about 96 per cent water, 3 per cent salts, a trace of fat varying with the state of the gonads, and about 4 per cent of protoplasm.

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¹ Lowndes, A. G., *NATURE*, **141**, 289 (1938).

² Lowndes, A. G., *NATURE*, **148**, 594 (1941).

³ Bateman, J. B., "The Osmotic Properties of Medusae", *J. Exp. Biol.*, **9**, 124 (1932).

Check-list of British Birds

MR. SETON GORDON, in his review of a "Check-List of British Birds" in *NATURE* of July 11, 1942, p. 40, remarks that, according to Cameron of Lochiel, the last year the osprey bred on Loch Arkaig was in 1908, and not 1902 as given by Mr. Witherby. There seems, however, to be some confusion regarding these dates. I was at Achnacarry for ten months from October 1902, and in the spring of that year the eggs were taken by a man from Fort William, who swam out to the island where the nest was situated. To guard against that happening again, the present Lochiel's father instructed his forester to put barbed wire round the lower part of the tree, and this I helped him to do.

These precautions were, unfortunately, unnecessary, as only one osprey returned in 1903, and I first saw it on April 15. It remained about the Loch throughout the summer, and several times I watched it fishing, also bringing sticks to the old nest which, by the end of the season, was about a foot higher.

For how many years the single bird returned to Loch Arkaig I have no personal knowledge, but I have been told that the last time it was seen was in 1910.

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Regarding the above, Lochiel writes to me as follows:

"This shows the efficacy of the Secret Security Service set up by my father and continued by myself to keep the facts about the ospreys nesting absolutely secret. My father died in November 1905. We married in March 1906, and did not take up residence at Achnacarry until 1907, yet my wife remembers well seeing the ospreys and their nest on repeated occasions. As she was never at Achnacarry before we married and never saw an osprey in her life anywhere else, this surely is sufficient proof. Again, Norman MacRae (my piper and butler) also bears me out. He was never at Achnacarry before 1906 and his wife came to Achnacarry on October 31, 1907 (the ospreys always left before the end of September), yet they both remember the ospreys well, and going to see the nest. Mrs. MacRae, therefore, could not have seen them before the spring and summer of 1908. There is no possible doubt: the ospreys nested until the summer of 1908."

It is quite possible that, as Mr. Kinnear states, the osprey did not nest in 1903, but it is evident that they nested in the following years. Lochiel was living at Achnacarry and, as I know, always took a great interest in the birds, so it is inconceivable that both he and the witnesses he has quoted should be in error.

SETON GORDON.

Encouragement of Research in Industry

SIR LAWRENCE BRAGG says in *NATURE* of July 18, p. 75: "Lip service is paid to research because it is respectable and fashionable to do so, but responsible industrialists in private express their disappointment." That inventive talent is lacking seems doubtful. Even under conditions of complete detachment a continual flow of ideas cannot be maintained indefinitely; but when questions of plant, personnel, materials and time limit exist to cramp the style, a considerable proportion of the industrial scientist's fund of originality has to be transferred from the purely progressive to the task of adaptation to rapidly changing conditions. Provided the right men have been selected on the production side all is well; but if the research and development men are confronted with too much opposition to change, they will quickly become discouraged. It is, after all, their job to make improvements.

As to whether industrialists provide the right sort of conditions, it would probably be true to say that, on the whole, industrialists do not quite understand the research man, stand to some extent in awe of him, and thus fail in part to stimulate "the flow . . . of fundamental ideas which would profoundly affect our industries". The director of a few years ago who, showing a visitor round his works, stopped and asked of one of his research chemists: "Well, my man, and what have you discovered to-day?", is not entirely extinct. But probably the root of the problem lies in the delegation of insufficient responsibility to research workers, even long after these have 'found their feet'. The suppression of executive ability in men of proved research capacity is surely to be deplored in many cases. Latent powers should be allowed for in men in harness, lest they remain too much in grooves.

It may help certain types of inventive genius to be assisted by a limited number of persons entirely devoid of original thought. These should be selected for their ability to interpret the wishes and record the ideas. To some extent they also act as a foil, but their importance is none the less on that account.

The industrialist who has not enjoyed a scientific training must find it hard to grasp the enormously dynamic nature of original research, or, when he sees frenzied activity over some apparently trivial matter, wonders whether sufficient eye is being kept on the main chance. Bearing in mind that 'spontaneous' research is bound to flow more readily than 'research to order', the time allowed for the latter should be on the liberal side. To some extent the research worker should be definitely encouraged to develop sidelines which spontaneously arise, as so much time would be wasted if at a later date he were asked to develop just that feature from scratch. It would be gratifying to think that research was sufficiently treasured in Great Britain to ensure facilities for developing what might be termed the 'overflow' of ideas of scientific workers engaged on specific products of research. Just as in chemical plants, 'waste' is frequently utilized to produce marketable by-products.

In many respects scientific workers themselves would get on faster if only they spent a small fraction of their time in striving each week for some improvement in their department. When actually engaged on research, they covet a lack of interruption. Then why not plan to be 'not available' at certain hours of each day? An interrupted train of thought may