

TROPICAL FIBRES: THEIR PRODUCTION AND ECONOMIC EXTRACTION

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Tropical Fibres: Their Production and Economic Extraction by E. G. Squier

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FORMERLY MINISTER OF THE UNITED STATES IN CENTRAL AMERICA, ETC.

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1863.

INTRODUCTION.

No person from northern latitudes can long reside in tropical countries, particularly in tropical America, without being struck with the number and variety of *endogenous* plants, such as the agaves, pine-apples, plantains, and palms, which form a characteristic and, to northern eyes, a novel feature in every landscape. If of an observant and inquiring turn of mind, the traveller will soon be brought to reflect on the economic value of these plants, and their thousand useful applications in supplying human wants. He will discover that they not only furnish staple articles of food, oil, and refreshing as well as intoxicating drinks, but also that they are the productive sources of valuable fibres, of every degree of fineness and strength, and fit for the most delicate tissues as well as for the strongest cables. He will find that the hammock in which he reclines is netted from a material almost as fine and soft as silk, and will probably be surprised to learn that it is supplied from the leaves of the wild pineapple, which he sees everywhere forming the hedges of enclosures, and scattered thickly through the forests. He will find the native boats rigged with cordage of superior description, and will be told that it has been procured from the agaves or *henequins*, of which he will observe a small, perennial patch, with their green, fleshy leaves, growing by the side of almost every hut. Or, if in Mexico, he will

receive his passport on paper of surprising toughness and durability, made from the leaves of the *maguey*—the juice of which, supplying here the place of beer, cider, and more potent whiskey, is sold in the shops over the way, under the name of *pulque*. Or if, in the East Indies, he desires to send home some souvenir of his travels, he will select from the stock of an itinerant pedlar, a handkerchief of gossamer-like texture, almost as fine and as delicate as that which the spider weaves, made from the fibres of the leaves of the pineapple plant, the fruit of which he ate for his dessert. If in Manilla, he will find ships of all nations filling out their cargoes with bales of excellent fibres, which he will mistake for hemp or flax, but which he will ascertain, on inquiry, are extracted from the stalks of the plantain—the forests of which, with their broad leaves, shadow over every path and by-road of the island.

And if our traveller be well-informed as to the wants of manufactures and the arts, he will wonder how it is that the acknowledged and increasing deficiency in the world's supply of fibrous materials, has not been filled from the numerous and prolific sources which he sees everywhere around him. He will, perhaps, be induced to inquire why it is that the millions of plantain trees which are cut down throughout tropical America, after having yielded their fruit, are suffered to rot on the ground, instead of being utilized for the excellent fibres with which they are lined. He will ask why the countless agaves, which sometimes surround him like forests, and the myriads of wild-pine plants which throng the woods, and invade every abandoned field, are allowed to send out their fibre-stuffed leaves to flourish and decay, while the world clamors for an increased supply of fibrous materials?

Such at least, were the inquiries which pressed on my mind during my residence in tropical America. I saw around me

abundant, I had almost said infinite sources, from which to supply the existing deficiencies of the world and its future demands in respect of vegetable fibres. I asked myself, wonderingly, "Why are not all these fibre-bearing plants with which the country teems, in some way utilized?" But the question did not recur, after I came to learn the rude, imperfect, and laborious processes by which the relatively small quantity of fibres produced for local use and export is extracted.

I saw the native laborers at their work, slowly removing the pulpy and vascular portions of the agaves or *henequins*, with a triangular scraper, or a blunted knife, leaf by leaf, and ascertained that a few pounds of fibres, imperfectly cleaned, formed the total reward of a long day's toil. I turned away from the patient Indian laborer with a smile, half of pity, half of contempt, and asked my friend, the American merchant and planter, who had lived for many years in the country, "Why don't you import proper machinery for doing this simple work, and thus make a fortune out of tropical fibres?" "Because," was his answer, "there is no such machinery to be had! I long ago sent to the United States, to England and France, and even to the Philippine Islands, where ten millions of dollars' worth of plantain fibres are extracted annually, and found that no machinery suited to the purpose has yet been invented. Everywhere, as far as I can learn, throughout tropical America, and the East Indies as well, the process of extracting these kinds of fibres, is substantially that which you see practiced by yonder Indian."

I was incredulous as to my friend's assertion, and when I returned to the United States I inquired for myself, but only to find his statement confirmed. I ascertained that although various machines had been devised for the purpose of cleaning the fibres of the pine-apple plants, the agaves, and plantains,

economically and rapidly, none had succeeded in practice. And I was compelled to give up some half-formed plans which I had entertained of setting up a machine somewhere in Central America, for the purpose of "making a fortune out of vegetable fibres," as I had advised my friend to do, years before. My interest in the subject, however, never ceased, and I did not entirely relinquish the notion, that sooner or later some rapid and easy method of extracting the fibres of the various tropical plants to which I have referred, would be discovered. I therefore allowed no inventions, claiming to accomplish this purpose, to escape my attention; but until recently none combining the essential requisites of cheapness, simplicity, rapidity, and efficiency, fell under my observation. A machine has now, however, been invented and put in operation, which, in my opinion, combines the desired conditions, and which I have little doubt is destined to augment very largely the present supply of tropical fibres, if indeed, it does not entirely revolutionize, on both continents, the present modes of production. I refer to a machine invented and patented by Mr. G. Sanford, designed to operate under a process patented by Mr. J. E. Mal-lory.

It is not my purpose here to go into any account of this machine and its application, beyond saying that it unites in one operation the various processes by which fibres are extracted manually, from the *endogenous* plants of the tropics. That is to say, it combines the processes of breaking or crushing, scraping, hackling, and washing, in *one* operation; and I feel safe in saying, that by the aid of a machine, not exceeding in cost \$100, one expert hand can extract in a single day, (say from the *Agave sisilana* or *henequin*.) a greater quantity of fibres in better condition, than one hundred men can obtain through the primitive modes now in use. Of its applicability

to *exogenous* plants and cortical fibres, such as hemp and flax, there can be no doubt; but it is as a means of increasing our supply of foliaceous fibres, and utilizing the myriads of tropical plants producing them, but now lost to the world, that it appeals to me with greatest force.

It is in this sense, and with a view of directing American enterprise to new and profitable fields of exertion, that I have here thrown together the various facts relating to vegetable fibres, which I have collected during the ten years since the subject first arrested my attention. I lay but little claim to scientific accuracy, either of classification or of expression; my object being to address myself rather to practical men of general intelligence, who may desire to enter into a new department of profitable industry, than to botanists. At this time particularly, when events have greatly circumscribed the sphere of Northern energy, skill, industry, and capital, and when the world is threatened with a deficient supply of cotton, the question not only of obtaining cotton from other sources than the slave-holding States of America, but also that of increasing our supply of fibrous materials of other kinds, available for similar purposes, and of opening new fields for our enterprise and commerce—at this time, all these have become questions of great, not to say vital, import. If the information which I have before brought together, in connection with the opportune invention to which I have alluded, shall in any way assist in the solution of these pregnant questions, my object, in this publication, will be fully met.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters.

2. The second part outlines the various methods and tools used to collect and analyze data. This includes the use of surveys, interviews, and statistical software to ensure that the information gathered is reliable and valid.

3. The third part focuses on the ethical considerations surrounding data collection and analysis. It highlights the need to protect individual privacy and to use data responsibly, only for the purposes intended.

4. The fourth part discusses the challenges of data interpretation and the importance of context. It notes that data should not be taken at face value but should be analyzed in light of the specific circumstances and objectives of the study.

5. The fifth part concludes by summarizing the key findings and recommendations. It stresses the value of a systematic and ethical approach to data collection and analysis in achieving meaningful results.