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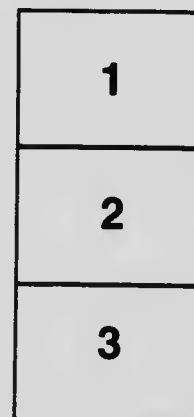
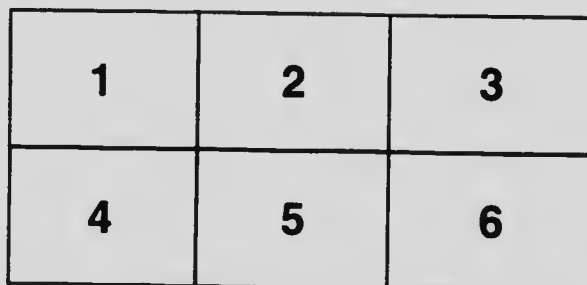
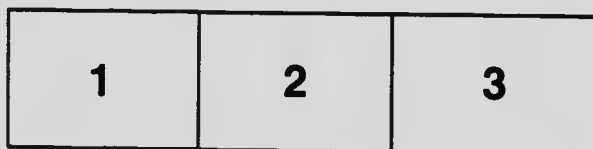
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[Reprinted from SCIENCE, N. S., Vol. XXXIX., No. 1003, Pages 431-433, March 20, 1914]

[No. 1003]

[March 20, 1914]

## THE SYSTEMATIC POSITION OF THE ORGANISM OF THE COMMON POTATO SCAB

SCAB is probably the most widely distributed disease of the potato tuber. We are indebted to Professor Roland Thaxter for associating a specific organism with the cause of this disease. His description of the morphological and biological characters of this organism are so careful and his substantiation of the same as causal agent, so conclusive, that we are unable to add anything of material importance—at any rate here—from our own study of the organism.

Professor Thaxter named the organism *Oospora scabies*<sup>1</sup> by which "provisional" name the disease organism has since been known. "Provisional" because Thaxter himself expresses his doubt as to the correctness of referring the organism to the genus *Oospora*, remarking that the genus *Oospora* as given by Saccardo has no scientific value.

We had occasion to carefully study this organism recently, and from our observations desire to rectify the nomenclature.

From Saccardo's interpretation of the genus *Oospora*, and from its numerous species, we must consider it as a fungus pure and simple, a hyphomycete of the Mucidinæ-Amerosporæ. The organism of potato scab proves not to be a fungus. It differs in morphological characters considerably from what is our present conception of an *Oospora*. Mr. G. C. Cunningham at the meeting of the American Association for the Advancement of Science in Washington, D. C. (1911), expressed his opinion that the potato-scab organism belongs

<sup>1</sup> Ann. Rep. Conn. Exp. Station for 1891, p. 153.

to the "higher bacteria" and he proposes to place it in the genus *Streptothrix*. We are also inclined to regard it as a Schizomycete of the filamentous kind, belonging to the Chlamydobacteriaceæ. On endeavoring to place the organism in its proper genus, we found ourselves confronted by one of the most perplexing problems of botanical nomenclature, which promises a rich harvest to those who are fond of such study.

At first we considered *Streptothrix* Cohn<sup>2</sup> the correct genus, but found later that Corda<sup>3</sup> in 1839 founded this genus for another hyphomycetous fungus of which *S. fusca* was his species. Hence, according to the Vienna rules, this name was no longer available for another plant genus. Saccardo still considers this name as given by Corda valid, including four species all of which are distinct from our organism. Furthermore, *Streptothrix*, as erroneously used by Cohn, possesses no "sheaths," whereas our organism does, however delicate they may appear.

Other names such as *Cladothrix*, *Nocardia* and *Actinomyces* have also been loosely used for members closely related to the organism of potato scab. *Cladothrix* is out of the question owing to its false branching and ciliate spores.

*Actinomyces* was established by Harz in 1878<sup>4</sup> and his description undoubtedly shows generic relationship to our organism.

<sup>2</sup> Beiträge zur Biol. d. Pflanzen, Heft 3, pp. 186 and 202.

<sup>3</sup> "Prachtflora europ. Schimmelpilze," p. 23.

<sup>4</sup> Jahresb. Münchener Central Tierarzneischule.

Harz describes *A. bovis* as causing "lump jaw" or actinomycosis.

Homer Wright, M.D.,<sup>5</sup> pleads in favor of the name *Actinomyces* for use only in connection with the organism causing actinomycosis, and suggests that all other organisms of this genus should be known as *Nocardia* "because the use of the generic term *Actinomyces* for them logically leads to giving the name actinomycosis to those cases of suppurative processes due to infection with certain members of the group." This point of view is opposed to even the most elementary conception of botanical nomenclature.

Now *Nocardia* is the name at present in use by Saccardo for members of our group of organisms.<sup>6</sup> It was established by Trevisan in 1889; "he considered the generic name *Actinomyces* untenable because the generic name *Actinomyce* (without the terminal 's') was given by Meyen in 1827 to a fungus (*Hydrotremellina* (Carus)) described by him ('*Actinomyce Horkelii*')."<sup>7</sup> According to Article 57 of the International Rules of Vienna, it is distinctly laid down that two generic names, even though differing by one letter only, are to be regarded as distinct, which applies in this case.

Hence *Nocardia* Trev. is untenable and *Ac-*

<sup>5</sup> *Journal Med. Res.*, Vol. VIII., May, 1905, No. 4.

<sup>6</sup> Saccardo, "Sylloge, etc." VIII., p. 927.

<sup>7</sup> *Linnæa*, Vol. 2, pp. 433.

*tinomyces* Harz must stand for these organisms. The organism of potato scab properly belongs to this genus; in consequence I feel justified in correcting the nomenclature as follows:

*Actinomyces scabies* (Thaxter) Guessow = *Oospora scabies*, Thaxter.

At the same time I shall rectify the genus and species as far as given by Saccardo under *Nocardia* as follows:

*Actinomyces* Harz 1878 = *Streptothrix* Cohn 1875; Rossi Doria 1891 = *Bacterium Afanasiev* 1888 = *Oospora Sauvageau et Radis* 1892; Thaxter 1891 = *Discomyces Rivolta* 1878; R. Blanchard 1900 = *Nocardia de Toni et Trevisan* 1889; R. Blanchard 1900 = *Actinomyces Gasperini* 1894 = *Actinomyce Meyen* 1827 = *Cladothrix Macé* 1897.

*Actinomyces farcinica* (Trev.) Guessow = *Nocardia farcinica* Trev.

*Actinomyces bovis* (Harz) Guessow = *Nocardia Actinomyces* Trev.

*Actinomyces Foersteri* (Cohn) Guessow = *Nocardia Foersteri* (Cohn) Trev.

*Actinomyces arborescens* (Edingt.) Guessow = *Nocardia arborescens* (Edingt.) Trev.

*Actinomyces ferruginea* (Trev.) Guessow = *Nocardia ferruginea* Trev.

H. T. Güssow

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