

The lily attacked in Bermuda is not the same as that which suffers in England, but a dwarf variety of the *longiflorum*, the so-called *Lilium Harrisii*, while that attacked in England is the *Lilium candidum*. The environment required by the fungus, and its method of growth, are, however, the same in both cases. It flourishes only in warm moist weather, being readily checked either by cold or by dry heat. In the ordinary course of events the fungus-spores germinate upon the surface of the leaves or flowers, soon penetrating and ramifying through the tissues, until, the conditions continuing favorable, both flowers and foliage droop and rot away, leaving only the bare stalk.

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**THE ONION DISEASE IN BERMUDA.**—In the Kew Bulletin, No. 10, Mr. A. E. Shipley published an account of the onion disease, of which he had made a careful study in Bermuda. He attributes the disease to the ravages of a parasite (*Peronospora Schleideniana*). More lately Mr. Kingo Miyabe, having worked with material sent from Bermuda, published in the ANNALS OF BOTANY<sup>1</sup> a paper on *Macrosporium parasitium*. In the appendix of this latter article Prof. Farlow states that in making these investigations it was desired to show 'whether the *Macrosporium* was merely a fungus which had attacked plants previously suffering from *Peronospora*, as most botanists would suppose, or whether it might not of itself cause a disease of onions.' Whether this is so or not is most important both from an economic and from a scientific standpoint. Mr. Shipley does not, however, seem to consider that Mr. Miyabe's experiments on this subject are entirely conclusive<sup>2</sup>.

It is not my intention to discuss this question, but only to say, that while in Bermuda in the winters of 1888 and 1889 I studied the disease, and my observations correspond with those of Mr. Shipley, who says that, though he examined many hundred diseased onions in all states of attack, he never saw one suffering from the black mildew (*Macrosporium*) which had not previously been attacked by the white (*Peronospora*). So that it would seem to me that whatever are the possibilities of *Macrosporium* growing as a parasite,

<sup>1</sup> No. ix, 1889.

<sup>2</sup> Annals of Botany, No. x, 1889.

at least in the case of the Bermuda onions it does not appear to be the cause of the disease.

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**A HYBRID DESMID.**—In a gathering made on Dartmoor in August, 1889, I met with the first recorded instance of what seems to me the phenomenon of hybridism among Desmids. The accompanying figure (Fig. 4) represents the appearance of this organism, multiplied 200 diameters. It is clearly intermediate between *Euastrum crassum*, Ktz. and *E. humerosum*, Ralfs; the lower half corresponding closely to the typical form of the former of these species, the upper half to that of the latter. Of the normal forms of these species, *E. crassum* was one of the most abundant in the gathering, *E. humerosum* was only rarely seen. The suggestion no doubt presents itself, whether it may not be an abnormal form of one of these species. *Euastrum humerosum* is not, according to my observation, nor, I think, to those of others, a very variable species. *E. crassum* is, no doubt, subject to considerable variation. The var. *cornubiense* mihi (Journ. R. Microsc. Soc. 1887, Pl. IV. f. 18), presents a certain approach to the high shoulders characteristic of *E. humerosum*; and in several of De Wildeman's figures in his very careful account of the varieties of *E. crassum* (Observations sur quelques Desmidiées, Bull. R. Soc. Bot. Belg. 1888), the two semi-cells present notable inequalities. Several writers have also suggested that *E. humerosum* may be simply a variety of *E. crassum*. But, assuming that it is most convenient to regard the normal forms as distinct species, I think we have here considerable evidence of hybridity. The two half-cells are distinctly unequal in size, the lower or larger half measuring  $90\ \mu$  in length, by  $92.5\ \mu$  in breadth, the upper or smaller half  $82.5\ \mu$  in length and breadth. The lower half has but a slightly diminishing diameter as far as the first and only deep indentation, in fact the normal form of *E. crassum*; while in the upper half there are, as in *E. humerosum*, first a shallow and then a much deeper indentation, the diameter narrowing rapidly towards the apex. It is interesting, however, to observe that the arrangement of the protuberances or inflations is

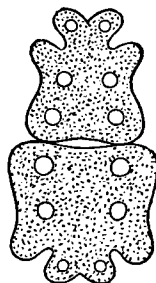


Fig. 4.