Proceedings of the Iowa Academy of Science

Volume 18 | Annual Issue Article 20

1911

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VOLCANIC PHENOMENA OF COON BUTTE REGION, ARIZONA.

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(Abstract.)

It will be recalled that Coon Butte is a low eminence, with a shallow depression in the summit about half a mile across, that has become widely known on account of the supposition that this crater-like basin was formed by a huge meteor striking the earth at this point and throwing up the low wall all around. Contrary to the recently expressed views regarding the origin of this remarkable crater the most critical evidences seem to indicate that this feature of the local landscape is only one of the many manifestations of the explosive type of vulcanism so prevalent throughout this region.

There are in Arizona and New Mexico myriads of volcanic cones. Many of them are symmetrical cinder-cones; some are low lava-cones; some are cinder-cones with breached crater rims from which basalt-flows extend for distances of several miles, some are the centers from which the country about has been flooded with lava. A number of these volcanic vents display abundant evidences of dry explosive action. To one of these special attention is called for the reason that it is similar in every respect to the Coon Butte, except that from the bottom of the crater there rises two small ash-cones about 300 feet in height. This locality is locally known as the Crater Salt lake; and is in the western part of Socorro county, in New Mexico. The floor of the crater is flat and is now occupied by a shallow saline lake, whence the name.

The important feature of the Crater Salt lake is that there is displayed a stage in its formation which is entirely wanting in the case of Coon Butte. Conclusive testimony is here furnished that the craters in the plains are the result of the explosive action of local vulcanism. If they were located anywhere else but in an arid region the craters would be filled with water, as in the cases of the crater lakes of Italy. Coon Butte and Crater Salt lake represent the initial stages of volcano-building. and a stage rarely exposed to observation.

The apparently unusual abundance of meteoritic materials for which the Coon Butte region has been so long famous is not an exceptional

phenomenon, but is a characteristic of desert regions generally. On account of the excessive dryness of the atmosphere there is practically no chemical decomposition of the rocks to destroy stony and metallic substances. There is little vegetation in which the larger meteoritic fragments are, after striking the surface of the earth, lost to view. Extensive deflation continually keeps the immediate surface of the ground singularly free of the lighter soil-materials, leaving the pebbles and larger rock-fragments always exposed to sky. The coarser rock-debris is often so plentiful that large areas are sometimes covered by veritable pebble-pavements, or rock-mosaics.

From the desert regions of the globe it is believed will be derived our chief information concerning meteoritic materials and through them will be opened up an entirely new field of geologic inquiry.