of the second investigation, which he notes, is due probably not so much to change in habit of the crow, as to inclusion in the second set of analyses of more than 500 stomachs from Corn Belt States as Missouri and Kansas.

Madon's estimate that the number of crows has quadrupled since 1886 is a mere guess; apparently the birds have increased very little in the eastern States, but more in the western States and southwestern Canada where agricultural development has opened up new homes for them.

Madon's comment on egg eating by crows, says nothing of the failure of his pet numerical system to aid in the problem, and like most who argue on the subject fails to admit the fact that (except in regions where the climate permits only one brood) destroying a clutch of eggs or even brood of young of the average wild bird still leaves the bird opportunity to rear young. This fact guides public policy in some places toward colonies of birds, or such species as the eiders and lapwing, a crop of eggs from which is collected annually before the birds are permitted to incubate.

The author makes totally unwarranted deductions as to losses to agriculture (more than hundreds of millions of dollars, he says) due, he claims, to distortion of findings in the first report. Since the first report resulted in no additional protection of the crow, and the public was at liberty to take whatever control measures it pleased (a chapter in Bulletin 6 was devoted to these), even if the losses mentioned were actually suffered which is very doubtful, they could not properly be blamed on anything in Bulletin 6.

Madon's critique of American work on the relations of crows to agriculture, has in places a shrewd aspect, but in others falls into error on account of lack of knowledge of American conditions, and to inexperience in work in economic ornithology. The patronizing tone in places, and assumption of superior knowledge of economic relationships, by one who has examined only tens of stomachs to thousands examined by American investigators is entirely unwarranted. If Madon's work had been confined to presentation of original material and an uncensorius review of other European work it would have been more valuable and acceptable than it is in its present form.—W. L. M.

Further on Birds in the Ecology of Spitsbergen.—In 'The Auk' for January 1924 (Vol. 41, No. 1, p. 191) the reviewer noted a paper by V. S. Summerhayes and C. S. Elton on Spitsbergen and Bear Island that contained interesting material on birds. These authors have again published[1] on the results of their share in the Oxford and subsequent expeditions, and the ornithological findings have a distinctly novel cast. For instance the Ivory Gull, according to the authors, is to the polar bear what the jackal is to the African lion; it subsists almost entirely on the carcasses of seals left by bears. The gull shows extreme reluctance to alight on the water and seems more like a land- than a sea-bird. The assumed protective value of the coloration of the Ivory Gull is questioned.

[1] **Further contributions to the Ecology of Spitsbergen, Journ. Ecology, 16, No. 2, Aug. 1928, pp. 193–268, pls. 24–35, 5 figs., 1 map.**

Throughout the document are references to specific feeding habits of birds, especially the glaucous gull, arctic skua, turnstone, purple sandpiper, and snow bunting. One of the most interesting points brought out is that bird-manuring is a primary factor in the distribution of vegetation in Spitsbergen, sometimes showing a control cutting right across the zonation produced by climate. The increased variety and luxuriance of vegetation on the skua-hummocks, bird islands and bird-cliffs, has distinct effects on the variety, abundance, and distribution of animal life, even on birds themselves. A case in point is the moss-lichen flats produced by the manuring of the Arctic Tern, which form the basis for the growth of grassy patches where the tern refuses to nest, but which are occupied by the Brent Goose and King Eider. Since the terns are the sole factor producing the grass turf, they are bringing about conditions that will eventually drive themselves off the island. The important element is nitrogen, derived from sea-animals preyed upon by the birds and ultimately from marine diatoms.

Thus problems in animal life in the Arctic are not really simpler than elsewhere, but that they appear simpler and thus more likely to yield satisfying conclusions, perhaps by reason of being fewer and more sharply set off, surely is an important element in their fascination for students. —W. L. M.

St. Clair-Thompson on the Protection of Woodlands.—'The Protection of Woodlands by Natural as Opposed to Artificial Methods,' as the title of the book[1] reads in full, is a manual in which the usual impracticability of artificial control of forest pests and the contrasted practicability and desirability of natural control are stressed. Since the author believes that "the numbers of injurious insects are normally kept under control more by birds than by any other parasites or predator" (p. 104), the book is devoted largely to the role of English birds in woodland economy and suggestions for better utilization of their services. He advocates a semi-natural system of mixed arboriculture rather than pure stands because it favors variety and number in the bird population. The only additional method of encouraging birds which he recommends is the provision of nest boxes; the reviewer would interject here, however, that winter feeding of suet is so cheap, easy and necessary, as not to be regarded as of only exceptional utility, and that "sparing" not "planting" of fruit-bearing species of shrubs and trees can be incorporated into any forest program without cost, consequently must be regarded as "practicable."

The author is so keen about appraising everything from a strictly economical forestry point of view that in some cases at least the preponderating economic tendencies of certain species are ignored. For instance of the tree-creeper, he says "except in pest areas, when it may be useful, of rather limited value, if it is not slightly injurious . . . should not, at all events, be

[1] G. W. St. Clair-Thompson, London, 1928, 223 pp. H. F. G. Witherby.