it. Thus there is a deep link between TransArea Studies and the Studies of the Literatures of the World. It is a polylogic system based upon mobility and relationality, highlighting the changing relations between different literatures – for instance, those of Brazil and Japan, of China and Mexico, of Morocco, France and the Caribbean, of Central America, Central Africa and the Philippines – and the specific logics developed in each of these literary Areas. Today, of course, we have moved beyond and after world literature even if the commercial level is still characterized by a centered conception of what literature should be. This is why there is a sharp opposition between the centered concept of world literature and the non-centered and emancipating concept of the literatures of the world.

Ren: The vast corpus of global literature poses a challenge for literary scholars. David Damrosch turns world literature into a manageable concept by defining it with terms such as translation and circulation. If we employ the term “literatures of the world,” how do we navigate this complexity? Besides, it appears that reading itself has become problematic in contemporary times. And literature is experiencing a crisis. This is a critical moment. How are we supposed to make the concept “literatures of the world” operational?

Ette: Literature is always in a crisis. Let us think about the position of literature in medieval European societies. Or let us say the classic period in French literature at the court of Versailles in which Racine, Corneille and Moliere lived. Literature was in a crisis, under pressure. Literature has always survived. There is no reason why literature should not survive today. Not because of the declaration of different U.S. American departments that this is the end of literature or literature will just fade away. The truth is, literature is always transforming this kind of crisis into something new. What is about creation? It is the creation of a kind of situation out

of the chaos in order to create the cosmos. You need a kind of mess, a kind of chaotic structure in order to overcome this.

Ren: I completely agree. The inherent drive in narration to weave stories reflects our impulse to impose order upon the world. It is an embodiment of the value of literature. I recall my conversation with Marshall Brown in 2015, regarding the decline of literature and its utility. I was very naive at the time and stated "This is not a Chinese question. Literature is in our blood." Afterwards I realized this was a big issue in the U.S. academy. There has been debate over this.

Ette: I would say that a couple of years ago, I was closer to American ways of thinking about literature than I am today. Now I am closer to non-centered ways of thinking about literature. For me, it is a challenge in a way. It makes perfect sense that seen from an American perspective, literature may come to an end, or may be seen as a phenomenon coming to an end given so many cultural and sub-cultural issues and systems, social media and forms of expression. But seen from different perspectives, it is absolutely clear, as I would say, that there will always be a human sitting in front of a white page, with something to write in his or her hand in order to recreate the world. May this piece of paper resemble something from centuries ago in *The Epic of Gilgamesh,* like writing signs on a clay tablet. All that is required is a person being in front of a given screen, a given support for inscriptions.

This is how literature works. It is different from film where many people and even a whole industry is needed to produce a film. Literature is something intimate. This elevates literature, spanning thousands and thousands of years across diverse cultures, in myriad cultural settings, across various ages, in different tongues and languages, to a robust cultural practice that truly expresses the totality of life for human beings. This is what makes me smile when I hear something about the end of literature.

Ren: I share your feelings as I too believe that literature, or the innate desire for narrative expression, is ingrained within us and manifests in diverse forms – whether through novels, computer games, or other mediums. However, this observation raises a contemporary challenge within literary studies: the issue of the canon. I understand that your extensive reading extends beyond canonical texts. Yet, when considering "lived reality," does it intersect with the canon?

For instance, in present-day China, there is a widespread fascination with short videos, immensely popular despite their lack of coherence in plot and character development. Do these videos reflect lived reality? Their appeal seems to lie in serving as a conduit for expressing suppressed desires or emotions. Yet, they are often categorized as popular literature in today's context.

Ette: I would say that I have a very ambivalent relation with canon. First of all, I love to read other canons, or say the canons of other people. My first PhD thesis on Martí was on a writer completely unknown in Germany. But he is at the center of the canon in Cuba, and a very important person in Latin America. In this sense, I was reading the canon, which was not a canon for my surroundings. For Alexander von Humboldt, I tried everything to get him into the canon because he was not in the canon. But I wanted him to be in the canon. This has to happen. He tells so many important things to Germans, to Europeans that we have to bring him to the canon. So I am not against the canon.

But the question is, how can you have different canons? Again, I would say that my Chinese exemplar Li Shizhen is part of the canon because his book serves as a foundational text on

Chinese culture and medicine. *Hongloumeng* is a classical novel in the Chinese context. I am sure Can Xue will be part of the canon in the future. I ask myself and ask the canons, articulate questions for the canon in other cultural surroundings. Dealing with the canon is something important for literature, for creation. You can deal, from the point of view of literature, with different kinds of cultural expressions, as you have mentioned, like short video clips, blogs, or whatever kind of expression. But when you write, you always have to have a certain experience, a kind of created understanding of what literature is, in order to transcend this canon. When you write, you are not trying to obey, to follow the canon. But you have to know a kind of canon. You do not have to know the whole canon. That is an academic exercise. But you have to have an idea, a general idea of what the canon is, in order to transcend it, to change it, to leave it behind. That is the important thing.

For personal reasons, I am less inclined to explore the relationship between literature and film, for example. Nevertheless, it is a huge issue and a vital cultural expression. Literature has in a sense given rise to film, as film has adopted literary techniques and structures into its own framework. However it was not long before the film began to influence literature and exerted a deep impact. But I am less intrigued by the influence of film on literature.

My understanding goes the other way around. I am always interested in the relationship between literature and life. Naturally, film – along with video clips, rock songs, pop culture, classical music, and medieval European expressions – holds great importance for literature. But I see these expressions as part of the life, of a given society, of a given culture. Let us come back to *Hongloumeng.* The music, poetry and other forms of expression are all expressions of life. This is what matters to me. My interest does not lie in examining how music is integrated into Daguanyuan. It is not at this level that I am concerned. I believe that the cultural artifacts present in literature are always already transformed into lived reality. They are not there as kind of cultural artifacts as such. They are already transformed.

Ren: I completely agree. Your interpretation of *Hongloumeng,* with your frequent references to Daguanyuan as an island and your use of terms such as "continental" and "archipelagic," provide a heterogeneous framework of thinking that allows me to view this narrative from a fresh angle. For me, or even for the Chinese imagination, when we think about utopia, we rarely conceive of it as an island. For instance, there is the Chinese utopian story of Taohuayuan. By the way, this is also a story related to Hunan province. Maybe next time when you come, we can go there. It is pretty close to Changsha. In the Taohuayuan story, a fisherman navigates through a narrow cave to discover a secluded place isolated from the world for centuries, where people live in a archaic manner without knowledge of the outside world. That is our conception of the ideal world, of the utopia. It is not an isolated island. For me, the metaphor of island is inherently tied to the sea. Even the continent is connected to the sea. The Chinese civilization however constantly emphasizes an agricultural foundation. We emphasize rootedness in a place, often downplaying our past high mobility. It is very interesting.

Ette: The differences and the parallels between the East and Europe, China and Europe fascinate me. Chinese culture is, generally speaking, a territorial culture that has been there. You see it when you travel through China. You see that there are thousands of years of culture at a given place. The alteration of the landscape by human labor is palpably evident. You can feel it. It is so strong. You see it in every place. But European culture is based upon movement and transformation, going from one place to another. Let us say *The Epic of Gilgamesh,* placed in a completely different setting, in the Mesopotamian region. Then you have all the Egyptian traditions, the Greek traditions, the Italian, or the Roman traditions in Italy. Then you have different parts

of Europe. It is moving all the time. It is not, in a way, anchored or rooted. I would subscribe to the definition of human beings by the Lebanese writer Amin Maalouf, who says, "We have no roots. Human beings have feet. And we are not rooted. We are walking. We are walking. And we are moving." My metaphor of archipelagic writing is deeply influenced by Caribbean writers who consider this, the structure of islands and the sea, as something basic for human life.

Archipelagic, or *archipelagos* in Greek does not mean the islands. It means the sea between the islands. In a way, I often find that many aspects of Chinese culture are strikingly familiar, albeit from a different point of view. There are numerous parallels between European and Chinese cultures. We share a wealth of experiences, and we share many kinds of lived reality. When I read about the medicine in China, the human body is the same, yet the perspective is vastly different. But you can compare it to medieval visions by Hildegard von Bingen, for example. These differences and shared convictions stimulate me to read Chinese culture, Chinese literature and see what is going on in China.

To gain a deeper understanding, I endeavor to comprehend Chinese culture and literature as thoroughly as possible. In turn, it enhances my understanding of European and Latin American cultures. Changing perspectives, as we discussed at the outset of our interview, is essential for understanding the world as a whole. Traveling plays a pivotal role in changing perspectives, changing landscapes, landscapes of theory. It is a crucial element in enhancing our understanding of the world.

Traveling through China, you can see multiple layers of culture embedded in the Chinese landscape. Traveling through Latin America, there is no such thing as multiple layers in the landscape, except for the wonderful work indigenous cultures did. It is a different presence of nature, not transformed into culture in parts. In cities like Mexico City or São Paulo, with 20 or 30 million people, the landscape outside of these cities is starkly different from that of China, because after the destruction of the agricultural works done by indigenous cultures, there was no such thing as an ongoing agricultural framework, going on with different layers of culture. The word "culture," in Latin, means agriculture. It means really working on the land, really transforming the land in order to make it productive for the human being.

Ren: I agree that literature plays a significant role in altering our perspectives. If a key aspect of literature's value lies in its ability to provide diverse viewpoints, then what is the value of literary criticism?

Ette: I always imagine the origins of literary criticism emerging from the authors themselves, as reflections on their own creative endeavors.

Ren: I sometimes enjoy reading literary criticism authored by writers themselves far more than that written by professional literary critics.

Ette: I love the idea that it is kind of self-reflection of literature that creates literary criticism. Of course, in today's complex and subdivided society, literary criticism in a way has become completely separated from literature. It is the object of criticism, but the subjects are not only dealing with the object in a professional way. And the separation between literary criticism and literature is rather pronounced in Germany. For example, it is not considered a very healthy practice to engage in literary criticism while also creating literature. This contrasts with the situation in France, and even in Europe more broadly. In Latin America, the separation is not as pronounced; many critics there also write literature such as poetry and the like.

This gives you an idea of the strict separation and the discipline that maintains literary theory outside of literature. It is not literature that prohibits literary theory, but literary theory that prohibits literature. I believe literary theory should aim to guide people towards literature, helping them to better understand literature in a conceptual way, even though literature itself operates in a non-conceptual manner. Thus, the role of literary theory is somewhat didactic. It is about how we can engage with and explain literature, making it more accessible to readers. Sometimes I sense that the subdivisions and the complex constructs of literary criticism have led it away from this intended purpose. I sincerely lament this shift in the direction of literary theory.

As we know, after the Second World War in Germany, as a consequence of the political events, technical universities were compelled to integrate humanities as a corrective to the purely technical and applied dimensions of the sciences. Today, we witness the humanities diminishing within these technical universities in Germany. I would not attribute this solely to society's waning appreciation for importance of the humanities, but rather, in part, to a misapprehension among many in the field, especially in the field of literary criticism, regarding their responsibility to counterbalance the realms of technical and scientific reasoning. This is an unfulfilled duty of the humanities that has been neglected during the last 20 or 30 years.

It may seem a little bit old-fashioned, but the duty of literary theory is to make us understand much better the importance of literature. In a sense, literature is a gift to human beings, offering protection against the repercussions of scientific advancements. In this era of technological innovation, humanity's prowess in technology is remarkable and rapid. But our humanistic endeavors, our humanistic goals, and our humanistic achievements, those that specifically guide us in living together in peace, have not progressed at the same pace. Some people say that they have not advanced at all in thousands of years. The chasm between technological innovation and humanistic standstill is widening, and this growing divide poses an increasingly dangerous threat to the survival of humanity.

In both literary theory and literary criticism, we must confront this issue, for it is a formidable challenge. I have observed over many years in the United States and Europe a continual reduction in investment in the humanities. I am heartened by the fact that in China, there is an investment in the humanities, which I believe is of paramount importance. We must reorient humanities, reinvigorating their sense of duties, as specialization has caused this sense of duty to wane. We are prone to forget our responsibilities all too quickly. However, the less we invest in the humanities, the more likely we are to create conflicts born from a misunderstanding of other cultures. This is the imperative duty of the humanities in our current era.

Ren: I agree. A couple of weeks ago, at an academic conference held in his honor, Chen Zhongyi eloquently expressed his concerns regarding the discipline of foreign literature studies in China, which he posited is facing an unprecedented crisis. As I see it, this crisis is intrinsically linked to what you call separation or the unfulfilled duties, or what I would label "disjoints." It seems to me that the realm of literary criticism and its practitioners are increasingly engrossed in their own endeavors, neglecting the imperative duty we owe to society and to humanity at large.

You just mentioned that this is a world being subdivided. It seems that the various academic disciplines are becoming ever more insular, fixating narrowly on their specialized domains of research while disregarding the broader context of the world around them. But I have taken note of the assiduous endeavors of Alexander von Humboldt to strike a balance between

engaging professional and general audiences. During my time in Berlin, I observed that the Academy and your esteemed team are dedicated to making professional knowledge accessible to the populace beyond the confines of academia as well. This commitment to bridging the gap between the scholarly community and the public is, I believe, what we are currently lacking in China. This absence is a significant factor contributing to the sense of crisis within our discipline.

Ette: I fully agree. Based on what you have just mentioned, that serves as a compelling reason for a deeper relationship between China and Europe, or China and Germany, because we can learn so many things from each other mutually.

Ren: Yes, as you said, the more we read, the more similarities we will find and we will recognize. For instance, your usage of the prefix "trans" suggests a totality and a holistic view of the world. This resonates with what we Chinese have historically cherished. I am intrigued by how you have cultivated this holistic view and sense of totality.

Ette: I think a very important impetus for this line of thought came from Alexander von Humboldt. That is for sure. I think there is a profound sense of duty and responsibility evident in his writings. He does not focus extensively on Prussia or France, rather, he often addresses the world and human beings. Humboldt was resolutely opposed to colonialism and, in particular, to slavery, as well as to all forms of slavery. He recognized the increasing specialization of different disciplines and sciences, yet his aim was to forge new transdisciplinary connections among them to establish an ethically grounded comprehension of the cosmos. Therefore, there is a deep insight in his writings and actions aimed at improving the world. This, of course, is also the duty and responsibility of literary criticism. In the realm of literary criticism, it is this sense of responsibility that holds great importance.

Ren: Allow me to add one final observation concerning similarity. I know that you just reinvented another identity, the writer, and you are now working on your third novel. In China, there is a venerable tradition of critics also being writers, particularly within the Institute of Foreign Literature at the Chinese Academy of Social Sciences (CASS). Those who have both identities are highly admired and celebrated as "才子", individuals of exceptional talent and intellect. For the Chinese, these two identities are considered inherently complementary. Possessing both is seen as the ultimate embodiment of literary prowess, characterized by sensibility and sensitivity. And what underlines this admiration is the conviction that one should have the sensitivity of a writer to be a good critic.

Ette: I fully agree. And I suffer in some ways. Even some of my friends look at me strangely, "Oh, so you're writing novels. What the hell do you want to do with that? It's that kind of highly specialized world where you separate from all the rest of the activities." Literature, from its very inception, is related to literary criticism. And literary criticism, of course, must be related to literature. I have learned a lot about literature by writing about it. It is absolutely stimulating. There is a kind of knowledge in literature that you might find uninteresting in literary criticism. But when you want to create fiction, you need certain information about how a character pronounces, perhaps with a dialect, or what kind of voice they have. This may not be of interest to literary theory. However, you need a different kind of knowledge about life to create fiction. Not infrequently, you need things that you create in dreams. And dreams become a reality.

Ren: Perhaps it is time for us to envision a new form of literary criticism. As literary critics, our role transcends merely producing, inheriting, or disseminating knowledge. There is more to it.

This, I suppose, is part of the reason why those who delve into your academic accomplishments and visit your website may notice something distinctive about the way you categorize your field of interest: life knowledge, literary studies as a life science. I have hardly seen anyone else listed their special fields of interest like that. Typically one might expect to see, for instance "my special field of interest is the 18th-century English literature or literary theory." Behind these terms, I perceive a strong desire and wish to share knowledge of life.

Ette: Yeah, yeah, absolutely.

Ren: When I think of you, exceptional and noble are the words that immediately spring to my mind, especially exceptional. This is not due to the volume of your publications nor to the breadth of global influence you have, but rather because you do not follow conventional protocols. You are exceptional in the sense that you never admit the existence of boundaries; exceptional in the sense that you never stop learning and adapting yourself to new environments and to new developments. You never stop. All of these connects you in a special way to Alexander von Humboldt.

Ette: Yeah, this is exactly what I want. I always want to learn. Living is learning. And one can constantly learn from Alexander von Humboldt how to change cultural and scientific perspectives, how to create new relations between different topics that, at first glance, seem very distant from each other, how to bring together different disciplines to create a new kind of knowledge – and of Life Knowledge – capable of coping with the challenges of a new era. This is why Alexander von Humboldt is a continuous fountain of inspiration, creating new and necessary relations in a world that is more complex and challenging than ever.

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Beiträge

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A pioneering critic of Alexander von Humboldt's inventions: Francisco José de Caldas

ABSTRACT

Alexander von Humboldt has been praised and criticized throughout history depending on different readings and interests. The account of his encounters during his American voyage can shed light on the foundations for criticism and praise. This essay addresses the critical attitude of the botanist and astronomer Francisco José de Caldas towards Alexander von Humboldt in the years 1801 to 1803.

RESUMEN

Alexander von Humboldt ha sido exaltado y criticado a través de la historia en función de lecturas e intereses diversos. La relación de sus encuentros en el curso de su viaje americano puede dar luces sobre el fundamento de las críticas y los elogios. Este ensayo aborda la actitud crítica del botánico y astrónomo Francisco José de Caldas hacia Alexander von Humboldt en los años 1801 a 1803.

RÉSUMÉ

Alexander von Humboldt a été loué et critiqué tout au long de l'histoire, en fonction des lectures et des intérêts particuliers. Le récit de ses rencontres lors de son voyage en Amérique peut éclairer les fondements des critiques et des éloges. Cet essai traite de l'attitude critique du botaniste et astronome Francisco José de Caldas à l'égard d'Alexander von Humboldt dans les années 1801 à 1803.

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Introduction

The invention of Humboldt[1], a recent publication compiled by Mark Thurner and Jorge Cañizares-Esguerra, included the critical considerations of 13 historians on the geopolitics of knowledge in the times of Alexander von Humboldt. This book argues against the idea of an invention of nature attributed to the Prussian by Andrea Wulf in her biographical work.[2] In the words of the editors: "Humboldt did not 'invent nature', nor did he pioneer globalization. Instead, he was the direct beneficiary of Iberian globalization and natural science": "at every step the Prussian relied on the knowledge, networks, and archives of Spain and Hispanic America"[3]. To reinforce the significance of their title the editors point out that, in any case, one usually invents oneself during one's own life, and Humboldt was no exception to this rule, rather an emblematic case as has been shown recently by Renner, Päßler and Moret in their assessment of Humboldtian biogeography under an explicit title: "'My reputation is at stake'. Humboldt's Mountain Plant Geography in the Making (1803–1825)"[4].

Moreover, one of the four meanings of the dictionary of the Real Academia Española for *"Invención"* is *"decepción, ficción".* The *British Oxford Dictionary,* on the other hand, includes seventeen meanings for this same noun, eventually indicating that there are more ways of inventing in English. Among these, there is an equivalent meaning for the Spanish definition: *"a fabrication, fiction, figment".* An invention consists then not only in the discovery and development of an idea or an instrument, but also in a deception, a fiction, as it will be shown in the following examples of Humboldt's interactions with the Neogranadian naturalist Francisco José de Caldas.

In addition to this etymological consideration, the concept of the heroic "inventor" should also be deconstructed, as has already been done in the field of Evolution with Charles Darwin and Alfred Russel Wallace, and as I have personally attempted with Humboldt's "Wallace" in the field of Equatorial Biogeography[5], namely Francisco José de Caldas, who reached the same scientific conclusions as Humboldt, at the same time, by different approaches[6]. In his Introduction to a North American translation of Humboldt's *Essai on the geography of plants,* Stephen T. Jackson has argued that the Creole biogeographer Francisco José de Caldas had a significant influence on Alexander von Humboldt's "decision to use the Andes as the ideal region to illustrate his ideas"[7], and I have presented evidence implying that, in the Andes, both Caldas and Humboldt participated in the founding of the new science of biogeography, and that "the self-taught Neogranadian naturalist, mathematician, and geographer who upon his appointment to Mutis's Real Expedición Botánica met Humboldt in the first semester of 1802,

1 Thurner, M. & J. Cañizares-Esguerra (2023).

2 Wulf, A. (2015).

3 Thurner, M. & J. Cañizares-Esguerra (2023, xv).

4 Renner, S. S., U. Päßler, U. and P. Moret (2023). For a complementary critique on Humboldt's *Tableau Physique,* see Moret, P. et. al. (2019). For a recent elaboration on Humboldt's *Naturgemälde,* see Knobloch, E. (2023).

5 Gómez Gutiérrez, A. (2021; 2023a, 76–115; 2023b, 175; 2024a).

6 For previous assessments of the Humboldt-Caldas simultaneity on Biogeography, see Gómez Gutiérrez, A. (2016; 2024b).

7 Jackson, S. T. (2009, 13–14).

is conspicuously absent from all of Humboldt's explicit references to previous or simultaneous biogeographic works"[8].

In an article first published in 1960, the Catalonian geographer Pablo Vila i Dinarès criticizes Humboldt's disregard of Caldas, noting that "el Barón debió darse cuenta de que aquel criollo se hallaba en el camino de establecer las relaciones existentes entre las plantas, su temperatura y la altitud, lo cual no dejó de sorprenderle [the Baron must have realized that the Creole was on the way to establish the existing relationships between plants, temperature, and altitude, which did not cease to surprise him]". "Both", says Vila referring to Humboldt and Caldas, "were found in the course of the same geobotanical studies"[9]. More than fifty years after, in 2016, I elaborated on Alexander von Humboldt and his transcontinental cooperation in the Geography of Plants, with an updated appreciation of the phytogeographical work of Francisco José de Caldas[10].

The perception of the findings and accounts of naturalist travellers has varied according to who receives them, more or less critically, and according to who refers to them. The case of Humboldt is, once more, emblematic, and has already been studied by Nicolaas Rupke in his metabiographical work[11] on the perception of the life and work of the Prussian by different social groups. As Rupke himself has asked in a more recent elaboration on successive biographical approaches to Humboldt since the second half of the 19th century, "Can we have 'lives after death', that is, a plurality of biographical Humboldts, suited to distinct times, places and concerns and yet, for each of them, lay claim to authenticity?"[12]. Furthermore, as Vera Kutzinski pointed out in her 2010 article on *Alexander von Humboldt's Transatlantic Personae*: "Since the nineteenth century, Humboldtian avatars have been constructed to shore up all sorts of discourses and, at times, have been deployed even for opposed political causes"[13]. Caution must then be exerted while interpreting Humboldt's life and works, and primary sources of the writings and impressions of his contemporaries should illuminate the real Humboldt, including his eventual dark face, often neglected on behalf of his heroization.

Critical assessments of Humboldt's works

The first debate on the *invention of Humboldt* from a post-modern perspective[14] took place in 2019 at FLACSO's premises[15] in Quito, Ecuador, and brought together again a group of historians on December 7, 2023. One additional debate took place in Cartagena, Colombia, at the end of 2019 at the Seminar on Humboldtian Studies coordinated by the Colombian Academy of Exact, Physical and Natural Sciences near the mud volcanoes of Turbaco. On that occasion, the

8 Gómez Gutiérrez, A. (2023a, 82–83).

9 Vila, P. ([1960] 2018, xvii).

10 Gómez Gutiérrez, A. (2016).

11 Rupke, N. A. (2005).

12 Rupke, N. A. (2021, 416).

13 Kutzinski, V. (2010, 102). For a personal elaboration on an eventual *avatar* in the context of Humboldt-Caldas relationships, see Gómez Gutiérrez, A. & J. G. Portilla (2021).

14 For the prominent characteristics of postmodernism, see Schwartzman, R. (1996, 1).

15 Thurner, M. (2019).

German historian Sandra Rebok[16] focused her critical assessment of Jorge Cañizares-Esguerra's talk on "La invención de Humboldt", interpreting it as a critique of Humboldt: Rebok objected to a possibly intentional judgement of the Prussian, as she stressed in her own talk the overvalued or undervalued perceptions of Humboldt in Iberoamerica, proposing that "hay que ser consciente de que estas interpretaciones a veces son fruto de una larga tradición de 'lecturas intencionadas' de Humboldt, en una multitud de contextos distintos [One must also be aware that these interpretations are sometimes the result of a long tradition of 'intentional readings' of Humboldt in a multitude of different contexts]"[17]. But the point was not to overvalue or undervalue Humboldt, but rather to assess the overvaluation or undervaluation of several 21st century projections of the Prussian traveler, notably those based on his heroization by Andrea Wulf.

It should be stressed here that the projection of Humboldt as a hero by Andrea Wulf is her own affair. Like any author, she is free to focus on her own perspective, and Wulf writes particularly well for the global public: she is an international bestseller for a reason. Consequently, since the first meeting at the FLACSO seminar in Quito, I have tried to "de-Wulfise" this controversy. The issue is not Andrea Wulf: the problem today is the global overestimation of Humboldt as stated recently by Andreas Daum[18], which uncritically positions an international bestseller as the only (I could say lonely) reference. At the other extreme, also problematic, is the risk of resorting to "purposive readings" of Humboldt, as stated in the works of Rupke and Kutzinski.

Humboldt's generosity vs Humboldt's opportunism

In Miguel Ángel Puig-Samper's recent review of *The Invention of Humboldt*[19], he posits a very improbable generosity of Humboldt towards Francisco José de Caldas, by "giving him the draft of the Geography of plants"[20]: Would not this gesture rather be, as I tried to show in my chapter in this book, clear evidence of Humboldt's anxiety and eagerness to validate his work with José Celestino Mutis (1732–1808) – Humboldt's main botanical contemporary reference in the New Kingdom of Granada – against Caldas's parallel work on biogeography, while he was still travelling? This draft was significantly sent from Guayaquil to Santafé by way of Quito with the explicit instruction of Humboldt to the Marquis of Selva Alegre to deliver it through Caldas.

As I showed in Chapter 4 of *The Invention of Humboldt,* the Prussian dedicated this draft to Mutis, but the first printing in Paris of the *Essai sur la Géographie des Plantes* was finally dedicated to Antoine-Laurent de Jussieu and René Desfontaines, two botanical authorities in France. In the same year, 1807, the *Essay* was published in Tübingen in its German edition and

16 Rebok, S. (2019, 2024a, 2024b).

17 Rebok, S. (2024b, 232).

18 Daum refers the transition from exceptionalism to heroization in Humboldt's case and warns scholars against dismissing "this new exceptionalism because of its simplifications and popular appeal beyond academic discussions". However, he states, "we are well advised to take it seriously and register what it says about readers' receptiveness to heroic narratives" (Daum, 2024, 14).

19 Puig-Samper, M. A. (2023).

20 *Ibidem,* 148: My own translation, as the original review was published in English.

dedicated instead to Johann Wolfgang von Goethe: Three different *dedicaces* are unusual in the history of science, and show a typical gesture of Humboldt seeking to position himself in each territory, namely New Granada[21], France and his homeland.

Puig-Samper wrote: "It is evident that enlightened science already existed in Spain as well as in the Hispanic territories, and that in some cases parallel contributions to scientific knowledge were made by Creole authors such as Francisco José de Caldas – with whom Humboldt rivals, but is generous in giving him the draft of the *Geografía de las plantas* – or metropolitan authors such as Mutis, whom he acknowledged in several of his works and in the extensive biography of Joseph-François Michaud's dictionary"[22]. Although Puig-Samper acknowledges the Humboldt-Caldas simultaneity that I support in my text – what he calls their "parallel contributions[23]" and I have called "scientific simultaneity"[24] – he mistakenly assumes Humboldt's generosity towards Caldas, overlooking my explicit argument: "Was Caldas´ report from Otavalo (...) the stimulus that led Humboldt to configure and send his biogeographic profile of Chimborazo to Mutis via Caldas in February 1803?" (Figure 1)[25].

Concerning Humboldt's opportunism, Mark Thurner recently ascribed a positive value (and paradoxical irony) to his ambivalent forgetfulness: "Irónicamente, quizás la grandeza de la obra y archivo de Humboldt reside en su naturaleza derivativa y compiladora, pues en ella quedaron incrustadas las huellas de los que hicieron posible su ciencia [Ironically, perhaps the greatness of Humboldt's work and archive lies in its derivative and compiling nature, for embedded in it are the traces of those who made his science possible]" (Thurner, 2023, 174).

Further critiques of Humboldt's works in connection to local experts during his American voyage can be applied to: 1- The chronological succession of Humboldt's geographical and biogeographical profiles; 2- Humboldt's lies; 3- Caldas's criticisms of Humboldt.

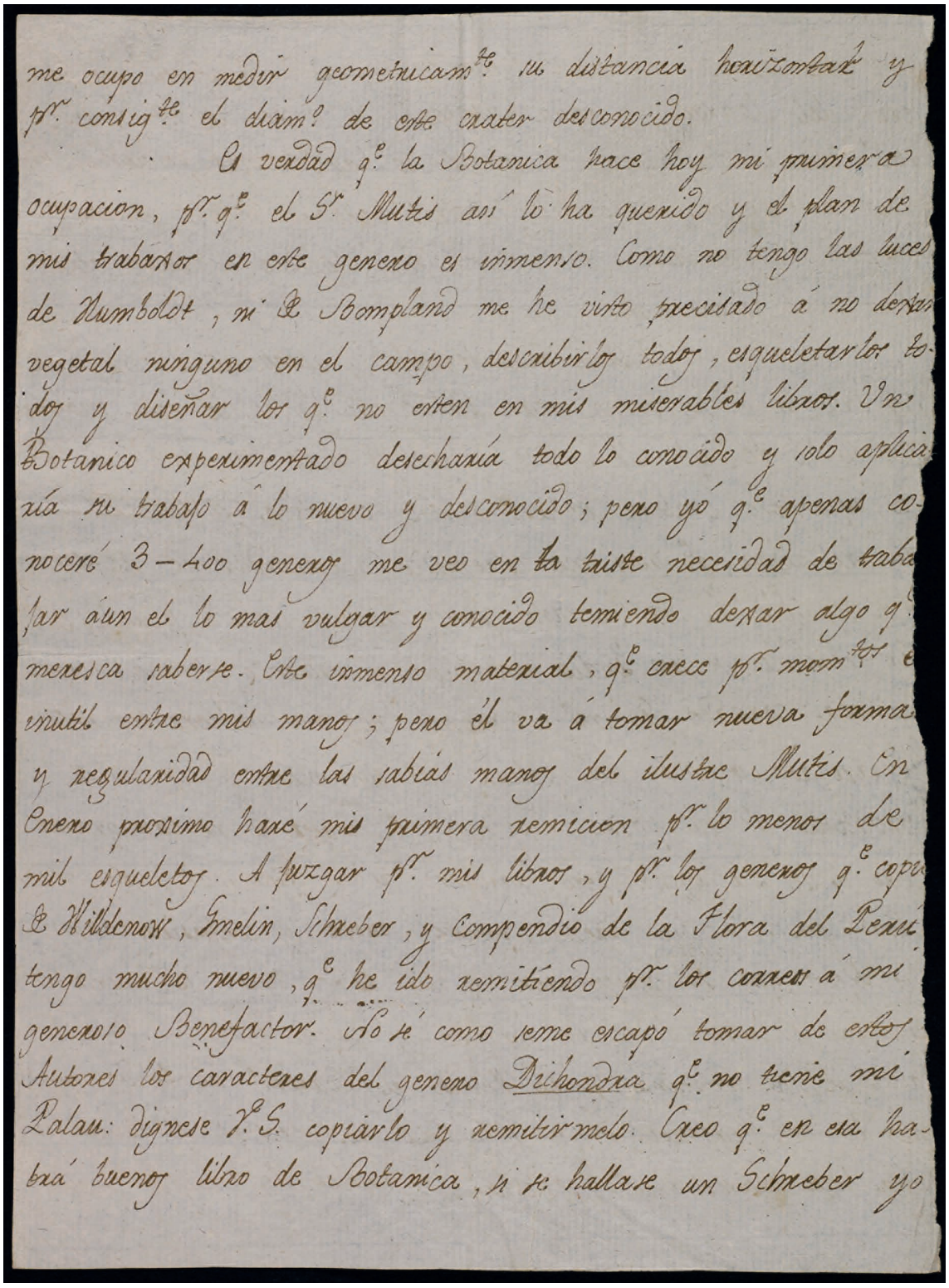
21 Evidence of Humboldt's need to acknowledge Mutis can be deduced from his explicit recommendation to Bonpland in a letter written in Berlin in 1806, while preparing their two volumes on *Plantes équinoxiales* (not his *Géographie des plantes*): "De grâce, faites graver le vieux Mutis, qu'il ne meurt pas avant que nous l'ayons fait. Nous lui avons coûté tant. *Mais que cela soit peu coûteux*" (Hossard, 2004, 39) [original underlining, italics added]. Mutis died in 1808, the year in which his portrait was published in the first volume of *Plantae Aequinoctiales,* unaware of this late recognition.

22 *Ibidem.*

23 In Spanish: "aportaciones paralelas".

24 Gómez Gutiérrez, A. (2023a, 76).

25 This original document has lost its final folio/a, as kept in Berlin's Staatsbibliothek (Caldas, F. J., 1802).



me ocupo en medir geometricam.te su distancia horizontal y
p.r consig.te el diam.o de este crater desconocido.
A verdad q.e la Botanica hace hoy mi primera
ocupacion, p.r q.e el S.r Mutis así lo ha querido y el plan de
mis trabajos en este genero es inmenso. Como no tengo las luces
de Humboldt, ni de Bompland me he visto precisado á no dexar
vegetal ninguno en el campo, describirlos todos, esqueletarlos to-
dos y diseñar los q.e no esten en mis miserables libros. Un
Botanico experimentado desecharia todo lo conocido y solo aplica-
ria su trabajo á lo nuevo y desconocido; pero yó q.e apenas co-
nocere 3—400 generos me veo en la triste necesidad de traba-
jar aun el lo mas vulgar y conocido temiendo dexar algo q.
merezca saberse. Este inmenso material, q.e crece p.r momt.os e
inutil entre mis manos; pero él va á tomar nueva forma
y regularidad entre las sabias manos del ilustre Mutis. En
Enero proximo hare mis primera remicion p.r lo menos de
mil esqueletos. A juzgar p.r mis libros, y p.r los generos q.e copie
de Wildenow, Emelin, Schreber, y Compendio de la Flora del Peru
tengo mucho nuevo, q.e he ido remitiendo p.r los correos á mi
generoso Benefactor. No se como se me escapó tomar de estos
Autores los caracteres del genero Dichondra q.e no tiene mi
Palau: dignese V.S. copiarlo y remitirmelo. Creo q.e en esa ha-
bra buenos libros de Botanica, si se hallase un Schreber yo

Fig. 1. Francisco José de Caldas. Letter to Alexander von Humboldt from Otavalo (1802). Caldas, F. J. (1802). Letter to Alexander von Humboldt from Otavalo on November 7, 1802. Tagebücher der Amerikanischen Reise VIIbb et VIIc, f. 475. Staatsbibliothek, Berlin. https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN779884310&PHYSID=PHYS_0927&view=overview-toc&DMDID=DMDLOG_0001.

Chronological succession of Humboldt's geographical and biogeographical profiles

Humboldt had been drawing up graphic levellings of some of the areas that he had travelled through from Spain onwards, but none of them contain biogeographical elements, neither plants nor animals[26]. His first properly biogeographical profile is that of Chimborazo, after dwelling with Caldas, and after having received his letter from Otavalo on November 17, 1802, in which Caldas told him that he was collecting plants at different altitudes on Imbabura, a local volcano[27].

It should be also considered that those who knew the most about thermic floors and cultivation zones were the local landowners and peasants. The delimitation and understanding of these graded boundaries corresponded to the practical knowledge acquired and tested generation after generation. Without their collaboration, the schematization of that knowledge by either Humboldt or Caldas would have taken several years, since it involved a large set of plants. In other words, Humboldt's and Caldas' work on biogeography rested on a vast body of local knowledge, gathered through interviews and travels with intelligent guides. Caldas was the son of landowners and a close friend of the sons of landowners, and therefore had an undoubted advantage – which cannot be overlooked – over the Prussian. He had also travelled more in the territories of New Granada with repeated ascents and descents by mule to prove micro-climatic modification. Another obvious advantage of Caldas is that he spoke better Spanish than Humboldt and could communicate comfortably with the locals. It is important, therefore, to highlight the preliminary existence of a popular knowledge on thermic floors and both wild and cultured plants in the New Kingdom, as established locally after successive trial and error experiments for several generations.

Humboldt's lies

There is not enough space in this article to refer at length to what can be postulated as Humboldt's lies or deceptions. I will only cite three examples, with their respective evidence: a- Mutis's funding of Caldas' eventual participation in Humboldt's expedition; b- The history of the geography of plants referred to by Humboldt in 1826; c- The fate of the botanical plates that Mutis gave to Humboldt in September 1801.

a- Mutis's funding of Caldas' eventual participation in Humboldt's expedition: José Celestino Mutis, the director of the Royal Botanical Expedition in New Granada, supported Caldas's intentions to travel with the Prussian naturalist: "Your most ardent wishes will be fulfilled if my dearest Baron von Humboldt will give us his consent"[28], and sent the corresponding money. However, in a letter from Caldas to Mutis dated in Quito on 6 April 1802, Caldas wrote that

26 As Ulrich Päßler's work has shown, this fact does not imply that Humboldt had not reflected on the occurrence of plants on certain heights before late 1802, or even before meeting Caldas. The journal entries about the path up from Honda to Bogotá contain many observations on the occurrence of specific plants on specific heights. These observations were continued on the path from Popayán to Quito (Päßler, 2024, 95–99). It should be pointed out, however, that the later path was followed in the company of Caldas after their first personal encounter near Ibarra.

27 For a development of the succession of geographical and biogeographical profiles in Humboldt and Caldas, see Gómez Gutiérrez, A. (2023, 100–107).

28 Mutis, in Caldas, F. J. ([1802] 1917a, 148).

Humboldt himself, after denying that Mutis had informed him of his support for Caldas, finally confessed to him: "My friend, *I have lied to you:* Mr Mutis talks to me at length about the matter, but I, who have resolved to travel alone, did not want to give you this grief"[29] (Note 1).

The fact that Humboldt lied to Caldas on his awareness of financial support by Mutis, clearly shows an intention – an explicit containment –, on his relationship with Caldas on grounds that should be further explored, possibly dealing with an implicit scientific contention. It is then particularly important to consider what geographer Vila i Dinarès suggested in his assessment of the scientific simultaneity of Humboldt and Caldas, "both were found in the path of the same geobotanical studies"[30].

b- The history of the geography of plants referred to by Humboldt in 1826: Ten years after Caldas's execution by the Spanish army in 1816, Humboldt finally referred to his work on plant geography, even if only in a preliminary prospectus for a book that was never published. In this 1826 prospectus, Humboldt included Caldas in a long list of 56 naturalists who had worked in the new field that Humboldt himself, and only he, would had pioneered: "During the last 15 years, [the following botanists] have dealt with questions relating to this science or have contributed materials that would extend its limits"[31]. But there is an unexpected mistake in this late acknowledgement, for Humboldt was a very precise quantifier and he was surely aware that Caldas had been working on botanical barometry since at least the beginning of 1802, meaning *twenty-four* and not *fifteen* years before 1826 (Figure 2). Moreover, Caldas had already published one scientific article in 1808 in his own journal, the *Semanario del Nuevo Reyno de Granada,* dealing with the biogeographical distribution of plants and animals in the Andes:

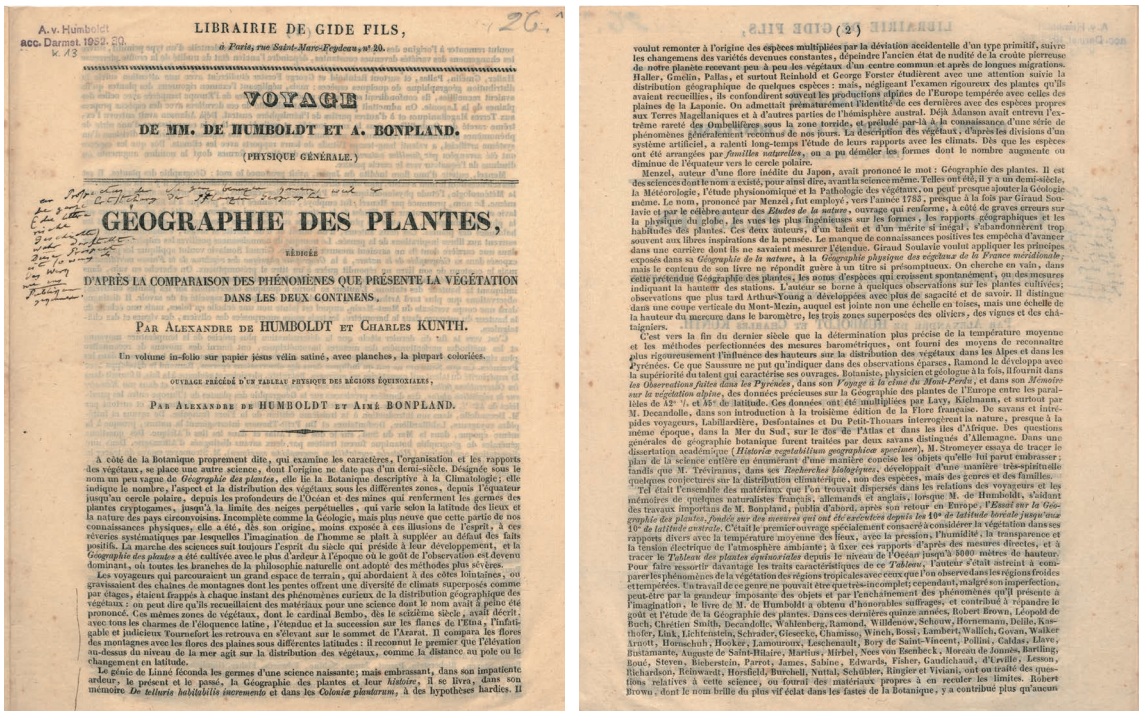
> The middle region of the Andes (from 800 to 1,500 toises), with a mild and moderate climate (from 10° to 19° Réaumur), produces trees of some elevation, legumes, healthy vegetables, crops, all the gifts of Ceres; robust men, beautiful women of beautiful colours, are the heritage of this happy soil. Far from the deadly poison of serpents, free from the annoying sting of insects, its inhabitants roam the fields and forests in complete freedom. The ox, the goat, the sheep, offer them their offal and accompany them in their labors. The deer, the tapir (*Tapirus* L.), the bear, the rabbit, etc., populate the places where man's empire has not reached.
>
> The upper part (from 1,500 to 2,300 toises), under a misty and cold sky, produces nothing but bushes, small shrubs and grasses. Mosses, algae and other cryptogams put an end to all vegetation at 2,280 toes above the sea. Living creatures flee from these harsh climates, and very few dare to climb these dreadful mountains. From this level upwards they discover nothing but barren sands, bare rocks, eternal ice, loneliness and fog.[32]

29 *Ibidem,* added italics.

30 Vila, P. ([1960] 2018, xvii).

31 Humboldt, A. & Kunth, C. (1826, 1–2): communicated by Ulrich Päßler.

32 Caldas, F. J. (1808, 8): [La región media de los Andes (desde 800 hasta 1.500 toesas), con un clima dulce y moderado (de 10° a 19° Réaumur), produce árboles de alguna elevación, legumbres, hortalizas saludables, mieses, todos los dones de Ceres; hombres robustos, mujeres hermosas de bellos colores, son el patrimonio de este suelo feliz. Lejos del veneno mortal de las serpientes, libres del molesto aguijón de los insectos, pasean sus moradores los campos y las selvas con entera libertad. El buey, la cabra, la oveja, les ofrecen sus despojos y les acompañan en sus fatigas. El ciervo, la danta (*Tapirus* L.), el oso, el conejo, etc., pueblan los lugares a donde no ha llegado el impe-



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VOYAGE

DE MM. DE HUMBOLDT ET A. BONPLAND.

(PHYSIQUE GÉNÉRALE.)

GÉOGRAPHIE DES PLANTES,

RÉDIGÉE

D'APRÈS LA COMPARAISON DES PHÉNOMÈNES QUE PRÉSENTE LA VÉGÉTATION DANS LES DEUX CONTINENS,

PAR ALEXANDRE DE HUMBOLDT ET CHARLES KUNTH.

Un volume in-folio sur papier jesus vélin satiné, avec planches, la plupart coloriées.

OUVRAGE PRÉCÉDÉ D'UN TABLEAU PHYSIQUE DES RÉGIONS ÉQUINOXIALES,

PAR ALEXANDRE DE HUMBOLDT ET AIMÉ BONPLAND.

À côté de la Botanique proprement dite, qui examine les caractères, l'organisation et les rapports des végétaux, se place une autre science, dont l'origine ne date pas d'un demi-siècle. Désignée sous le nom un peu vague de *Géographie des plantes*, elle lie la Botanique descriptive à la Climatologie; elle indique le nombre, l'aspect et la distribution des végétaux sous les différentes zones, depuis l'équateur jusqu'au cercle polaire, depuis les profondeurs de l'Océan et des mines qui renferment les germes des plantes cryptogames, jusqu'à la limite des neiges perpétuelles, qui varie selon la latitude des lieux et la nature des pays circonvoisins. Incomplète comme la Géologie, mais plus neuve que cette partie de nos connaissances physiques, elle a été, dès son origine, moins exposée à ces illusions de l'esprit, à ces rêveries systématiques par lesquelles l'imagination de l'homme se plaît à suppléer au défaut des faits positifs. La marche des sciences suit toujours l'esprit du siècle qui préside à leur développement, et la *Géographie des plantes* a été cultivée avec le plus d'ardeur à l'époque où le goût de l'observation est devenu dominant, où toutes les branches de la philosophie naturelle ont adopté des méthodes plus sévères.

Les voyageurs qui parcouraient un grand espace de terrain, qui abordaient à des côtes lointaines, ou gravissaient des chaînes de montagnes dont les pentes offrent une diversité de climats superposés comme par étages, étaient frappés à chaque instant des phénomènes curieux de la distribution géographique des végétaux : on peut dire qu'ils recueillaient des matériaux pour une science dont le nom avait à peine été prononcé. Ces mêmes zones de végétaux, dont le cardinal Bembo, dès le seizième siècle, avait décrit, avec tous les charmes de l'éloquence latine, l'étendue et la succession sur les flancs de l'Etna, l'infatigable et judicieux Tournefort les retrouva en s'élevant sur le sommet de l'Ararat. Il compara les flores des montagnes avec les flores des plaines sous différentes latitudes : il reconnut le premier que l'élévation au-dessus du niveau de la mer agit sur la distribution des végétaux, comme la distance au pole ou le changement en latitude.

Le génie de Linné féconda les germes d'une science naissante; mais embrassant, dans son impatiente ardeur, le présent et le passé, la Géographie des plantes et leur *histoire*, il se livra, dans sa mémoire *De telluris habitabilis incremento* et dans les *Colonie plantarum*, à des hypothèses hardies. Il

(2)

voulut remonter à l'origine des espèces multipliées par la déviation accidentelle d'un type primitif, suivre les changemens des variétés devenues constantes, dépeindre l'ancien état de nudité de la croûte pierreuse de notre planète recevant peu à peu les végétaux d'un centre commun et après de longues migrations. Haller, Gmelin, Pallas, et surtout Reinhold et George Forster étudièrent avec une attention suivie la distribution géographique de quelques espèces : mais, négligeant l'examen rigoureux des plantes qu'ils avaient recueillies, ils confondirent souvent les productions alpines de l'Europe tempérée avec celles des plaines de la Laponie. On admettait prématurément l'identité de ces dernières avec des espèces propres aux Terres Magellaniques et à d'autres parties de l'hémisphère austral. Déjà Adanson avait entrevu l'extrême rareté des Ombellifères sous la zone torride, et préludé par-là à la connaissance d'une série de phénomènes généralement reconnus de nos jours. La description des végétaux, d'après les divisions d'un système artificiel, a retenu long-temps l'étude de leurs rapports avec les climats. Dès que les espèces ont été arrangées par *familles naturelles*, on a pu démêler les formes dont le nombre augmente ou diminue de l'équateur vers le cercle polaire.

Menzel, auteur d'une flore inédite du Japon, avait prononcé le mot : Géographie des plantes. Il est des sciences dont le nom a existé, pour ainsi dire, avant la science même. Telles ont été, il y a un demi-siècle, la Météorologie, l'étude physionomique et la Pathologie des végétaux, on peut presque ajouter la Géologie même. Le nom, prononcé par Menzel, fut employé, vers l'année 1783, presque à la fois par Giraud Soulavie et par le célèbre auteur des *Études de la nature*, ouvrage qui renferme, à côté de graves erreurs sur la physique du globe, les vues les plus ingénieuses sur les formes, les rapports géographiques et les habitudes des plantes. Ces deux auteurs, d'un talent et d'un mérite si inégal, s'abandonnèrent trop souvent aux libres inspirations de la pensée. Le manque de connaissances positives les empêcha d'avancer dans une carrière dont ils ne savaient mesurer l'étendue. Giraud Soulavie voulut appliquer les principes exposés dans sa *Géographie de la nature*, à la *Géographie physique des végétaux de la France méridionale*; mais le contenu de son livre ne répondit guère à un titre si présomptueux. On cherche en vain, dans cette prétendue Géographie des plantes, les noms d'espèces qui croissent spontanément, ou des mesures indiquant la hauteur des stations. L'auteur se borne à quelques observations sur les plantes cultivées; observations que plus tard Arthur Young a développées avec plus de sagacité et de savoir. Il distingue dans une coupe verticale du Mont-Mezin, auquel est jointe non une échelle en toises, mais une échelle de la hauteur du mercure dans le baromètre, les trois zones superposées des oliviers, des vignes et des châtaigniers.

C'est vers la fin du dernier siècle que la détermination plus précise de la température moyenne et les méthodes perfectionnées des mesures barométriques, ont fourni des moyens de reconnaître plus rigoureusement l'influence des hauteurs sur la distribution des végétaux dans les Alpes et dans les Pyrénées. Ce que Saussure ne put qu'indiquer dans des observations éparses, Ramond le développa avec la supériorité du talent qui caractérise ses ouvrages. Botaniste, physicien et géologue à la fois, il fournit dans les *Observations faites dans les Pyrénées*, dans son *Voyage à la cime du Mont-Perdu*, et dans son *Mémoire sur la végétation alpine*, des données précieuses sur la Géographie des plantes de l'Europe entre les parallèles de 42° ½ et 45° de latitude. Ces données ont été multipliées par Lacy, Kielmann, et surtout par M. Decandolle, dans son introduction à la troisième édition de la Flore française. De savans et intrépides voyageurs, Labillardière, Desfontaines et Du Petit-Thouars interrogèrent la nature, presque à la même époque, dans la Mer du Sud, sur le dos de l'Atlas et dans les îles d'Afrique. Des questions générales de géographie botanique furent traitées par deux savans distingués d'Allemagne. Dans une dissertation académique (*Historiæ vegetabilium geographicæ specimen*), M. Stromeyer essaya de tracer le plan de la science entière en énumérant d'une manière concise les objets qu'elle lui parut embrasser; tandis que M. Treviranus, dans ses *Recherches biologiques*, développait d'une manière très-spirituelle quelques conjectures sur la distribution climatérique, non des espèces, mais des genres et des familles.

Tel était l'ensemble des matériaux que l'on trouvait dispersés dans les relations des voyageurs et les mémoires de quelques naturalistes français, allemands et anglais, lorsque M. de Humboldt, s'aidant des travaux importans de M. Bonpland, publia d'abord, après son retour en Europe, l'*Essai sur la Géographie des plantes, fondée sur des mesures qui ont été exécutées depuis le 10e de latitude boréale jusqu'au 10e de latitude australe*. C'était le premier ouvrage spécialement consacré à considérer la végétation dans ses rapports divers avec la température moyenne des lieux, avec la pression, l'humidité, la transparence et la tension électrique de l'atmosphère ambiante; à fixer ces rapports d'après des mesures directes, et à tracer le *Tableau des plantes équinoxiales* depuis le niveau de l'Océan jusqu'à 3000 mètres de hauteur. Pour faire ressortir davantage les traits caractéristiques de ce *Tableau*, l'auteur s'était astreint à comparer les phénomènes de la végétation des régions tropicales avec ceux que l'on observe dans les régions froides et tempérées. Un travail de ce genre ne pouvait être que très-incomplet; cependant, malgré son imperfection, peut-être par la grandeur imposante des objets et par l'enchaînement des phénomènes qu'il présente à l'imagination, le livre de M. de Humboldt a obtenu d'honorables suffrages, et contribué à répandre le goût et l'étude de la Géographie des plantes. Dans ces dernières quinze années, Robert Brown, Léopold de Buch, Chrétien Smith, Decandolle, Wahlenberg, Ramond, Willdenow, Schouw, Hornemann, Delile, Kaschofer, Link, Lichtenstein, Schrader, Giesecke, Chamisso, Winch, Bossi, Lambert, Wallich, Govan, Walker Arnott, Horschuh, Hooker, Lamouroux, Leschenault, Bory de Saint-Vincent, Pollini, Caldas, Llave, Bustamante, Auguste de Saint-Hilaire, Martius, Mirbel, Nees von Esenbeck, Moreau de Jonnès, Barling, Roxé, Steven, Richerstein, Parrot, James, Sabine, Edwards, Fisher, Gaudichaud, d'Urville, Lesson, Richardson, Reinwardt, Horsfield, Burchell, Nuttal, Schübler, Ringier et Viviani, ont ou traité des questions relatives à cette science, ou fourni des matériaux propres à en reculer les limites. Robert Brown, dont le nom brille du plus vif éclat dans les fastes de la Botanique, y a contribué plus qu'aucun

Fig. 2. Alexander von Humboldt and Carl Kunth. *Géographie des plantes* [Prospect]. Humboldt, A. & C. Kunth. (1826). *Géographie des plantes* [Prospect]. Staatsbibliothek zu Berlin Preußischer Kulturbesitz, Nachl. Alexander von Humboldt, gr. Kasten 13, Nr. 26, Bl. 1–2. https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN838243452&PHYSID=PHYS_0001.

In 1809 Caldas published in this same journal the complete Spanish translation of Humboldt's 1803 manuscript on the geography of plants[33], including a complete series of critical notes on Humboldt's statements[34]. Surprisingly, not a single reference to Caldas and his work on phytogeography was included by Humboldt in his *Essai sur la géographie des plantes* in 1805–1807, only two lines on Caldas' pioneering work on the use of boiling water in barometry[35].

c- The fate of the botanical plates that Mutis gave to Humboldt in September 1801: In the chapter of *The Invention of Humboldt* entitled "An archaeology of Mutis's disappearing gift to Humboldt"[36], the Colombian historian José Antonio Amaya reviews in detail the history of the 107 botanical plates that Mutis gave to Humboldt and Bonpland in 1801, and that disappeared. Amaya found evidence that they were used – he says copied – for *Plantes Equinoxiales.* One of

rio del hombre. La parte superior (desde 1.500 hasta 2.300 toesas), bajo un cielo nebuloso y frío, no produce sino matas, pequeños arbustos y gramíneas. Los musgos, las algas y demás criptógamos ponen término a toda la vegetación a 2.280 toesas sobre el mar. Los seres vivientes huyen de estos climas rigurosos, y muy pocos se atreven a escalar estas montañas espantosas. De este nivel hacia arriba ya no descubren sino arenas estériles, rocas desnudas, hielos eternos, soledad y nieblas].

33 Humboldt, A. (1809).

34 Caldas, F. J. (1809, 121–163).

35 Humboldt, A. (1805–1807, 115).

36 Amaya, J. A. (2023, 116–147).

the references that this historian offers to support his interpretation, is a letter sent to Humboldt by Mariano Lagasca, who was the director of the Royal Botanical Garden in Madrid from 1813 to 1823 and in charge of the "installation, arrangement, conservation, inventory, study and publication attempt of Mutis's *Flora of New Granada*"[37]. This work remained unpublished for nearly 1.5 centuries after the death of Mutis, until 1954, when the first illustrated grand folio volume (of 39 to date and at least 11 more in preparation) was released following an agreement of the Royal Botanical Garden in Madrid and the government of Colombia[38]. Lagasca was straightforward:

> I close this letter, assuring you that I am firmly persuaded that several of the plant drawings you published in *Plantae aequinoctiales* and *Monographia Melastomae et Rhexiae* are copies of those of the Flora de Bogotá, although generally more or less cropped to accommodate the dimensions of the work.[39]

The plates of the Botanical Expedition were the property of the Spanish Crown, but Mutis gave away a hundred of them as gifts for Humboldt and Bonpland with an intention that is not easy to specify. Humboldt, as is known, offered them to the professors of the Institut in Paris, and it is very unfortunate that, as it is assumed that he did send them to Paris, they have to this date not been found, neither in the archives of the Jardin de Plantes nor in any other archive (public or private) in France or in the world. Amaya's point is that these plates were "copied" and used in the printed botanical works of Humboldt and Bonpland without any due acknowledgement of the original authors. A similar "appropriation" has been suggested for a Mutisian zoological plate representing an endemic fish of the Bogotá River, *Eremophilus mutisii,* albeit with an explicit epithet[40].

Humboldt's criticisms on Caldas

Caldas reported at least one significant third-party criticism of Humboldt's character:

> I think my moderation has changed his mind: I am not quite sure on this point. But this very day a friend came into my house and said to me: "*Do not trust the Baron:* I have heard him say to N., to N. (ignorant young men and the same I have spoken of), Caldas is a fool, and other things of that kind". I do not want to believe it at present. For you hardly know my inner self, and this town is abundant with gossip.[41]

This criticism can explain the reluctance of Humboldt to allow Caldas to accompany him, as Caldas himself told Mutis in a subsequent letter from Quito on April 21, 1802:

> I owe you the comparison of our characters and the most frequent occasions of difference. *Monsieur le Baron judges me severe, inflexible, sad;* how can I approve without becoming an accomplice; how can I reprove by showing a laughing countenance? This is the origin

37 *Ibidem,* 134.

38 Mutis, J. C. (1954–2024).

39 *Ibidem,* 135.

40 Amat-García, G. & Agudelo-Zamora, H. D. (2020, 201–202).

41 Caldas, F. J. ([1802] 1917a, 147–148): original italics.

> of the aversion, if one can call it that, of the dislike which Monsieur le Baron has for my company; this is the origin of his refusal, whatever he may say.[42]

One more negative consideration of the astronomic measurements of Caldas (specifically regarding his own astronomic measurements) can be found in an undated manuscript note of Humboldt's in an unpublished geographical profile drawn by Caldas before 1801, in which Caldas referred for Santafé a longitude of 75º 11' "del Observatorio de París" and a latitude of 4º 10' (Figure 3): "Par Mr Caldas. L'echelle en latitude *est fausse,* car la lat. de Santa Fe est 4º 35' 48''".

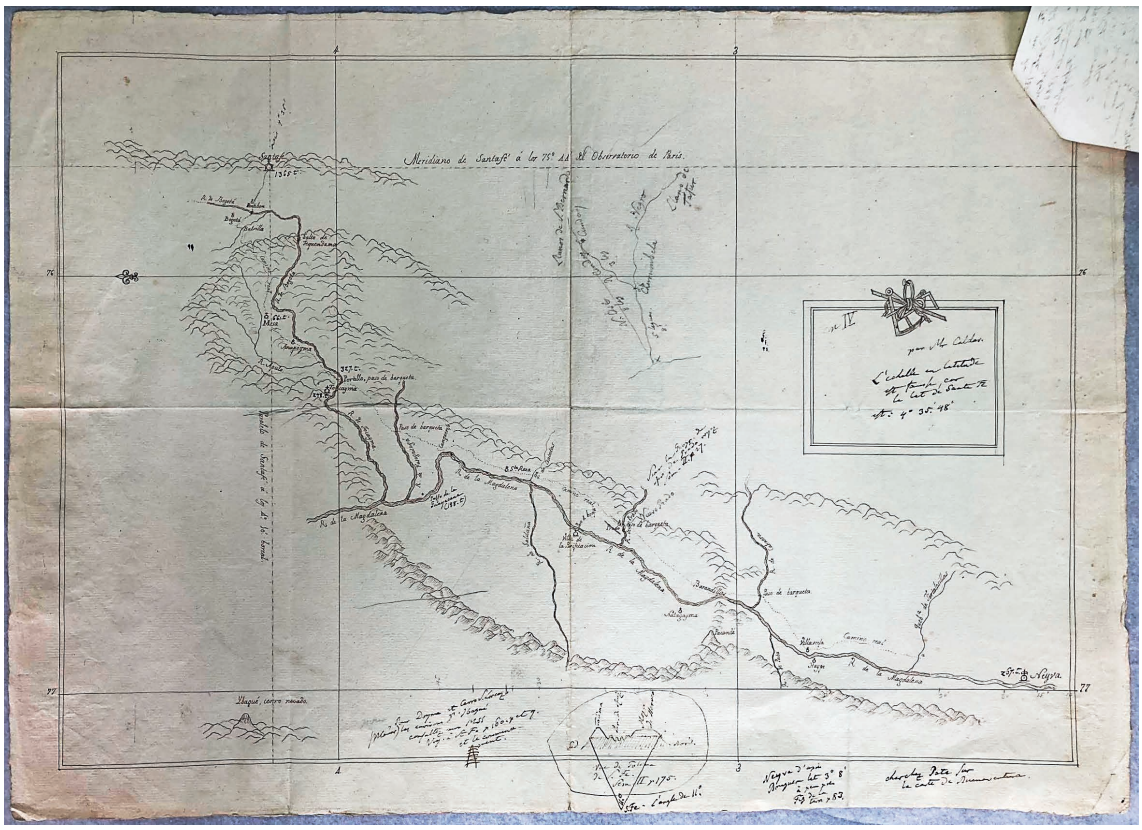

Fig. 3. Francisco José de Caldas [and Alexander von Humboldt] (c1802). Humboldt, A. [& F. J. Caldas, F. J.] (no date). Mapas y Apuntes: Colombia y Venezuela. Archivo Histórico, Biblioteca de Cultura y Patrimonio, Quito, Ecuador, Fondo Jacinto Jijón y Caamaño, JJC-0001.2505.14.

Even if Humboldt criticized Caldas's character and measurements, one must consider his paradoxical scientific appraisals and positive comments on his work. Two good examples of his positive comments were:

a. Alexander von Humboldt's validation of Caldas as an astronomer with praising concepts even before meeting him personally. In a letter signed in Popayán in November 1801 (of which only a fragment has survived), Humboldt reportedly influenced José Celestino Mutis on the initiative to build the first astronomical observatory of the American continent, exalting Caldas's astronomical endeavors: "Evidently, [Caldas] is a prodigy to marvel at as-

42 Caldas, F. J. ([1802] 1917b, 154): added italics.

tronomy; for years he has been working here in the darkness of a remote city. He has himself arranged his instruments for measurements and observations: either he traced meridians, or measured latitudes; how much such a man could accomplish in a country where more support would be given him!"[43].

b. Humboldt's publication in 1816 of a map established by Caldas – and explicitly attributed to him – in his own "Carte du Río Grande de la Magdalena"[44], and later on his explicit need of Caldas as a reference for his own cartography, as can be deduced from an undated note to an unidentified geographer that is conserved today in the digital repository of the Staatsbibliothek in Berlin among several of Humboldt's "Aufzeichnungen und Notizen zu Südamerika" (Figure 4), where he states that Caldas would be the appropriate informant for geographical notions on the Northern territories of what is nowadays Colombia:

Ask Mr Caldas to give you the following [geographical] notions[45]:

1. Into which river does the river Suárez – which flows through Puente Real, a little north of Vélez and west of Socorro – flow? Does the Suárez flow into the Río Sogamoso or the Río Opón?
2. What is the name of the river that flows through [Villa de Leyva] and empties near Moniquirá into the Río Suárez?
3. What is the name of the river that runs through San Gil and flows into the river Suárez near the town of Barichara?
4. Where does the Suratá river that flows through Girón go: to the Río Opón or to another river?
5. Is there a Río de Gallinazos painted by D'Anville on the banks of which Tunja is situated and which flows to the Sogamoso?[46]

43 Caldas, F. J., quoted in Schumacher (1986, 10–11). For a detailed analysis of Humboldt's influence in the construction of the first American Observatory still standing, see Gómez Gutiérrez, A. (2024a).

44 Humboldt A., et al. (1834, 24). For a thorough analysis of this contribution of Caldas to Humboldt's cartography, see Mejía Macía, S. A. (2022).

45 This first sentence was written in French "Demandez a Mr. Caldas afin qu'il procure de S. Fe les notions suivantes", and the subsequent five geographical questions were written in Spanish.

46 https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN78798096X&PHYSID=PHYS_0001&view=overview-info.

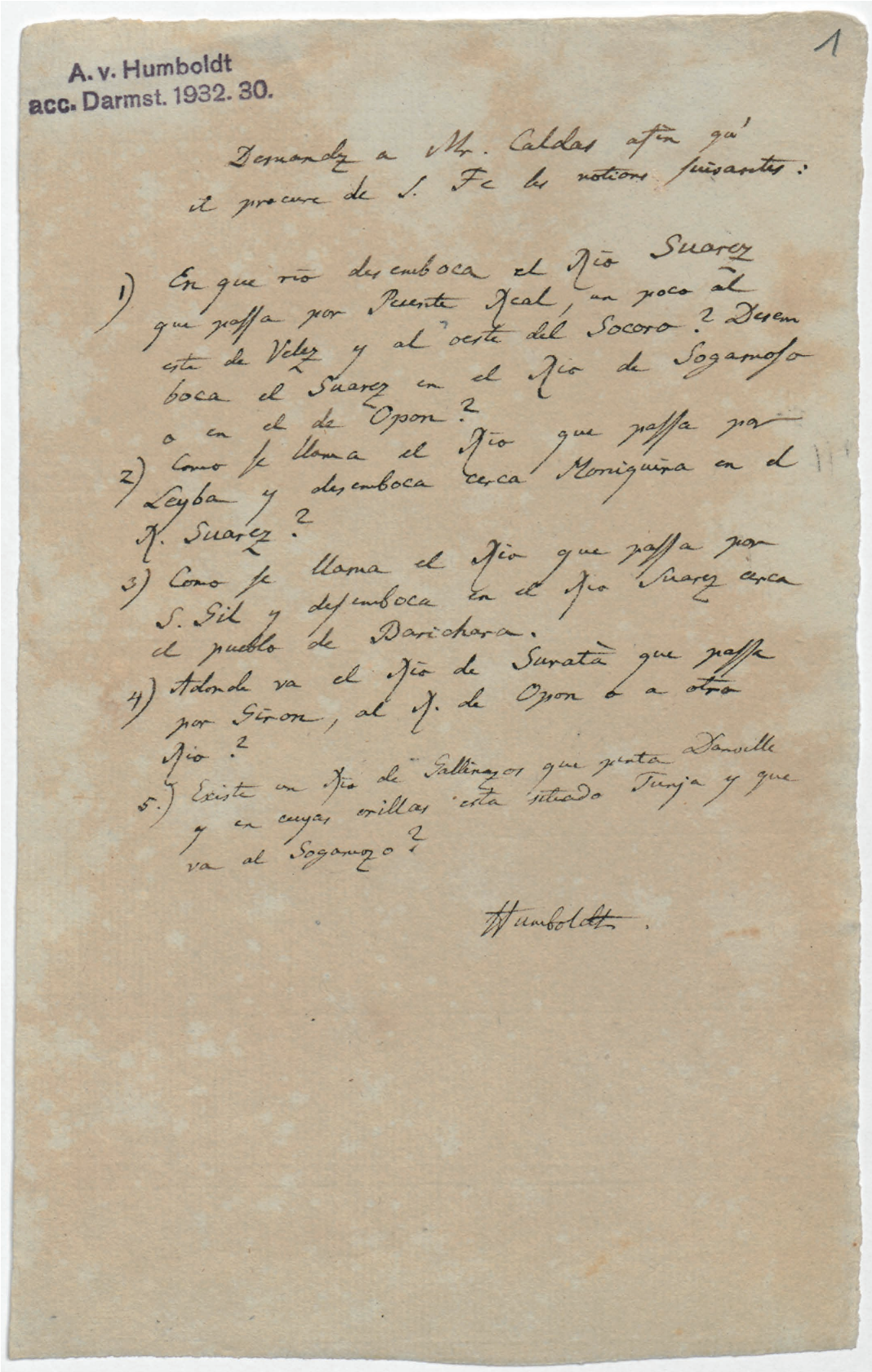

Fig. 4. Alexander von Humboldt. [Questions to be asked to Caldas] (c1815). Humboldt, A. (c1815). Aufzeichnungen und Notizen zu Südamerika. Staatsbibliothek zu Berlin Preußischer Kulturbesitz, Nachl. Alexander von Humboldt, kl. Kasten 7b, Nr. 47a, Bl. 1–21 und 25–27. https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN78798096X&PHYSID=PHYS_0001&view=picture-single.

Caldas's criticisms on Humboldt

One might be critical, or even skeptical, of Caldas's criticisms and their impact on his relationship with Humboldt in the first half of 1802, which probably determined that Humboldt did not travel further with him on his American expedition and accepted instead the company of Carlos Montúfar[47]. As a reference, I will only list here four of Caldas's criticisms of the Prussian related to: a- The accuracy of Humboldt's thermometer; b- A taxonomic competition; c- Cartography; d- Intellectual espionage. For the original criticisms of Humboldt's thermometer, of taxonomic competence and of Humboldt's cartography, please see notes 2–5 at the end of this text, which offer direct evidence for specific Caldasian critiques.

Concerning intellectual espionage, as an eventual cause of distance between Humboldt and Caldas, I argue that Humboldt could have been aware of Caldas intentions to follow and observe his works and proceedings, as Jorge Juan and Antonio de Ulloa had done about Charles de la Condamine's previous equatorial expedition. Indeed, Caldas asked his friend Santiago Arroyo, based in Santafé, to endorse his participation in the expedition of Humboldt and Bonpland just as Juan and Ulloa had been appointed to participate in the previous French expedition to the Equator arranged by the Spanish Crown: "You know that Ulloa and Juan could not, when they came to America, stand alongside Godin, Bouguer and La Condamine; but they returned to Europe worthy of a place in the Academy of Sciences. You flatter me when you imagine that I could accompany these scholars and play the role of Ulloa for them: I do not find myself capable of fulfilling the confidence of the nation in the event [of] that taking place"[48]. But of course, Humboldt was travelling on a voyage financed by himself and did not want any spies.

Before concluding, and as proof of the estrangement that resulted from their respective attitudes, I will cite one of Caldas' own claims against Humboldt in a letter written to his uncle Manuel María Arboleda in 1802: "What a monster, what a colossus of enlightenment and generosity is [José Ignacio de] Pombo in Cartagena! Let us be proud to have such a compatriot. Someday Caldas, this Caldas, oppressed and despised by the ungrateful Humboldt, will know how to reward with dignity such a virtuous and illustrious compatriot, will know how to forgive Humboldt"[49].

Conclusion

With these considerations and references to early manuscript sources of Francisco José de Caldas in which he commented upon Humboldt and his endeavors, it can be concluded that the Neogranadian was one of Humboldt's first critics. The critical attitude of Caldas, whom Humboldt would not accept as a travelling companion, might be interpreted as one-sided. However, as historian Ulrich Päßler noted after reading a preliminary version of this text, the opinions of Caldas should not be understood as "a moral judgment on Humboldt, in a story in which one side is simply the exploiter and the other the exploited"[50], but rather analyzed

47 For a detailed relation of Humboldt's encounters in his American Expedition, particularly in the New Kingdom of Granada, see Gómez Gutiérrez, A. (2018).

48 Caldas, F. J. ([1801] 1917, 49–50). For the complete paragraph in this letter see Note 5.

49 Caldas, F. J. ([1802] 2016a, 389).

50 Päßler, U. Personal communication.

in order to underline some aspects and relevant details of Humboldt's academic self-representation, and properly define the knowledge networks he created, preceding the subsequent fabrication of further academic networks centered on him, in what has been called, indiscriminately, Humboldt's science and Humboldtian science[51].

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51 For a for a thorough description and differentiation of these two concepts see Daum, A. W. (2024), where he suggests that Humboldt himself was less "Humboldtian" than this heuristic concept suggests.

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Notes[52]

1- Mutis's financing of Caldas eventual voyage on Humboldt's expedition

"¡Ah! día 3 de abril de 802, ¿te borrarás alguna vez de mi memoria? Este día, día glorioso y terrible, hará época en mi vida. A las dos de la tarde se aparece en mi casa un criado del Barón de Humboldt, me entrega un pliego, conozco la letra del ilustre Mutis, mi corazón se conmueve, abro, veo este nombre: J. C. Mutis, mis lágrimas asoman, no puedo contenerme, beso esta firma respetable, leo ¡cielo santo! solo tú eres testigo de lo que pasó en mi alma; mis ojos se anegan; mi garganta se anuda; corro como loco; no hallo a un amigo a quién dar parte de mi felicidad y con quién disipar una parte del fuego que me abrasa; voy a casa de Humboldt, no le hallo; vuelvo a la mía; no atino, no puedo fijarme en nada; todo es amar a Mutis, todo es admirar su generosidad. ¡Qué cúmulo de ideas se me presentan! ¡Qué gloriosos trabajos los que voy a emprender! He aquí al mortal más feliz. Vuelvo a la casa del Barón; le hallo; pregunto por el sabio Mutis, por sus cartas. Me contesta este viajero con frialdad; me suprime el asunto principal; me lo niega directamente. En los primeros momentos de mi sorpresa creo al prusiano. ¡Qué asombro el mío! Veo de letra del ilustre Mutis estas cláusulas, que quedarán eternamente grabadas en mi corazón: *Se cumplirán los ardientísimos deseos de usted si mi amadísimo el señor Barón de Humboldt nos franquea su consentimiento;* tengo en mis manos un cuantioso libramiento. Oigo de boca de este sabio joven: *no me dice nada el señor Mutis, no me ha escrito sobre el viaje de usted.* ¡Qué distracción tan espantosa la de mi ilustre protector, decía dentro de mí! No puede ser: vuelvo a reconvenir y a preguntar, reconvengo con mi carta, con el libramiento. La fuerza de la verdad le oprime y me dice: *Mi amigo,* ***yo he mentido a usted****: el señor Mutis me habla a la larga del asunto, pero yo, que he resuelto viajar solo, no quería dar a usted esta pesadumbre.*"[53]

[Ah!, April 3rd 802, will you ever be erased from my memory? This day, a glorious and terrible day, will make an epoch in my life. At two o'clock in the afternoon, a servant of Baron de Humboldt appears at my house, he hands me a sheet of paper, I know the handwriting of the illustrious Mutis, my heart is moved, I open it, I see this name: J. C. Mutis, my tears appear, I cannot contain myself, I kiss this respectable signature, I read, holy heavens! You alone are witness to what has happened in my soul; my eyes water; my throat ties itself in knots; I run like mad; I cannot find a friend to whom to give part of my happiness and with whom to dissipate part of the fire that burns me; I go to Humboldt's house, I cannot find him; I return to my own; I cannot see, I cannot fix on anything; everything is to love Mutis, everything is to admire his generosity. What an accumulation of ideas I am presented with! What glorious works I am going to undertake! Here is the happiest of mortals. I return to the Baron's house; I find him; I ask for the wise Mutis, for his letters. This traveller answers me coldly; he suppresses the main subject; he denies it to me directly. In the first moments of my surprise, I believe the Prussian; how astonished I am! I see in the handwriting of the illustrious Mutis these clauses, which will remain eternally engraved in my heart: *Your most ardent wishes will be fulfilled if my beloved Baron de Humboldt gives us his consent;* I have in my hands a large sum of money. I hear from the mouth of this wise young man: *Mr. Mutis tells me nothing, he has not written to me about your journey.* What a dreadful distraction from my illustrious protector, I said to myself! It cannot be: I go back to remonstrate and to ask, I remonstrate with my letter, with the money Mutis

52 Primary sources are transcribed in Spanish, as produces by Caldas, and translated to English by the author in square brackets.

53 Caldas, F. J. ([1802] 1917a, 147–148): original *italics,* **bolds** added.

sent. The force of truth oppresses him and says to me: *My friend, **I have lied to you**: Mr. Mutis speaks to me at length about the matter, but I, who have resolved to travel alone, did not want to give you this* grief.]

2- The accuracy of Humboldt's thermometer

"No quise perder la brillante ocasión de comparar mis miserables instrumentos con los del señor barón de Humboldt, y hacer lo mismo con las observaciones verificadas en los lugares que nos eran comunes. Solo en Popayán habíamos observado ambos el calor del agua. Este ilustre viajero había hallado que el agua llovediza había hecho subir el licor del termómetro en esta ciudad a 203,3° de Farenheit, cuando el agua destilada me daba 202,21°, es decir, casi un grado menos. Me sorprendí al ver tan enorme diferencia, pues el agua de lluvia no puede producir un grado de más en el termómetro. ¿Estará el error, me decía, en nuestros instrumentos? Si lo hay, seguramente recae sobre mi termómetro. Deseando salir de la duda, suplico al señor barón me confíe el mismo termómetro que le había servido en Popayán para su observación: me concede traerlo a mi casa, lo pongo al lado del mío, dejo que adquieran la temperatura de mi aposento, y hallo que el del señor barón está justamente un grado más alto que el mío. ¿Pero cuál de los dos está fuera de la temperatura verdadera? El hielo es el mejor camino que se me presenta para salir de mi incertidumbre. Sumerjo ambos termómetros en él, y veo con admiración que el bello termómetro de Nairne se detiene en un grado sobre la congelación, y a 33 de Farenheit, cuando el mío bajaba con la mayor esactitud a 0 [grados] de Réaumur, y 32 Farenheit. Por consiguiente, es necesario quitar 1 grado de los resultados de las observaciones hechas con este instrumento."[54]

[I did not want to miss the brilliant opportunity to compare my miserable instruments with those of Baron Humboldt, and to do the same with the observations made in the places we had in common. Only in Popayan had we both observed the heat of the water. This illustrious traveller had found that the rainy water had raised the liquor of the thermometer in this city to 203.3° Farenheit, when the distilled water gave me 202.21°, that is to say almost one degree less. I was surprised to see such an enormous difference, for rainwater cannot produce one degree too much in the thermometer. Is the error, I said to myself, in our instruments? If there is, surely it is in my thermometer. Wishing to get out of the doubt, I begged the baron to entrust me with the same thermometer that had served him in Popayan for his observation: he allowed me to bring it to my house, I put it beside mine, let them take the temperature of my room, and found that the baron's was just one degree higher than mine. But which of the two was out of the true temperature? Ice is the best way out of my uncertainty. I dip both thermometers in it and see with admiration that the beautiful thermometer of Nairne stops at one degree above freezing, and at 33° Fahrenheit, when mine came down with the greatest accuracy to 0 [degrees] of Réaumur, and 32° Fahrenheit. Therefore, it is necessary to remove 1 grade from the results of the observations made with this instrument.]

3- A taxonomic competition

"He trabajado de un modo extraordinario para corregir y añadir la parte práctica de Linneo traducida por Paláu, según el *Species plantarum* de Willdenow, que trae Mr. Bonpland; y en el día tengo muy avanzada la pentandria que es hasta donde llega. He tomado de la Flora del Perú los géneros: he visto una parte del herbario de Bonpland: he apuntado cuanto me ha

54 Caldas, F. J. ([1802] 2016b, 93–94).

parecido conveniente, y espero verlo todo, si no me reserva algo, como lo temo. ¿Quién sabe si el temor de que yo le arrebate algún género, alguna especie nueva, ha influido en la negativa del Barón?"[55]

[I have worked in an extraordinary way to correct and add the practical part of Linnaeus translated by Palau, according to the *Species plantarum* of Willdenow, which Mr. Bonpland brings; and to-day I have very advanced the pentandria which is as far as it goes. I have taken from the *Flora of Peru* the genera: I have seen a part of Bonpland's herbarium: I have noted down what I have found convenient, and I hope to see it all, if he does not reserve something for me, as I fear. Who knows whether the fear that I may snatch from him some genus, some new species, has influenced the Baron's refusal?]

4- Cartography

"Una de las cosas que he notado en los trabajos geográficos de este sabio es que mezcla lo cierto con lo dudoso; que, deseoso de abrazarlo todo, diseña al lado de un retazo digno de D'Anville, otro por simples relaciones de gentes ignorantes. No soy el Zoilo de este grande hombre, detesto el vicio de deprimir los trabajos ajenos, pero es preciso decir la verdad, y creo que los geógrafos posteriores tendrán que corregir bastante, no en los lugares que haya examinado este viajero célebre, sino en los que estén levantados por puras relaciones."[56]

[One of the things I have noticed in the geographical works of this wise man is that he mixes the certain with the doubtful; that, wishing to embrace everything, he designs beside a piece worthy of D'Anville another by simple relations of ignorant people. I am not the Zoilus of this great man, I detest the vice of depressing the works of others, but the truth must be told, and I believe that later geographers will have to correct a lot, not in the places that this famous traveller has examined, but in those that are raised by pure relationships.]

5- Espionage

"Mi alegría con lo que usted me dice de Humboldt y de Bonpland puede haber igualado a la suya; yo suscribo gustoso a todo lo que usted dice de estos viajeros. Nosotros, que conocemos el carácter de la nación que jamás ha dejado de acompañar sabios españoles en todas las expediciones que se han hecho en sus dominios, ¿no debemos extrañar que no acompañen a los prusianos un botánico, un mineralogista y un astrónomo de casa? Si no es así, lo siento en mi corazón, porque ¿qué gloria no resultó a la nación de la asociación de los dos Oficiales españoles en el viaje al Ecuador? Ya sabe usted que Ulloa y Juan no podían, cuando vinieron a América, ponerse al lado de Godin, de Bouguer y de La Condamine; pero volvieron a Europa dignos de ocupar un lugar en la Academia de las Ciencias. Usted me lisonjea cuando se imagina que podría acompañar a estos sabios y hacer el papel de Ulloa para con éstos: no me hallo capaz de desempeñar la confianza de la nación en caso [de] que se efectuase; pero juzgando por mis sentimientos, ¡qué placer, qué gloria para mí verme al lado de un astrónomo, de un botánico, de un minero ilustrado!"[57]

55 Caldas, F. J. ([1802] 1966, 294).

56 Caldas, F. J. ([1802] 1849, 553–554).

57 Caldas, F. J. ([1801] 1917, 49–50).

[My joy at what you tell me of Humboldt and Bonpland may have equalled yours; I gladly subscribe to all that you say of these travellers. We, who know the character of the nation that has never failed to accompany Spanish scholars in all the expeditions that have been made in its dominions, should we not be surprised that the Prussians are not accompanied by a botanist, a mineralogist and an astronomer from home? If not, I am sorry in my heart, for what glory did not result to the nation from the association of the two Spanish Officers on the voyage to Ecuador? You know that Ulloa and Juan could not, when they came to America, stand beside Godin, Bouguer and La Condamine; but they returned to Europe worthy of a place in the Academy of Sciences. You flatter me when you imagine that I could accompany these learned men and play Ulloa's part for them: I do not find myself capable of fulfilling the confidence of the nation in the event of it taking place; but judging by my feelings, what a pleasure, what a glory for me to see myself at the side of an astronomer, of a botanist, of an enlightened miner!]

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Beiträge

Fang LUO

Alexander von Humboldt : précurseur du concept de l'Anthropocène

RÉSUMÉ

L'Anthropocène, concept désignant l'ère géologique marquée par l'influence humaine, est devenu un sujet central pour les sciences naturelles et sociales au XXIe siècle. Cette étude examine la contribution d'Alexander von Humboldt à la conceptualisation des interactions homme-nature, le positionnant comme précurseur de l'Anthropocène. L'analyse textuelle de son récit de voyage sur le lac Valencia révèle la vision écologique holistique de Humboldt, intégrant l'homme dans le réseau complexe de la nature, contrastant avec les conceptions anthropocentriques dominantes de l'Anthropocène. Cette perspective pionnière enrichit l'histoire de la pensée écologique et démontre la pertinence des travaux de Humboldt dans les débats contemporains sur l'Anthropocène.

ZUSAMMENFASSUNG

Das Anthropozän, ein Konzept zur Bezeichnung des geologischen Zeitalters, das durch menschlichen Einfluss geprägt ist, hat sich im 21. Jahrhundert zu einem zentralen Thema für Natur- und Sozialwissenschaften entwickelt. Diese Studie untersucht Alexander von Humboldts Beitrag zur Konzeptualisierung der Mensch-Natur-Interaktionen und positioniert ihn als Vorläufer des Anthropozän-Konzepts. Die Textanalyse seines Reiseberichts über den Valencia See offenbart Humboldts ganzheitliche ökologische Sicht, die den Menschen in das komplexe Netzwerk der Natur integriert und im Gegensatz zu den vorherrschenden anthropozentrischen Auffassungen des Anthropozäns steht. Diese Pionierperspektive bereichert die Geschichte des ökologischen Denkens und zeigt die anhaltende Relevanz von Humboldts Arbeiten für die zeitgenössischen Debatten über das Anthropozän.

ABSTRACT

The Anthropocene, a concept designating the geological era marked by human influence, has become a central subject for natural and social sciences in the 21st century. This study examines Alexander von Humboldt's contribution to the conceptualization of human-nature interactions, positioning him as a precursor to the Anthropocene concept. Textual analysis of his travel account on Lake Valencia reveals Humboldt's holistic ecological vision, integrating humans into the complex network of nature, contrasting with the dominant anthropocentric conceptions of the Anthropocene. This pioneering perspective enriches the history of ecological thought and demonstrates the relevance of Humboldt's work in contemporary debates on the Anthropocene.

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Ce travail constitue une contribution partielle au projet de recherche en langues étrangères du Fonds de recherche en sciences sociales du Hunan (Chine), intitulé *Études sur Alexander von Humboldt* (23WLH07) ainsi qu'au projet pour jeunes chercheurs d'excellence du Département de l'éducation du Hunan (Chine), intitulé *Études sur la pensée écologique d'Alexander von Humboldt* (23B0057). Il a également bénéficié du soutien financier du Conseil national des bourses de Chine (Programme de formation internationale pour talents innovants 202306720006).

Au cours du XXIe siècle, l'émergence du concept d'Anthropocène a mis en lumière l'impact profond des activités économiques humaines sur la planète. L'un des aspects critiques de cette influence est la zone d'interface dynamique entre la lithosphère, l'atmosphère, l'hydrosphère et la biosphère, qui joue un rôle central dans la vie sur Terre. L'Amérique, avec ses étendues de forêts tropicales et ses richesses minérales, est un exemple emblématique de cette zone. Cette région, qui est le théâtre de processus vitaux, est également celle où l'empreinte humaine est la plus nette. L'étude de cette zone critique dans le contexte américain est particulièrement pertinente, car elle abrite une biodiversité exceptionnelle et reflète une histoire complexe d'exploitation des ressources.

Les sociologues allemands Ulrich Brand et Markus Wissen ont élaboré le concept d'*Imperiale Lebensweise*[1], qui repose sur l'exploitation des ressources du Sud global. Cette pratique d'exploitation n'est pas récente : Elle remonte à la *découverte* des Amériques par Christophe Colomb au XVI^e^ siècle et a connu une intensification marquée au XVIII^e^ et XIX^e^ siècles, en parallèle avec la révolution industrielle. Durant cette période, de nombreux explorateurs, dont Alexander von Humboldt, ont contribué à révéler l'Amérique au monde occidental. Humboldt, qui a passé cinq ans dans cette région sous la domination coloniale espagnole, a été un témoin des premières exploitations de ses ressources.

Aujourd'hui, alors que l'ère de l'Anthropocène voit une consommation massive des ressources, il est crucial de réévaluer les écrits d'Humboldt sur l'Amérique à travers cette nouvelle perspective. Ses observations méticuleuses et son approche holistique de la nature nous offrent une vision précieuse des écosystèmes locaux à l'époque, avant que l'exploitation industrielle ne s'intensifie. En étudiant à nouveau ses travaux, nous pouvons non seulement mieux saisir les transformations endurcies par ces écosystèmes, mais également interroger notre propre interaction avec la nature à l'ère de l'Anthropocène, et ainsi envisager des stratégies pour la préservation et la restauration des écosystèmes en danger.

Cet examen se focalise particulièrement sur les observations de Humboldt concernant le lac Valencia au Venezuela, documentées dans son ouvrage *Voyage aux régions équinoxiales du Nouveau Continent*. Ces observations représentent l'un des premiers témoignages scientifiques des impacts anthropiques sur les écosystèmes. L'objectif ici n'est pas de réaliser une revue exhaustive de son œuvre, mais plutôt d'analyser les récits de Humboldt afin de mettre en exergue sa sensibilité à des concepts qui sont aujourd'hui au cœur de la compréhension de l'Anthropocène.

1 Brand, U., and M. Wissen. *Imperiale Lebensweise : Zur Ausbeutung von Menschen und Natur in Zeiten desglobalen Kapitalismus.* oekom. (2017). Voir aussi Saito Kohei, *Capital in the Anthropocene,* Tokyo : SHUEISHA, (2020) et sa version chinoise 斋藤幸平,《人类世的"资本论 »》, 王盈译, 上海： 上海译文出版社, 2023,第16页. (Zhai Teng Xing Ping, *Ren lei shi de zi ben lun,* wang ying yi, Shanghai : Shanghai yi wen chu ban she, 2023, di 16 ye.)

L'Anthropocène se présente avant tout une histoire de la révolution industrielle, et par extension, une narration énergétique. Crutzen et Stoermer[2], en situant le début de l'Anthropocène au XVIIIe siècle, font allusion implicitement au dioxyde de carbone et au méthane, produits de la combustion du charbon utilisé dans la machine à vapeur inventée par James Watt en 1784. Ces émissions polluantes laissent des traces détectables dans les carottes glaciaires de nos jours. Cependant, cette narration ne se limite pas à l'invention de Watt.

En 1792, soit huit ans après celle-ci, Humboldt, alors âgé de 23 ans, entame une collaboration quinquennale au sein du département des mines du gouvernement prussien. L'une de ses missions principales consiste à extraire, à analyser et à promouvoir la tourbe *(Torf)* comme une ressource d'énergie alternative. Durant la révolution industrielle, l'exploitation massive des combustibles fossiles a entraîné des émissions considérables de gaz à effet de serre, tels que le dioxyde de carbone et le méthane. Humboldt proposait que, dans les régions où le charbon est rare, la tourbe pourrait servir de substitut pour alimenter les machines à vapeur.

L'Anthropocène représente également une remise en question fondamentale de l'ontologie occidentale, qui repose sur le dualisme. Dans cette optique, les travaux de plusieurs chercheurs contemporains offrent des perspectives éclairantes sur la contribution d'Alexander von Humboldt à cette réflexion. Stephen T. Jackson, dans *Humboldt for the Anthropocene,* soutient que les observations de Humboldt mettent en lumière l'intrication profonde entre l'humanité et la nature, soulignant l'influence considérable de l'homme sur le monde naturel et préfigurant ainsi les concepts modernes d'écologie et d'Anthropocène. Bien que n'explorant pas explicitement la relation entre Alexander von Humboldt et l'Anthropocène, Sabine Wilke dans son article *Alexander von Humboldts Naturgemälde, oder : die Dramatisierung der Natur. Die kolonialen Wurzeln der Ökologie* offrent une perspective complémentaire. Elle met en exergue la représentation humboldtienne de la nature comme une entité dynamique et expressive tout en rappelant que les explorations scientifiques de Humboldt en Amérique ont pu être influencées par une perspective colonialiste, un aspect crucial pour comprendre le concept d'Anthropocène d'aujourd'hui. Caroline Schaumann, quant à elle, affirme dans son article *Humboldtian Writing for the Anthropocene* que les œuvres de Humboldt ont préfiguré l'avènement de l'Anthropocène. Elle le considère non pas comme un *inventeur* de la nature, mais comme un observateur et écrivain perspicace, reconnaissant les interactions complexes entre l'humanité et la nature.

Mon point de vue s'appuie sur les analyses de ces prédécesseurs concernant Humboldt, mais j'adopte un *regard éloigné*[3] sur la relation spécifique entre Humboldt et l'Anthropocène. Je soutiens que Humboldt n'a pas simplement contribué au discours de l'Anthropocène de manière unidimensionnelle, mais qu'il a fondamentalement transcendé la vision dualiste cartésienne de *l'homme dominant et possédant la nature.* Au sein de son vaste réseau de connaissances, il a élaboré une perspective alternative de l'Anthropocène. Pour étayer cette affirmation, je propose de revisiter son *Voyages aux régions équinoxiales du Nouveau Continent,* de nous replonger sur les rives du lac de Valencia il y a plus de deux siècles, et de reconstruire rétrospectivement les observations de Humboldt sur l'Anthropocène.

2 Crutzen and Eugene F. Stoermer, « The ‹ Anthropocene › », in : *Global Change Newsletter,* 41 (2000), pp. 17–18. Aussi dans *Paul J. Crutzen and the anthropocene : A new epoch in earth's history* (2021), pp. 19–21.

3 Lévi-Strauss, Claude. *Le regard éloigné : avec 1 carte et 3 diagrammes dans le texte.* FeniXX, 1983.

Sous la colonisation espagnole, les vallées d'Aragua étaient renommées pour leur agriculture prospère et leurs paysages pittoresques. La densité de population dans cette région rivalisait à celle de la France, et une grande diversité de cultures y était cultivée, contribuant ainsi à l'image d'une région florissante, façonnée par l'influence de la civilisation européenne.

Lors de son arrivée dans les vallées d'Aragua en février 1800, Alexander von Humboldt fut immédiatement frappé par la particularité de leur situation géographique. Il entreprit alors de construire une image géographique complète et poétique, en passant du niveau macro à un niveau micro spatial. Dans ses écrits, il dépeint avec une grande précision les caractéristiques des montagnes, des collines, des rivières et des lacs, en soulignant leur localisation exacte. Cette approche méticuleuse lui a permis de mettre en relief les particularités géographiques des vallées d'Aragua et d'analyser leur influence sur le développement agricole et économique de la région.

> Au nord, la Sierra Mariara les sépare des côtes de l'Océan ; vers le sud, la chaîne du Guacimo et de Yusma leur sert de rempart contre l'air embrasé des steppes. Des groupes de collines, assez hautes pour déterminer le cours des eaux, ferment le bassin à l'est et à l'ouest, comme des digues transversales. On trouve ces collines entre le Tuy et la Victoria, de même que dans le chemin de Valencia à Nirgua, et aux montagnes du Torito. Par cette configuration extraordinaire du sol, les petites rivières des vallées d'Aragua forment un système particulier, et dirigent leur cours vers un bassin fermé de toutes parts ; elles ne portent point leurs eaux à l'Océan, elles se réunissent dans un lac intérieur, et, soumises à l'influence puissante de l'évaporation, elles se perdent, pour ainsi dire, dans l'atmosphère.[4]

Le paysage géographique des vallées d'Aragua, dans son ensemble, révèle leur remarquable singularité. La topographie montagneuse, décrite précédemment, exerce une influence déterminante sur le cours des eaux. Lorsque ces eaux se rassemblent dans la vallée, elles créent un système hydrique unique, caractérisé par deux particularités principales. D'une part, le système jouit d'une protection offerte par les montagnes qui agissent comme des *remparts* et *digues* naturelles, constituant ainsi *un système particulier,* à part entière. D'autre part, il participe à un cycle hydrologique singulier, où l'eau circule dans la vallée, principalement sous l'effet d'une évaporation intense.

L'utilisation des mots *remparts* et *digues* forment un diptyque sémantique saisissant qui illustre d'emblée la tonalité que Humboldt imprime à son analyse : celle d'une interaction continue entre la nature et les activités humaines. Le terme *remparts* évoque une configuration géographique naturelle qui suggère la protection intrinsèque des établissements humains. En revanche, *digues* renvoie à une construction anthropique, symbolisant la capacité de l'homme à transformer le relief naturel. Cette juxtaposition lexicale place les objets et les hommes sur un même *plan,* préfigurant de manière étonnante la conception développée par Bruno Latour face à l'Anthropocène.

4 De Humboldt, Alexandre. *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1802, 1803 et 1804 par Al. De Humboldt et A. Bonpland.* Paris : Librairie chez N. Maze, 1819, p. 65.

Humboldt énonce avec force que *C'est de l'existence de ces rivières et de ces lacs que dépendent la fertilité du sol et le produit de la culture dans ces vallées.*[5] Cette phrase, d'une concision apparente, encapsule une vision dynamique du fonctionnement de la nature et offre une synthèse saisissante de la pensée écologique de Humboldt. En effet, les rivières et les lacs, façonnés par les barrières orographiques, sont les déterminants de la fertilité édaphique et, par conséquent, de la productivité agricole de la vallée. Ici, les interactions complexes entre la topographie, l'hydrologie, l'agriculture et l'économie sont mises en évidence par une observation minutieuse de la nature. Dans ce système que Humboldt décrit, initialement *particulier,* nous ne sommes plus en présence d'*un monde copernicien où les objets sont des esclaves* (Serres 1997, 303). Au lieu de cela, nous observons le rôle actif et déterminant des entités non-humaines dans la configuration et le fonctionnement du monde naturel. Cette perspective de Humboldt préfigure la conception de l'Anthropocène, où les activités humaines, bien que influentes, sont intégrées dans un système plus large où les facteurs non-humains jouent un rôle central.

> L'aspect des lieux et l'expérience d'un demi-siècle ont prouvé que le niveau des eaux n'y est pas constant, que l'équilibre est rompu entre le produit de l'évaporation et celui des affluens. Comme le lac est élevé de 1000 pieds au-dessus des steppes voisines de Calabozo, et de 1332 pieds au-dessus de la surface de la mer, on a soupçonné des communications et des filtrations souterraines. L'apparition de nouvelles îles et la retraite progressive des eaux ont fait croire que le lac pourrait bien se dessécher entièrement. Une réunion de circonstances physiques si remarquables a dû fixer mon attention sur ces vallées, où la beauté sauvage de la nature est embellie par l'industrie agricole et les arts d'une civilisation naissante.[6]

Cependant, Humboldt emmène immédiatement les lecteurs dans une dimension à la fois temporelle et spatiale. Ses observations, qui s'étalent sur un demi-siècle, révèlent que le niveau de l'eau dans le lac de Valencia n'est pas constant, et que cet équilibre précaire a été perturbé. L'emploi de termes tels que « équilibre » et « rompu » sert de métaphore pour décrire l'impact des activités humaines sur la nature, en particulier durant la période de colonisation espagnole. Ces termes soulignent les changements dynamiques qui sont survenus dans ce système autrefois fermé, et la prévision de Humboldt concernant l'assèchement possibles des lacs démontre son acuité environnementale.

Bien que sa description des vallées comme étant des régions « émergentes » et non civilisées puisse refléter inévitablement une vision européocentrique du progrès, Humboldt reconnait que la beauté sauvage de ce paysage est embellie par l'agriculture et les arts de cette civilisation en émergence. Plus important encore, il manifeste avec une grande acuité dans la réception de l'impact des activités humaines sur la nature, une perspective qui pourrait être qualifiée d'« anthropocène ». Cette conscience écologique, bien en avance sur son époque, préfigure les préoccupations environnementales contemporaines et témoigne de la profondeur de sa pensée et de sa vision.

5 Ibid.: p. 65.

6 Ibid.: pp. 65–66.

Humboldt pose une série de questions qui, au premier abord, semblent simplement naitre de sa curiosité scientifique. Cependant, une analyse plus approfondie révèle une intention plus complexe et profonde.

> Mais ce ne sont pas seulement les beautés pittoresques qui ont rendu célèbres dans le pays les rivages du lac de Valencia ; ce bassin offre aussi plusieurs phénomènes, dont l'explication intéresse à la fois la physique générale et le bien-être des habitans. Quelles sont les causes de la diminution des eaux du lac ? Cette diminution est-elle aujourd'hui plus rapide qu'elle ne l'a été il y a des siècles ? Peut-on supposer que l'équilibre entre les affluens et les pertes va se rétablir bientôt, ou doit-on craindre que le lac disparaisse entièrement ?[7]

En posant ces questions, il vise à éveiller la conscience des lecteurs sur les changements environnementaux et à les inciter à une réflexion active sur les transformations du paysage. Lorsqu'il mentionne « la physique générale et le bien-être des habitants », Humboldt démontre qu'il perçoit déjà les liens intrinsèques entre les phénomènes naturels et les conditions de vie humaines. Il interroge « les causes de la diminution des eaux du lac », suggérant implicitement que des facteurs anthropiques pourraient être en jeu. Cette reconnaissance de l'influence humaine sur les systèmes naturels est au cœur de la notion d'Anthropocène. En comparant la situation actuelle à celle « il y a des siècles », Humboldt perçoit les changements environnementaux comme des processus s'étalant sur de longues périodes, établissant ainsi les bases d'une approche holistique des problèmes environnementaux.

Ses questions sur l'avenir du lac, telles que « Peut-on supposer que l'équilibre… va se rétablir bientôt, ou doit-on craindre que le lac disparaisse entièrement ? »[8] révèlent une préoccupation pour les conséquences à long terme des changements observés. Cette perspective temporelle étendue est caractéristique de la pensée environnementale moderne. En soulevant ces questions, Humboldt suggère implicitement la nécessité d'une intervention ou d'une compréhension plus approfondie pour prévenir des conséquences potentiellement négatives.

Humboldt a de nouveau mis en évidence l'impact destructeur de l'homme sur la nature, qui peut atteindre le niveau de la « destruction ». Ce processus est décrit comme étant violent et potentiellement irréversible. L'expansion de l'agriculture humaine, marquée par l'accroissement de la culture de la canne à sucre, de l'indigo et du coton, a entraîné une diminution des sources et de tous les affluents naturels du lac de Valencia. L'utilisation du terme *naturels* par Humboldt souligne ici le contraste entre l'impact humain et les processus naturels préexistants. L'impact environnemental, motivé par l'économie humaine, est présenté comme durable et cumulatif, comme le montre l'exemple du lac de Valencia, où *la destruction des arbres, avec l'accroissement de la culture du sucre, de l'indigo et du coton, les sources, et tous les affluents naturels du lac de Valencia ont diminué d'année en année.*[9] Cette phrase nous rappelle également que les problèmes anthropogéniques ne sont pas récents, mais sont ancrées dans des racines historiques profondes.

7 Ibid.: pp. 67–68.

8 Ibid.: p. 68.

9 Ibid.: p. 73.

> Depuis l'accroissement qu'a pris l'industrie agricole dans les vallées d'Aragua, les petites rivières qui se jettent dans le lac de Valencia ne peuvent plus être regardées comme des affluents pendant les six mois qui succèdent au mois de décembre. Elles restent à sec dans la partie inférieure de leurs cours, parce que les planteurs d'indigo, de cannes à sucre et de cafier ont fait de fréquentes saignées pour arroser les terres par des rigoles. Il y a plus encore ; une rivière assez considérable, le Rio Pao, qui naît à l'entrée des Llanos, au pied de cette rangée de collines que l'on appelle la Galera, mêloit jadis ses eaux à celles du lac en se réunissant au Caño de Cambury, dans le chemin de la ville de Nueva Valencia à Guigue. Le cours de la rivière étoit alors du sud au nord. A la fin du 17em siècle, le propriétaire d'une plantation voisine s'avisa de creuser sur le revers d'un coteau un nouveau lit au Rio Pao. Il détourna la rivière ; et après avoir employé une partie des eaux pour l'irrigation de son champ, il fit couler le reste, comme au hasard, vers le sud, en suivant la pente des Llanos [...] C'est un phénomène assez remarquable que de voir, par la disposition particulière du terrain et l'abaissement de l'arrête de partage vers le sud-ouest, le Rio Pao se séparer du petit système de rivières intérieures auquel il appartenait primitivement, et communiquer, depuis un siècle, par l'Apure et l'Orénoque, avec l'Océan. Ce qui s'est opéré ici en petit par la main de l'homme, la nature le fait souvent elle-même, soit par des atterrissemens progressifs, soit par ces éboulements que causent de violents tremblements de terre.[10]

En un seul paragraphe, Alexander von Humboldt parcourt des siècles d'histoire et de vastes espaces géographiques, entrelaçant habilement observations scientifiques, événements historiques et réflexions philosophiques pour construire rétrospectivement un récit de conflit entre les éléments humains et non-humains. Sa description précise des détails rend tangibles les activités agricoles et les changements environnementaux concrets.

Avec une clairvoyance quasi prophétique, Humboldt note que l'être humain avait déjà entamé la transformation de son milieu naturel, en particulier dans cette zone critique, dès la fin du XVIIe siècle. Cette réflexion témoigne non seulement son acuité d'analyse historique, mais elle anticipe également le concept de l'Anthropocène, où l'humanité est considérée comme une force géologique. Les actions des planteurs, qui modifient le cours du Rio Pao pour irriguer leurs domaines et gèrent arbitrairement de l'excédent d'eau, illustrent à la fois la capacité de l'homme à transformer la nature et révèlent la myopie de ces actions, ainsi que leur négligence des impacts écologiques à long terme.

Ce qui s'est opéré ici en petit par la main de l'homme, la nature le fait souvent elle-même[11], une métaphore que Humboldt emploi ici pour suggérer que ce que l'homme réalise à petite échelle, la nature le fait souvent à une échelle beaucoup plus grande. Cette idée souligne à la fois la puissance de l'action humaine et la possibilité pour l'homme d'imiter ou d'accélérer les processus naturels. Cette intuition trouve un écho dans les réflexions contemporaines sur l'Anthropocène, où l'impact de l'homme sur la planète est reconnu comme étant à la fois puissant et susceptible d'influencer les processus naturels.

Dans ce cas du lac de Valencia, Humboldt envisage un *système particulier* ou les humains et les rivières agissent tous deux, *produisent des différences,* en tant qu'acteurs dotés d'agen-

10 Ibid.: p. 75.

11 Ibid.: p. 75.

tivité, une idée que Bruno Latour explore dans sa théorie de l'acteur-réseau. Cette approche décentralise l'homme de l'action, où le lac de Valencia, en tant que zone critique, peut être vu comme un nœud, un point de convergence semblable au *quasi-objet* de Michel Serres, au *rhizome* de Gilles Deleuze, ou au *réseau d'acteurs dynamique* de Bruno Latour, reliant l'homme à son environnement immédiat. Bien que toutes les lignes environnantes définissent l'existence de ce nœud, sur ce plan, l'importance du lac de Valencia transcende ces lignes et ses liens. Tel Hermès, Humboldt, agissant comme un messager, navigue entre les différentes composantes de la nature, tissant entre eux des liens qui montrent comment l'homme a été à la fois l'instigateur et, à son tour, le récepteur passif des changements survenus au lac de Valencia. Initialement, à la fin du XVII[e] siècle, l'homme a été l'instigateur des changements, mais à l'époque de l'observation de Humboldt en 1800, il est devenu un récepteur passif de ces transformations.

Bruno Latour a déclaré en 2014 que *« The point of living in the epoch of the Anthropocene is that all agents share the same shape-changing destiny, a destiny that cannot be followed, documented, told, and represented by using any of the older traits associated with subjectivity or objectivity. » Vivre dans l'époque de l'Anthropocène signifie que tous les agents partagent un destin métamorphique commun, un destin qui ne peut être suivi, documenté, raconté ou représenté en utilisant les anciennes caractéristiques associées à la subjectivité ou à l'objectivité.*[12] Cette déclaration met en avant l'idée que, dans l'ère de l'Anthropocène, les anciens paradigmes de subjectivité et d'objectivité ne sont plus suffisants pour comprendre les dynamiques complexes du monde. Cependant, contrairement à Latour, pour Humboldt, la nature reste la nature proprement dite, un nom sans être anthropomorphisé sous sa plume. Dans le réseau complexe formé par les éléments étroitement liés qui composent la nature, l'homme n'est qu'un point au sein d'un tissu de changements, agissant de manière égale aux autres facteurs. Chez Latour, en revanche, la nature est un verbe, un réseau d'acteurs en constante évolution, semblable à une entreprise dynamique avec des départements aux fonctions bien définies.

Le changement de perspective proposé par Humboldt dans ce passage révèle sa compréhension profonde de la multiplicité et de l'instabilité du sujet, ainsi que sa perception aiguë de l'incertitude et de la fragilité des relations homme-nature. Cette perspective entre en intertextualité avec le passage chez Michel Serres, qui cite l'Odyssée d'Homère : *Pendant que Nausicaa lance la balle sur la plage à ses compagnes, Ulysse, jeté bas par la vague et par le ressac, arraché du naufrage, apparaît, nu, sujet, dessous. Enfant de la lame, enfant des passes de la balle.*[13] L'homme, comme Ulysse, est à la fois *enfant de la vague* et *enfant des passes de la balle.*

Humboldt observe la transformation de l'homme, passant d'instigateur des changements environnementaux à récepteur passif. La nature n'est ici que la balle dans les mains de Nausicaa, une métaphore qui établit un dialogue transcendant le temps et l'espace avec l'observation de Humboldt sur le changement de rôle de l'homme. Dans cette vision, l'homme est placé sur un pied d'égalité avec les roches, les lacs, les forêts et même la plantation du tabac. Cette perspective remet en question la pensée dualiste occidentale traditionnelle, où l'homme est souvent vu comme séparé de, et dominant sur, la nature. Humboldt reconnaît que, bien que l'homme ait un impact certain sur la nature, cet impact est le résultat d'interactions complexes avec d'autres éléments naturels, et non simplement une direction unilatérale de l'homme sur la nature.

12 Latour, Bruno, « Agency at the Time of the Anthropocene ». *New Literary History,* 45(1), 2014, p. 15.

13 Serres, Michel, *le Parasite,* Paris, Hachette, 1997, p. 305.

> Il est impossible d'assigner d'avance les limites plus ou moins étroites entre lesquelles un jour ce bassin des eaux se trouvera rétréci, lorsque l'équilibre entre le produit des affluents et le produit de l'évaporation et des filtrations sera entièrement rétabli. L'idée très-répandue, que le lac va disparoître entièrement, me parait chimérique. Si, à la suite de grands tremblemens de terre ou par d'autres causes également mystérieuses, dix années très-humides succédaient a de longues sécheresses ; si les montagnes se couvroient de nouveau de forêts, et que de grands arbres ombrageassent le rivage et les plaines d'Aragua, on verroit plutôt le volume des eaux s'accroître et menacer ces belles cultures qui resserrent aujourd'hui le bassin du lac.
>
> Tandis que les cultivateurs des vallées d'Aragua craignent, les uns la disparition totale du lac, les autres son retour vers les bords délaissés, on entend agiter gravement la question à Caracas, si, pour donner plus d'étendue à l'agriculture, il ne seroit pas prudent de conduire les eaux du lac dans les Llanos, en creusant un canal de dérivation vers le Rio Pao. On ne sauroit nier la possibilité de cette entreprise, surtout en supposant l'emploi de galeries ou canaux souterrains. C'est à la retraite progressive des eaux qu'on doit les belles et riches campagnes de Maracay, de Cura, de Mocundo, de Guigue et de Santa-Cruz del Escoval, plantées en tabac, en canne à sucre, en cafier, en indigo et en cacaoyer ; mais comment douter un instant que c'est le lac seul qui répand la fertilité dans ces contrées. Sans cette masse énorme de vapeurs que la surface des eaux verse journellement dans l'atmosphère, les vallées d'Aragua seroient sèches et arides comme les montagnes qui les entourent.[14]

Dans cette vallée, le lac jouait un rôle essentiel pour l'agriculture locale, et les fluctuations de son niveau d'eau étaient une préoccupation majeure pour les habitants. Ils envisageaient même sérieusement de creuser un canal pour dévier les eaux lacustres vers les plaines agricoles. Cette attitude n'est guère différente de celle de l'homme moderne qui, plutôt que d'admettre l'évolution de sa relation avec son environnement, préfère souvent altérer la nature elle-même.

L'approche de Humboldt vis-à-vis de l'intervention technologique sur la nature se révélait particulièrement nuancée. Tout en reconnaissant la faisabilité technique de projets comme l'utilisation de tunnels souterrains ou de canaux pour acheminer l'eau de la rivière Pao vers les plaines, il souligne l'importance d'une réflexion approfondie et d'une attitude prudente. Il était conscient des conséquences imprévues potentilles de telles interventions et pensait que des actions humaines, notamment la restauration du couvert forestier montagneux, pourraient influencer le niveau de l'eau du lac. Humboldt reconnaissait la capacité humaine de contrôler et de transformer la nature à l'aide de technologies avancés. Toutefois, il plaidait pour une approche réflexive et dynamique pour évaluer si résoudre l'assèchement actuel du lac serait bénéfique à long terme.

La pensée de Humboldt se caractérise par une vision holistique et dynamique des phénomènes naturels, rejetant toute vision dualiste simpliste. Cette perspective est particulièrement claire dans son analyse de l'assèchement du lac Valencia, qu'il ne considère pas uniquement comme

14 De Humboldt, Alexandre. *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1802, 1803 et 1804 par Al. De Humboldt et A. Bonpland.* Paris : Librairie chez N. Maze, 1819, pp. 76–77.

un phénomène négatif, mais plutôt comme un évènement à étudier dans son ensemble pour en comprendre les implications.

Au cœur de l'épistémologie humboldtienne se trouve la notion de mouvement perpétuel et d'interconnexion. Comme le souligne Ottmar Ette, pour Humboldt, *Les espaces sont toujours des espaces de mouvement* (Ette 2019, 47). Cette perspective reconnait que l'évolution constante est une caractéristique intrinsèque des éléments naturels et de leurs interactions. Ette developpe cette idée en décrivant :

> At the core of the Humboldtian epistemology, which was in no small part developed in the infinite measurement sequences and rich store of field research described in the American Travel Journals, is a focus on the mobility and relationality of all objects on our planet. For Humboldt, everything on our rotating globe is subject to constant motion and transformation : land, water, air, mountains, high plateaus and lowlands, continents, islands and archipelagos, as well as plants, animals and, last but not least, humans with their perpetually changing cultures.[15]

Cette approche globale se manifeste de manière évidente dans le récit de Humboldt sur l'évolution du lac Valencia. Il suppose que la beauté des paysages vallonnés et la prospérité agricole de la région résultent partiellement du retrait progressif des eaux, offrant aux populations locales de nouvelles terres arables. D'un autre côté, il souligne l'importance vital du lac pour le maintien de l'équilibre écologique régional.

La vision de Humboldt va au-delà des effets immédiats, englobant les interactions complexes au sein de l'écosystème. Comme le note Ette, *Humans must continue to adjust to the new paths and movements – and thereby to the changing conditions of life.* Cela souligne la nécessité d'une adaptation continue face aux changements environnementaux, reflétant l'approche dynamique de Humboldt.

En effet, Humboldt considère la diminution du niveau lacustre non pas comme un événement isolé, mais comme un élément clé influençant l'intégralité de l'écosystème régional. Ces observations ont conduit Humboldt à élaborer un réseau de connaissances sophistiqué, reliant étroitement divers facteurs tels que le lac, le climat, l'agriculture, les activités humaines et la topographie. Dans ce système interconnecté, une multitude d'acteurs, humains et non-humains, interagissent de manière dynamique et complexe.

Le lac Valencia est un élément central de l'écosystème régional, fournissant l'eau vitale pour l'irrigation et soutenant la vie des animaux et des plantes. Ce lac peut être vu comme un *quasi-objet* qui facilite l'échange entre les humains et leur environnement naturel, établissant ainsi une relation d'interdépendance. Les humains dépendent du lac pour leur survie et leur bien-être, tandis que le lac dépend des humains pour sa conservation et sa gestion durable. De plus, le lac agit comme *un espace intermédiaire,* un lieu de convergence où les humains et leur environnement échangent de l'énergie et de l'information, symbolisé par un « espace d'équivalence où nait la langue, où nait son feu, où elle fait apparaitre les choses dont elle parle… » (Serres 1997, 67). Le lac est un lieu de rencontre entre les humains et non-humains,

15 Ette, Ottmar. « The Birth of Landscape from the Spirit of Theory : Alexander von Humboldt's Artistic and Scientific American Travel Journals. » dans Routledge Research Companion to Landscape Architecture, hrsg. von Ellen Braae und Henriette Steiner. London : Routledge, 2019, p. 48.

où tous les agents peuvent observer et apprendre sur les processus écologiques et les cycles de vie. Enfin, le lac Valencia impose également la nécessité de pratiques culturelles et sociales adaptées à cette région. Dans cette région, le lac Valencia favorise l'échange de pratiques entre les habitants, renforçant ainsi leur lien avec le lac et son écosystème.

> Les habitants des vallées d'Aragua demandent souvent pourquoi le rivage méridional du lac, surtout la partie du sud-ouest vers Los Aguacates, est généralement plus ombragé et d'une verdure plus fraiche que le rivage septentrional ? Au mois de février, nous vîmes beaucoup d'arbres dépouilles de feuilles, près de l'Hacienda de Cura, a Mocundo et a Guacara, tandis qu'au sud-est de Valencia tout annonçoit déjà l'approche des pluies. Je pense que, dans la première partie de l'année, où le soleil a une déclinaison australe, les collines qui entourent Valencia, Guacara et Cura, sont brûlées par l'ardeur des rayons solaires, tandis que le rivage méridional reçoit, avec la brise, dès qu'elle entre dans la vallée par l'Abra de Porto Cabello, un air qui a passé le lac et qui est chargé de vapeurs humides. C'est aussi sur ce rivage méridional que se trouvent, près de Guaruto, les plus belles cultures de tabac de toute la province. On les distingue par les noms de primera, segunda ou tercera fundacion. D'après le monopole oppressif de la ferme, dont nous avons parlé en décrivant la ville de Cumanacoa, les habitans de la province de Caracas ne peuvent cultiver le tabac que dans les vallées d'Aragua (à Guaruto et à Tapatapa), et dans les Llanos, près d'Uritucu. Le produit de la vente est de cinq à six cent milles piastres ; mais l'administration de la régie est si énormément dispendieuse qu'elle absorbe près de 230,000 piastres par an. La capitainerie générale de Caracas, par son étendue et l'excellente qualité de son sol, pourroit, aussi bien que l'île de Cuba, fournir à tous les marchés de l'Europe ; mais dans son état actuel, elle reçoit, en contrebande, et le tabac du Brésil par le Rio Negro, le Cassiquiare et l'Orénoque, et le tabac de la province de Pore par le Casanare, l'Ariporo et le Rio Meta. Tels sont les effets funestes d'un système prohibitif qui s'oppose au progrès de l'agriculture, diminue les richesses naturelles, et tend vainement à isoler des pays traversés par les mêmes rivières, et dont les limites se confondent dans des espaces inhabités.[16]

Outre son approfondie analyse des variations du niveau d'eau du lac de Valencia, Humboldt a également mis en évidence l'impact des activités humaines sur ses rives. Humboldt a noté que la rive sud du lac bénéficiait d'un ombrage plus dense comparativement à la rive nord. En particulier en février, au moment de son arrivée, alors que la région était généralement en proie à la sécheresse, la région du sud-est du lac de Valencia était caractérisée par une humidité notable, coïncidant avec la saison des pluies. C'est sur cette rive sud, riche en humidité, que prospéraient les plantations de tabac les plus florissantes de cette province colonisée par l'Espagne.

Humboldt avait préalablement décrit le système draconien de monopole du tabac imposé par l'administration coloniale espagnole à Cumanacoa dans le tome I. En observant la différence marquée entre les cultures agricoles des rives nord et sud du lac de Valencia, Humboldt renforce sa critique virulente de cette politique, qu'il dépeint comme un *monopole oppressif*. Ce système, en limitant les zones de culture et la production, permettait au gouvernement de maintenir un contrôle total sur l'ensemble de la chaîne de production. Cette concentration

16 De Humboldt, Alexandre. *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1802, 1803 et 1804 par Al. De Humboldt et A. Bonpland.* Paris : Librairie chez N. Maze, 1819, pp. 82–83.

de la production a entraîné une profonde restructuration de la main-d'œuvre et a considérablement influencé l'échelle et les méthodes de culture du tabac, ce qui a modifié l'utilisation des terres et réduit la diversité agricole. Comme le souligne le texte, les habitants de la province de Caracas étaient contraints de limiter la culture du tabac à des zones spécifiques telles que la vallée d'Aragua et les plaines de Llanos.

Le défrichement effectué par les autorités pour préparer les terres à la culture du tabac a entraîné une réduction des ressources naturelles, déstabilisant ainsi l'équilibre écologique et le climat. La culture du tabac, exigeante en termes d'irrigation et épuisante pour les sols, a provoqué, par son intensif développement, des modifications des propriétés des sols et un impact notable sur les ressources en eau. Ces activités locales de culture du tabac ont eu des répercussions à une échelle plus grande, démontrant comment des politiques économiques à court terme peuvent engendrer des conséquences environnementales à long terme.

La baisse du niveau d'eau du lac de Valencia apparaît sous la plume de Humboldt comme un processus complexe, un *quasi-objet* typique à la fois issu de phénomènes naturels et profondément marqué par l'empreinte socio-économique. La culture du tabac dans cette vallée se révèle être une activité anthropique *parasite* de l'écosystème lacustre, en exploitant ses ressources tout en modifiant le système hôte. Cette approche intégrée de Humboldt est résumée par Ottmar Ette, qui souligne que :

> Auch wenn damit die Idee des Anthropozäns (...) keineswegs vorweggenommen ist : Der Mensch steht bei Humboldt stets im Schnittpunkt eines Natur und Kultur vernetzenden Denkens, in dem alles auf unserem Planeten mit allem in Beziehung tritt oder doch zumindest treten kann.[17]

Cette vision de Humboldt, qui place l'homme au cœur d'un réseau complexe d'interactions entre la nature et la culture, trouve aussi un écho dans la métaphore poétique de Michel Serres « la fleur rouge écarte les tigres, et le rameau d'or n'est pas loin. » (Serres 1997, 303). Cette image évocatrice illustre la manière dont Humboldt perçoit les interventions humaines dans l'écosystème du lac de Valencia : comme des actions qui, tout en modifiant l'environnement naturel *(écarter les tigres),* ouvrent de nouvelles possibilités d'interaction et de compréhension *(le rameau d'or).*

Dans la conception écologique de Humboldt, l'humanité est perçue comme partie intégrante de la nature, au même titre que les forêts et la végétation, plutôt que comme une entité transcendante dominant celle-ci. Humboldt insiste sur le fait que l'influence humaine sur l'équilibre dynamique de l'écosystème s'exerce principalement à travers ses interactions avec les éléments naturels tels que les montagnes, les rivières, la flore et l'atmosphère. Cette perspective, qui intègre profondément l'humanité dans son milieu naturel, présente une analogie saisissante avec le mythe cosmogonique chinois de *Pangu.*

Ce mythe narre la genèse de l'univers : *Pangu,* brandissant sa hache colossale, fend le chaos primordial, se positionne entre le *yin* et le *yang,* et soutient de son corps le ciel et la terre, réalisant ainsi leur séparation. La légende rapporte que durant les dix-huit millénaires suivants,

17 Ette, Ottmar, « Natur und Kultur : Lebenswissenschaftliche Perspektiven Humboldt'scher Wissenschaft » in *Horizonte der Humboldt-Forschung, Natur, Kultur, Schreiben,* Georg Olms Verlag, 2016, p. 37.

Pangu croît conjointement avec le ciel et la terre, pour finalement se métamorphoser en la source de toute chose dans le monde.[18] Ce récit est particulièrement significatif car il ne dépeint pas *Pangu* comme une force antagoniste au ciel et à la terre, mais plutôt comme un médiateur essentiel entre ces entités qui, après avoir accompli sa mission créatrice, se réintègre à la nature, devenant ainsi une composante organique du monde.

Bien que Humboldt n'ait atteint que les confins de la Chine lors de sa dernière expédition en Asie centrale, ses idées ont traversé les frontières géographiques et engendré une intertextualité avec la philosophie chinoise ancestrale. Cette perspective revêt une importance qui dépasse le cadre de l'écologie, car elle interroge la manière dont l'humanité se repositionne vis-à-vis de la nature. Elle remet en question la vision anthropocentrique séculaire et prône une compréhension plus holistique, du monde, offrant ainsi une piste de réflexion prometteuse face à la crise écologique actuelle de l'Anthropocène.

Le lac dans la vallée la plus fertile de l'époque de Humboldt est désormais gravement pollué, les forêts tropicales d'Amérique décrites dans ses trente volumes font face à une perte de biodiversité végétale, et les montagnes d'Asie centrale, décrites par Humboldt, ont vu leur géomorphologie transformée par l'exploitation humaine. Le sommet des montagnes qui portent son nom voit sa neige fondre. Pourtant, malgré que la disparation d ces paysages naturels décrits par Humboldt, la vision holistique de Humboldt continue de rappeler l'interconnexion de tout ce qui existe *(Alles ist Wechselwirkung).* L'Anthropocène émerge de ces interactions, et même si le récit moderne est souvent négatif et entropique, la possibilité d'un avenir différent se dessine, car il n'est jamais trop tard pour réchauffer notre vision du monde et inverser la tendance. Humboldt, l'un des précurseurs du concept de l'Anthropocène, écrivant sur le lac de Valence à Paris il y a plus de deux cents ans, nous a offert une perspective différente. Pour saisir pleinement les subtilités de la pensée holistique de Humboldt sur l'Anthropocène, il est nécessaire de se décentrer de notre époque et d'entreprendre un exercice d'imagination qui transcende le temps et l'espace. Cette approche éclaire notre chemin vers un Anthropocène *en mouvement,* nous invitant non pas à capitaliser sur la Terre, mais à transmuer l'âge de l'Homme en âge du *Nous,* où l'Humain et la Nature s'entrelacent dans une harmonie cosmique. Notre rôle évoluerait alors : de conquérants éphémères, nous deviendrions les architectes subtils d'un équilibre universel, tissant la trame d'un avenir où chaque fil de vie résonne avec l'essence même du cosmos.

18 袁珂:《中国神话通论》，成都:巴蜀书社，1993年，第73–75页。(Yuan Ke, Zhong guo shen hua tong lun, Chengdu : Ba shu shu she, 1993 nian, di 73–75 ye.) Voi aussi Wang Mingming, « Some Turns in a ‹ Journey to the West › : Cosmological Proliferation in an Anthropology of Eurasia », *Tsinghua Journal of Social Sciences,* vol 1(2), 2017, p. 26, et dans *Journal of the British Academy, vol. 5,* 2017, pp. 201–250.

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Beiträge

Ulrich Päßler

Humboldt's science on the move – plant geographical observations, notes and encounters during his American voyage

ZUSAMMENFASSUNG

Alexander von Humboldt beschäftigte sich seit den frühen 1790er Jahren mit der Pflanzengeographie. In seinen „Ideen zu einer Geographie der Pflanzen" (1807) stellte er ein Forschungsfeld vor, das Mensch und Natur, Ästhetik und quantitative Wissenschaften umfasst. Die vorliegende Arbeit schlägt einen neuen Zugang zu diesem komplexen Forschungsprogramm vor. Eine genaue Lektüre der pflanzengeographischen Aufzeichnungen, die er während seiner Amerikareise anfertigte, gibt Einblick in den situativen und zuweilen zufälligen Charakter von Humboldts Wissenschaft. Humboldt glich seine Erfahrungen in den Tropen mit vorgefassten europäischen Vorstellungen von Naturgeschichte ab. Die Reiseroute selbst und die persönlichen Begegnungen spielten eine wichtige Rolle bei der Ausgestaltung von Humboldts pflanzengeographischen Überlegungen.

ABSTRACT

Alexander von Humboldt studied plant geography from the early 1790s onwards. In the "Essay on the Geography of Plants" (1807) he presents a field of science that encompasses man and nature, aesthetics and quantitative sciences. This paper suggests a novel approach to this complex research program. A close reading of the notes on plant geography taken during his American voyage gives insight into the situational and at times contingent nature of Humboldt's science. Humboldt aligned his experience of the Tropics with preconceived European notions of natural history. The travel route itself and personal encounters played a significant part in re-shaping Humboldt's plant-geographical ideas.

RÉSUMÉ

Alexander von Humboldt étudia la géographie des plantes dès le début des années 1790. Dans son « Essai sur la géographie des plantes » (1807), il présente un domaine scientifique qui englobe l'homme et la nature, l'esthétique et les sciences quantitatives. Cet article propose une nouvelle approche de ce programme de recherche complexe. Une lecture approfondie des notes sur la géographie des plantes prises au cours de son voyage en Amérique donne un aperçu de la nature situationnelle et parfois casuelle de la science de Humboldt. Humboldt a aligné son expérience des Tropiques sur les notions européennes d'histoire naturelle préconçues. L'itinéraire du voyage lui-même et les rencontres personnelles ont joué un rôle important dans le remodelage des idées phytogéographiques de Humboldt.

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Introduction[1]

For several decades, Alexander von Humboldt's scientific endeavors have been subject to historical reinterpretation. This involves, on the one hand, reassessing the broad lines of his heuristic concept and, on the other, interrogating Humboldt's practices in the field and at his desk. Scholars have successfully historicized and deconstructed the long-influential concept of "Humboldtian Science," which describes the practice of serial and globally coordinated measurement of numerous, interrelated geophysical phenomena using precise instruments (Cannon 1978; Dettelbach 1996). While Humboldt advocated for this research approach and even selectively implemented it, his scientific biography, spanning over seven decades, cannot fully be captured by this concept (Daum 2024). This means that Humboldt's science must be contextualized within the respective biographical context.[2] This task is inherently complex for a number of reasons, primarily due to the fact that the naturalist's lengthy lifetime and remarkable productivity make it challenging to fully comprehend all the nuances involved in his scientific endeavors. The epochal political, cultural, and scientific changes around 1800, which were reflected in Humboldt's evolving worldview, are impressively yet inadequately described by the early biographical stations of Berlin, Göttingen, Weimar/Jena, and Paris. Additionally, the traveler's hemispheric journeys brought Madrid, Quito, Havana, Philadelphia, and St. Petersburg into his mental horizon, expanding the scope of his intellectual engagement to a global scale.

A second avenue of inquiry within the field of Humboldt research aligns with the general trend in the historiography of science towards practices of observation and writing. The complete digitization of Humboldt's papers in Berlin and Krakow, including the American travel journals, provided a major impetus. The thousands of manuscript pages available online in open access allow for an examination of Humboldt's methods of seeing, collecting, and excerpting. It becomes more and more evident that Humboldt's science was "open-ended, situational, and experimental," as Andreas Daum has pointed out for the young naturalist of the 1790s (Daum 2024: 18). Humboldt's numerous unfinished publications, or those that did not survive the draft phase, traces of which can be detected in his papers, underscore this.[3]

Humboldt's scientific biography was profoundly shaped by the voyage across the Americas, undertaken with French botanist Aimé Bonpland from 1799 to 1804. Carmen Götz recently reassessed Humboldt's American travel journals within the context of the naturalist's lifelong scientific paperwork (Götz 2023a; 2023b). These journals are not field notes in the sense of an

1 This paper is a substantially revised version of the article "Reise als Werk. Alexander von Humboldts Beobachtungen, Aufzeichnungen und Entwürfe zur Geographie der Pflanzen (1799–1804)" in the volume *Alexander von Humboldt. Die ganze Welt, der ganze Mensch.* Eds. Ottmar Ette, Barbara Göbel, Tobias Kraft. Baden-Baden: Olms 2024. I would like to thank Carmen Götz, Eberhard Knobloch, and Anne Greenwood MacKinney for giving critical feedback on various drafts of this paper. I am equally grateful to Alberto Gómez Gutiérrez and Tobias Kraft for their comments and support.

2 Dettelbach 1999 (474–467) was the first who proposed a juxtaposition of Humboldtian Science and Humboldt's Science. Andreas Daum has recently expanded this approach to a promising research perspective on Humboldt's scientific biography, consciously employing a lowercase s in the term 'Humboldt's science' (Daum 2024).

3 Cf. for instance Humboldt's collection of notes for an unpublished second edition of his "Ideen zu einer Geographie der Pflanzen" (Päßler 2017).

immediate recording of travel impressions.[4] The travel reports, scientific essays, or collections of ideas included in Humboldt's journals were revised elaborations, which – in keeping with the practice of the time – were based on notes taken directly in the field. At the end of 1805, Humboldt began to compose a detailed "Index général" to his travel journals. The examination of this index sheds a light on the ways Humboldt prepared the scientific information in the travel notes for publication. Sometime during the 1850s, after decades of using and reorganizing the journals, Humboldt had them bound into nine volumes, keeping them largely in the same order as they had been in 1805.

A prime example of Humboldt's science can be found in his research on the geography of plants. Over the course of several decades, Humboldt dedicated himself to investigating the distribution of plants across the globe, employing diverse, sometimes heterogeneous approaches. The genesis of this conceptual framework is closely connected to his American voyage, as the traveler himself acknowledged in the introduction to his seminal publication on this subject: "Above all [...] I owe the material for this work to my journey through the tropics." Humboldt published this *Essay on the Geography of Plants* as the first volume of his travel writings in a German and a French version (Humboldt 1807a, Humboldt 1807b).[5] The author divides the work into two independent parts: He prefaces the book with an introductory treatise – the actual *Essay on the Geography of Plants* – in which he provides a definition of plant geography and sets out its key questions (Humboldt 1807a, 13–35). This is followed by a comprehensive description of the monumental graphic *Tableau physique des Andes et pays voisins* appended to the volume (the remaining pages 33–182). Humboldt wrote a first version of the *Essay,* which he labeled as a *Prospectus* for a future work, in early 1803, during his American voyage. He also drafted the *Tableau physique* around the same time. The neo-Granadian botanist Francisco José de Caldas published the *Prospectus* in a Spanish translation in 1809 (Humboldt 1803/1809).

In this article, I propose a microanalysis of the genesis of Humboldt's concept of plant geography, which can help to improve our understanding of the situational aspects of Humboldt's science. I argue that a close reading of the travel notes on plant geography offers a new approach to the contingent, sometimes contradictory nature of this and other research contributions. In particular, I argue that the often discussed tension between empiricism and aesthetics and the relationship between text and image, so characteristic of Humboldt's science, was reinforced through the experience of observing and writing on the move.

Already between 1791 and 1794, Humboldt had repeatedly articulated the intention to write a treatise on the geography of plants.[6] In an often-cited letter to Friedrich Schiller, written in 1794, Humboldt delineated the comprehensive plan for such a volume.[7] Here, he presents plant geography as an "unfinished part of the general history of the world." He links questions about the geological origins and evolutionary history of plants with the history of humankind: Which

4 For a characterization of the American travel journals, cf. Götz 2023a: 61–64, Ette 2018: viii–xii, Humboldt 2000: 17–19. On the writing practices of European explorers in the field around 1800, cf. Bourguet 2010 and Bödeker 2002.

5 Cf. Fiedler/Leitner 2000: 234–239; 242–245.

6 Humboldt to Paul Usteri, Freiberg, undated (probably fall 1791), (Humboldt 1973: 163–164); Humboldt to Johann Friedrich Pfaff, Goldkronach, November 12, 1794 (Humboldt 1973: 370).

7 Humboldt to Friedrich Schiller, Nieder-Flörsheim, August 6, 1794 (Humboldt 1973: 346–347).

plants did humans spread across the earth? What "impressions of happiness and melancholy" do the various forms of vegetation produce? Humboldt argues for an aesthetic science that goes beyond the mere classification of plants, animals, and rocks. Already at this early stage, five years before he embarked on his research voyage, Humboldt's plant geography is based on the interplay of aesthetic contemplation and empirical observation complemented by a historical perspective on man and nature. In light of these early conceptual considerations, I aim to examine the travel journals with a particular focus on the following questions: How did Humboldt compare his travel observations with his previous notions of natural history? Which concepts receded into the background, which ones did he add to the plant-geographical drafts produced in the course of the journey? What role did personal encounters with inhabitants of the regions visited, especially naturalists, play? These questions may help to avoid the resurgence of a teleological view of Humboldt's scientific oeuvre.[8] I do not argue that there is a straight line between the early concepts on plant geography developed before the journey and the plant-geographical writings published after his return. In his mid-twenties, Humboldt made a few plans for groundbreaking "great works" in geognosy and physiology, which he hoped to present in the years or decades to follow.[9] The results turned out to be far more modest than the announcements, which admittedly he had only articulated in private letters. Nevertheless, Humboldt's letters written in advance of the journey, along with a series of papers on geognosy and plant geography composed in May 1799 show that Humboldt did start his travels with preconceived hypotheses and a working program.[10]

A History of Plants and People (1799–1801)

In his letter to Schiller, Humboldt delineates the migration of plants across the earth as a constituent element of "world history." In this context, Humboldt was employing a definition of the "history of plants" as previously formulated by Carl Ludwig Willdenow in his *Grundriss der Kräuterkunde* (Willdenow 1792: Chap. VI, 345–380). Willdenow, who directed Humboldt's initial botanical studies, conceptualized plant history as encompassing not only the climatic conditions under which diverse forms of vegetation evolved but also the natural migrations of plants and the dispersion of plants by humans. Additionally, he employed the term "geography of plants" to describe the study of the various forms of plant distribution (Willdenow 1792: 376). Between 1799 and 1801, Humboldt developed his ideas on the relationship between climate, vegetation, and human cultural development, as well as the migration of plants throughout Earth's history, in three extended sections of his journal.

In September 1799, or shortly afterwards – three and a half months after his arrival the province of Nueva Andalucía (now Venezuela) – Humboldt wrote a long entry entitled *"History and Geog-*

8 Hanno Beck, for instance, traces a continuum from Humboldt's early vision of Earth Sciences ("physique du monde") during the 1790s to Humboldt's late work *Kosmos* (1845–1862). (Beck 1961: II, 225). On more recent teleological and hagiographic tendencies in Humboldt studies cf. Daum 2024: 14–16.

9 Cf. Humboldt to Carl Freiesleben, Uden, September 10, 1794 (Humboldt 1973: 352); Humboldt to Abraham Gottlob Werner, Bayreuth, December 21, 1796 (Humboldt 1973: 561); Humboldt to Dietrich Ludwig Karsten, Bayreuth, December 12, 1796 (Humboldt 1973: 498).

10 On this manuscript, which Humboldt addressed to Carl Freiesleben, cf. Beck 1957. Cf. also Humboldt to Moses Friedländer, Madrid, 11. April 1799 (Humboldt 1973: 657–659).

raphy of Plants. Agriculture."[11] In it, he collected information on the natural migration of plants between America and Asia and the dissemination of cultivated plants. In this early American text, Humboldt refers to a manuscript on the same subject pertaining to the European context. At this point, the link to the project preparation undertaken prior to the journey remains direct.[12] The traveler compares the climate and vegetation of the northern hemisphere with his observations in the American tropics. The few species of coconut palms, banana trees, and other useful plants that grew in the tropics provided an abundant and convenient food source within a limited space. For this reason, Humboldt concluded, the inhabitants of this climatic zone devoted themselves primarily to horticulture: "The brute man of the South seeks consumption nearby and the rich world that surrounds him provides it."[13] While in the American tropics nature provided abundant food and thus tended to inhibit culture and socialization, according to Humboldt, the inhospitable climate of the northern climatic zones promoted the "culture of the human race" through the necessary competition between the physical and intellectual powers of man and the resulting "industriousness" and "perfection of agriculture": "Thus the world of plants has had an effect on the human race, and the latter reciprocally on the former."[14] Considerations on the influence of climate and vegetation on humans were not new. They can be found, for example, in Johann Gottfried Herder's *Ideas on the Philosophy of the History of Mankind.*[15] However, in a second note, probably written between November 1799 and February 1800 and entitled *"Phys[ische] Pflanzen-Geographie-Geschichte u[nd] [-]Beschreibung"* (*"Physical plant-geography-history and -description"*) Humboldt abandoned the tropes of the European Enlightenment.[16] These are now replaced by the concrete example, drawn from his own observation, of the cultivation of small plots of land (*conucos*) by enslaved families, whose fate is alleviated by the favorable vegetation conditions of the tropics:

> The tropical soil (Valle de Arajua) is so fertile that Negro slaves, who are each given a piece of land and who only have to work 2 days a week (Saturday and Sunday), produce so much pisang, dioscorea and batatas in their small Conucos that they have enough to eat year after year with their wives and children. Ipse vidi. [...] This is not to describe the condition of the slaves as appealing, but to describe the fertility of the earth.[17]

11 "Geschichte und Geographie der Pflanzen. Akkerbau" Humboldt, Alexander von: Voyage d'Espagne aux Canaries et à Cumaná Obs. astron. de Juin à Oct. 1799 [= Tagebücher der Amerikanischen Reise, Bd. I]. Eds. Carmen Götz and Ulrike Leitner, in collaboration with Sandra Balck, Linda Kirsten, Ulrich Päßler, Eberhard Knobloch, Oliver Schwarz, Laurence Barbasetti and Regina Mikosch. In: *edition humboldt digital.* Ed. Ottmar Ette. Berlin-Brandenburgische Akademie der Wissenschaften, Berlin. Version 10, July 2, 2024 (henceforth: *edition humboldt digital,* ART I). URL: https://edition-humboldt.de/v10/H0016412. Folio: https://edition-humboldt.de/v10/H0016412/50r.

12 Ibid: "to be compared with the MSS in Europe, without which these sheets must often be incomprehensible."

13 Ibid., fol. 50v (https://edition-humboldt.de/v10/H0016412/50v).

14 Ibid., fols. 50v (https://edition-humboldt.de/v10/H0016412/50v), 53r (https://edition-humboldt.de/v10/H0016412/53r).

15 Cf. for instance, the chapter "Das Pflanzenreich unserer Erde in Beziehung auf die Menschengeschichte" in Herder's *Ideen* (Herder 1784–1791: 1. Teil, 2. Buch, II. Kap., 65–78). The influence of Herder on Humboldt's plant geography is discussed by Mook 2012: 133–157.

16 Staatsbibliothek zu Berlin – Preußischer Kulturbesitz (henceforth: SBB-PK), Nachl. Alexander von Humboldt (Tagebücher), III, fols. 64r–68r (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000125).

17 Ibid., fols. 64v–65r (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000126).

Subsequently, Humboldt provides an account of sixteen useful plants of the *Conucos* as observed by Bonpland and himself, accompanied by comprehensive information on their cultivation and preparation (Fig. 1).[18]

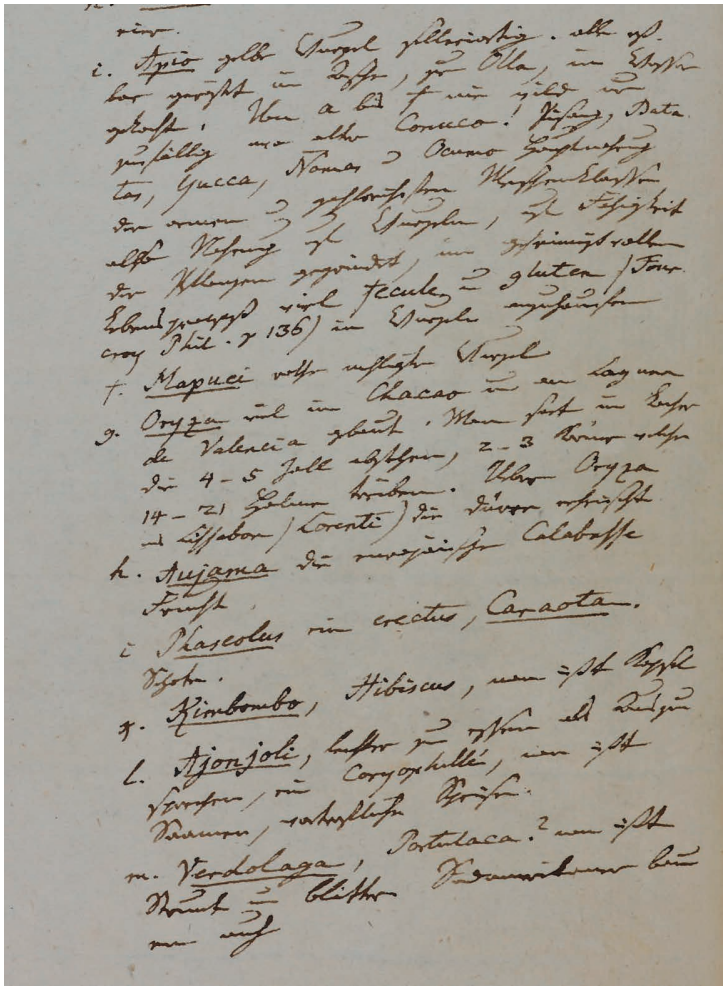

Fig. 1: Alexander von Humboldt: List of useful plants cultivated in the *Conucos* (1799/1800), including *ajonjolí* (sesame): "easier to eat than to pronounce". SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), III, fol. 65v.

Humboldt returned to the reflections on the connection between climate, vegetation, and human history in the first volume of his travelogue *Relation historique* in 1817.[19] There he contrasts the cultural landscapes of the temperate climate in mid-latitudinal Europe with the geographically and socially isolated settlements of the tropics of America. However, the description no longer serves to illustrate a theory of stages in the history of civilization; Humboldt instead ventures into the aesthetics of landscape. Different forms of agricultural cultivation not only shaped the physical aspect a region, but also the character of their inhabitants (Humboldt 1814–1825, I: 359–361). Humboldt condensed this idea into a theory of compensation in his 1803 preliminary announcement of his plant geography work and in his 1807 *Essay on the Geography of Plants.* The sparseness of nature in the temperate zone stimulated the "magic of imitative arts," which led the people of the north in spirit to the most distant parts of the world. "Those whose feelings are sensitive to this magic, whose minds are educated enough

18 Ibid., fols. 65r–65v (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000127).

19 On the publication of the first volume of the *Relation historique* (Humboldt 1814–1825, I), cf. Fiedler/Leitner 2000: 77.

to embrace nature in all its activities, create an inner world for themselves in the solitude of a barren heath" (Humboldt 1807b: 51–52).[20]

Humboldt's main interest in the two above-mentioned episodes of his plant-geographical writings from 1799 and 1800 is the distribution of cultivated plants across the globe by humans. He notes information on the dissemination of maize and coconut palms, originally based on his reading of European authors such as Carl von Linné, Carl Peter Thunberg, and Georg Forster. These names elucidate once more how closely Humboldt's early thoughts on the geography of plants were "linked to the Enlightenment Science of Man."[21] However, Humboldt combines these European notions now with his own observations and information from local, albeit unnamed, interlocutors about the reintroduction and acclimatization, growing conditions, and spread of cultivated plants.[22]

Probably in April 1801, after his first sojourn in Cuba, during a stay in Cartagena or Turbaco as a guest of the merchant and scholar José Ignacio de Pombo, Humboldt took up the problem of humankind's role in the migration of plants for a third time. Probably making use of his host's extensive library, Humboldt studied Francisco Javier Clavijero's *Storia antica de Messico.* In the journal, he notes the author's thesis that bananas, oranges, and lemons had already been cultivated in Mexico before the arrival of the Spanish.[23] Here, Humboldt makes reference to his earlier journal texts on the history of plants, which he had left behind in Havana.[24] He reiterates the significance of determining "which plants have followed people everywhere," as "plants show where people came from." Additionally, he confirms based on his own observations of the vegetation on Cuba and along the coast of the *Tierra Firme* that citrus trees grew wild in these regions. He associates this with the long history of plant cultivation in these areas and the higher population density and social organization observed on islands in general.[25] Nevertheless, he now concludes that no migration history of the plants can be deduced from his own observations, oral reports from locals, and written sources: First, the "peoples who invaded America" long before the Spanish arrived could have introduced plants. Second, since 1492, "all the nations of the world had settled here" and brought their "native flora" with them.[26]

In his later writings on the geography of plants from 1803 and 1807, Humboldt limited himself to describing two major plant migrations instigated by humans as traceable in historical

20 Cf. Humboldt 1803/1809: 139.

21 Anthony 2018: 33; Gómez Gutiérrez 2023: 77–79.

22 *edition humboldt digital,* ART I: fols. 53v (https://edition-humboldt.de/v10/H0016412/53v), 54r (https://edition-humboldt.de/v10/H0016412/54r), 54v (https://edition-humboldt.de/v10/H0016412/54v).

23 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II/VI, fol. 96r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000185). Clavijero 1780/1781, I: 48–50.

24 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II/VI, fol. 95r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000183).

25 Ibid. Such an idea can already be found in Johann Reinhold Forster's travelogue, among others: "Isles are, on account of their circumscribed size, more apt to promote and accelerate civilization, than large continents […]" (Forster 1778: 343–346).

26 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II/VI, fols. 95v (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000184), 95r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000183).

sources. Using the writings of Willdenow and the pomologist Friedrich Sickler, he described the spread of cultivated plants from Asia to Europe during antiquity and the exchange between Europe and America since 1492.[27]

In the three texts written on the move between 1799 and 1801, Humboldt relegates the topic of earth historical shifts in plant habitats to the margins, since it was not a subject he could explore using immediate observations in the field. Right at the beginning of the journey, he thus shifts the search for hypotheses on non-human-induced plant migration to a future research agenda. In the collection of ideas entitled *Physical plant-geography-history and -description* (around 1799/1800), he suggests a more detailed study of the flora of the Azores, as this archipelago was of great importance for the migration of plants and for the question of the existence an ancient continent ("Inselland") between Europe and America.[28] Referring to observations by Georg Forster, he states that grasses and aquatic plants were able to spread furthest across the globe.[29] In the third collection of ideas from 1801, he repeats his conviction already expressed in the first entries of the American journal that Africa and South America were once connected, but had already been separated at a time when "nature had created neither plants nor animals," as the fauna and flora of the two continents were very different.[30] Humboldt would incorporate this idea without modification into his *Essay on the Geography of Plants* (1807), just as he would with the hypothesis of a former connection of Africa and Europe at the Strait of Gibraltar, which he had expressed in a journal entry prior to embarking on his American voyage.[31] Humboldt also adopted virtually unchanged the assumption that the fossilization and imprints of plants in coal strata could provide information about the history and distribution of plants; an idea suggested by Willdenow in his *Grundriss der Kräuterkunde* and repeated by Humboldt in his letter to Schiller in 1794, but not pursued during the American journey.

In his published writings on plant geography, Humboldt does not succeed in taking plant migration – which in 1794 formed an essential part of the plant geography project both in its human and earth-historical dimension – beyond the original postulations. In 1817, in the first volume of the *Relation historique,* Humboldt once more recapitulated the major research questions of plant geography (Humboldt 1814–1825, I: 600): How can it be explained that the same plant species can be found in places separated by oceans or mountain ranges? Why, on the other hand, do places with similar climatic conditions produce different plant species, which in turn result in similar vegetation formations? Humboldt explicitly rejects any hypotheses about the origin of things ("*l'origine des choses*") in general and the history of plants in particular as pure speculation. Instead, he states that the natural scientist fulfills his task solely by describing the laws according to which nature distributes plant forms (Humboldt 1814–1825, I: 603). Humboldt

27 Humboldt took information on the first migratory movement during European antiquity from Friedrich Sickler's *Allgemeine Geschichte der Obstkultur* (Sickler 1802). Cf. Humboldt 1807a: ix.

28 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), III, fol. 64r (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000125).

29 Ibid., p. 64v. Cf. also Willdenow 1792: 368–369.

30 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II/VI, fol. 94r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000181). Cf. also "Geognosie v[on] America," *edition humboldt digital,* ART I, fol. 33r (https://edition-humboldt.de/v10/H0016412/33r).

31 Humboldt 1807a: 17. Cf. SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), V, fol. 79r: "Ideen 1799 [?]" (http://resolver.staatsbibliothek-berlin.de/SBB0001527800000161).

is referring to botanical arithmetic, a new approach to plant geography that he used around 1815 to statistically study the global distribution patterns of plant families (Humboldt/Bonpland/Kunth 1815–1825, I: iii–lviii).

Dissecting the Whole of Nature – And Re-Creating It (1799–1801)

In his programmatic letters to Schiller and Pfaff in 1794, Humboldt had described plant geography as a project of the senses, as he wanted to investigate the "influence of the plant world on the sensitive man." In a letter to his brother Wilhelm on July 16, 1799, Humboldt described the affective effect of the flora and fauna of the tropics on himself and his travel companion Bonpland: "So far, we have been walking around like fools […]. Bonpland assures me that he will go out of his mind if the wonders don't stop soon."[32] Humboldt noted an even deeper emotional reaction a few weeks later in his report on the first inland excursion: "Just as one leaves the coast, one enters a new, livelier world. What lavishness of plant growth, what darkness under the densely woven canopy of leaves."[33]

In the field report, the collector's ineffectiveness in the face of the abundance of plant forms takes its place alongside the sensory indulgence:

> Of the tenth part of the plants that surrounded us, we did not even suspect the genus. Bonpland's complaint that our supply of paper could not contain this abundance almost hindered my enjoyment. Our plant tins and handkerchiefs were soon filled, and from the Impossibile Mountain we sent a messenger to Cumaná for 800 new sheets of paper.[34]

Humboldt follows up this admission of the explorer's sensory and information overload with an attempt to resolve this dilemma through aesthetic means: "On this path, I had manifold reason to reflect on plant forms and that which is peculiar to tropical nature." Humboldt believed he recognized the difference between the "tropical world," on the one hand, and nature "in the north" and the "African world" on the other, in the incomparably greater quantity of "plant forms" located in the tropics. "In the tropical world, everything is united and in the most wonderful contrast, impressive and characterized through proximity and mass." In the temperate zone, for example, there are "hardly 2–3 plant forms, conifers, deciduous trees, few pinnated trees, no palm form, no aloe or cactus or pisang form." In Africa, the cactus and aloe forms dominate, appearing "solemn, but more rigid, dead."[35]

32 Alexander to Wilhelm von Humboldt, Cumaná, July 16, 1799 (Humboldt 1993: 42).

33 Voyage à Caripe 1799 [= Tagebücher der Amerikanischen Reise, Bd. II/VI, Heft 3, Bl. 110–131]. Ed. Carmen Götz in collaboration with Ulrich Päßler. In: *edition humboldt digital.* Ed. Ottmar Ette. Berlin-Brandenburgische Akademie der Wissenschaften, Berlin. Version 10, July 2, 2024 (henceforth: *edition humboldt digital,* ART II/VI, Voyage à Caripe). URL: https://edition-humboldt.de/v10/H0019154. Folio: https://edition-humboldt.de/v10/H0019154/112v. Cf. Humboldt 2000: 139 (September 4 to 24, 1799).

34 *edition humboldt digital,* ART II/VI, Voyage à Caripe, fol. 113r (https://edition-humboldt.de/v10/H0019154/113r).

35 Ibid. fol. 113v (https://edition-humboldt.de/v10/H0019154/113v). Underlining in the original.

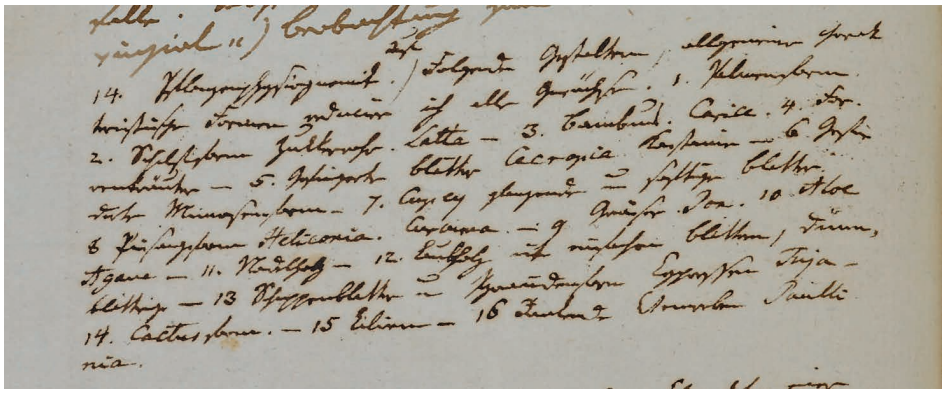

Fig. 2: Alexander von Humboldt: "14. plant physiognomy" (1799). SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), III, fol. 52v.

In September 1799, Humboldt thus presented the concept of principal physiognomic forms for the first time, which he did not form according to the flower, as in the conventional taxonomic systems, but "according to parts, which give character through mass and shape."[36] At the same time, he acknowledged the difficulty of finding suitable names for these principal forms of the Earth's plant kingdom. Humboldt tackled this problem in December 1799 at the earliest. Around this time, he drew up an enumerated list entitled "Ideen. Materialien." In the final point of the list, Humboldt applies the term physiognomy to the analysis of plant and vegetation forms, which he had previously only used to describe landscapes and geological formations (Fig. 2).[37] In this moment of notation, which seems to have been added in as an afterthought and does not follow from any previous passage and is, intially, not taken up again, Humboldt defines sixteen basic physiognomic forms into which all known plant species could be classified, for example the forms of palm trees, reeds, sugar cane, conifers, and deciduous trees. The relationship between the shapes determines the "character of an area," the overall impression of a landscape. As in his field report of September 1799, he states that the splendor of tropical vegetation is based on the fact it unites almost all plant forms.

Based on his early experience of the tropics Humboldt formulated a new botanical classification system – the physiognomy of plants –, which was intended as a comparative tool for analyzing earth's vegetation. Here, Humboldt drew on a model of natural classification of organisms according to basic forms and their overall habitus (*"ganzer Habitus"*), which Johann Friedrich Blumenbach had taught him in Göttingen (Lenoir 1981: 171–173). Humboldt made his plant-physiognomic ideas public in the manuscript *Prospectus* addressed to José Celestino Mutis in 1803, where he presented ten plant forms. While the names and number of these principal forms vary across the publications *Essai sur la Géographie des Plantes* (1805/1807, fifteen forms), *Ideen zu einer Physiognomik der Gewächse* (1806, nineteen forms) and *Ideen zu einer Geographie der Pflanzen* (1807, seventeen forms), the overall concept remained unchanged.

Humboldt developed the heuristic approach of combining scientific observation and aesthetic perception to make the character of different forms of vegetation empirically tangible and classifiable. Here, Humboldt is exploring the relationship between the individual phenomena

36 Ibid. On Humboldt's concept of plant physiognomy, cf. Hagner 1996 and Robert 2008: 46–47.

37 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), III, fols. 50r (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000097), 52v (http://resolver.staatsbibliothek-berlin.de/SBB0001527400000102). Cf. Robert 2008: 47.

and the whole of nature, which through their interplay, constitute a 'total impression' (*"Totaleindruck"*). He "dissected," as it were, this total impression of nature, to take up a formulation by Humboldt in the *Versuche über die chemische Zerlegung des Luftkreises* (Humboldt 1799: 151).[38] Humboldt's plant physiognomy thus immediately raises a follow-up question: How can the total impression of the landscape be gained anew from this combination of science and aesthetics, how is it possible to once more "embrace nature with one glance" (Humboldt 1806: 11)?

In March 1801, Humboldt and Bonpland returned from Havana to the South American mainland. Setting foot once again on the *Tierra Firme,* near the mouth of the Río Sinú on the Caribbean coast of New Granada, Humboldt was prompted to reflect at length on the possibility of an aesthetic categorization of landscapes. He emphasizes the subjectivity of any judgement, as "upon landing, every coast appears to be a charming landscape to the voyager."[39]

Here, the impression of landscape is thus initially understood subjectively and situationally, even biographically. As evidence, Humboldt lists a number of his European and American impressions of nature, whose character he immediately categorizes according to the criteria "friendly and smiling" (*"freundlich und lachend"*), "majestic and grand" (*"majestätisch und groß"*), and "solemn and terrifying" (*"ernst und schreckklich"*). The most graceful and charming landscapes were those in which several of these characters are mixed, such as the cataracts of the Orinoco, but also "the valley of Wernigerode" in the Harz Mountains.[40] One might say that Humboldt was drawing upon an aesthetic tension between the *beautiful* and the *sublime* in the landscape.[41] Such landscapes, which offer "the view of great energy," are characterized by the fact that their essence eludes the observer the more one "dissects" their "energy, their beauty." Humboldt thus resumes here the attempt to capture nature through the formation of (physiognomic) categories first begun at the outset of his American voyage in 1799. These passages echo the reflections on art in Wilhelm von Humboldt's *Ästhetischen Versuchen* (Humboldt, W. 1799), which Alexander had received in Havana just a few months earlier.[42] Ultimately, the traveler concedes that an exacting analysis of landscapes, unlike that of human works of art, is not possible and stops writing mid-sentence.[43]

Leaving behind the attempts at a global comparative analysis of landscapes, Humboldt returns to the daily business of recording the taxonomic findings of the palms at the mouth of the Río Sinú on the next page of the sheet. He follows this with a multi-page overview of the palms

38 "[…] den Totaleindruck so vieler gleichzeitigen Reize zu zergliedern." Cf. Dettelbach 1999: 480.

39 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II and VI, fol. 203r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000393): "Río Sinú".

40 Ibid., fol. 203v (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000394).

41 On the dichotomous poles of the beautiful and the sublime in Humboldt's ideal of "Totaleindruck" ("total impression") of nature cf. Böhme 2019: 591–592.

42 Alexander von Humboldt to Karl Ludwig Willdenow. Havanna, February 21, 1801. Ed. Ulrich Päßler in collaboration with Klaus Gerlach and Ingo Schwarz. In: edition humboldt digital. Ed. Ottmar Ette. Berlin-Brandenburgische Akademie der Wissenschaften, Berlin. Version 10, July 2, 2024. URL: https://edition-humboldt.de/v10/H0001181. Folio: https://edition-humboldt.de/v10/H0001181/5v.

43 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), II und VI, fols. 203v (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000394), 204r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000395).

of America, which he compares with African and Asian palm species.[44] Given the astonishing variety of forms in this plant family, he laments the inadequacies of conventional botanical descriptions and classification systems. Although they analyzed flower parts and sometimes described leaf shapes, they could not capture the "character" and form of a plant:

> It is a branch of another, entirely unexplored discipline, which belongs half to the field of aesthetics [...]. But where is the botanical painter who knows how to express and depict the character of trees, who walks for days in a beech forest to study the nature of the tree trunk and knows how to unite everything individually into a group?[45]

At this point, Humboldt takes up the idea of plant physiognomy again and drafts a plant-geographical concept, which, through the interplay of data collection and visualization, captures not only plant forms but also the overall aesthetic impression of a vegetation:

> This is the work of a more aesthetic class of people, the Waitsch in Braunschweig and the one in Vienna, Webber in London ... Goethe has an *Italian Journey* in this style, in which the originality of human and plant nature is vividly depicted, as if stolen from a mirror. What a great work, as important to the description of nature as to the arts, indeed to poetry as to painting, could be produced if a tasteful, nature-loving traveler united with a sensitive, nature-perceiving painter, traversed the world and depicted for us in individual groups the character of the palm trees, the bamboo, the cecropia ...![46]

Here Humboldt reflects on the artistic and literary knowledge he had acquired prior to his journey, including the early aesthetic influences he had encountered in Weimar and Jena. To Goethe he would dedicate the German edition of his *Essay on the Geography of Plants.*[47]

John Webber, who participated in James Cook's final circumnavigation of the globe and who is also referenced in the journal passage, exemplifies the practice, already customary in the eighteenth century, of hiring illustrators and painters to accompany naturalists on significant expeditionary voyages. In Humboldt's case, however, the artist's role extends beyond that of an illustrator. He was particularly interested in the integration of aesthetic perception and empirical data, which is embodied by the alliance of artist and naturalist. In the *Prospectus* of 1803 – and similarly in the *Essay* of 1807 – Humboldt emphasized the value of the artistic description of nature: Only the poets and painters could portray the true beauty of the tropics (Humboldt 1803/1809: 139).

In the chapter "Ideen zu einer Physiognomik der Gewächse" in the *Ansichten der Natur* (Views of Nature) in 1808, Humboldt also incorporates the aforementioned journal entry describing the palms of the world into a lengthy footnote in which he elucidates the palm form as the first of the nineteen principal forms. He explicitly presents these observations as travel notes.

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44 Ibid. fol. 204v (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000396).

45 Ibid. fols. 210v (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000410), 211r (http://resolver.staatsbibliothek-berlin.de/SBB0001527300000411).

46 Ibid.

47 Humboldt to Goethe, Berlin, February 6, 1806 (Goethe 1909: 297). Cf. also Päßler 2019. On Humboldt's treatment of the literary, aesthetic, and art-historical debates in the German-speaking world around 1800, cf. Daum 2019.

In this way, plant physiognomy as a category of aesthetic landscape analysis is linked back to scientific analysis in the field. The author illustrates the heuristic approach with which he aims to make the character of various forms of vegetation empirically tangible and classifiable. This is achieved by reorganizing and rearranging journal passages and trains of thought, some of which have been heavily revised, and some of which – such as in this last case – have been adopted almost verbatim. This combination of scientific observation and aesthetic contemplation is presented as a single entity.

In his later work, Humboldt persisted in his efforts, initiated in 1794, to integrate the domains of aesthetics, human history, and natural science. In the second volume of *Kosmos,* Humboldt presents a history of landscape poetry and landscape painting, wherein he ascribes a rather functional role to the arts as a "means of stimulating the study of nature." The second principal theme of the volume is directly related to this: a history of the physical worldview ("*physische Weltanschauung*"), that is, the perception and knowledge of nature from antiquity to the eighteenth century. As the empirical basis of this study the naturalist Humboldt meticulously compiled and evaluated historical sources (Humboldt 1845–1862, II: 4–92).

On the Path to the Tableau Physique (1801–1803)

On April 6, 1801, Humboldt and Bonpland embarked on their journey from Turbaco near the American Caribbean coast, following the course of the Río Magdalena upstream until reaching Honda. During this voyage, Humboldt resumed his observations of vegetation physiognomy. In his notes, he underlines the plants that characterize the landscape or are most common along the river. The prevalence of the plants is indicated by the number of underlines. (Fig. 3)

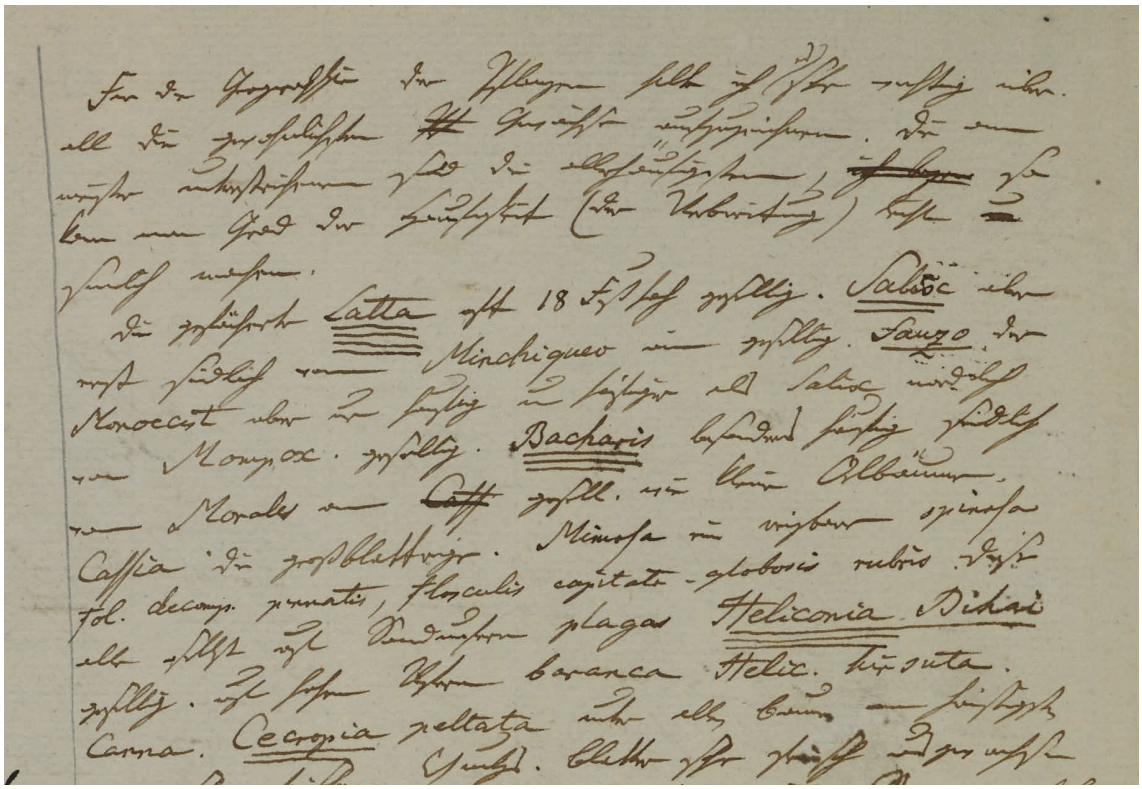

Fig. 3: Alexander von Humboldt: "For the geography of plants I consider it very important to record the most common plants everywhere" (1801), SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), VII a/b, fol. 20v.

They continued on to Santa Fé de Bogotá, Popayán, and Quito, where they arrived on January 6, 1802. As Humboldt wrote to his brother Wilhelm, the purpose of this leg of the journey was (1) to map South America north of the Amazon, (2) to meet in Bogotá the botanist José Celestino Mutis, whose extensive plant collections Bonpland and Humboldt had already learned about on the first leg of their journey, and (3) to fulfill "the desire to climb the immense Cordillera of the Andes."[48]

On the journey from the Caribbean coast to Bogotá, Humboldt made numerous barometric altitude measurements, which he compiled in a geological cross-section of the Río Magedalena valley entitled *Nivellement barométrique du terrain depuis Carthagène à Santa Fé,* published in Madrid in 1802 (Humboldt 1802). The mining engineer Humboldt developed this style of profiles from the vertical cartography of mine shafts.[49] In his journal, Humboldt combined the elevation data from his barometric measurements on the journey from Honda to Bogotá (June 22 to July 8, 1801) with information on the plants characteristic of the respective elevations, such as Caryota, Latta (*Gynerium sagittatum*), sugar cane and bamboo in Salto del Fraile, and *Weinmannia pinnata* in Cune (Fig. 4).[50]

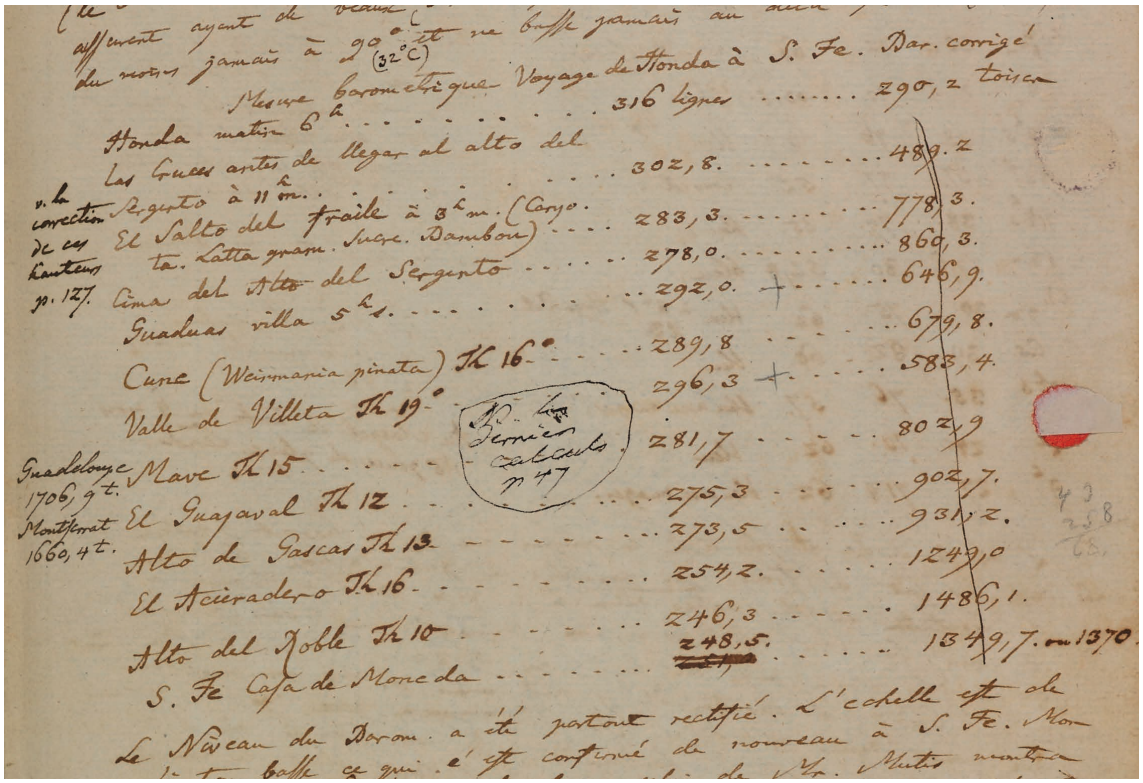

Fig. 4: Alexander von Humboldt: "Mesure barométrique. Voyage de Honda à S. Fé" with details of some plants characteristic of the altitude levels in question (1801), SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), VII a/b, fol. 75r.

48 Alexander to Wilhelm von Humboldt, Contreras, September 21, 1801 (Humboldt 1993: 148).

49 "La Projection la plus instructive pour la Géognosie est la verticale. J'ai conçu l'idée de figurer des pays entiers comme on représente une mine." Beck 1958: 34 and 37; cf. also Anthony 2018.

50 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), VII a/b, fol. 75r (http://resolver.staatsbibliothek-berlin.de/SBB0001527A00000119): "Mesure barométrique[.] Voyage de Honda à S[anta] Fé. Bar[omètre] corrigé".

This table is presumably the earliest evidence of the connection between altitude measurements and vegetation zonations in Humboldt's American journal. Therefore, it is of interest to narrow down the period in which it was written. An indication of an early recording of this itinerary of the route from Honda to Bogotá can be found in the subsequent addition of the altitude measurements of the Guadalupe and Monserrate mountains, which Humboldt and Bonpland only visited on excursions during their stay in Bogotá (July 25 and August 15, 1801). The elevation data were incorporated into the aforementioned profile between Cartagena and Bogotá, which Humboldt transmitted to Madrid prior to his departure from Bogotá. Accordingly, the latest possible date for this act of writing would be the conclusion of his stay in Bogotá on September 8, 1801. The profile drawing and map commentary are of significant importance with regard to the genesis of the *"Tableau physique des Andes et pays voisins."* Already at this point, Humboldt had established a connection between his South American measurements and altitude data from other regions of the world. Copies of Humboldt's sketch of the profile were already in circulation in Bogotá in 1801, before publication. In addition to indicating the peaks of Chimborazo and Mont Blanc, among others, as reference points, the sketch also depicts a vegetation zone, albeit in a rather schematic manner (Fig. 5).

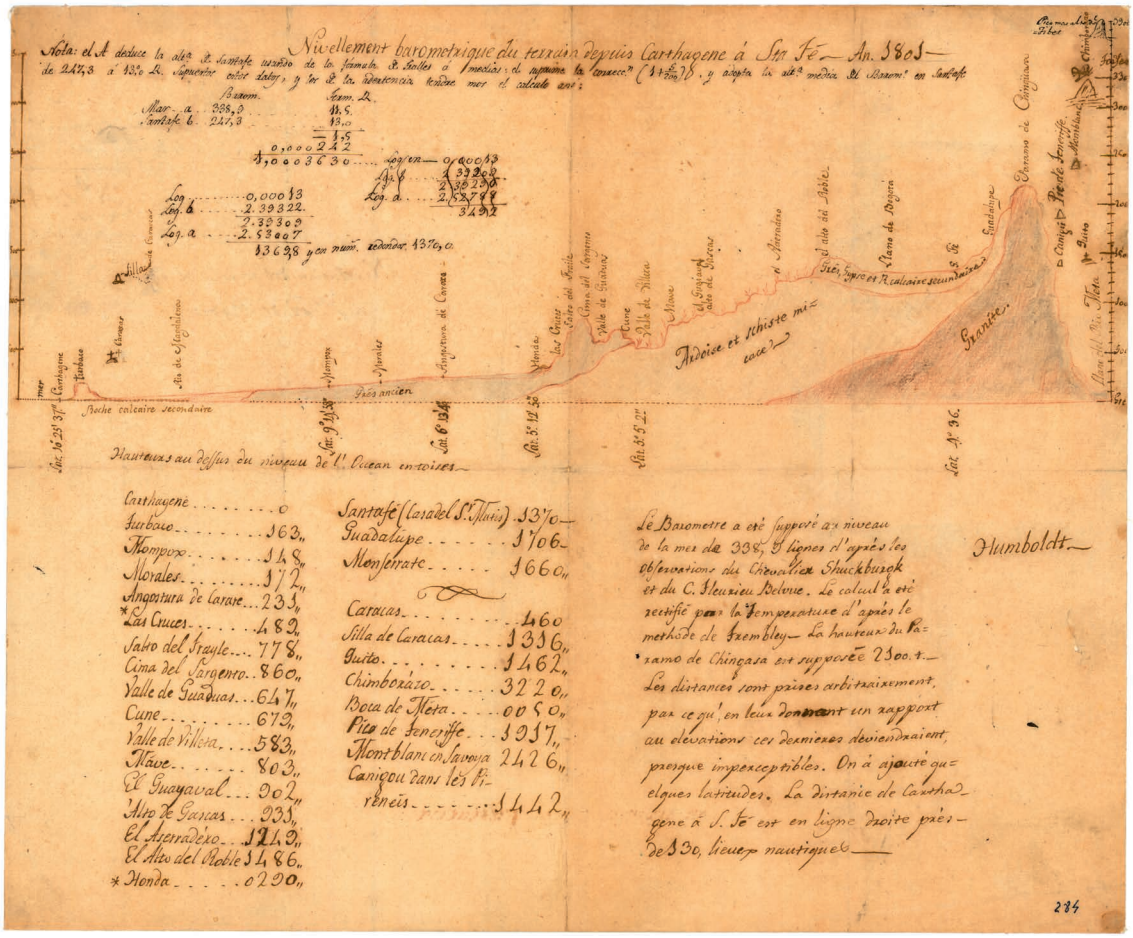

Fig. 5: Alexander von Humboldt: "Nivellement barométrique du terrain depuis Carthagène à Santa Fé," copy by Santiago Pérez de Arroyo Valencia for Francisco José de Caldas (1801). Archivo Cartográfico y de Estudios Geográficos del Ejército, Ministerio de Defensa, España, Ar.J-T.7-C.1_10Bis.

On September 8, Humboldt and Bonpland set off for Quito. In the report of an initial phase of the journey, from Bogotá to Ibagué, Humboldt made the following observation on September 12, 1801:

> Paying as much attention to the geography of the plants as to the altitude of the place, we noticed with interest that with each passing day, the plants of the Llano de Bogotá left us and new ones from the hot regions of the world (“*der heißen Erdstriche*”) arrived.[51]

Humboldt reiterates this observation of the discernible stratifications in vegetative composition across the topographic features of the Andes of New Granada on multiple occasions throughout his travel accounts, spanning from September to December 1801. Upon entering the Andes in September 1801, Humboldt’s plant geography project underwent a paradigmatic reorientation. In addition to the physiognomy of plants and the related question of depicting and comparing landscape types, the vertical projection of vegetation levels now took its place. Humboldt brought with him from Europe an understanding of mountains as a miniature world that provided the naturalist with an opportunity to study a variety of geoscientific and biological phenomena in an environment akin to a laboratory setting. He was acquainted with the research conducted on the altitudinal structure of mountains, as exemplified by the work of Louis-François Ramond de Carbonnières in the Pyrenees (Ramond 1789, II: 329–346). In his capacity as a field researcher, Humboldt himself had previously described and practically implemented the mountain slopes of the Berchtesgaden Alps in 1798 for the purpose of comparative meteorological and botanical data collection at various altitude levels (Humboldt 1799: 155).

Humboldt was not the *first* European field researcher who observed and documented the distinctive vegetation patterns at varying altitudes in the Andes. Charles-Marie de La Condamine describes the “climats divers par étages” and vegetation levels of the province of Quito in the account of his American travels during the 1740s, to which Humboldt repeatedly refers in his journal (La Condamine 1751: 48).[52] Humboldt, moreover, was by no means the only researcher *of his time* interested in vegetation patterns. His and Bonpland’s research was significantly influenced by South American botanists whom they met during their voyage. In Bogotá, the travelers worked with José Celestino Mutis from June to September 1801. On January 2 or 3, 1802 they made the acquaintance of Francisco José de Caldas, who had been engaged in field research on the agricultural products of the northern Andes for several years. Probably after the exchange of ideas with Caldas had begun, Humboldt penned a journal entry titled *“Géographie des Plantes. Fragmens”* covering the journey from Popayán to Quito (November 27, 1801 to January 6, 1802). This text, in essence, encapsulates the zonation concept that he will later visually realize in the *Tableau physique.*

> In no other land does the influence of climate and location on vegetation make such a deep and invigorating impression on the mind (*“Geist”*) as in the Andes. On the way from Popayán via Almaguer and Pasto to Quito, one descends several times a day from the summit of the Páramos into the valleys approaching the sea. With each step, the climate and air pressure change, and with them the plant forms, not only because the same tree

51 Ibid. VII a/b, fol. 93r (http://resolver.staatsbibliothek-berlin.de/SBB0001527A00000155).

52 On La Condamine’s influence on Humboldt’s concept of plant geography, cf. Renner et al. 2023: 100–102. The observations of La Condamine and Humboldt regarding the zonation of Andean vegetation are consistent with the concept of the Andes as a microcosm in which global climates and products converge, as espoused by local naturalists (Cañizares-Esguerra 2005: 152–163).

> spreads its branches differently at 200 than at 1500 t[oises] altitude, but also because other plant species clothe the plain, others the foothills, and others the altitude itself.[53]

As in the plant-geographical notes of the previous sections of the journey, Humboldt's interest here is initially in the aesthetic effect of vegetation on humans. In this context, *'Geist'* is to be understood in accordance with the usage at the time as a 'unity of sensibility and thought' (Goethe Wörterbuch 1978–2019, III: Sp. 1428). Consequently, Humboldt proceeds to analyze his impression in a process of "dissection": The constant change in plant and vegetation forms following a vertical course depending on altitude and growing conditions constitutes the "peculiar beauty of Andean nature," while the tropical vegetation of the plains is characterized by the juxtaposition of the diverse forms. Humboldt proceeds to define four altitude levels between 1000 and 2400 toises (approx. 1950 to 4800 meters), for each of which he lists the scientific names of characteristic plants that can be found between 10 degrees north and 10 degrees south latitude. He designates the two lower vegetation levels after the plants that typify them ("1000 to 1400 toises. Cinchona region"; "From 1400–1800 t. Region of the Frailejon"). In his descriptions of the final leg of the journey to Quito, Humboldt continues to categorize these vegetatative "strata" according to the dominant plant species in the landscape. He describes the descent from the "vegetation of the Páramos" to the "region of the Croton and Paullinias" and refers to the "climate of the Cinchona."[54]

Humboldt and Bonpland subsequently accompanied Francisco José de Caldas on his travels in the province of Quito over the following months of 1802. Similarly to Humboldt, the botanist Caldas conducted altitude measurements, which he subsequently shared with his Prussian colleague. Humboldt's journal contains multiple references to the two scholars engaged in discourse pertaining to instruments and methodologies.[55] Caldas' interest in the study of the altitudinal distribution of useful plants must have resulted in an exchange on this topic during their joint fieldwork. Humboldt's journal entries and the letters, project proposals, and manuscripts that he and Caldas sent to Mutis in 1802 and 1803 demonstrate that their interests in plant geography were nearly identical (Gómez Gutiérrez 2016, 2023).[56] This certainly put pressure on Humboldt's project schedule, who would soon announce the plan for an opus magnum on the geography of plants. In the meantime, he probably profited from Caldas' indebt geographical and botanical knowledge of Andean Nueva Granada. Simultaneously, Humboldt inspired Caldas with his globally comparative scheme of investigation, as the latter's *"Memoria sobre el plan de un viaje proyectado de Quito a la América septentrional,"* written several months after their first encounter, suggests: In this memorandum, Caldas proposed to divide the earth's vegetation into twelve altitudinal zones (Caldas 1966: 312). Humboldt's comparative approach had certainly stimulated Caldas' idea for a global zonation of plants, even if it was, as Caldas stressed, original in its conceptual design.

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53 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), VIIbb/c, fol. 201r (http://resolver.staatsbibliothek-berlin.de/SBB000152B400000293), 201v (http://resolver.staatsbibliothek-berlin.de/SBB000152B400000294).

54 Ibid. VIIbb/c, fol. 202v (http://resolver.staatsbibliothek-berlin.de/SBB000152B400000296). Cf. Humboldt 2003: 162.

55 For an exchange between Humboldt and Caldas on various methods of measuring altitude, cf. Arboleda 2020.

56 Cf. the contribution "A pioneering critic of Alexander von Humboldt's inventions: Franciso José de Caldas" (http://dx.doi.org/10.18443/372) by Alberto Gómez Gutiérrez in this issue.

This leads to the much-discussed question of the contribution of both researchers to the establishment of the cartographic representation of plant-geographical elevation profiles, which is difficult to resolve completely, since only Humboldt's first sketch of the *"Tableau Physique"* is datable (to February 1803, see below). From an epistemological point of view, it would perhaps be fruitful to move beyond a historiographically "old-school" discussion of scientific priority: a detailed *comparison* of the early plant-geographical images and writings of both naturalists could sensitize us to the idiosyncrasies of their plant-geographical approaches regarding objectives, methods, and scale. At first glance, their sketches look very similar, but a closer observation reveals significant differences. Caldas' profiles stay roughly in the large- to medium-scale of mountains and regions, similar to Humboldt's profile of the path from Cartagena to Bogotá. The *"Tableau physique"* is a small-scale 'infographic' of South America in which the elevation of the Andes is exaggerated to the extreme (Fig. 6). This creates an image area in which geobotanical information can be inserted in the cross section of the Andes and which allows for the display of additional geophysical and biological data on the left and right of the *Tableau*. Whereas Humboldt's chart presents a cross section of the Andes in a west-eastern direction, Caldas mountain profiles follow largely a north-south or south-north direction. In 1803 the Neo-Granadian naturalist started with simple two-dimensional profiles, emulating Humboldt's early attempts at unadorned mountain profiles; his later, brillantly illuminated drawings pay particular attention to the spatial depth of landscapes while establishing a unique color-coding system for the depicted vegetational zones (Fig. 7).

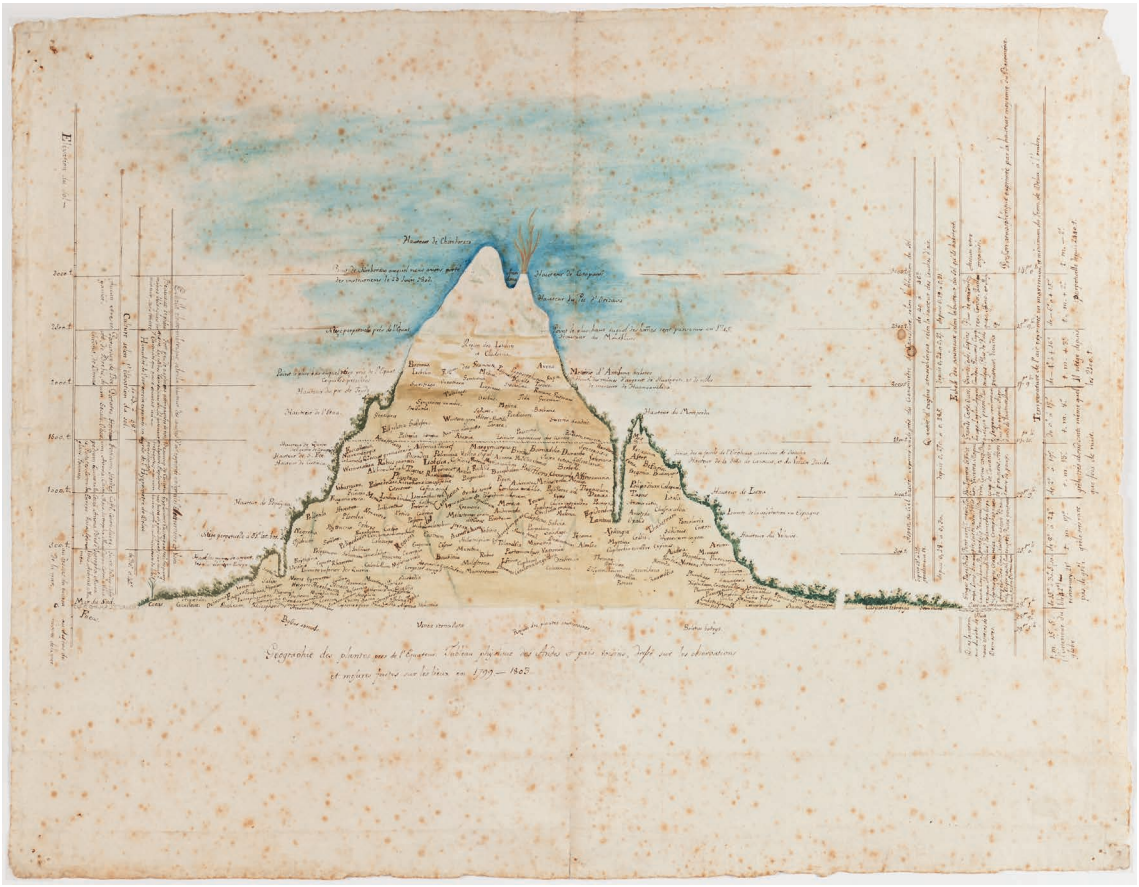

Fig. 6: Alexander von Humboldt: "Géographie des plantes près de l'équateur. Tableau physique des Andes et pa[y]s voisins, dressé sur les observations et mesures faites sur les lieux en 1799–1803" (1803). Museo Nacional de Colombia, Bogotá, reg. 1204.

In February 1803, Humboldt transmitted the *Prospectus* regarding a forthcoming work on plant geography as well as a chart, entitled *"Géographie des plantes près de l'Équateur. Tableau physique des Andes et pais [sic] voisins, dressé sur les observations et mesures faites sur les lieux en 1799–1803"* (Fig. 6) with a description of the sketch to Juan Pío de Montúfar y Larrea, who subsequently forwarded it to Caldas. Finally, Caldas transmitted the documents to the intended recipient of the manuscript, José Celestino Mutis.

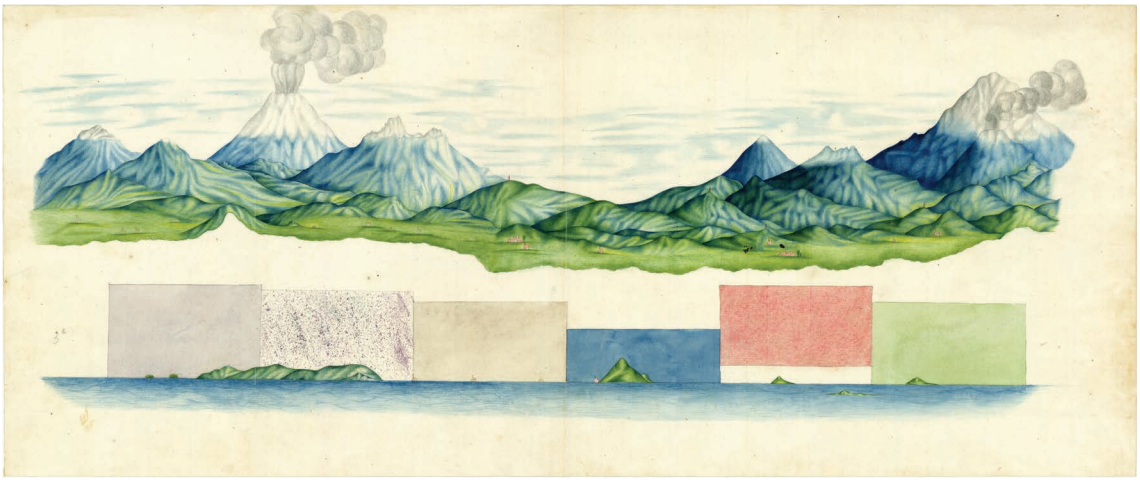

Fig. 7: Francisco José de Caldas: "Perfil de los Andes de Loja a Quito", serie 2, Lámina 4. Mauricio Nieto Olarte: La Obra cartográfico de Francisco José de Caldas. Bogotá: Uni-andes-ACCEFYN-ACH-ICANH, 2006, pp. 142–143.

Humboldt's conceptual work on the plant-geographical works, *Essai sur la Géographie des Plantes, accompagné d'un tableau physique des régions équinoxiales* (1805, published in 1807), or *Ideen zu einer Geographie der Pflanzen nebst einem Naturgemälde der Tropenländer* in its German version (1807), was thus completed. It is important to note that the period between Humboldt's arrival in Bogotá and his departure from Quito proved pivotal in the development of his subsequent project on the physics of the earth. In his subsequent works, Humboldt expanded the combination of profile representations with vegetation levels, which he had first attempted in this period, into large comparative models in which he employed snow and vegetation boundaries as analytical connecting links in a globally conceived plant geography.[57]

Conclusion

Humboldt kept a copy of the *Prospectus* sent to Mutis as well as one of the drawing. This written and visual condensation of three years of observations became the reference point for plant-geographical notes during the following leg of the journey, which took Humboldt and Bonpland through Mexico, or more precisely the Viceroyalty of New Spain (March 22, 1803–March 7, 1804). From 1803 onwards, we find remarks in the journal such as "Voyez le Prospectus que j'ai fait

57 Cf. for example Humboldt/Bonpland/Kunth 1815–1825, I: iii–lviii ("De instituto operis et de distributione geographica plantarum secundum coeli temperiem et altitudinem montium prolegomena") and the frontispiece of the first volume: "Geographiae plantarum lineamenta".

pour la Planche" or "Voyez le Prospectus de ma Géographie des Plantes."[58] In his "Testament littéraire" written in 1804, which contains a concrete six part plan for the publication of his travels, Humboldt defines the *Prospectus* as the conceptual guide for the design of an "Atlas géologique, botanique et physique." As the first section of the work, the atlas was to contain profile maps of the journey, including the "Tableau physique des Andes."[59] This corresponds to Humboldt's announcement of a "Geografía de las plantas accompañada de mapas" in a short article entitled "Geografica fisica. Ideas sobre el límite inferior de la nieve perpetua, y sobre la geografica de las plantas" published in Havana in May 1804, at the end of the American voyage (Humboldt 1804). In the first draft of the *"Tableau physique"* and the accompanying description in 1803, Humboldt had already indicated the mountain heights of other regions of the world as a means of comparison and contrasted the vegetation forms of the temperate and tropical zones (Humboldt 1803/1809: 129; 150). Humboldt's eleven-month stay in New Spain in 1803 and 1804 gave him the opportunity to directly compare the geographical and climatological conditions of North and Equatorial America. As he had previously done in the Andes, he now examined the snow and vegetation boundaries of New Spain's mountains and compared them with the earlier data.[60] The plant geography program designed in the years 1799 to 1803 now finally became part of a globally interconnected scientific endeavour. In 1807, two years after his return to Europe, Humboldt placed his findings in a global context with the help of data collected by naturalists from Europe as well as South and North America in a chart whose commentary significantly expanded compared to the 1803 manuscript. The goal was not only to embrace all physical phenomena of the earth and the atmosphere that could be measured, but also to advertise the findings that would be published in the upcoming volume covering his travels (Humboldt 1807a: V–VI).

At various stages of his journey Alexander von Humboldt developed the plant geographical project he had outlined in 1794. The years spent in the tropical regions of the Americas led to a revision and a new focus of the research program established in Europe. Questions about global plant migrations and the interrelationship of the history of plants and mankind were relegated to a position of lesser importance, as they could not be answered with the means of field research. Conversely, the idea of an alliance between natural science and the arts emerged as a new focus of the project, manifesting in the study of vegetation physiognomy. The experience of traversing the Andes and the encounter with Neo-Granadian naturalists had a significant impact on the early visual and written consolidation of the plant geography research results of the journey, as evidenced by his output in 1803.

Humboldt's plant geographical project did not end with the publication of the *Essai* and the *Tableau* in 1807. In fact, it proved to be a "life project" in both senses of the word. Having left botanical fieldwork behind, Humboldt explored new statistical and graphical methods at his Parisian desk. The goal was to capture an ever-growing number of newly discovered plants and determine global distribution patterns through the method of botanical artithmetic (Knobloch 2009). However, the plan for a completely reconceptualized second edition of the *Essai,* which was now to cover not only tropical America but the entire world, failed. The accumulation

58 SBB-PK, Nachl. Alexander von Humboldt (Tagebücher), VIII, fol. 52v (http://resolver.staatsbibliothek-berlin.de/SBB0001527B00000068); IX, fol. 28v (http://resolver.staatsbibliothek-berlin.de/SBB0001527C00000044).

59 Ibid. VIII, fol. 167v (http://resolver.staatsbibliothek-berlin.de/SBB0001527B00000347).

60 Cf., for example, ibid., VIII, fol. 52v (http://resolver.staatsbibliothek-berlin.de/SBB0001527B00000068).

of an increasingly unwieldy body of botanical data contributed to this outcome. Yet a more fundamental issue may have been the methodological inconsistencies inherent to Humboldt's science of plant geography: As a field of research encompassing both man and nature, empirism and aesthetics, and serving as the foundational discipline for Humboldt's climatology and cosmology, it was subject to heuristic overload.

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Mit einer Einführung von Katja Schicht

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Alexander von Humboldt und Johann Carl Freiesleben lernten sich 1791 während ihrer Studienzeit an der Bergakademie im sächsischen Freiberg kennen. Humboldt trat gleich nach seiner Ankunft am 14. Juni 1791 mit der Familie Freiesleben in Kontakt, da er durch Vermittlung seines zukünftigen Lehrers Abraham Gottlob Werner eine Wohnung bei Carl Friedrich Freiesleben, dem Onkel Johann Carl Freieslebens, erhielt. Aufgrund seiner im Studium erworbenen Anerkennung wurde der fünf Jahre jüngere Freiesleben von Werner als Mentor für Alexander von Humboldt bestimmt. Freiesleben nahm seine Aufgabe als Lehrer sehr ernst, so vermittelte er Humboldt bei den Grubenfahrten, auf den gemeinsamen Exkursionen und Reisen, beispielsweise Mitte August 1791 ins böhmische Mittelgebirge, praktisches und nützliches bergmännisches Wissen und die dazugehörigen Fertigkeiten. Aus diesem Schüler-Lehrer-Verhältnis entwickelte sich schnell eine offene und ausgesprochen herzliche Freundschaft, die der vor allem in der Jugendzeit rege Briefwechsel bezeugt[1] und die erst mit dem Tod Freieslebens im Jahre 1846 endete. 106 überlieferte Briefe – darunter 82 Briefe aus der Jugendzeit – bilden heute wichtige Quellen für die Darstellung von Humboldts Leben und Wirken, für seine Ansichten und Urteile sowie seine Pläne und Absichten.

Wie der überwiegende Teil der Jugendbriefe, so befanden sich auch die meisten Schreiben der Korrespondenz von 1804 bis 1846 im Besitz von Hans-Christian Freiesleben, Hamburg, einem direkten Nachfahren Johann Carl Freieslebens. Heute liegen die Briefe in der Universitäts- und Landesbibliothek Bonn und sind dort im „Nachlass Freiesleben“ zu finden. Zwei Schreiben werden im „Nachlass Humboldt“ in der Handschriftenabteilung der Staatsbibliothek zu Berlin – Preußischer Kulturbesitz aufbewahrt (Freiesleben an Humboldt im Jahre 1826 und ohne Datumsangabe, vermutlich 1820); ein Humboldt’sches Empfehlungsschreiben findet sich dort im „Nachlass Mendelssohn“ (Humboldt an Freiesleben, Paris 3. Mai 1816). Auch das Germanische Nationalmuseum in Nürnberg besitzt einen Brief der Korrespondenz (Freiesleben an Humboldt, 15. März 1844); in der Unibibliothek Leipzig in der Autographensammlung Römer und Nachlass Römer ist ebenfalls ein Schreiben von Humboldt an Freiesleben zu finden (26. Juli 1838).

Der Freiberger Historiker und Bibliothekar Rudolph Walter Schellhas wurde 1897 im sächsischen Freiberg geboren. Nach dem Ersten Weltkrieg studierte er Geschichte, Germanistik und Anglistik an der Universität Leipzig, absolvierte anschließend eine Ausbildung zum Bibliothekar an der Sächsischen Landesbibliothek Dresden und der Deutschen Bücherei Leipzig und arbeitete von 1924 bis 1935 als Bibliothekar und Archivar an der Sächsischen Landesbildstelle Dresden (heute Deutsche Fotothek). Bis 1945 war er Leiter des Städtischen Kulturamtes in Freiberg. Nach dem Zweiten Weltkrieg wurde Schellhas wegen seiner vorgeblichen NSDAP-Mitgliedschaft in Bautzen und Mühlberg inhaftiert. Im Jahr 1950 wurde er aus der Haft entlassen und zum ersten hauptamtlichen Direktor der Bibliothek und der Archive der Bergakademie Freiberg berufen.[2] Sein großes Organisationstalent spiegelte sich in der Erwerbung und Erschließung montanwissenschaftlicher Literatur wider. Darüber hinaus forschte er zur Geschichte Sachsens, speziell seiner Heimatstadt Freiberg und der dort ansässigen Bergakademie. Er publizierte sowohl zahlreiche eigenständige Schriften als auch Beiträge in den *Sächsischen Heimatblättern*, den *Freiberger Forschungsheften* (Reihe D), den *Mitteilungen des Freiberger Altertumsvereins*,

1 Vgl.: Ilse Jahn, Fritz G. Lange (Hrsg.): Die Jugendbriefe Alexander von Humboldts 1787–1799. (Beiträge zur Alexander-von-Humboldt-Forschung, Bd. 2). Berlin 1973.

2 Konstantin Hermann: Walter Schellhas. In: Sächsische Biografie, hrsg. vom Institut für Sächsische Geschichte und Volkskunde e. V. Online-Ausgabe: https://www.isgv.de/saebi/ (13. 7. 2021), [zuletzt aufgerufen am 3. Juli 2024].

in *Glückauf* und verschiedenen Tageszeitungen wie dem *Dresdner Anzeiger.*[3] Er hat mehr als 300 Publikationen hinterlassen. Thematisch konzentrierten sich die Schriften hauptsächlich auf den Bergbau im Freiberger Revier und dessen Auswirkungen; Schellhas schrieb aber auch über Gelehrte, die eine enge Verbindung zu seiner Heimatstadt Freiberg hatten, darunter Friedrich von Hardenberg (Novalis), Friedrich Wilhelm von Oppel, Johann Carl Freiesleben und Alexander von Humboldt.

Aufgrund seines Wirkens im Bibliothekswesen und als Wissenschaftshistoriker ernannte ihn die Stadt Freiberg 1987 zu ihrem Ehrenbürger. Weitere Auszeichnungen waren die Alexander-von-Humboldt-Medaille und die Leibniz-Medaille.[4] Walter Schellhas starb am 30. September 1988 in Freiberg.

Schellhas' bekannteste Beiträge zur Alexander-von-Humboldt-Forschung sind:

- Alexander von Humboldt und Freiberg in Sachsen. In: Alexander von Humboldt, 14. 9. 1769–6. 5. 1859. Gedenkschrift zur 100. Wiederkehr seines Todestages. Hrsg. von der Alexander-von-Humboldt-Kommission der Deutschen Akademie der Wissenschaften zu Berlin. Berlin 1959, S. 337–422. – Zweitveröffentlichung in: Alexander von Humboldt (1769–1859). Seine Bedeutung für den Bergbau und die Naturforschung. Berlin 1960. Freiberger Forschungsheft D 33, S. 29–113.
- Alexander von Humboldt und Johann Carl Freiesleben. Eine Freundschaft auf Lebenszeit. In: Sächsische Heimatblätter. 23 (1977), Heft 2, S. 90–93.

Der hier neu publizierte Aufsatz war die letzte Arbeit von Walter Schellhas über Alexander von Humboldt und Freiberg. Für die Neuveröffentlichung wurde der Text an die neue Rechtschreibung angepasst, die abgekürzten Vornamen wurden ergänzt und einige Fußnoten wurden aktualisiert, Zitate wurden überprüft und ggf. korrigiert; der ursprüngliche Charakter sollte jedoch weitgehend bewahrt bleiben.

Die Neuveröffentlichung erfolgt mit dem Einverständnis der beiden Herausgeber der *Sächsischen Heimatblätter* Lars-Arne Dannenberg und Matthias Donath.

Berlin, Juli 2024
Katja Schicht

3 Christel Hebig: Zum 25. Todestag des Freiberger Bibliothekars und Historikers Walter Schellhas. In: *Dresdner Neueste Nachrichten,* 30. September 2013, S. 16.

4 Ebd.

Alexander von Humboldt und Johann Carl Freiesleben
Eine Freundschaft auf Lebenszeit

Von Walter Schellhas

Die Bergakademie Freiberg nennt mit berechtigtem Stolz Alexander von Humboldt, den letzten naturwissenschaftlichen Polyhistor, ihren größten Schüler. Er hat auch auf der Höhe seines Weltruhms enge Beziehungen zur Alma mater Fribergensis unterhalten und ihr bis in sein hohes Alter ein dankbares Gedenken bewahrt.[1] Zu den bedeutendsten Freiberger Absolventen gehört auch sein Zeitgenosse Johann Carl Freiesleben, der sächsische Berghauptmann und Geowissenschaftler.

Das Leben und Wirken Humboldts (1769–1859) und Freieslebens (1774–1846) vollzog sich in einer Zeit umwälzender politischer Ereignisse in der Welt, stürmischer gesellschaftlicher Auseinandersetzungen und erster selbstständiger Aktionen der Arbeiterklasse. Es war die politische Periode, über die Karl Marx die zornigen Worte schrieb: „Krieg den deutschen Zuständen! Allerdings! Sie stehen unter dem Niveau der Geschichte, sie sind unter aller Kritik …“[2] Es war die bewegte Zeit des Übergangs vom Feudalismus zum Kapitalismus. Auf der Grundlage des zunehmenden wirtschaftlichen Wachstums in der sich entfaltenden industriellen Revolution entwickelte sich die deutsche Einheits- und Freiheitsbewegung, die in der bürgerlich-demokratischen Revolution von 1848/49 ihren Höhepunkt erreichte.[3] Das geistige Leben spiegelte die Tiefe der Auseinandersetzungen wider. In unmittelbarer Wechselwirkung mit der raschen Entfaltung der Produktivkräfte erfolgte seit der zweiten Hälfte des 18. Jahrhunderts ein gewaltiger Fortschritt der Naturwissenschaften. „Das Bürgertum gebrauchte zur Entwicklung seiner industriellen Produktion eine Wissenschaft, die die Eigenschaften der Naturkörper und die Betätigungsweisen der Naturkräfte untersuchte“ (Karl Marx).[4]

Die nach dem Siebenjährigen Krieg zur Wiederbelebung des sächsischen Erzbergbaus von der eingesetzten Revisionskommission unter der Leitung des Generalbergkommissars Friedrich Anton von Heynitz getroffenen durchgreifenden Maßnahmen, darunter die Gründung der Bergakademie Freiberg (1765) als erster Montanhochschule der Welt, bewirkten einen starken Aufschwung des Montanwesens, besonders des Freiberger Silberbergbaus. Die zunächst für die Nachwuchsausbildung des eigenen Landes errichtete Bergakademie wurde dank tüchtiger Lehrer (z. B. Christlieb Ehregott Gellert, Johann Friedrich Wilhelm von Charpentier, Abraham Gottlob Werner, Wilhelm August Lampadius u. a.) rasch zu einem internationalen Zentrum der

1 Schellhas, Walter: Alexander von Humboldt und Freiberg in Sachsen. In: Alexander von Humboldt, 14. 9. 1769–6. 5. 1859. Gedenkschrift zur 100. Wiederkehr seines Todestages. Hrsg. von der Alexander-von-Humboldt-Kommission der Deutschen Akademie der Wissenschaften zu Berlin. Berlin 1959, S. 337–422. – Zweitveröffentlichung in: Alexander von Humboldt (1769–1859). Seine Bedeutung für den Bergbau und die Naturforschung. Berlin 1960. Freiberger Forschungsheft D 33, S. 29–113.

2 Marx, Karl und Friedrich Engels: Die Heilige Familie und andere Frühschriften. Berlin 1953, S. 14.

3 Wächtler, Eberhard: Die Produktivkräfte und Produktionsverhältnisse im Zeitalter der industriellen Revolution und der bürgerlichen Revolution. In: Bergakademie Freiberg. Gedenkschrift zu ihrer 200-Jahr-Feier 1965. Leipzig 1965, Bd. 1, S. 93 ff.

4 Marx, Karl, und Friedrich Engels: Ausgewählte Schriften, Bd. 2. Berlin 1955, S. 93.

Montanwissenschaften.[5] Die große Zahl der in Freiberg im Umtriebe befindlichen Bergwerke, der weit ausgebreitete Grubenbau, das vorbildliche Hüttenwesen und die reichen praktischen Kenntnisse erfahrener Fachleute aus über sechshundertjähriger Bergmannsarbeit boten ein mannigfaltiges Unterrichtsfeld des Montanwesens und zogen viele fremde Interessenten herbei. Im Zeitraum 1762 bis 1801 betrug das Ausbringen im Bergamtsrevier Freiberg rund 660 269 Zentner Erze mit rund 241 296 (Gewichts-)Mark Silbergehalt.[6]

Nachdem der junge Berliner Alexander von Humboldt sich für den Bergmannsberuf entschieden und wegen seines geplanten Studiums in Freiberg im Juli 1790 die Verbindung mit Abraham Gottlob Werner, dem damals schon weltberühmten Professor der Bergbaukunde, Mineralogie und Geologie, aufgenommen hatte, fand er sich, naturwissenschaftlich gut vorbereitet, am 14. Juni 1791 in der sächsischen „Hauptbergstadt“ ein. Der Zweiundzwanzigjährige übertraf die meisten Bergakademisten weit an Alter, gesellschaftlicher Stellung und Bildungsgang. Der fürsorgliche Werner vermittelte dem „interessanten jungen Gelehrten“ eine gute Wohnung bei dem Oberstollenfaktor und Obereinfahreradjunkten Carl Friedrich Freiesleben (1750–1805) in der „Beletage“ (1. Stockwerk) des stattlichen Bürgerhauses Ecke Burggasse/Weingasse (jetzt Weingasse Nr. 2). Zugleich gab er ihm seinen Musterschüler Johann Carl Freiesleben, den Neffen Carl Friedrich Freieslebens, als Mentor bei.[7] Dieser am 14. Juni 1774 geborene Sohn des Markscheiders beim Bergamt Freiberg und Lehrers der praktischen Markscheidekunde an der Bergakademie Johann Friedrich Freiesleben (1747–1807) hatte nach Ostern 1790 seinen ersten Jahreskurs an der Freiberger Hochschule begonnen und durch vorbildliche Leistungen sowie einwandfreies Verhalten sich die Gunst aller Lehrer erworben.

Zwischen Humboldt und seinem fünf Jahre jüngeren Mentor entwickelte sich sehr rasch eine romantisch-schwärmerische Freundschaft, die, wie ihr späterer reger Briefwechsel bezeugt, bis zum Tode Freieslebens (1846) andauerte.[8] Dieser stets ungetrübte Freundschaftsbund beruhte auf vielen Gemeinsamkeiten des Charakters, der Lebensauffassung und des Berufsethos: Offenheit, Uneigennützigkeit, Fleiß, Energie, humanistisches Bildungsideal der Aufklärung, Aufgeschlossenheit gegenüber allen naturwissenschaftlichen und technischen Problemen der Zeit, Initiative zu eigener Forschung und praktischer Tätigkeit. Beide Jünglinge erkannten das nahende technische Zeitalter und hatten den festen Willen, das „Gezimmer der Erde zu prü-

5 Guntau, Martin, und Eberhard Wächtler: Die geologischen Wissenschaften an der Bergakademie Freiberg in der Periode der industriellen Revolution. In: NTM. Schriftenreihe für Geschichte der Naturwissenschaften, Technik und Medizin. Leipzig 11 (1974), 1, S. 16–23, hier S. 18–19.

6 Trebra, Friedrich Wilhelm Heinrich von: Das Silberausbringen des Chursächsischen Erzgebirges auf die nächstverflossenen 40 Jahre von 1762 bis 1801. Freyberg 1803, S. 105.

7 Über Abraham Gottlob Werners Verdienste als Lehrer und Forscher siehe Walter Schellhas, a. a. O., S. 60 ff.

8 Der Briefwechsel im Zeitraum 1792 bis 1799 (80 Briefe Humboldts und die noch vorhandenen 2 Briefe Freieslebens) liegt gedruckt vor in der vorbildlichen Veröffentlichung „Die Jugendbriefe Alexander von Humboldts 1787–1799. Hrsg. und erl. von Ilse Jahn und Fritz G. Lange. Berlin: Akademie-Verlag 1973“. Humboldt hat bekanntlich die meisten der an ihn gerichteten Briefe vernichtet. – Der Akademie-Verlag stellte freundlicherweise dem Verfasser vor dem Erscheinen dieses Werkes die Korrekturfahnen zur Verfügung, wofür ihm auch an dieser Stelle verbindlichst gedankt sei. Von den 23 Briefen Humboldts im Zeitraum 1804 bis 1846 und dem einzig erhaltenen Brief Freieslebens [16. 12. 1846] erhielt der Verfasser Kopien von der früheren Alexander-von-Humboldt-Kommission der Deutschen Akademie der Wissenschaften zu Berlin. Auch dafür dankt der Verfasser nochmals verbindlichst.

fen“, in der „leblosen Natur den Einklang des Mannigfaltigen zu betrachten“ und dem geistigen und gesellschaftlichen Fortschritt zu dienen. Der tüchtige Wernerschüler Freiesleben lehrte den neuen Kommilitonen in den Gruben, auf Exkursionen und Reisen das Praktische, Anwendbar-Nützliche der Montanwissenschaften und ging bereitwillig auf dessen wissenschaftliche Sonderinteressen ein. Man darf Julius Löwenberg beistimmen, dass keiner von Humboldts Jugendfreunden in Berlin, Frankfurt/O. und Hamburg auf diesen einen so bestimmenden Einfluss ausgeübt habe wie Freiesleben in Freiberg, der in dieser entscheidenden Lebensphase Humboldts Geistesbildung stärker förderte als mancher Freiberger Hochschullehrer.[9] Freiesleben war in Freiberg der *eine* auserwählte Freund, der immer uneigennützig Humboldts Studien mit Rat und Tat unterstützt und bescheiden dessen geniale Anlagen | 91 | bewunderte. Ihm verdanken wir die wohl trefflichste Charakteristik des Kommilitonen Humboldt, die in den Worten gipfelte:

> *„… Er wollte Jedem wohl und wußte jeden Umgang sich unterhaltend oder nützlich zu machen; nur gegen inhumane Rohheit jede Art von Insolenz, Ungerechtigkeit oder Härte konnte er erzürnt und heftig, sowie gegen Sentimentalität und Affectation konnte er bitter, gegen Schlaffheit, oder wie er es nannte, Breiigkeit des Gemüths, und gegen Pedanterie konnte er ungeduldig werden.“*[10]

Aber Freiesleben war nicht der nur Gebende. Der schlichte Bergbeamtensohn, der nur das engbegrenzte Leben seiner kleinen Vaterstadt Freiberg kannte (damals etwa 9 000 Einwohner), empfing von dem älteren, lebenserfahreneren und weitgereisten Kommilitonen von Distinktion und Vermögen starke Impulse hinsichtlich allgemeiner Bildung, Weltanschauung und gesellschaftlicher Umgangsformen, die ihm für seinen Lebensweg sehr förderlich waren. Er lernte von ihm dessen Kunst der Zeiteinteilung und die Überzeugung, dass der Sinn der Technik nicht nur technische Mechanik, sondern vor allem geistig-schöpferische Tätigkeit ist. Er verfiel jedoch in seinem täglichen Umgang mit Humboldt und anderen vornehmen Kommilitonen nicht dem „adligen Hang“[11], wie einige Jahre später der junge August Herder aus Weimar.[12]

Humboldts 103 Briefe an Freiesleben zeigen vortrefflich, wie hoch dieser Große im Reiche des Geistes den Freiberger Freund als Montanfachmann, Geowissenschaftler und Menschen schätzte, dem er immer dankbar das Hauptverdienst an seinen ersten Erfolgen im praktischen Bergbaudienst zuerkannte. Nur ein ihm menschlich so nahestehender Freund wie Freiesleben durfte es unternehmen, ihm zwar höfliche, aber ernste Vorhaltungen hinsichtlich „Eitelkeit und Sucht

9 In: Bruhns, Carl, u. a.: Alexander von Humboldt. Eine wissenschaftliche Biographie, Bd. 1. Leipzig 1872, S. 124.

10 Freiesleben, Carl: Aus dem frühern Leben Alexanders von Humboldt. Vorgelesen im Geselligen Verein zu Freiberg am 27. Dezember 1826. In: Zeitgenossen … Hrsg. von Friedrich Christian August Hasse, Bd. 2. Leipzig 1830, S. 65–75, hier S. 67–68.

11 So nannte der Weimarer Generalsuperintendent, Philosoph und Dichter Johann Gottfried Herder in seinem Brief vom 25. April 1799 an den in Freiberg studierenden Sohn August dessen engen kostspieligen Verkehr mit vornehmen Kommilitonen. Er machte ihm klar, dass er nicht auf gute Beziehungen zu adligen Kreisen bauen, sondern sich nur durch hervorragende Tüchtigkeit seinen Lebensweg bahnen könne.

12 Herrmann, Walter: August Herders Werdezeit. In: Mitteilungen des Freiberger Altertumsvereins. Freiberg. 62 (1932), S. 23.

zu glänzen“ zu machen und ihm zu raten, „vorsichtige Zurückhaltung“ zu üben.[13] Es spricht für Humboldts edle Gesinnung, dass er den wohlgemeinten Rat des Jüngeren beherzigte:

> *„Für Deine schönen, genauen Versuche danke ich Dir öffentlich, – aber für den brüderlichen Rath, den Du mir wegen meines Innern und meines Eindrucks auf andere gibst, dafür, guter Karl, sei Dir die sanfteste Rührung meines dankbaren Herzens geweiht. Du hast sehr recht, und Dein Rath soll nicht verloren sein.“*[14]

Das brüderliche Du und die kostenlose Teilnahme an der geplanten langen Reise in die Schweizer und Savoyer Alpen hatte Humboldt dem „guten brüderlich geliebten Freiesleben“ schon im Herbst 1794 angeboten. Über den Verlauf dieser Reise vom 20. September bis Anfang November 1795 hat Freiesleben 1826 interessant berichtet.[15]

Humboldts dankbare Zuneigung zu dem Freiberger Studienfreund, der wertvolle Mitarbeit an seinem Werk „Ueber die unterirdischen Gasarten …“ geleistet hatte, dokumentiert sich in seinem Schreiben vom 14./16. Oktober 1797:

> *„… und ich möchte es Dir zueignen, wenn nicht zu viel Menschen um die Sache wüßten und Dir nicht etwas besseres, meine Geognosie, längst bestimmt wäre.“*[16]

Vor Antritt seiner großen tropischen Forschungsreise bestimmte er in seinem testamentartigen Schreiben von 1799 Freiesleben zum Vollender seines liebsten wissenschaftlichen Werkes [der „Geognosie“ – Walter Schellhas], falls er nicht heimkehren sollte. Und am 21. Februar 1801 schrieb er aus Havanna an den Jugendfreund Willdenow in Berlin: „Sterbe ich, so wird … Freiesleben oder Buch meine Geognostischen … MSS … ediren.“[17]

Der „gute Herzens-Freiesleben“ empfing die letzten Abschiedsgrüße vom 4. Juni 1799 aus La Coruña („In Mexiko sehe ich sächsische Bergleuthe, Del Rio. Wir sprechen von Freiberg …“)[18] und die erste Nachricht Humboldts von der glücklichen Rückkehr nach Europa am 1. August 1804, zwei Stunden nach seinem Einlaufen in die Garonne.[19]

Auf den Inhalt der 103 Briefe Humboldts an Freiesleben kann hier aus Raumgründen nicht näher eingegangen werden. Der Empfänger wird darin laufend über das Leben und Wirken, die

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13 Brief Freieslebens vom 20.12.1796. In: Die Jugendbriefe A. von Humboldts …, a.a.O., S. 559.

14 Brief Humboldts vom 26.2.1797. In: ebenda, S. 570.

15 Brief Humboldts vom 20./21.11.1794. In: ebenda, S. 378–380. – Freiesleben in: Zeitgenossen, a.a.O., S. 71.

16 In: Die Jugendbriefe A. von Humboldts…, a.a.O., S. 591.

17 Schellhas, Walter, a.a.O., S. 100. (Siehe: Ulrike Moheit (Hrsg.): Alexander von Humboldt. Briefe aus Amerika 1799–1804. (Beiträge zur Alexander-von-Humboldt-Forschung, Bd. 16). Berlin 1993, S. 124, Anm. Katja Schicht).

18 In: Die Jugendbriefe A. von Humboldts…, a.a.O., S. 681. Der Spanier Andrés Manuel del Rio (1765–1849) hatte mit Humboldt und Freiesleben in Freiberg studiert. Näheres über ihn und über Humboldts Besuch bei ihm in Mexiko 1803 in: Schellhas, Walter, a.a.O., S. 77–78 und 104–105.

19 Ungedruckter Brief, im Besitz des Herrn Dr. Hans-Christian Freiesleben, Hamburg. (Die Handschrift befindet sich gegenwärtig in der Universitäts- und Landesbibliothek Bonn, Nl Freiesleben, Anm. Katja Schicht).

Sorgen und Erfolge des fernen Freundes unterrichtet. Der Leser gewinnt einen vorzüglichen Einblick in das bewegte Leben des vielbeschäftigten Beamten, Forschers, Diplomaten und Menschen Humboldt. Dieser bittet oft den kenntnisreichen Montanfachmann und Geowissenschaftler um Ratschläge für seine praktische bergmännische Arbeit und seine wissenschaftlichen Publikationen, schickt ihm seine konstruierten Wetterlampen und Atmungsmaschinen zur Prüfung und Beurteilung, empfiehlt junge Studenten und Freiberg-Besucher der Fürsorge und Betreuung durch den einflussreichen Freund. Oft werden Freieslebens Familie und die alten Freiberger Freunde herzlich gegrüßt und Nachrichten über das Montanwesen und die Hochschule der Berghauptstadt erbeten. Wiederholt wird der Jugendfreund zu gemeinsamen Reisen und wissenschaftlichen Publikationen eingeladen. Nur einige Briefstellen sollen zeigen, dass auch der alte Humboldt seine tiefe Dankbarkeit unverbrüchlich bewahrte:

> *„Dein Andenken und das Andenken an das, was ich Dir schuldig bin, seitdem ich zuerst auf dem Churprinzen mit Dir anfuhr, begleitet mich bis an die Ufer des Irtysch und die Kirgisen-Steppe von Ishim.“* (4. April 1829, vor der Abreise nach dem Ural und dem westlichen Asien)

> *„… so eile ich doch, mein theurer Freiesleben, Dir mit wenigen Zeilen ein Zeichen des Lebens, arbeitsamer Fröhlichkeit und der unverbrüchlichen Anhänglichkeit zu geben.“* (29. Januar 1839)

> *„Mein theurer, innigstgeliebter Freund … Du füllst in meiner Erinnerung, in meinem Leben, einen großen Raum aus. Du gehörst mit Willdenow, Gay-Lussac, Arago zu den wenigen Menschen, die auf Denkart und Ansicht der Natur in mir bleibend gewirkt haben, zu denen, welche (was so selten mir geworden ist) liebenswürdige Gemüthlichkeit* [gemeint ist Gemüt – Walter Schellhas] *dem Wissen beigesellten. Die Gesellschaft, in der ich Dich nenne, beweist, daß ich zu wählen wußte …“* (10. März 1844, zwei Jahre vor dem Tode Freieslebens).

In seinem Brief vom 17. März 1821 aus Paris schrieb Humboldt von der „Bewunderung für Dich und Deine Arbeiten, welche die hiesigen Gelehrten Dir so gern einmal persönlich ausdrücken möchten“. Am 23. Januar 1835 lobte er Freieslebens „Magazin für die Oryktographie von Sachsen“ als einen „großen Gewinn für die Wissenschaft“, und am 10. März 1844 urteilte er mit Leopold von Buch über Freieslebens Abhandlung über die Formationen der Erzgänge:

> *„… durch diese schöne, so viel umfassende, so viel Grösseres voraussezende Arbeit einen erneuten Beweis Deiner Frische, Deiner ungeminderten geistigen Thätigkeit zu erhalten. Eine solche Arbeit von einem Geognosten Deiner Erfahrung ist etwas sehr fruchtbringendes …“*[20]

| 92 | Von den zahlreichen Briefen Freieslebens an Humboldt sind leider nur drei erhalten, da Humboldt bekanntlich die meisten an ihn gerichteten Briefe grundsätzlich vernichtet hat. Wir können daher nur aus Humboldts Antworten auf einen Teil des Inhalts der Briefe Freieslebens schließen. Die beiden Briefe des Bergamtsassessors Freiesleben vom 17. November 1796 und 20. Dezember 1796 aus Marienberg berichten sehr ausführlich über die Ergebnisse der praktischen Versuche, die er auf Wunsch des Freundes mehrfach mit dessen konstruierten Wetterlampen auf dem oberen Weißtaubner Stollenflügel im Marienberger Bergbau durchgeführt hat-

20 Ungedruckte Briefe, im Besitz des Herrn Dr. Hans-Christian Freiesleben, Hamburg. (Die Handschrift befindet sich in der Universitäts- und Landesbibliothek Bonn, Nl Freiesleben, Anm. Katja Schicht).

te.[21] Den aus späterer Zeit einzig erhaltenen Brief schrieb Bergrat Freiesleben am 16. Dezember 1826 unter dem tiefen Eindruck des langentbehrten Wiedersehens im ersten Dezemberdrittel 1826 in Freiberg. Er verdient wegen des damaligen Verhältnisses seines Schreibers zum Empfänger eine wenigstens auszugsweise Veröffentlichung[22]:

„Mein th[eurer] th[eurer] Freund,

So darf ich Dich noch immer nennen, da mir das Wiedersehn nach 19 Jahren gezeigt hat, daß Deine Herz[ichkeit], Güte und Wohlwollen noch immer unverändert sind und daß Deine geistige und weltbürgerliche Hoheit Dich nicht den Freunden Deiner Jugend entfremdet. Wie kann und wie soll ich Dir es danken, daß Du Dich uns ein Paar Tage schenktest, daß Du insbesondere mir und den Meinen vertraulichere Annäherung erlaubtest! Noch ist Alles entzückt von Dir und ich habe es nicht abschlagen dürfen, nächsten Dienstag in uns[erem] sehr zahlreich und meist von wissenschaftl[ichen] Leuten besuchten Gesell[igen] Verein Etwas aus Deinem frühern Leben vorzutragen. Du darfst darüber nicht zürnen, und solltest Du den Aufsatz einmal eigner Ansicht würdigen, so würde dann wohl selbst noch weiterer Gebrauch davon zu machen seyn, da ein Rückblick auf Dein schon so früh mit mannichfacher verdienstl[icher] Thätigkeit begonnenes Leben, aus dem mancher Zug über die glänzendere spätere Periode wieder fast vergessen worden ist, ein sehr anziehendes, lehrreiches Bild gewährt. Auch die Eitelkeit mußt Du uns verzeihen, da unsere Zeitungen von D[einer] hiesigen Anwesenheit und Deiner Innschrift in das B[eschert]-G[lück]-Fremdenbuch, die hier große Sensation gemacht hat, nicht schweigen können. Beydes hat Werth für die Gesch[ichte] der Bergacademie und deshalb habe ich es nicht verhindern wollen. … Mögest Du doch recht wohlbehalten wieder zurückgekehrt seyn, wo man Deiner sehnlich wird geharrt haben. Die Meinen stimmen in die innigsten Wünsche mit mir ein, daß jeder Deiner Tage immer glücklich seyn und daß ein günstiges Geschick Dich recht bald wieder heiter zu uns führen möge! Mit ungetrübter und ungeschwächter Herzlichkeit und unbegränzter Verehrung stets

Den 16. Dec. 1826. *Dein F.“*

Die in diesem Briefe erwähnte denkwürdige Eintragung des weltberühmten Gelehrten im Fremdenbuch der Freiberger Grube „Beschert Glück“ lautet[23]:

„7. Decbr. 1826. Alexander von Humboldt, vormals Zögling der Freyberger Bergakademie, nachmals Ober-Bergmeister im Fränkischen Fichtelgebirge.“

Durch diesen Besuch Humboldts in Freiberg wurde wie durch die früheren (1792 mit dem Reichsfreiherrn Karl vom Stein und dem Grafen Friedrich Wilhelm von Reden und 1797) und den

21 In: Die Jugendbriefe A. von Humboldts…, a. a. O., S. 546–550 und 557–559.

22 Mitgeteilt von der früheren Alexander-von-Humboldt-Kommission der DAW zu Berlin.

23 Dieses wegen der eigenhändigen Eintragungen der zum Teil sehr bedeutenden Besucher recht wertvolle Fremdenbuch befindet sich jetzt im Stadt- und Bergbaumuseum Freiberg (Vgl. Stadt- und Bergbaumuseum Freiberg, Inv. Nr. 48/53, Anm. Katja Schicht). Der Ruf der durch ihr stetiges reiches Silberausbringen und durch die Großartigkeit ihrer Anlagen über und unter Tage ausgezeichneten Beschert-Glück-Fundgrube ging weit über Sachsens Grenzen hinaus (siehe Walter Schellhas, a. a. O., S. 42–43).

späteren (1828) sowie durch den in Marienberg (1797) das 1791 geknüpfte Freundschaftsband neu gefestigt.[24] Mehrere angekündigte Besuche Humboldts wurden infolge seiner starken Inanspruchnahme und der ungünstigen politischen Verhältnisse nicht verwirklicht.

An dem raschen Aufstieg Freieslebens auf der Stufenleiter des höheren sächsischen Montandienstes (1796 bis 1799 Assessor an den Bergämtern Marienberg, Geyer und Ehrenfriedersdorf, 1799 bis 1800 Bergmeister der Bergämter Johanngeorgenstadt, Schwarzenberg und Eibenstock, 1800 bis 1808 Bergkommissionsrat und Oberbergvogt des mansfeldischen und thüringischen Bergbaus in Eisleben, ab 1808 Assessor, ab 1816 Bergrat, ab 1838 Berghauptmann am Oberbergamt zu Freiberg und Leiter des sächsischen Berg- und Hüttenwesens, 1842 Emeritierung nach 46jähriger Dienstzeit) bekundete der ferne Freund herzliche Anteilnahme. In seinem Glückwunschschreiben vom 13. Juni 1838 anlässlich Freieslebens Beförderung zum Berghauptmann beschwor Humboldt noch einmal die Geschichte ihrer langen und stets ungetrübten Freundschaft[25]:

> *„Ich kann es nicht über mich gewinnen, mein theurer Freiesleben, in einem Augenblikke zu schweigen, wo so viele Gefühle, so viele lebendige Erinnerungen einer glüklichen, zusammen verlebten Vergangenheit sich mir aufdringen. Ich höre nun bestimmt, mein vielgeliebter, hochverehrter Freund, daß Du zum Berghauptmann ernannt bist. Das ist die höchste Stelle unseres Faches, die höchste in einem Punkte der Erde, dem in praktisch- und wissenschaftlich-bergmännischer Beziehung kein anderer an Wichtigkeit zu vergleichen ist. Meine Freude ist unbegrenzt, und ich eile, Dir meinen herzlichsten Glükwunsch darzubringen. Es ist so selten, daß das Höchste von denen erreicht wird, in denen Talent, ausgezeichnetes Wissen, edle Gefühle und Anmuth der Sitten (wie in Dir) gepaart sind. Deine Freundschaft, die Sorgfalt, die Du, theurer Freiesleben, (Du, der jüngere), auf meine praktische, bergmännische und geognostische Bildung ausgeübt hast, ist eine wichtige Epoche meines Lebens gewesen. Solcher Epochen habe ich nur zwei oder drei gehabt; neben Dir nenne ich Gay-Lussac und Arago. Der Vergleich kann Dich nur ehren. Ich fühle noch heute, was einem jeden der drei ich verdanke. Wenn ich durch die tiefern Schichten der Lebensereignisse in die Vergangenheit dringe, wie Du zuerst den Tag nach meiner Ankunft in Freiberg mich auf den Kurprinz führtest, wie wir seitdem durch die engsten Bande gegenseitigen Vertrauens an einander gefesselt waren, wie Du mir die Leidenschaft zum praktischen Bergbau einflösstest, wie ich als Oberbergmeister am Fichtelgebirge Dich empfing, wie Deine würdigen Eltern mich so zärtlich, als Dich selbst liebten, wie ich Dich noch in Marienberg vor meiner Abreise von Europa besuchte – eine Welt liegt zwischen dem allen, und diese alte, freundliche Welt tritt mir jezt lebendig vor die Seele. – Ich werde gestöhrt; aber auch diese wenigen Zeilen, theurer Freund, sagen Dir genugsam, wie so ganz und innigst ich Dir ergeben bleibe. Von Deinem trefflichen neuen oryktognostischen Bande sage ich Dir heute nichts. Ich feiere heute bloß den Freund meiner ersten Jugend, meinen Lehrer in dem, was von Dir ausgehend, unter unseres Werners oberer Leitung, sich später fruchtbringend in mir entwikkelt hat. Ich freue mich, lange genug gelebt zu haben, Dir diesen*

24 Schellhas, Walter, a. a. O., S. 83–90. – Freiesleben, Carl: Aus dem frühern Leben Alexanders von Humboldts …, a. a. O., S. 75. – Brief Humboldts an Freiesleben vom 10. 7. 1797. In: Die Jugendbriefe A. von Humboldts …, a. a. O., S. 585.

25 Ungedruckter Brief, im Besitz des Herrn Dr. Hans-Christian Freiesleben, Hamburg. (Die Handschrift befindet sich in der Universitäts- und Landesbibliothek Bonn, Nl Freiesleben, Anm. Katja Schicht).

Glükwunsch schreiben zu können. Mit unverbrüchlichster Freundschaft und dankbarster Verehrung,

Potsdam,
den 13. Junius
1838.

Dein
Al. Humboldt.“

Den gleichen tiefen Gefühlen und der starken inneren Verbundenheit mit dem Jugendfreund Freiesleben gab Humboldt Ausdruck in seinem Kondolenzschreiben vom 25. März 1846 nach dem Tode des Berghauptmanns (20. März 1846). Er schrieb an dessen Sohn Otto Freiesleben[26]:

„So sehe ich denn dahingehen vor mir alle, die mir theuer waren! Die Nachricht, welche Ew. Hochwohlgeb. mir von dem Ableben des edelsten und theuersten meiner Jugendfreunde, des Berghauptmanns Freiesleben geben, hat mich mit der tiefsten Wehmuth erfüllt. Das Zusammenleben mit ihm ist ein wichtiger Punkt meiner Bildung gewesen. Was er den Wissenschaften gewesen, weiß die Welt; es ist mir ein Ruhm gewesen, daß mein Name so lange Jahre mit dem seinen stets zusammen genannt worden ist, wie später mit Gay-Lussac und Arago – aber was die Welt, das Ausland, weniger weiß, sind die edelsten Gaben des Herzens, die mit dieser Intelligenz verbunden waren. Wie schauerlich und doch lebendig stehen vor meiner Einbildungskraft alle die Örtlichkeiten, die wir unter Tage zusammen besucht, die einzeln mit diplomatischer Genauigkeit meine ‚Flora Frib. subterranea‘ angiebt. Unverbrüchlich ist meine Freundschaft, meine Hingebung für den Entschlafenen gewesen!

Empfangen Sie, theurester Herr Geh. Finanzrath, und Ihre ganze edle Familie den Ausdruk meines Schmerzes, meiner Theilnahme, meiner innigen Verehrung.

A. Humboldt
Berlin, den 25. Maerz
1846.“

| 93 | Die enge Verbundenheit des einundachtzigjährigen Humboldt mit der Berghauptstadt Freiberg, ihrem Bergbau, ihrer Bergakademie und sein dankbares Gedenken an den Freund Freiesleben bezeugen schließlich sein Schreiben vom 17. September 1850 an das „Fest-Comité der Feier von Werner’s großem Andenken zu Freiberg“.[27] Darin dankte er für die ihm übermittelte Einladung zum „Werner-Fest“ der Bergakademie vom 24. bis 26. September 1850 (die 100. Wiederkehr des Geburtstages des Professors Abraham Gottlob Werner wurde hier irrtümlich ein Jahr zu spät festlich begangen). Er, „unter den noch lebenden Schülern des großen, unvergeßlichen Werner vielleicht der älteste“, entschuldigte sein Fernbleiben mit seinem „Uralter“, seiner persönlichen Lage und seiner dringlichen Arbeit am „Kosmos“. Nach rühmenden Worten über die Bedeutung der Freiberger Hochschule und über den „vielumfassenden, ordnenden Geist unseres Werner“ gedachte er des alten Studienfreundes:

„… was ich dem belehrenden Umgange meines Mitschülers und meines Mitarbeiters Karl Freiesleben schuldig bin. Die ‚Flora subterranea Fribergensis‘ bezeugt den Umfang der

26 Desgl. (Die Handschrift befindet sich in der Universitäts- und Landesbibliothek Bonn, Nl Freiesleben, Anm. Katja Schicht).

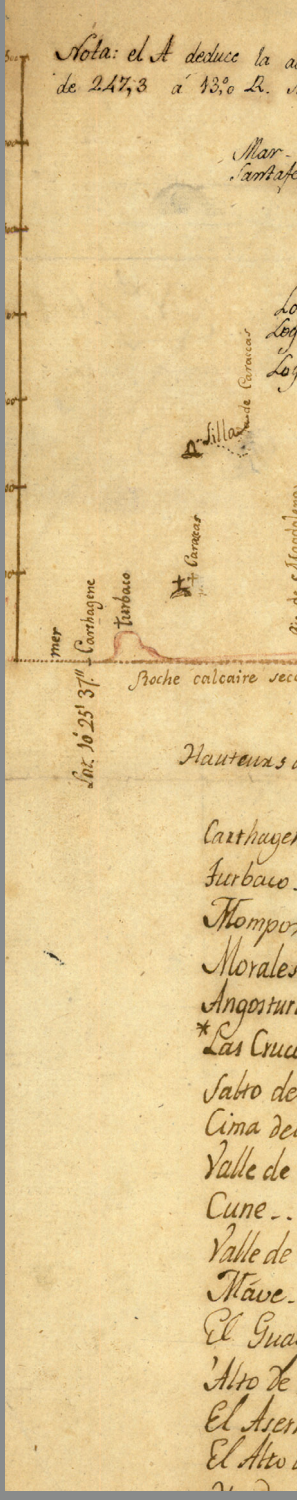
27 In: Gedrängte Darstellung des Wernerfestes am 24., 25. und 26. September 1850 in Freiberg. Freiberg 1850, S. 8–9.

Wanderungen, die wir, Freiesleben und ich, vor einem halben Jahrhunderte, nach Werner's Vorschrift, in dem weiten Labyrinthe Ihrer Grubenbaue, von dem Enthusiasmus getrieben, den der Bergbau immer jungen und heitern Gemüthern einflößt, unternommen haben …"

Dieser war der letzte Brief Alexander von Humboldts nach Freiberg, 4 ½ Jahre nach dem Tode seines „liebsten und ältesten Jugendfreundes", Johann Carl Freiesleben, dessen Schwiegersohn, der Freiberger Akademieprofessor Dr. Theodor Scheerer, dem „vormaligen Zögling der Freyberger Bergakademie" 1866 folgendes literarisches Denkmal setzte:

„Groß im Geiste, mächtig im Gedächtnis, unermüdlich in der Arbeit – das non plus ultra eines umfassenden Forschers! Wir sind stolz darauf, diesen kosmischen Helden den Unsrigen nennen zu dürfen."[28]

28 Scheerer, Theodor: Das bergmännische Studium. In: (Reich, Ferdinand, Hrsg.:) Festschrift zum hundertjährigen Jubiläum der Königl. Sächs. Bergakademie zu Freiberg am 30. Juli 1866. Dresden [1866], S. 136.



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