A Case of Transport of Palm Pollen in the Eighteenth Century

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Pollen of palms is often transported by surface and air mail. This is the case with pollen of the oil palm (*Elaeis guineensis* Jacq.), the coconut palm (*Cocos nucifera* L.) and the date palm (*Phoenix dactylifera* L.). For instance, pollen of the oil palm is sent by air mail from Nigeria to other African countries and Malaysia for breeding purposes. Within Nigeria the mailing of pollen took often two weeks without loss of viability. Similar cases are reported for the coconut palm. It would appear, however, that this is not entirely new.

A Case in 1767

In the *Rotterdamsche Courant* of Saturday, 24th of October, 1767 a report[2] (Fig. 1) is published reading (freely translated):

RUSSIA

"PETERSBURG, October 3. A DATE TREE is now seen in the Imperial Garden, whose fronds look like a fan. It bears fruit. The stem is (*about*) 280 cm high and its circumference is (*about*) 250 cm, the fronds are split and the length varies from 62.5 to 65 cm, and the breadth ranging between 75 and 80 cm. This tree is 150 years old, and was taken to that place by Czar Peter I. Since 1717 the palm has flowered regularly and fruits were expected year after year. Unfortunately no fruit was formed as the tree is female. The Gardener, who realizes that this tree will not bear fruit, because they were not invoked by a male palm, left no stone unturned to obtain a male palm of the same species; however after a long search in vain he confined himself to only getting propagating pollen, which is found in the stamens of the flowers of a male tree. This was sent to him from Karlsruhe in the county Baden-Durlach; the quantity was (*about*) 44 mg, but in March he received another ± 22 mg.

On April 12th this date tree already bore 7 flowers, and some days later the characters of the female sex were clearly observed. Then the Gardener took a very fine brush and carefully put the pollen on the flowers of the palm; he repeated this three times a day till the end of April. He thought that there were still some signs of receptivity, but in May the effect was not clear yet, although the fruits were well developed. It was in June that the grains of the fruits clearly showed the effect of the propagating pollen. So the work of the Gardener proved to be successful.

The first powder had only a slight effect, but the use of some more resulted in over 600 dates; these have now the size of a walnut and it is believed that they will mature in October.

It is a wonder that although this powder covered 300 miles in intense

1. Formerly at the West African Institute for Palm Research, Benin-City, Nigeria.

2. The above report was republished in the issue of 28th of October 1967 in the *Nieuwe Rotterdamse Courant*. The editor of this newspaper advised me to contact the archivist of the Municipal Archives of Rotterdam. The latter provided me with a photograph of the 1767 report. I would like to thank both the editor and the archivist for their assistance.

A°. 1767

ROTTERDAMSCHE

Saturdag

T U R K Y E N.

KONSTANTINOPOLEN den 15 September. Den 6 dezer is den *Aga* of opperste Bevelhebber der Janitsaren afgezet, en de Kiaja of Luitenant Generaal in dezelfs plaats tot Aga benoemd. Sedert 14 dagen is de besmetlyke ziekte, zoo hier als in den omtrek van deze Hoofdstad, merklyk verminderd.

R U S L A N D.

PETERSBURG den 3 October. Men ziet tegenwoordig in den Keizerlyken Tuin een DADELBOOM, welker bladeren de gedaante van een waayer hebben en die vrugt draagt. De stam is 9 en 1 half voet hoog, en deszelfs omtrek van 2 voet en 11 duimen; de bladersteelen hebben een lengte van 8 voet en 3 duimen, de bladen zyn gefpleten en 25 à 26 duimen lang, en van 30 tot 32 duimen breed. Deze Boom is 150 jaren oud, en door Czaar *Pieter de Groot* herwaards gebragt. Sedert 50 jaren bloeide dezelve, en men verwagte van jaar tot jaar vrugten te zullen zien, dog te vergeefs, dewyl dezelve van het vrouwelyke geflagt is. De Tuinier, ziende dat deze Boom geen vrugt voortbragt, om dat dezelve door geen manlyke Boom vrugtbaar gemaakt wierd, deed alle moeite om een manlyke boom van dat loort te verkrygen; dog na dezelve langen tyd te vergeefs gezogt te hebben, bepaalde hy zig om maar alleen het voorttelend ftofmeel, het welk in de helmen der bloemfteiltjes gevonden word, van een manlyken Boom magtig te worden. Dit wierd hem van Karelsruhe in het Graafichap van Baden-Durlach gezonden; de quantiteit beliep niet meer dan twee derde van een grein; dog in de maand Maart ontfing hy nog een derde van een grein. Den 12 April hiid deze *Dadel-* of *Palmboom* reeds 7 bloemen, en eenige dagen daar na ontdekten zig duidlyk de kenteekenen van het vrouwlyk geflacht. Toen ging de Tuinier in het bevrugten op de volgende wyze voort: Hy nam een zeer fyn penceel en ftreek heeftofmeel dat rede zeer voorzigtig op de bloemen van de Palmboom; dit herhaalde hy driemaal dags tot op het einde van April. Hy geloofde toen eenige teekenen van vrugtbaarheit te ontdekken, dog in de maand van Mey was de uitwerking nog twyffelachtig, alhoewel de vrugten vry ver gevorderd waren, maar in de maand Juny, toonden de korrels der vrugten, duidlyk de uitwerking van het voorttelend ftofmeel, en deden den Tuinier zien dat hy in zyne poging geflaagt was. Het eerfte poeyer heeft weinig uitwerking gehad, maar het tweede meer dan 600 Dadels voortgebragt; dezelve hebben tegenwoordig de groote van een Noot en men meent dat dezelve in het laatft van October hare volkomen wasdom zullen hebben. Het is verwonderlyk dat daar dit poeder 300 mylen ver, en in de grootte koude, met de poft verzonden is, het niets van derzelver voorttelende kragt verlorgen heeft.

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1. A photograph of the report in the *Rotterdamsche Courant*, 24th of October 1767.

cold, it had not lost its propagating power."

Conclusions

We can draw from the above report a few conclusions:

1. The appearance and measures of the palm at Petersburg, its dioecism, time of flowering and the growing sites of the two palms suggest that this palm was either a species of *Chamaerops* or *Trachycarpus*. At the time any palm was often called a date tree, while the date palm was named true date tree.

2. It is supposed that Czar Peter I had brought the palm there and that the palm was already 150 years old. This age is high, however; the story tells us that a palm was dug up somewhere and transplanted to Petersburg where it established and flowered since 1720 or so. It was not the only "impossible" thing this czar undertook to make Petersburg the fashionable center of his empire.

3. The newspaper report also states that the Gardener understood the dioecism of this palm species. He might have read the works by Koelreuter who had classified the palms into species depending upon wind pollination, and the work by Linnaeus who won a prize, awarded by the Academy of Science of Petersburg in 1759, for his study of sexuality in plants.

4. The first seven flowers of April 12th are quite early. The pollen was transported in severe cold and arrived at Petersburg in March. This pollen must have been obtained from a palm which flowered at Karlsruhe in late February or early March.

5. The reporter says that despite the severe cold the pollen remained (at least for a part) viable. If he had known the modern methods of freeze-drying and freeze-storing of palm pollen he would have written "owing to the great cold," because this cold must have preserved the pollen.

Summary

A case of the transport of pollen of a palm species from Karlsruhe to Petersburg in 1767 is described. It is concluded that the severe cold at the time of transport must have preserved the pollen.