An alternative explanation, however, may possibly be found in a recent communication by Kostoff[4] reporting the induction of atypical growth and chromosome doubling in Gramineæ after treatment with the fungicide 'Granosan' (ethyl mercury chloride). It is conceivable that control of albinism is associated with the induction of abnormal mitosis as the result of seed treatment by organic mercury salts.

The beneficial effects in respect of germination and freedom from seed-borne diseases following the treatment of seed by organic mercury dusts are well known.

Some curiosity has been expressed at the high yields thus obtained with cotton[5], and the opinion has also been advanced that a factor other than the control of seed-borne disease must have entered into the effect.

It would undoubtedly be of interest and importance to investigate this matter more closely in order to determine the correct explanation of these phenomena.

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Identity of the Bacterium Causing Potato Blackleg

As a result of the comparative study of Leach[1], the blackleg disease of potatoes is now generally ascribed to *Bacterium carotovorum*, which is also responsible for the soft rots of many of our vegetables and other plants. Previous investigators[2,3,4,5] had described and named slightly different organisms which Leach endeavoured to show were either identical with or at most variants of *B. carotovorum*. This conclusion was based mainly upon four sets of observations recorded by himself or by others: (1) the similarity of the reactions in dextrose, sucrose and lactose; (2) the proved pathogenesis of authentic strains of *B. carotovorum* when inoculated into potato stems; (3) the isolation of this organism from a soft rotted tuber; (4) the blackening of "potato tissue killed by almost any organism" (Leach).

Lacey[6], however, had shown that the organism isolated from blackleg potato plants produced acid and gas in maltose, a sugar not used by Leach, whereas authentic strains of *B. carotovorum* did not, and furthermore, the latter when inoculated into potato stems produced a white pith rot, but never the characteristic blackening of the cortex caused by the former. Lacey considered these were sufficient reasons for retaining the original name of the organism, namely, *Bacillus phytophthorus* Appel. Bonde[7] has recently investigated the soft rots of the potato tuber in the United States and, following Leach, ascribes most of these to *B. carotovorum* (*Erwinia carotovora* of U.S. nomenclature). Like Leach, Bonde did not include maltose among the sugar reactions investigated but worked only with the same three used by Leach. In his tabulated results Bonde indicates that, while the organisms isolated from blackleg produced the characteristic blackening when inoculated into potato stems, some of those isolated from naturally rotted tubers did not.

During the past summer, I commenced a re-investigation of the disease, mainly with the object of trying to ascertain how it is propagated. From blackleg plants collected in various parts of Great Britain and sent to Cambridge for examination by the courtesy of the Ministry of Agriculture and Fisheries, an organism has been isolated which behaves in the manner described by Lacey, that is, produces acid and gas in maltose and the characteristic blackening of the tissues when inoculated into stems of living potato plants. At the same time a soft-rotting organism isolated from carrots was used for comparative studies, the results of which confirm those of Lacey, as it produced only wilting upon inoculation and formed no acid in maltose. It seems certain, therefore, that the organism isolated from blackleg is not identical with what is generally accepted as *B. carotovorum*, in that the former differs in pathogenesis and in an important biochemical character.

The blackleg organism must, therefore, be given a special label, for while it is correct to state that it will reproduce the disease upon artificial inoculation and forms acid and gas in maltose, this is not true of *all* strains of *B. carotovorum*. It is considered that the differences are good specific characters and that the original specific name should be employed, modified to conform with the generic name Bacterium. Appel's original name was *Bacillus phytophthorus*, but the genus Bacillus can no longer be used for non-sporing rods (Resolution I(*e*) approved by the Second International Congress for Microbiology, London, 1936[8]), and I[9] have stated my reasons for using the generic name Bacterium for the soft-rotting bacteria which are closely allied to the colon-typhoid group and for which this generic name is employed by Topley and Wilson[10]. The name of the blackleg organism should therefore be *Bacterium phytophthorum* (Appel) n. comb.

To sum up, blackleg is caused by a specific organism, *B. phytophthorum*, which also produces a soft rot in potato tubers and other plant tissues. Another and distinct organism, *B. carotovorum*, produces a similar rot in tubers, etc., but not blackleg of potato stems. The former produces acid in maltose, the latter does not. Potato tubers found in a rotted condition may harbour one or both organisms.

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