

than the polar; and consequently there has been more lateral pressure around the equatorial region. That pressure too was exerted east and west, and that was just the direction which would give to the wrinkles a north and south trend, and a considerable elongation. Besides this, there was a powerful tidal attraction exerted by the moon (see also Talk XXXVIII). That body was then much nearer the earth than now, and exerted important influences on the earth. In our times, it raises the ocean and the whole hemisphere in a tidal swell; then, though no ocean existed, the tidal swell was raised with the forming film over its surface. But the rise of the swell was not instantaneous; it reached its height after the moon had passed the meridian to the west, and the moon acting on it from that position, pulled the apex slightly westward, and thus established changed conditions in the crust which necessarily had a north and south trend, and contributed something to give the wrinkles which were then forming, the north and south axes which we see in mountain ranges.

Another peculiarity of mountains is the greater thickness of the formations and the greater proportion of fragmental strata. This has led some to conceive that the materials of mountains were accumulated in the bottom of the sea, in situations to which ocean currents brought unusual quantities of coarse deposits from neighboring continental shores. It is supposed that these sediments depressed the bottom and thus preserved such depths as would continue to invite the currents to a continuance of their work, until the mountain mass was completed. The sinking of the great synclinal must have subjected the materials to the metamorphic influence of internal heat, even without any crushing together. Probably, in this state of things, metamorphism resulted from both causes. Then in due time, the synclinal was upraised, with additional crushing, and the mountain was completed.

These are but glimpses of the theory of mountain-making; but I hope they will stimulate you to further study. Let me recommend the re-reading of this Talk, after Talk XXXVIII.