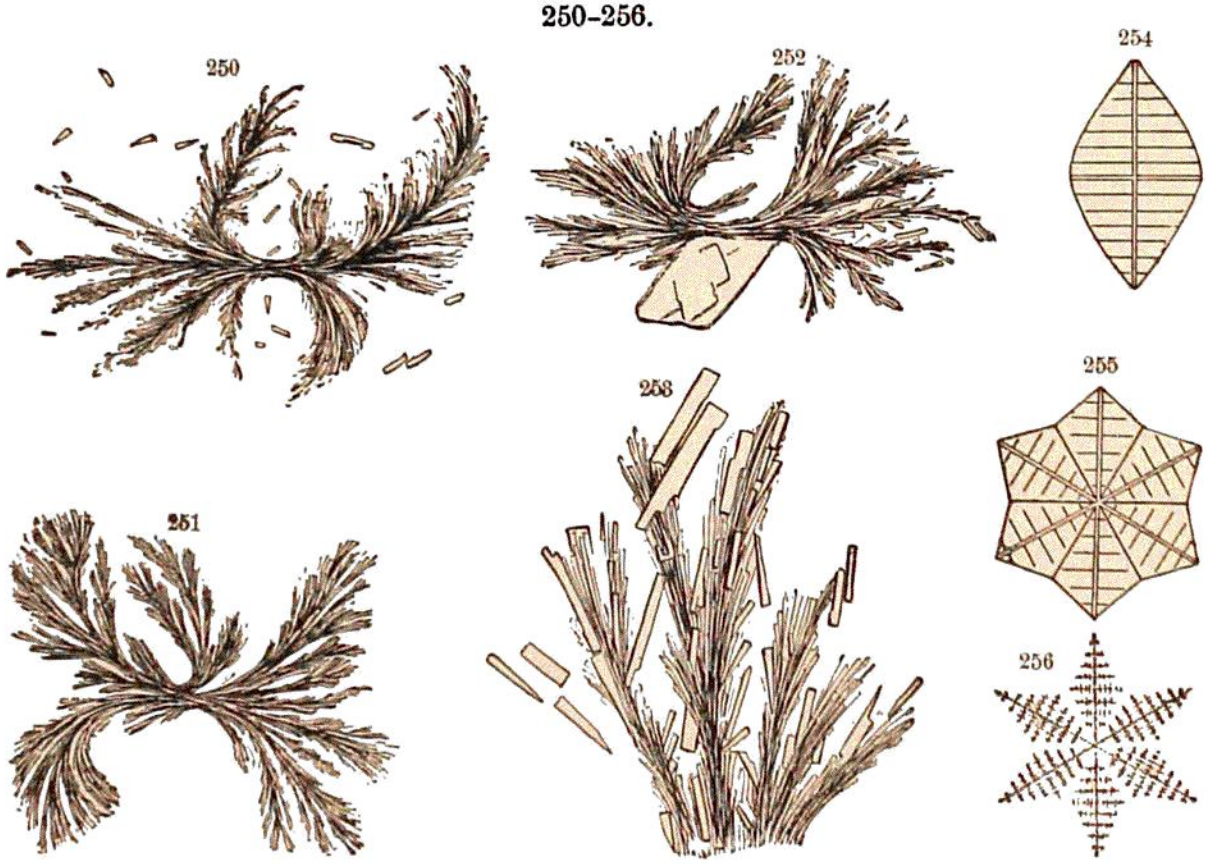
field of *aa* is usually 20 to 30 feet higher in level than that of *pahoehoe*. The breaking up is produced while the stream is slowly moving. Some cause, acting beneath, half chills the mass, and the lava, thus rendered brittle, is readily broken during the movement. The only cause of such cooling appears to be the vaporizing of subterranean waters flowed over by the hot lava-stream.

All lavas crust over readily, and then are slow in further consolidation, owing to the rock being a very poor conductor of heat.

The texture depends on rate of cooling, — the most rapid rate producing glass, — glassy crusts in the case of basaltic lavas, and massive glass in trachytic regions. Ordinary cooling ending in an indistinct or fine crystalline texture; and from this, there may be all grades *in the same mass* or thick stream, up to a true granite-like structure, as shown by Judd (1874), Hague and Iddings (1885), and as indicated by the author in 1849. Judd establishes, through facts from the Western Isles of Scotland, that in a single area a volcanic rock may vary in texture from a glassy lava to a rock of granitoid structure, both among basaltic and feldspathic lavas.

250–256.



Figs. 250–253, Feathery forms of pyroxene and feldspar; Figs. 254–256, Microlites — all of Mount Loa lavas. E. S. Dana, '88.

Through some method of change, perhaps an alternation of melting and cooling, the fine basalt of Mount Loa and Kilauea often has the pyroxene and feldspar in feathery tufts, like common forms of frost on windows. (Figs. 250–256.) "The feldspar needles lie parallel with the pyroxene