

**SCIENCE AND NATURE FOR THE EMPIRE'S WEALTH: THE  
BARON ESCHWEGE AND THE MINERALOGIST'S PROJECT FOR  
BRAZIL DURING THE XIX CENTURY**

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The purpose of this article is to analyze some characteristics of about the work of the Baron Wilhelm Ludwig von Eschwege, naturalist, mineralist, geologist, paleontologist and German cartographer that lived in Brazil in the period of 1810 to 1821. He was born in 1777, descendant from the German aristocracy and had an eclectic academic formation, characteristic in the XIX century; had studied Jurisprudence, Nature Science, Architecture, Science and Politic Economy, Forest Economy, mineralogy and landscape gardening. In 1802, Eschwege moved away from Portugal, stayed there until 1810, occupying the function of mine director.

The two biographies that exists about him limits in build to the writer only an image of the “Patriarch of Geology” (SOMMER, 1952; BARBOSA, 1977) ignoring the fact that he had been a man capable to perceive, father from his professional commitment of engineer, the Indians problems, rurals, urbans and ambiental described from his several trips, notably in the interior of Minas Gerais (DOULA & COSTA, 2004).

The long period that he stayed in Brazil differs her work from the others travelers, in the signification that the position of “being a foreigner” and stay here “in passage” is not applied totally to him, with the passage of the years grown his commitment with the enterprising projects in the metallurgy area. In this way, contraring to the figure of the no-committed foreigner, who has not the intention to be accept in the group, (LEITE, 1997)

Eschwege developed a program with activities related to mineralogy and metallurgy, which made possible a “look into” the administrative system and, also, to the local culture. Maybe for this, the work of Eschwege was not being a highly valued for the literature researchers of “foreigners”, who analyzed the exotic aspects from the European view to Brazil. Eschwege did not make up, as the others naturalists, the foreigner’s scientific expeditions who had as mission to describe and portrait artistically the Brazil; for this reason, his work has a tecnic style, appearancilly arid and with few attracts looks. Moreover, until 1996, only the Pluto Brasiliensis, that contain all of the observations about the geognostic nature of the capitivity of Minas Gerais, had been translated to Portuguese, which contributed to fix a limited image from his works, his personality and practice action.

The social aspects, culturals and environmental of Eschwege’s work were not being analyzed yet and many texts remains, yet, in Germany, which justify a reflection about his works totally. His enterprising spirit did not allow only a critic ob his methods of mineral extraction used, so degrading to soils and rivers, but also gave suggestions of how to explore them in a way more rational and profitable.

The richness and diversity in his works can be explained by the fact that Eschwege had lived in a period and in a fervor environment, when watched the modernity consolidation and the capitalism, being contemporary of the Industrial Revolution, French Revolution and the Iluminism (PAULA, 1996). For the action of Wilhelm von Humboldt, Eschwege with the creation, in 1810, the contemporary university, which will revolutionize scientific methods, the research and teaching from the radical abandonment based on knowledge only in the repetition of traditionals models, to favour experimentation and the search for new technologies which the industrial world demanded. The Eschwege’s own intellectual academic formation in the reflect of this moment, this gave him the capacity to understand the public administration, private economy, naturals resorts and technology, Through this view, Eschwege will describe Brazil, in the years after, collecting informations about physics aspects, naturals, administratives and politics in the country, elaborating texts that, today, can be interpreted through the light of human ecology.

With the Iluminism, the fisiocratics principles occupied a space in the end of the XVIII century and proposed consider richness constituted by materials properties that were being got directly from nature, by soil cultivation. Smith considered that “*food does not constitute only the principal share of the worlds richness, as the abundance of food confers the principal share of this value to others species of richness*” (1985). This principle

fisiocratic will represents, from this moment, the fundamental stone in the Portuguese reformist polity.

Moreover, the work of Eschwege should be understood in the project broader of the utopic building of Portuguese-Brazilian “vaste and powerful empire, whose idyllic vision about the empire richness increased considerable with the installation of the monarchy government in Rio de Janeiro (LYRA, 1994). Eschwege had identified himself to this project in Portugal, well, invited fro the court, he stayed there from 1802 to 1810, had occupying a job of director of mines and having as a task to revival mineration and metallurgy Portuguese.

The stay in the metropolis allowed him to publish several works talking not only about the mineration techniques and the mine administration in Portugal, but also in public administration (had written about road building, streets covered by asphalt, preservation of spring and fire combat) and in paleontology, which produced a description about mariners shells around Lisboa. From this experiences and publication of his works, Eschwege will become to integrate an intellectual net, that included, Goethe, Marx and Humboldt, but also José Bonifácio de Andrade e Silva, Manuel Ferreira da Câmara e Federico Luís Varnhagen, with Eschwege kept contacts, not always cordials, in Brazil.

From this experience with Brazilian reality, Eschwege produced texts about mineralogy, the tides, the language of Xacriabás Indians, road building and a research about trees and woods, with the exception of mineralogy works, are neglected to the researchers. This put us the challenge to understand Eschwege’s works in the vaste research program elaborated by Humboldt that proposed to built a large view to the lives in the planet (HUMBOLDT, 1950). Eschwege, friend of Humboldt, will keep these programs privately in Brazil, allyng the scientific dictates of Naturals History with economic imperative and practices of the monarchy project.

The acceptance that the investigation about living nature could contributed meaningly for the development of sciences was important to the Natural History break with principles renaissancist based on logic and math, that early lost space. It imposed a rational order to nature’s forms, in the same time that the line with supernatural reduced itself and the correspondence between man and nature became closer, objecting know it in the whole.

Natural History consists, therefore, in the Science of rational description and classification. The sense of the expression “Natural History” concentrated in being naturalist the one that lives in the middle of nature, seeing it, searching it and describing it. The classification method, of natural resources organization, generally in class, orders, types and

species were so important to Natural History, especially in 1771, when these were presented as the “description of Science”.

It was the mankind benefit which was searched with the new science utilization, linked to the look that nature was constituted in a system purely material that could and should be explored.

With this objective clearly defined, were organized many scientific expeditions to lands owned to Portuguese empire, among which made stand out those that were droved to Brazil. In Portugal, moreover, mould themselves the first naturalists that came to Brazil, among them, the Baron of Eschwege.

This naturalist facet facilitated to Eschwege build in Brazil another net of friendship and Scientifics interchanges with others travelers like Martins and Spix, Langsdorf, Marlière, Pohl, John, Luccock, Saint Hilaire, Freyess and Von Olfers, who made their residence in Vila Rica, not only an accommodation point during the trips, but, specially a center of teoric actualization and change of multi-disciplines informations.

Over his intellectual formation and scientific net in which was included, other important aspect for the analyze of his work and Eschwege’s actuation in his closeness with power, that not comes only from his noble ancestry. Eschwege seems has catch the enterpriser spirit from Industrial Revolution that showed extremely importance to the Portuguese monarchy project of revitalization. This closely, if in away opened him institutional doors and conferred him certain autonomy of actuation, in other way was the reason for disagreement and rejection.

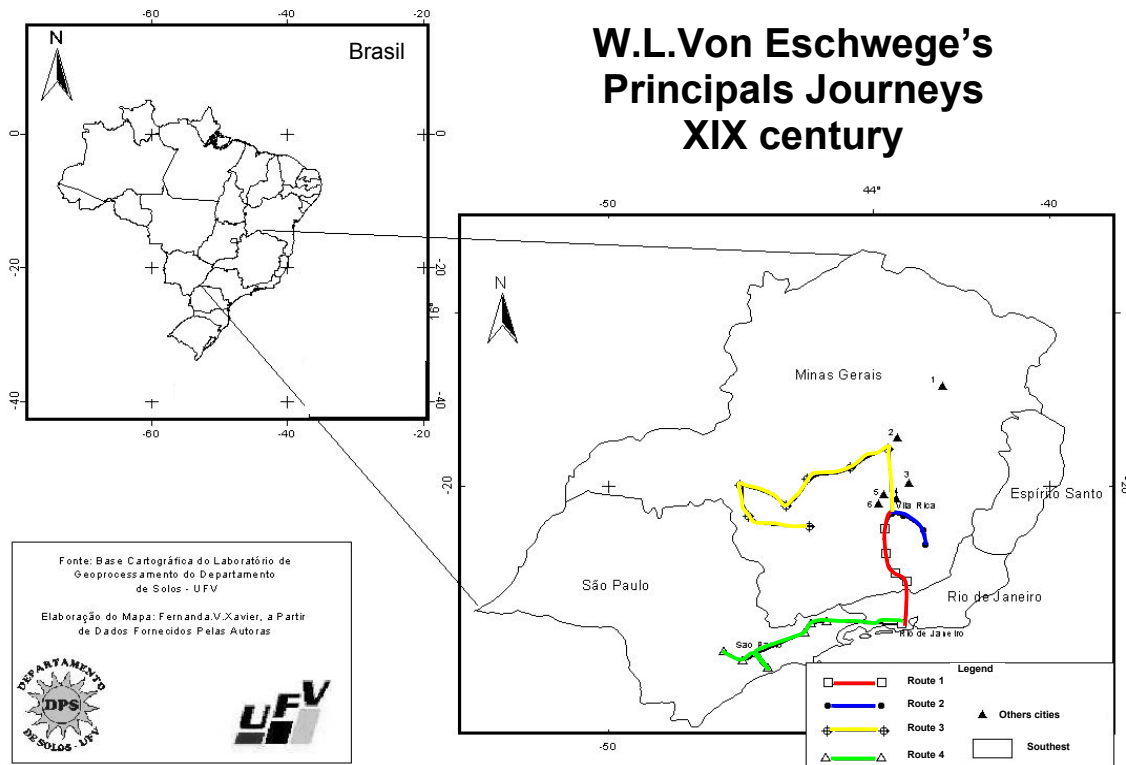
Privately in Minas, Eschwege came across with a rural mentality, slavist and against technology and social transformations. At the same time, must emphasizes that had a race between Eschwge, Varnhagen and the Intendente Câmara, all linked to court and ex-colleagues in Portugal, for the primacy of the implantation of iron manufacture in industrial scale in brazil. It is in the sense that the praises and critics of Eschwege’s contemporacy, as well as the subsequent interpretations, like Pandiá Calógeras and Adolfo Varnhagen, must be understandable. Therefore, the actual interesting for Eschwege is justified because he is a detached representative in a moment of recent technification, in a search for an international insertion of “so news” Brazilian products, of an economic identity, of the difficulties in win colonials heritage to reach most flight.

Nature and ambiental critic in Eschwege’s work

The transfer to Real Family from Rio de Janeiro, made possible, also, Eschwege's coming to Brazil in 1810. In Portugal, he had been invited to act as specialist in iron melt and gave his remarkable in the post occupied, he was called for D. João to come to Brazil for "*rebirth the decadent gold mineration and to work in the nascent steelworks industry*". (RENGER, IN: ESCHWEGE, 2003:13).

During his stay in Brazil, Eschwege travelers many times, notably to the Province of Minas Gerais, where he lived for 11 years, but knew also São Paulo, Rio de Janeiro and Goiás. Not all travels are related in his books, which difficulties to value the real extension of his journeys.

From the reading about principals' works, we elaborated the map below, tracing his journeys longer through three Brazilians provinces. The small towns punctuated in the map as "Other Localities" were frequently visited for Eschwege, as locals where he developed his work of accompaniment and inspection as mine director, but also, were in these small towns that he realizes his Scientifics researchers. For being a routines journeys, do not exists accounts about this journeys in Eschwege's work.



Route 1 – Journey from Rio de Janeiro to Vila Rica (1811)

Route 2 – Journey to Presídio de São João Batista (Visconde do Rio Branco) (1814)

Route 3 – Journey from Vila Rica to Goiás (1816)

Route 4 – Journey from Rio de Janeiro to São Paulo (1820)

▲ Others localities:

1. Minas Novas
2. Serro
3. Itabira
4. Barão de Cocais
5. Sabará
6. Nova Lima

The personal observations *in loco*, while presupposed methodologic fundamental in Natural History, were the principal source used for Eschwege in writing of his travels accounts; moreover, he used also accounts done by others scientists, stactical surveys built by provincial administration and still administrations reports and miners productivity he visited. In this sense, the first characteristic of Eschwege's work is the innovator character in the text polyphony, not only through the reproduction of documents and letters of his naturalists friends, but specially from the dialog he builds, reiterating or refuting the opinion of administrators and scientists. This pluralism of voices present in Eschwege's relations in

which he was inserted, valued to emphasize that the house of this naturalist in Vila Rica served, during the eleven years in which he was in the country, as an obliged accommodation point for many scientists who visited Minas Gerais.

The second point we would detached is the Eschwege's critic on predatory form in natural resources exploration, this critic meet resonance in several others naturalists that visited Brazil in the XIX century.

Throughout his journeys, Eschwege observed how the capitany of Minas Gerais suffered with the originating degradation or an exhaustive mineral exploration, or of agriculture whose tecnicas were considered, to him, retrograde.

Agriculture was characterized basically for the forest knocked down to because it cultivated, which consisted, in Eschwege's vision, in one of the methods more barbarian applied on cultivation. Although he had observed that the soil in small towns for where he passes was fertiles, the culture to burn exuberant forests, a custom disseminated by Portuguese colonizers, was largely used until which nothing grow. Not even the mountains high were protected by the first devastated action. In spite of recognize that richness and soil fertility, and also the possibility to produce more varieties, was visible the way that will come – an imminent exhaustion of earth. In the trip to Goiás, for instance, Eschwege described the result that fire brought to the quality of soil and air, from the observation of forests fire produced for 2 days consecutives:

*“The forests fire, in that time of the year worked without interruption, were burned all the dry vegetation and the atmosphere tensed of a thick smoke which, difficulting the orientation, contributed a lot to become painful the march”.*

*“On the right, we see a thick, producing a smoke so strong that the sun, dazzled, showed a yellow light, faint. The air, stopped, became oppressive, unbearable. At night, the forest fire, so vaste, was mirrored in the sky as a red reflects comparable to a authoress dawn of polars zones escaped.” (ESCHWEGE, 1996:100-1)*

In the critic elaborated about forests fire in Brazil, Eschwege settled out his consonant with theses so spreaded in Europe about the ambiental impact of deforestation, more specifically with the “theory of dissecation” in evidence, above in Paris. In agreement with this theory, the forest destruction caused the reduction of rain that feed the rivers, producing desertification. (PÁDUA, 2002). The way for this processes in Brazil, in according to Eschwege, was opened and evidence of this was the frequency that “ferns” controlled the landscape, being this plant indicator of poored soils. The protection of river nascent was,

according to Eschwege, one of the laws, which should govern forest's exploration what, however, not happened. As much the opening of mines as trees knocked down were restricted, under severe penalties, until a determined distance of the source of brooks and rivers, in order to them not disappeared. The naturalist emphasized that the process of deforestation reached, including, the ciliar forests:

*“Here, as in all parts of Brazil, in spite of the fertile earths in middle of fields cultivates exclusively in earths of forests. For this end, they knock down or they burn the forests in the bank of rivers and brooks. In few years, the wood will disappear in a such way, that some house will be edify.” (ESCHWEGE, 1996:108).*

Other habit criticized for Eschwege for also to collaborate to the desertification was the over exploration, not permitting itself to rest and soil repositions:

*“(...) how is the habit between small farmers, they looked for to remove from earth in a space of one year. It is the temper national does not take care about the future. The farmer explores the earth beyond what could be allowed, risking to a predatory exploration. Not give it fertilizer nor give it time to the organic later renewal, in front of the permanent plant blocked not only the arable soil rest, like the reconstitution of botanic landscape.” (ESCHWEGE, 1996:63).*

According to Eschwege, a simple alternative to avoid soil sterility was the use of cultivation rests to earth covering. Observing the dissemination of corn production, including Indians, who used it to prepare alcoholic drink, noticed that straw was useless. In order to burn it, as the farmers did, he suggested it use like fertilizer.

Other point detached for the naturalist refers to thicken the movements migratory in searching for virgin earths. This pratic, in Eschwege's analysing, also contributed to the production of deserts.

*“The reasons that leave many miners to that forests are: the fame about earth fertility, good countries and, before all of this, the secret in which could live, far from the justice. Add, the uncertainty of Brazilians little love dedicated to native lump, the laziness, the attempt to try to provide their necessities without effort, the less value that attribute to comfortableness, the facility that can obtain enormous glebes - three leagues squared – in that backwoods, the miserable condition that inherit earths were took, finally, a trip less costly. And will see that all of this factors finish to promote bigs emigrations, in case of not opposed them obstacles in time. If continue this situation, cultivated areas in Minas Gerais would be transformed in deserts, condition that already predominates in several others regions.” (ESCHWEGE, 1996:87).*



It is important to repeat that Eschwege's work until now have been not much analyzed, especially his critics and contributions to the exploration of natural resources in Brazil. The work of this German naturalist constitute, in our view, a complex documentation and important to ambiental history in the country. On the contrary of others naturalists, who much times passed fastly through Brazil, Eschwege lived, worked and travelers through the country during eleven years, this time allowed more depth the observations and the analyses about the relation between observed phenomenon. This acquaintance more closer with local population, includes with the Indians, allowed him to an analyze more select about the techniques and practices undertaken for Brazilians and gave him more security and authority to suggest necessities reforms to the ex-colony development.

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