ammonium salts than with farmyard or green manure. Moreover, the total amount of nitrate present in soils with crop is less than that in neighbouring fallow soils, even when correction is applied for the amount of nitrate taken up by the crop. Neller[5] has concluded that much more rapid oxidation takes place in the soil with growing plants than in the uncropped soils under identical conditions.

These observations on nitrogen loss can be explained from the following considerations: The soil invariably contains some ammonium salts. By the process of nitrification, which is an oxidation reaction, the ammonium salts are first oxidised to nitrite. In other words, ammonium nitrite may be produced in the soil when a supply of air is available. Dhar[6] has observed that solutions of ammonium nitrite decompose into nitrogen and water when exposed to sunlight, and this photochemical decomposition is facilitated by acids and different solid surfaces. Recently we have carried on several experiments by exposing solutions of ammonium salts alone and mixtures of ammonium salts and sodium nitrite mixed with sterilised or unsterilised soil or surfaces like TiO_2, ZnO, Fe_2O_3, etc., to sunlight, and we have observed marked decomposition of the ammonium nitrite in light. The loss of nitrogen in the dark is always much less than in light. Similar decomposition of ammonium nitrite formed temporarily in the soil from the processes of ammonification and nitrification is likely to take place in Nature. This decomposition of ammonium nitrite in the soil will be more evident when virgin or prairie soils are ploughed for cultivation. The organic nitrogenous compounds present in the soil have a chance to be oxidised first to ammonia and then to nitrite and finally to nitrate by the increase of aeration effected by ploughing.

It seems that in the soil, normally the processes of ammonification and nitrification can go on simultaneously, and thus at a certain stage in the processes of oxidation, ammonium nitrite may be generated, and this being an unstable substance specially in presence of light and the soil surface acting as a catalyst, will decompose with the liberation of gaseous nitrogen. Moreover, when the nitrogenous manure is in large amount and there is sufficient aeration, the possibility of the formation of the easily decomposable ammonium nitrite is increased. For the production of ammonium nitrite in the soil, aeration is necessary and that is why Russell and Richards observed more marked loss of nitrogen in aerobic than anaerobic conditions as already reported. In tropical countries, the formation and decomposition of ammonium nitrite formed in the soil are marked because of the high temperature and strong sunlight; like sunlight, high temperature also facilitates the oxidation of nitrogenous compounds and the decomposition of ammonium nitrite. The greater loss of nitrogen in cropped soils than in uncropped ones is evident from the fact that there is more oxidation taking place in soils with growing crops than in fallow lands.

This process of denitrification can be minimised by the addition of carbonaceous substances, which retard the oxidation of nitrogenous compounds.

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[6] *Proc. K. Akad. Wetensch. Amsterdam*, **23**, 308; 1920.

The Fungus on *Zostera marina*

THE fungus *Ophiobolus halimus*, which has recently been described as parasitic on *Zostera marina* L., has this summer been discovered on this plant in the British Isles. It has been found in several localities in Devon (Plymouth, Cawsand, River Yealm, Salcombe), the north coast of Guernsey and Lough Ine, Ireland. Dr. E. J. Butler has compared the British material with authentic specimens of *O. halimus*, Diehl et Mounce, recently described on *Z. marina* on the Atlantic coast of North America[1], and finds it to be identical with the Canadian material.

It was at first thought that this fungus might be *O. maritimus*, Sacc. (*Rhaphidophora maritima*, Sacc.), which is stated by Saccardo to grow on *Zostera*, but inquiries instituted by Mr. A. D. Cotton led Prof. E. Ulbrich, of Berlin, to re-examine the type specimen collected by Magnus, when it was found that the fungus occurred on a leaf of a grass, probably *Elymus*, but certainly not *Zostera*. This identification was afterwards confirmed at the Kew herbarium, where the type specimen was sent on loan. The incorrect statement that *O. maritimus* occurred on *Zostera* was due to an error by Saccardo, for Magnus expressly states on his label that the habitat was "unter *Zostera*", not "auf *Zostera*". Taking into account the morphological differences in the description, there can be, therefore, no question of the fungus which is at present so abundant on *Zostera marina* being *O. maritimus*, Sacc.

Assuming that Dr. H. E. Petersen's recent note[2] refers to *O. halimus*, the known distribution of this newly described fungus is as follows: parts of the Atlantic coast of North America (not in the Woods Hole district[3]), Ireland, south-west England, Channel Islands and Denmark.

The widespread occurrence of the fungus on *Z. marina*, and its absence on *Z. nana*, Roth (at least in the Plymouth neighbourhood), suggests that *O. halimus* may perhaps be partly responsible for the disappearance of *Z. marina*, but it is impossible to make any definite statement at present as to this. Experiments on its pathogenicity are in progress at the Marine Biological Association's laboratory at Plymouth.

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Alleged Stimulation of Moulds by Paraffin in Heavy Water

IN a letter to NATURE of July 21, Dr. R. Klar suggests that the increased growth of moulds in 0·5 per cent heavy water observed by Meyer[1] and by Larson[2] was produced by an unsuspected paraffin impurity. A brief consideration of the facts, however, will show that such an explanation is untenable. Organic matter of paraffin nature influences the growth of certain moulds and bacteria (*Penicillium*, *Actinomyces*, tuberculosis bacteria) solely by serving as a source of carbon (Rahn[3], Büttner[4], Haag[5], Tausson[6], Hopkins and Chibnall[7]) and consequently