their height, the lower portion of each suddenly contracted, shortened and turned forward, and lacking much of reaching the base of the shaft. Bases of all the teeth indistinguishably fused into a shaft which was probably more or less curved. Median longitudinal channel at the base of the shaft probably, but not certainly, present.

DIMENSIONS OF L. FERRIERI

	Mm.
Greatest extent of the crown of hinder tooth	44
Greatest anteroposterior breadth of same crown	17
Thickness of base of same crown	13

The figure of the specimen is two thirds the natural size.

OLIVER P. HAY

COON MOUNTAIN CRATER

CONSIDERABLE interest has been manifested during the past year or two concerning the origin of a remarkable crater-like depression located on the summit of a slight elevation known as Coon Mountain or Coon Butte. It may be found on the plateau region of northern Arizona, but slightly removed from a locality of recent extreme volcanic activity where over a hundred volcanic cones may be seen, many of which still possess well-defined craters. Interest in this phenomenon has been revived as the result of the adoption and elaboration on the part of a few writers of the local common talk of the inhabitants of the immediate neighborhood of the mountain. Here it is religiously believed that an immense meteor nearly one half mile in diameter buried itself in the earth, forming a deep cavity with an upturned edge or rim very much as when a bullet is allowed to fall into soft mud. Some of the reasons cited for this belief are: (1) The circular shape of the depression, (2) the large amount of meteoric iron fragments[1] (over ten tons) which has been collected in the immediate vicinity, and, (3) the entire absence of all kinds of volcanic ejectamenta, or even heated or metamorphosed material, within the area covered by a radius of several miles.

During the summer of 1906 the writer, while studying the crater cones and lava flows of the San Francisco Mountain district, incidentally made a visit to this interesting locality and this report is the result of the impressions received at that time.

An admirable description of the elevation has recently been presented to the public through the publications of D. M. Barringer and B. C. Tilghman,[2] as well as the results of the investigations which they made by means of shafts and borings in the bottom of the crater in search of the great meteorite. It is sufficient here to call attention to only a few of the most important facts. The crater is about 3,500 feet in diameter and nearly 600 feet deep. The elevation on which it is located is about 150 feet above the surrounding planes and from a distance presents the appearance of a narrow circular wall with a very jagged summit. The rocks in the immediate vicinity and also forming the walls of the crater, are made up of layers of sandstone of greatly varying composition. The cementing material is calcareous matter which in some places is present in sufficient quantities to classify the rock as a silicious limestone. The whole formation is known as the Aubrey limestone (and sandstone).

The strata is upturned, forming the rim of the crater exactly as one would expect if it had been lifted by some force from below. It has been frequently faulted and displacements of a few feet can readily be seen in several places on the walls of the crater. The most remarkable feature to be observed, however, is the complete absence of any evidence of vulcanism. No lava is found and not the slightest metamorphism of any kind has taken place in the sediments. Further, there is no evidence of solfataric action, or changes of any kind except mechanical erosion, having taken place after the cavity was formed. The nearest lava fields are located nearly fifteen miles distant. These are in the vicinity of San Francisco mountain and are associated with a remarkable crater cone known as Sunset Peak, an elevation made up of fine ash, lapilli, and lava blocks. In the lava blocks are frequently found masses of

[1] Known as the Cañon Diablo meteorites.

[2] "Coon Mountain and its Crater," by D. M. Barringer, and "Coon Butte, Arizona," by B. C. Tilghman, *Proc. Acad. Nat. Sc. of Phil.*, December, 1905.

sandstone mostly changed to quartzite which have become included during the penetration of the sedimentaries by the molten magma. In the minds of the uninitiated this crater cone must have been produced by quite different agencies than were at work on Coon Mountain, whereas probably the difference lies in the degree and not the kind of action. It would seem quite probable that, on the border of a region of such extreme volcanic activity as has given rise to the most lofty mountains in Arizona, there might have been an explosion lacking the energy necessary to bring the igneous mass or even fragments of it to the surface. Further, the recession of the magma, accompanied by whatever portions of the strata had become metamorphosed by contact, would account for the precipitous walls of the crater as well as the absence of fused material. The explosion may have been of rather an incipient nature, throwing comparatively little of the material outside of the crater, although, considering the nature of the material, soft sandstone, whatever blocks had been thrown out could easily have become disintegrated and simply added to the mesa soil already made up of the same material. On the southern slope of the crater there are found quite a number of sandstone blocks. Whether these were actually thrown out of the crater or simply broke off from the crumpled rim and rolled down the slope can not be determined.

It would seem, then, that the phenomenon exhibited here can be satisfactorily explained as having been produced by an explosion followed by an entire lack of volcanic activity, as first explained by G. K. Gilbert, of the United States Geological Survey. The meteorites found here probably had nothing to do with the formation of the depression. The earth either encountered a meteoric swarm or, what is more likely, a large meteor fell to pieces on striking the earth's atmosphere. The latter hypothesis is considered more probable, for the reason that one would expect a swarm to have had the fragments spread out to a greater extent than is evidenced by the rather confined area in which they are found. It is to be concluded, then, that these two striking phenomena are simply coincidences and should not be interpreted as cause and effect.

The endeavor to explain the origin of the crater by some other than volcanic agencies has led some writers to suggest that it may have been produced by solution. According to this hypothesis the depression was caused by the falling in of the top layers of strata forming the roof of a nearly circular cavity which was a portion of an underground water way. This is supposed to have been the cause of the existence of the peculiar circular depression located near Camp Verde known as Montezuma's Well. Water still exists here and the fact that it never becomes stagnant or brackish is well known. This hypothesis can not be applied to Coon Mountain, however, for the reason that it leaves unexplained the most noticeable feature of the phenomenon, namely, the upturned strata which forms the rim. This could have been produced only by means of forces working from below.

F. N. GUILD

UNIVERSITY OF ARIZONA,
January 22, 1907

CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

MONTHLY WEATHER REVIEW

THE articles of most general interest in Nos. 1 and 2, Vol. XXXV., 1907, of the *Monthly Weather Review* are as follows:

"Is not Honesty the wisest Policy?" is the title of a brief note by Professor Cleveland Abbe, in which it is pointed out that the officials and observers of the Weather Bureau are often urged by interested persons not to report tornadoes, or frosts, or droughts, or other meteorological phenomena, because of the injury which may be done by such announcements to local business enterprises and land booms. Professor Abbe rightly puts strong emphasis on the fact that it is a wrong "to mutilate or suppress the record of an observation of a phenomenon of nature" as it is "also wrong to make a bad use of the record."

"The Adirondack Rainfall Summit," by R.