

end of the nineteenth century may well feel proud to have witnessed, and carried with it into its boasted wealth of scientific enlightenment.

His earlier geological papers on special areas show Professor Suess only as the ardent field-surveyor, the lover of mountains, the laborious student compiling results from his own notebooks. But the little book entitled *Die Entstehung der Alpen*, or *The Origin of the Alps*, which was published in 1875, already betrayed the dawn of new thoughts, full of freshness and interest. Professor Suess in that work contested the upheaval of mountains and continents by forces acting vertically upward; he refuted the active participation of eruptive rocks in the origin of mountain-chains, and after a brilliant description of the most important mountain-systems of the earth, he demonstrated that any arrangement of those according to geometrical laws was altogether illusory. The difficult problems of crust-displacements were, he said, so intimately associated with the question of the age and origin of mountains that the latter could not possibly be solved by any mathematical deduction or general rule obtained from leading-lines of strike and distribution, but demanded an accurate knowledge of tectonical structure in each case.

A more detailed examination of the Alpine system¹ led Suess to the conclusion that the structure of this mountain-system was not symmetrical, as had previously been supposed, but was, on the contrary, essentially one-sided. The steep descent of the western Alps towards the plains of Piedmont and Lombardy indicated a curved fault-line, and the Alpine rocks had been folded together under the influence of a tangential force acting in north-west, north, and north-east directions from the leading crust-rupture. It had been customary to regard the zones of rock-formations on the south side of the eastern Alps as folded masses that had been pushed aside during the upheaval of the central chain, but Suess contested this, saying these zones represented an independent chain which had been pressed against the Alps by a horizontal force acting towards the north-west. He pointed out that farther east still another chain, the

¹ This name was applied by Suess in wider sense to include the Alps proper, the folded Jura mountains, the Carpathians, the Hungarian mountains, the Dinaric ranges along the eastern shores of the Adriatic Sea, and the Apennines.