A STUDY OF FUNGUS POISONS.

By the use of a number of deleterious agents, Mr. J. F. Clark was able to determine approximately their toxic effect upon the germination and development of certain fungi. His results were published in the November and December numbers of the *Botanical Gazette*. He used five common moulds, viz: *Aspergillus flavus*, *Sterigmatocystis nigro*, *Oedocephalum albidum*, *Penicillium glaucum* and *Botrytis vulgaris*, on account of their ability to grow normally under the conditions imposed by the experiments. Twenty-eight chemical substances were used, including half a dozen acids, eight hydroxids, three oxidizing agents, five sulfates of the strongly toxic metals, etc. A table of results is compiled, giving the coefficients of injury, inhibition, and death point. The author's summary includes many points, three of which we may quote, viz: "(1) Fungi are in general much more resistant to most deleterious agents than the higher plants. In the case of the mineral acids a concentration of from two to four hundred times the strength fatal to the higher plants is required to inhibit the germination of mould spores under favorable conditions. (2) Different species of fungi present great differences of resistance to many agents. Of the agents tested in this study, $NiSO_4$ permitted the greatest specific variation and dichloracetic acid the least. (3) Particular forms of the same species present very different powers of resistance, depending probably on previous environment."

Charles E. Bessey.
The University of Nebraska.

THE LABORATORY OF THE U. S. FISH COMMISSION AT BEAUFORT, N. C.

The laboratory of the United States Fish Commission, at Beaufort, on the coast of North Carolina, will be reopened for work on the first of June, and will remain open until October. The laboratory is designed for research in marine biology (zoology, botany, physiology), and, for the present, is open to men only. The collecting outfit is particularly good, including steam launch, sailboat, skiffs, dredges, trawl, seines, surface nets, etc. The indoor equipment embraces the usual apparatus, glassware, and reagents, provided by marine laboratories. The more important works on the systematic zoology and natural history of the forms that are found on this part of the coast, will be on hand; and the current numbers of the more commonly used journals will also be received. Naturalists working at the station will find a collection of identified forms, illustrative of the fauna and flora of the region, together with a record of breeding times and local habitat of the species.

Beaufort is a pleasant village to which a few people come for a quiet vacation. The collections of the earlier naturalists, and the work of the Marine Laboratory of the Johns Hopkins University, stationed here under Professor Brooks for many years, made known the interesting character of the fauna—which is exceedingly varied and abundant, including most of the forms described for the South Atlantic coast. Research at the laboratory is untrammeled, it being assumed that every occupant of a table will, in the course of his investigations, add to our knowledge of the natural history of this part of the coast. Inquiries and applications for tables, for which there is no charge, should be addressed to the Commissioner of Fish and Fisheries, Hon. George M. Bowers, or to the director of the laboratory.

H. V. Wilson,
Director of the Laboratory.
University of North Carolina,
Chapel Hill, N. C.

PROFESSOR DEWAR ON SOLID HYDROGEN.

We are able to print in the present number of Science an interesting address by Professor Dewar before the Royal Institution on his work on the 'Liquefaction of Hydrogen.' Professor Dewar has continued his researches and gave a further lecture before the Royal Institution on February 6th, an account of which we take from the London *Times*.

The theatre of the Royal Institution was crowded to its utmost capacity to hear Professor Dewar lecture on 'Solid Hydrogen.' Sir Frederick Bramwell was in the chair, and among those present were Lord Lister, Lord Rayleigh, Sir F. Abel, Sir W. Crookes, Sir B. Baker, Sir Henry Mance, Professor Odling, Mr. T. W. Swan, the Solicitor-General for Scotland, Dr.

Ludwig Mond, Professor S. P. Thompson, Professor Hellmann, and Mr. Fletcher Moulton, M.P.

Professor Dewar began with some remarks about the nature of hydrogen, pointing out that many of the most advanced chemical thinkers had regarded it as being metallic in character, and that to Professor Odling belonged the credit, so far as he knew, of being the first to suggest the contrary, now recognized to be the fact. Proceeding to show a long series of experiments, he explained how it was a consequence of the physical properties of liquid hydrogen that not much could be done with it unless it was available in reasonable quantities. After proving that its temperature was some 70 degrees below that of liquid air, and explaining how reduction of temperature became disproportionately more difficult the lower the starting-point on the scale, he illustrated the difference in the behavior of liquid nitrogen and liquid oxygen when made to boil under diminished pressure. The temperature of both was reduced, but, while the nitrogen became viscid and ultimately solid, the oxygen absolutely refused to solidify. In fact, it was impossible to get solid oxygen in this way, the reason being that at the lowest temperatures it had an inappreciable pressure of vapor, whereas that of nitrogen was considerable. To give an idea of the power of liquid hydrogen as a cooling agent he performed an experiment depending on the same principle as Wollaston's cryophorus, with the difference that the fluid to be solidified was not water but liquid air containing a large proportion of nitrogen, while the material used to effect condensation was liquid hydrogen. He next showed how hydrogen could be liquefied in a closed tube, explaining the importance of this fact with regard to the determination of its density and other questions, and then exhibited the gas in the solid form. This result was effected by putting a portion of the liquid into a vacuum vessel isolated from heat as perfectly as possible. When the pressure in the vessel was slowly reduced, the hydrogen was suddenly seen to appear like a white mass of solidified foam, possessing the lowest steady temperature it was possible to obtain at present—viz, 258° below zero Centigrade, or 15° on the absolute scale. The fact that hydrogen did solidify in this way was in a sense a disappointment to any one who was anxious to reach very low temperatures, for a solid was a bad substance for cooling purposes. Coming to the uses of liquid hydrogen for scientific research, Professor Dewar first showed how it afforded the only means of obtaining solid oxygen. Another important application was to the separation of the more volatile gases of a mixture. The behavior of metals with regard to electrical conductivity at very low temperatures was a very interesting question. From experiments with liquid air it was expected that at the zero of absolute temperature pure metals would have no electrical resistance at all. But although the resistance curves appeared to be going straight to zero at the temperature of liquid air, he found that lower down, below the temperature of solid air, they bent sharply round, so that a finite resistance was indicated. In conclusion, Professor Dewar acknowledged the kindness of those who had contributed to the cost of these investigations, and paid a tribute to the skill and devotion of his assistants. Such researches were necessarily costly, but he could not share the view of those who suggested that the results would not be worth the cost.

X-RAYS AND PHOTOGRAPHIC PLATES.

A DISCOVERY of very great practical interest in X-ray work has been made by Professor Nipher at Washington University. He has discovered that when photographic plates are exposed to the light of an ordinary room for a few days, that they may still be used for taking X-ray pictures. If while the Crookes tube is acting on the plates they are still exposed to the ordinary light of a room, they develop as positives. The shadows are dark. If they are in a plate holder when exposed to the X-ray, the pictures are like those formed in the ordinary way, and they are apparently as clearly defined.

The advantage of the method is that the plates may be developed by the light of a lamp. The developer (hydrokinone) being weak and cool, the process may go on for an hour if desired, and all the details may be studied as