

nian, Carboniferous, and Jurassic fossils in various schists and altered limestones surrounding the central gneiss, led to the belief that these are metamorphosed sedimentary rocks of Palæozoic, Mesozoic, and even of older Tertiary date. This belief has subsequently been attacked by several able observers, who, starting with the assumption that the crystalline schists must be everywhere of great relative antiquity, have endeavored to show that the fossiliferous bands intercalated among them have been brought into this position by plication, and that there is no evidence that any part of the schists is even of Palæozoic age.⁶⁹ Now it must be admitted that in the sections, even as drawn by those who adopt this explanation, the obvious and natural interpretation is that which has been so generally adopted—that the fossiliferous beds are actually part of the crystalline series in which they are imbedded. If the apparent order is deceptive, this must be proved by those who maintain it. If, however, we turn to their writings we find a good deal of strong assertion, and various more or less ingenious attempts to construct sections in which the abnormal position of the fossiliferous beds is to be accounted for. It does not appear to be realized that on the supposition of the high antiquity and original discordant infraposition of the schists, the chances are small that, in any plication of the mountains, the unconformable fossiliferous strata would become conformably stratified with ancient schists even at one locality. But when we look at the published sections of the Alps, and find that the parallelism between the schists and the inclosed fossiliferous bands occurs again and again at widely separated localities, and that in fact this is their normal position, it becomes utterly incredible that the conformability can be the result of plication, except on the supposition that the foliation of the schists is not their original structure, but a new one superinduced upon them at the time of the plication and metamorphism of the fossiliferous strata.⁷⁰

Let us, however, grant, for the sake of argument, that

⁶⁹ Consult Lory, "Description géologique du Dauphiné," 1860, part i. §§ 40-42; *Compte rendu Congrès Géologique International*, Paris, 1881, pp. 39-43; *Bull. Soc. Geol. France*, 3e série, ix. 1881, pp. 652-679; Favre, "Recherches géologiques dans les parties de la Savoie, etc., voisines du Mt. Blanc," 1867, chaps. xxi. xxiv. xxv.; A. Müller, *Mem. Soc. d'Hist. Nat. Bâle*, 1865-70. See also Sismonda, *Real. Acad. Sci. Torin.* (2) xxiv. 1866, p. 333; Sterry Hunt, "Chem. Essays," pp. 283, 328. Bonney, *Address*, *Quart. Journ. Geol. Soc.* xlii. 1886, p. 38; xlv. 1890, p. 187; and other papers cited, *postea*, p. 1035.

⁷⁰ See this structure illustrated by that of northwest Scotland, *postea*, p. 1036.