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**A few observations concerning the notes of Konstanty
Jelski (1837-1896) in the context of the history of
dendrology in French Guiana**

Kilka uwag o wspomnieniach Konstantego Jelskiego (1837-1896)
w kontekście historii dendrologii Gujany Francuskiej

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ABSTRACT: Konstanty Jelski (1837-1896) was one of the most significant natural scientists to explore French Guiana in the 19th century. He sent mainly zoological specimens to Europe, but was also interested in flora. In his published notes, plants and particularly trees play a significant role. Last year archives of Jelski were found in Kraków, enabling the completion of information in these notes. The article examines the information about French Guiana trees in Jelski notes. The descriptions of tropical trees, of colonial agriculture and the ethnobotanics questions are also discussed.

Key words: history of tropical dendrology, French Guiana, Konstanty Jelski

Introduction

Konstanty Jelski (1837-1896) was one of the most significant natural scientists to explore French Guiana in the 19th century. The specimens he sent back to Europe enriched numerous collections of fauna. They were – and still are – precious scientific material. They provided the basis for the work of many outstanding European naturalists, such as K. Peters, O. Thomas, W. Taczanowski, P. Sclater, O. Salvin, J. Cabanis, A. Günther and F. Steindachner (Wąsowska et al. 1996). Jelski, a zoologist by training, carried out commissions for another zoologist, W. Taczanowski in French Guiana. Jelski sent mainly zoological specimens

to Europe, but was also interested in flora. In fact, he even built a dry-room in Cayenne to prepare herbal specimens. In his notes, plants and particularly trees play a significant role. Until now, the heritage of Jelski has not been analysed from the point of view of the dendrological information he gathered.

In the 19th century, the forests of French Guiana were considered among France's main colonial resources (Anonyme 1830, Devez 1900). Extensive naturalist investigations were conducted there, as well as the introduction over decades of plants seen as useful, including a number of trees. In past studies of the history of naturalism and plant studies in French Guiana there is scant information on Jelski's work. Moreover, it is usually limited to mentions of the fact that herborised in such and such a region (Hoff et al. 2002), and that part of the specimens are located in Krakow. This is an additional reason to evoke Konstanty Jelski's activity in French Guiana.

Until last year, practically the only known source of his sojourn there were his unfinished notes (Jelski 1898). Written for the girl students of the Adrian Baraniecki secondary school in Krakow, and based on the lectures conducted by Jelski, they provide precious testimony of the popularisation of knowledge about South American nature in the 19th century. Last year archives of Jelski were found in Krakow, enabling the completion of information in these notes (Daszkiewicz et al. 2007). Among other things, they include interesting data relative to the author's contacts with Polish and French botanists. Among those who were on friendly terms and corresponded with Jelski one may mention Leprieur and Guenée, who both worked in Guiana. Among Polish botanists one finds such names as Aleksandrowicz, Dutkiewicz, Strasburger.

The letters make frequent mention of sending seeds for the Warsaw botanical gardens, cooperation with plant shipment companies, or the history of the introduction of trees in Guiana.

Descriptions of tropical forests

Jelski's notes contain a number of pages describing the forests in French Guiana, one of the first – if not the first – popular description of neotropical forests in Polish. The very detailed descriptions of mangrove forests which, as Jelski indicates, few people penetrated, and of the reproduction of mangrove trees, are particularly interesting:

“During the season I travelled, the rhizophores had buds and fruits. These are «chandelles de palétuviers» The seed of this strange tree grows until it is about a foot long, and then separates from the mother plant. The stalk is attached to a branch: it is thick at its base, and pointed at its end. On the tree, the seeds that have already germinated and young plant, look like candles or canes suspended upside down. The young plant finally frees itself owing to its weight, falls vertically, and settles at a depth of several inches in the soft mud.

It is only at this moment that leaves begin to appear – small and compact in the beginning, they later resemble candlewicks”.

In his descriptions, Jelski drew attention to the role of trees in the forest ecosystem – for example as a location for birds to nest and feed:

“These young «chandelles de rhizophores» are a food for the green parrot. Thus, at 6 or 7 o'clock in the morning, innumerable green parrots flew over the river. Their cries filled space. These parrots nest in the dry forest, in holes in tree trunks. (...). During this season [dry season], they come to the rhizophores to feed. They grow so fat that they make good material for a stock. At this time of the year they are among the most numerous and noisy birds in rhizophore forests”.

Jelski was also one of the first naturalists to have noticed the role of old trees and their ecological importance even after their death, and the wealth of species in the tropical forest:

“This primeval forest, near St. Laurent, was immense. Every few hundred feet one came upon tremendous trees. I no longer have the measurements of such a tree at hand, nor even precise notes on the subject. But as I remember, one found twenty such patriarch trees per square kilometre.

They had the appearance of a large town among several small villages or of a mountain among hills. They were important for animal life. Monkeys that were being chased swung from one tree to the other, until they found such a giant. There they felt safe and stopped running. One would probably have had to shoot at them to make them decide to leave such a fortress and go on the road again.

These trees were important even after their death. For many years bats lived inside them. Other, larger animals dug a hole alongside a trunk lying on the earth; this made a convenient shelter for them. Certain birds lived almost exclusively near such fallen trees. Such was the case of Antpitta. Due to the presence of a small number of tree species, the forest in our country [Poland] is similar over considerable areas. But in America, the same forest would contain several hundred species, so that a small difference in the soil, in the light, or the humidity would foster a certain type of vegetation and alter the landscape”.

A description of colonial agriculture

Jelski's notes are an interesting testimony to the history of French colonial agronomy. The years he describes (1860-64), were a special period in the history of this colony. After the abolition of slavery, many plantations lacked manpower and went bankrupt. Jelski notes only the vestiges of such abandoned plantations:

“Finally, we saw plantations of abandoned *Bixa orellana*. In this country, above all in the lower regions, a few years suffice for wild vegetation to erase all traces of man and agriculture. To recognise the old plantations one must look for mangroves, a few banana trees, or housing ruins”.

As an anecdote on the working and living conditions of a naturalist in 19th century French Guiana, let me mention that these abandoned plantations provided Jelski with fruit during periods when his material situation did not even allow him to buy the bare essentials and eat properly. However, he also describes plantations trying to resist the crisis:

“L’habitation Caroline”. The fields in the lower lying lands had been abandoned; there remained only a plantation of clove trees on higher ground, at a certain distance from the river. La Caroline had a large house with very comfortable rooms. A winding staircase led to the upper floors. The large clove plantation, with trees the size of medium pear trees, made a very pretty sight. The trees were about to burst into flower; it was the season of the harvesting of the buds, which were the object of trade”.

Jelski writes quite frequently about the plantations he visited in the course of his travels across Guiana, sometimes alongside detailed descriptions of small manufactories that processed plantation products. e.g. the description of the production of a dye from Annatto (*Bixa orellana*), and now forgotten “technical secrets” such as the addition of rotting bird cadavers of the *Opisthocomus* (Hoatzin) species.

Jelski also described plantations as a novel natural environment. Moreover, abandoned as well as still functioning plantations, were major territories for his zoological gathering activities:

“Coffee growing is widespread in the upper regions of farms in Guiana. It was grown to meet one’s own needs, or else in larger quantities. The coffee shrubs grew in the shade of the rare trees still growing in the forest, or in the forest itself, which had only been partly cleared. This was the case in St. Laurent. Since the forest was near the plantation, there was always a multitude of small birds, mainly tangaras and various flycatchers. Once a tree flowered at the edge of the plantation; it attracted a great number of hummingbirds. My friend Barde, always willing to help me in difficult situations, climbed the tree with a blowpipe : he easily killed the birds that alighted on the flowers; I gathered them below”.

The downfall of the botanical gardens

Jelski’s notes also provide interesting testimony on French colonial botanics. The downfall of the botanical gardens (Touchet 2004) of an institution that had once been

exemplary, introducing plants from other colonies and experimenting with the use of local medicinal and industrial plants, as well as studying the flora of Guiana:

“But where were the botanical cultures? One had to take a close look to discover them among the weeds and brushwood planted in rows. At close inspection, one saw that all these plants were foreign, imported from other French colonies or other countries: the West Indies, Polynesia, Madagascar and Australia. One searched there for plants that could prove useful, or simply beautiful. A general crisis of the colony after the abolition of slavery must have brought about the downfall of this garden. The man who was appointed director destroyed what subsisted of this institution: he had neither the passion nor the skills to manage it”.

Jelski's notes contain frequent mention of investigations by the administration in Guiana of putting local plants to industrial use:

“This future governor of New Caledonia was full of enthusiasm; he showed us dried and pressed sticks of moucou-moucou which he was to send back to France for tests in paper making. I had no doubts that this material might be better than others, since it was fibrous and quite white without being previously treated. Moreover, this plant grew in places where other species did not appear and its growing required no care. The resulting product therefore could be very cheap”.

Of these now forgotten attempts to put to use the trees of Guiana, we might mention the production of tar from *Icica heptaphylla* or wax from Mani (*Moronobea coccinea*), as well as the use of mangrove bark in the tanning industry, and mangrove wood to produce charcoal.

The description of fruits unknown in Europe

Jelski dedicated a large portion of his writings to the description of fruits which were little known in Europe at the time. In 19th century Europe bananas were rarely seen. Jelski could not afford to buy these fruits during a stopover in Madera. Thus it comes as no surprise that the French Guiana variants of the fruits *bacove pomme* and *bacove balisier* were among the first he described. Among these fruits there were several types of mangoes, cocoa, coffee, guavas, papayas, palm fruit Aouara (*Elaeis guineensis*) (also as a means of producing oil and feed for livestock Brazil).

Many of the fruits described by Jelski are still little known in Europe:

“Mombin [“Maubin”] and Pomme Cythère of the *Spondias* genus are characterised by a rather sour taste and were eaten above all by African children. The rose apple (*Eugenia jambosa*) was grown more for its decorative qualities

than for its fruit; it smelt of roses but the fruit was not particularly good. The sugar-apple and Corossol were anones, the fruit of small shrubs. Berries of a species of *Malpighia* were eaten instead of morello cherries. The fruit of a small marsh palm tree Zaganette resembled gooseberrys in both appearance and taste. The fruits of the Panipou palm must have been modified by cultivation, since they contained no seeds. Beneath its crown, this palm carried a bunch of round fruits the size of a plum. When cooked, they were both fatty and starchy”.

The introduction of the bread tree, of great importance for both the history of South American agriculture and 19th century introduction, was of course noted by Jelski:

“The variety of the *Arthocarpus incisa* bread tree which I encountered in Guiana had no seeds either and reproduced by shoots. This splendid tree grew very well in the country, but was not very important for the economy of Guiana. Its fruit were eaten mainly by Africans and Creoles. They were green, could be as large as a human head, in shape slightly elongated and covered with small knobs. This fruit was eaten roasted”.

The ethnobotanics of the trees of Guiana

Currently it becomes increasingly apparent that 19th century naturalist descriptions are also a major source of knowledge for ethnologists. From this point of view Jelski’s notes appear to be an exceptionally precious documents. They contain a detailed description of woods used for building purposes: Wacapou (*Voucapoua americana*); Wapa (*Eperua falcata*, *Eperua rubiginosa*, *Eperua grandiflora*). The popularly named “uaj”, a palm of the *Bactris* species left its tragic mark on the history of slavery, still recent during Jelski’s sojourn. It was used to make whips to beat the slaves, and its name is supposed to reproduce the yell of pain.

Jelski notices that in spite of the great dendrological wealth of forests in Guiana, few trees bore edible fruit. The only ones that were really interesting from this point of view were:

“The one called Canaris macaque or casserole du macaque. This fruit, which grows on a large tree, *Lecythis ollaria* [Paradise nut], looked like a pot with a cover, and contained edible seeds. Another of these forest fruits was the Canot macaque or petite barque des singes. This was the fruit of the *Bignoniaceae* family. When opened, the fruit of the *Clusia* was shaped like a star with several branches”.

But, as Jelski wrote:

“But there were so few edible fruits that even the Indians, who knew how to use the resources of the forest better than anyone, and knew its secrets well, could not nourish themselves throughout the year with forest fruit. Fruits were

not the best means of subsistence for a lost traveller who had not been able to hunt enough game. The middle parts of the ends of palm stalks, called *chou du palmier*, were a better choice. The end of a palm is a bud that develops constantly. The young leaves, still white, were inside. Even when the spine of an adult leaf was hard as wood, these young leaves were soft as cabbage. Raw, prepared in a salad, they were most pleasing to the taste, slightly reminiscent of almonds. They were also good cooked, fried or boiled, with a mushroom-like taste. One did not need much time to find a palm tree in a tropical forest in America. A glance anywhere immediately allowed one to see its fan-like leaves”.

The ethnobotanical observations concerning trees in Guiana were not limited to fruit trees or trees useful in the construction industry:

“Among the curious specimens I found on the forest ground, I remember seeds much like lime blossom and covered with a dense rust-coloured down. They came in lovely, fist sized ball shapes. These were the seeds of the *Eriodendron* tree, which produced a kind of very light cotton. For this reason, the Indian tribes used it to make the wings for their blowpipe arrows”.

Jelski was acquainted with useful plants in Guiana by friendly Indians:

“I went on a very interesting excursion with this boy. This young man had learned Dutch, a language known to Indians. Owing to contacts they had had for several years, he knew the forest very well, and I learned much on my trips with him. He showed me a milk tree [*Tabernaemontana utilis*]: he cut it and gathered the milk in a leaf to let me taste of it. This milk tasted like good fresh cream, but my moustaches remained stuck (since the milk contained rubber). He also showed me the “*lettre moucheté*” [snakewood], a tree that is becoming increasingly rare since it is much prized by the Indians. They use it both for their own purposes, and for trade. Indians in Guiana used it to make bows”.

Summary

Jelski took only a marginal interest in trees. Nonetheless, his writings are not only an interesting testimony of the history of the exploration of flora in Guiana, they also bear witness to the history of introduction and of French colonial botany, the history of the popularisation of knowledge about tropical species in Europe, and the ethnobotanics of French Guiana. No doubt the fact that his notes were published only once and in Polish, a language little known among naturalists interested in neotropical forests, contributed significantly to the relative oblivion surrounding his contribution to the development of knowledge – also dendrological – about Guiana and its nature. The authors hope that the French publication of his writings will right this situation.

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