
Diseases of the Oil Palm in West Africa

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XLIX.—DISEASES OF THE OIL PALM IN WEST AFRICA.

E. M. WAKEFIELD.

(With Plate.)

While there is a considerable amount of literature dealing with diseases of the coconut palm, some of which, as bud-rot, are very destructive, very little is known of diseases and pests of the oil-palm. Hitherto, in fact, this palm does not appear to have suffered greatly from the attacks of insect or fungoid enemies, no doubt largely because in West Africa, even if not indigenous, it appears to enjoy optimum conditions of soil and climate. During the past few years, however, various records of diseases of the oil-palm in West Africa have accumulated. It may be that with the increasing economic importance of the plant more attention is being paid to injurious parasites. On the other hand it is quite possible that the parasites which attack the coconut and certain other palms are at length adapting themselves to the oil-palm, and if so it is important for the oil-palm industry that attention should be called to this source of danger.

Information is as yet very incomplete, but it is hoped that a summary of such facts as have come to the knowledge of Kew may serve to draw attention to the matter, and lead to an extension of our knowledge.

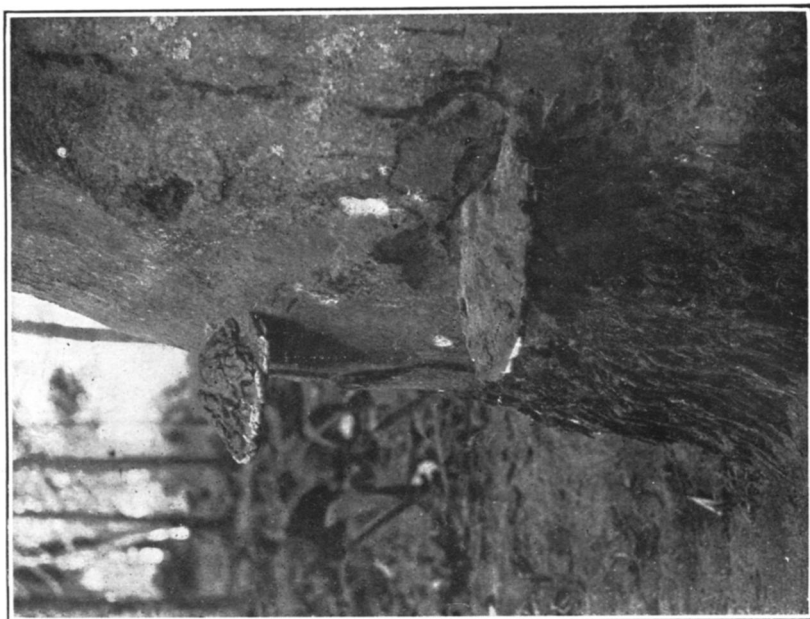
Good specimens of fungi suspected of attacking the oil-palm and photographs of typical diseased palms, together with as many observations as possible as to method and conditions of attack, would be most welcome in this connection.

I. *Rot of trunk due to Ganoderma* sp.

In 1915 a report was received from Messrs. Lever Bros. concerning a fungus attacking oil-palms on their estate at Leverville, Congo. Specimens of the fungus were sent, and although it was obviously a *Ganoderma*, near to *G. lucidum*, the material was unfortunately too old and decayed for certain specific identification. As far as could be judged it seemed to agree best with *G. tumidum*, Bres.

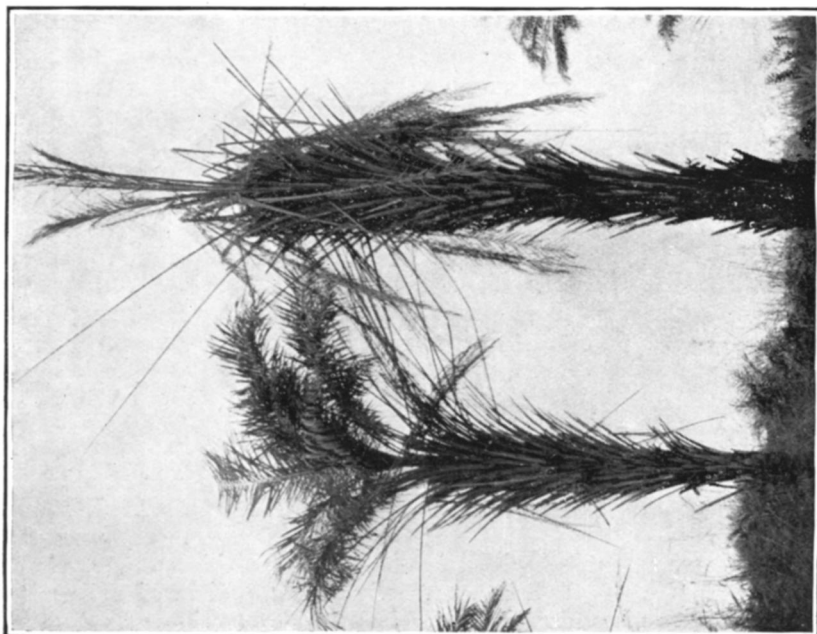
This fungus was stated to be very common in the district and widely distributed. It attacked the base of the trunk and was most frequently seen on mature trees, but was also observed to attack and kill young trees. After the death of the tree the fungus persisted for an indefinite period as a saprophyte, thus providing a continual source of infection. Moreover, when the roots of dead trees were "grubbed" out it was noticed that much mycelium persisted in the soil. In the same report it was mentioned that certain species of beetles bore holes into the base of the palms, and may provide access for the spores.

No further information was obtained as to this case, but in 1917 the late Mr. C. O. Farquharson, mycologist for S. Nigeria, reported that he had found a few oil-palms at Awka and Agwoba dying from attack by *Ganoderma lucidum*, Karst. (= *Fomes lucidus*, Fr.). They were old trees, and had probably been



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II.



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weakened by tapping for wine; he did not consider there was any likelihood of the fungus becoming epidemic.

This fungus, *G. lucidum*, also attacks the Coconut palm, the Areca palm, and probably others, and is a common saprophyte all over the world. It seems to be only an occasional wound-parasite, but even so it may possibly cause considerable loss in districts where it is abundant.

Recently notes and photographs have been received from Mr. R. Swainson Hall, of Cabinda, Portuguese Congo, of a disease on oil-palms there caused by a species of *Ganoderma* which he also regards as *G. lucidum*. This fungus causes a rot of the internal tissues near the base of the trunk, and is said by Mr. Swainson Hall to be very destructive. The photographs reproduced as plates show a healthy (left) and diseased (right) palm side by side, Plate II. fig. 1, and sporophores of the fungus at base of trunk, Plate II. fig. 2.

In L'Agronomie Coloniale, Vol. IV. No. 30, 1920, pp. 187-191, Maublanc and Navel have described a similar disease of the oil-palm in the islands of San Thomé and Principe off the West Coast of Africa. The fungus causes a rot, and eventually produces a large cavity at the base of the trunk. In this case the causative agent was identified by Patouillard as *Ganoderma applanatum*.

From these various records it is obvious that there is widely spread in West Africa a trunk-rot of *Elaeis guineensis* due to a species of *Ganoderma*. There is some doubt as to whether one or more species of *Ganoderma* is concerned. The names *G. tumidum* (?), *G. lucidum*, and *G. applanatum* have been applied, but *a priori* it would seem more probable that only one species is really parasitic. It is very desirable therefore that the fruit-bodies of any fungi suspected of causing disease, when in good condition, should be collected and sent to some recognised systematist for identification.

Whatever may be the species of *Ganoderma*, however, the remedial measures to be taken would be similar, namely, the grubbing out and burning of attacked trees, and the isolation of diseased areas by deep trenches. As far as is practicable the production of wounds in the process of "cleaning" should be reduced to a minimum. Although it is unlikely that infection by these trunk-rotting fungi ever takes place through the crown, such wounds may offer entrance to other organisms. Obviously, also, felled trunks should not be left lying for any length of time, or a crop of sporophores would be produced from which new spore-infections might take place.

II. Bud-Rot?

Hitherto the disease known as "Bud-Rot" has only been known to attack the Coconut Palm. In a report dated Nov. 22, 1917, on the occurrence of disease in Coconut and Oil Palms in the Southern Provinces of Nigeria, Mr. C. O. Farquharson pointed out that should a specially virulent strain of the organism of bud-rot ever become evolved, capable of attacking the Oil-palm, the practice of cabbage-tapping provides an easy mode of entrance. Mr. Farquharson recommended that cabbage-tapping should be

rigorously suppressed, and that *all* tapping for wine should be prohibited in districts where coconut bud-rot exists.

In view of this warning, it is disquieting to note that Mr. Swainson Hall has reported the existence of a disease of Oil-palms in the Portuguese Congo which suggests very strongly "bud-rot." He states that the disease attacks the palms during the period of fruit-bearing. Young bunches of fruits ripen prematurely, and eventually become dried up. The leaf-bases of the younger leaves are infected, and in the course of six to eight weeks the leaves wilt and fall over, finally breaking away. The disease eventually reaches the soft, succulent growing-point, which rots away, and emits an exceedingly foul odour. Attacked palms never recover.

No confirmatory evidence as to the nature of this disease has been obtained, but the symptoms, especially the evil-smelling rot of the growing-point, are certainly indicative of Bud-rot whatever the cause of the disease may be. No such disease has as yet been reported from any other districts.

III. *Boring beetles.*

In connection with the possible spread of fungus diseases, in particular *Ganoderma lucidum* and other trunk-rotting species, by means of beetles, it is interesting to note that a beetle which was found by Mr. Swainson Hall to be doing considerable damage to Oil-palms has been identified by Dr. Guy Marshall as *Oryctes owariensis*, P. de B. Mr. Hall states that since the beginning of the year he has cut down and destroyed 40 trees attacked by this beetle, which attacks not only the trunks but also the top of the palm. It is probable that the adoption of measures to decrease the numbers of these beetles would also be of use in checking the spread of certain fungus diseases.

L.—STELLARIA OR ALSINE.

T. A. SPRAGUE.

The name *Alsine* has been applied to three distinct genera, namely, *Minuartia*, *Stellaria* and *Spergularia*. Thus *Alsine* of Gaertner, Wahlenberg, Fenzl, Asa Gray, Boissier, Nyman and the great majority of authors is *Minuartia*, Linn.; *Alsine* of Britton, Small and other American botanists is *Stellaria*, Linn.; and *Alsine* of Reichenbach, Hiern and Groves is *Spergularia*, J. & C. Presl.

It will be generally admitted that such divergence of usage is to be deplored, and the following account of the history of *Alsine* has been drawn up in the hope that some agreement may be arrived at as to the incidence of the name or its relegation to synonymy.

The genus *Alsine*, Linn. (Pentandria Trigynia), appeared in the *Species Plantarum*, ed. 1, p. 272 (1753), and *Genera Plantarum*, ed. 5, p. 132 (1754). The generic description is as follows:—