

given by palæontologists of the first appearance, the increasing rarity, and final extinction or modification of fossil species, embedded in the successive stages of a geological formation.

Finally, every one must judge for himself whether it is more probable that the several forms of wheat, barley, rye, and oats are descended from between ten and fifteen species, most of which are now either unknown or extinct, or whether they are descended from between four and eight species, which may have either closely resembled our present cultivated forms, or have been so widely different as to escape identification. In this latter case we must conclude that man cultivated the cereals at an enormously remote period, and that he formerly practised some degree of selection, which in itself is not improbable. We may, perhaps, further believe that, when wheat was first cultivated the ears and grains increased quickly in size, in the same manner as the roots of the wild carrot and parsnip are known to increase quickly in bulk under cultivation.

Maize or Indian Corn: Zea mays.—Botanists are nearly unanimous that all the cultivated kinds belong to the same species. It is undoubtedly⁵⁰ of American origin, and was grown by the aborigines throughout the continent from New England to Chili. Its cultivation must have been extremely ancient, for Tschudi⁵¹ describes two kinds, now extinct or not known in Peru, which were taken from tombs apparently prior to the dynasty of the Incas. But there is even stronger evidence of antiquity, for I found on the coast of Peru⁵² heads of maize, together with eighteen species of recent sea-shell, embedded in a beach which had been upraised at least 85 feet above the level of the sea. In accordance with this ancient cultivation, numerous American varieties have arisen. The aboriginal form has not as yet been discovered in the wild state. A peculiar kind,⁵³ in which the grains, instead of being naked, are

⁵⁰ See Alph. De Candolle's long discussion in his 'Géograph. Bot.,' p. 942. With respect to New England, see Silliman's 'American Journal,' vol. xliv. p. 99.

⁵¹ 'Travels in Peru,' Eng. transl., p. 177.

⁵² 'Geolog. Observ. on S. America,' 1846, p. 49.

⁵³ This maize is figured in Bonafous' magnificent work, 'Hist. Nat. du Mais, 1836, Pl. v. bis, and in the

'Journal of Hort. Soc.,' vol. i., 1846, p. 115, where an account is given of the result of sowing the seed. A young Guarany Indian, on seeing this kind of maize, told Auguste St. Hilaire (see De Candolle, 'Géograph. Bot.,' p. 951) that it grew wild in the humid forests of his native land. Mr. Teschemacher, in 'Proc. Boston Soc. Hist.,' Oct. 19th, 1842, gives an account of sowing the seed.