

and acceptance of papers. The privilege of reading before any of the sections will be undoubtedly secured to any author of an accepted paper, his election to membership being almost certain to follow the approval of a paper by the sectional committee.

It will be noted by those interested that the meeting of the Association has been put at a somewhat later date this year than usual, the object being to bring it as nearly as may be just before the opening of the fall terms in colleges and other institutions of learning. This change was made after much consideration of the inconvenience to which reference has been made above, arising out of the fact that the meeting of the Association broke into the annual vacation of many of its members. By putting the date a week later, it is believed that the meeting will be found to come more nearly at the end of the vacation for the great majority of its members and that they will, therefore, find it convenient to be present at its meetings after having enjoyed the rest and recreation for which they have arranged during the summer months, and will be able to proceed directly from the meeting of the Association to begin the work of the year.

The British Association for the Advancement of Science has long been the great scientific event of the year in England; its meetings are generally attended by not only the very ablest and the most distinguished men of science in England, but by all ranks of those engaged in scientific investigation, those engaged in teaching science and many hundreds, if not thousands, of those who have only a general interest in the advancement of science. By reason of this very

general and very united effort on the part of all of these various classes, the British Association for the Advancement of Science has long been a power in Great Britain, and to it may be attributed more than to any other organization the wide interest in and generous support of scientific research which is to be found there in a degree greater than in any other country in the world. The American Association for the Advancement of Science should sustain in this country the same relation to the progress of science as that of the British Association in England, and in a great degree it already does; but it must be admitted by all that it falls short of reaching the high degree of efficiency of which such an organization is capable, and it is to be hoped that this state of affairs may be remedied in the near future by the hearty and earnest coöperation, in the support of the Association, of all classes of men engaged in scientific pursuits or interested in the progress of science.

A ROCK FISSURE.

In the autumn of 1891 the work of the U. S. Geological Survey led me across the Colorado plateau in northern Arizona. Canyon Diablo is a gorge about as broad and deep as the gorge of Niagara, 40 or 50 miles in length, running northward and ending at the Little Colorado River. One day I followed its east wall to the mouth, and then turning westward on the road toward Flagstaff, rode six or eight miles to the McMillan place, where a rude cabin constitutes the headquarters of a sheep ranch. Drinking water for the 'sheep herders' (occidental for shepherds) is obtained from a natural well close by, which

is nothing more nor less than a crack in the rock. The plateau is there constituted of limestone, the Aubrey limestone of the Carboniferous system. The rock is traversed by great faults and flexures, chiefly of

the limestone yields less readily to erosive agents than the soft overlying shale. The crack referred to traverses one of the limestone blocks for a distance of 800 or 1000 feet, and ends abruptly against a fault, as

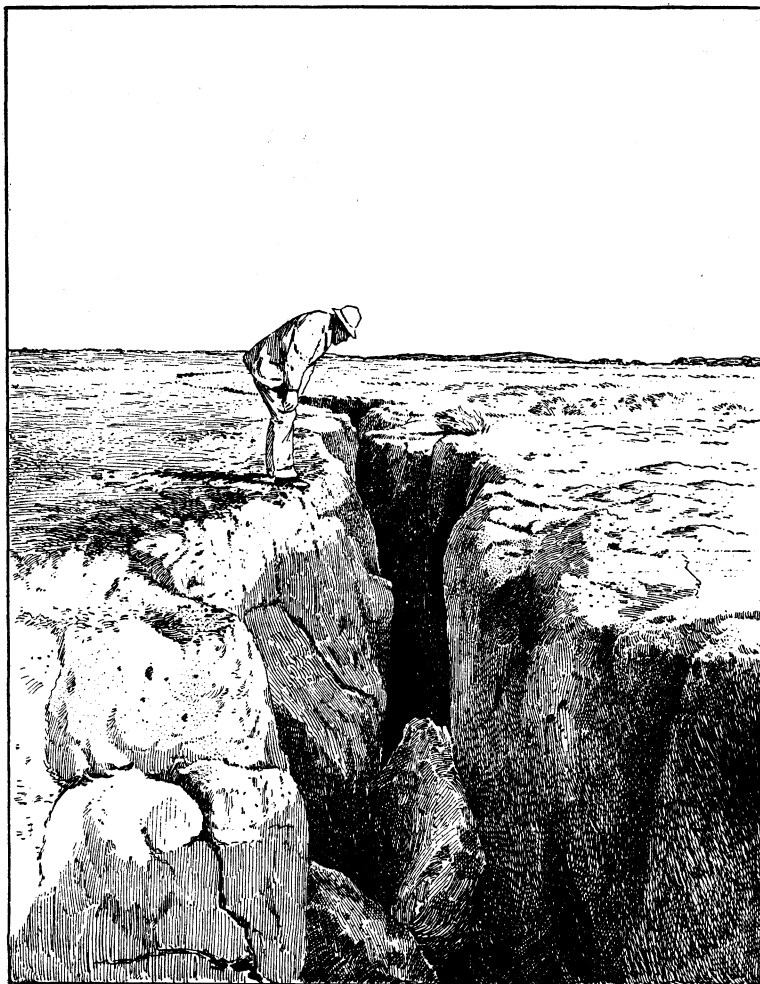


Fig. 1. View of rock fissure, drawn from photograph.

middle Tertiary date, and since these were formed the region has been extensively degraded. In the immediate vicinity of the ranch are several small faults, from 10 to 50 feet in throw, and these are clearly expressed in the topography, not, I think, because they are freshly formed, but because

indicated diagrammatically in figure 2. It is there 6 or 8 feet wide, and it tapers gradually to the other end. In the downward direction it is said to taper also, the width diminishing from 4 or 5 feet to about one foot in 100 feet of descent, at the point where water is drawn. The water, which

is reached at 95 feet from the surface, is probably in motion, as its excellent quality is said not to have been disturbed by the addition of a dozen or so sheep which accidentally fell into the fissure. This last point I could not investigate as the windlass was not in operation at the time of my visit. The occupant of the cabin told me of other cracks of the same character about fifty miles to the northward, and said that one of them was considerably broader and contained cliff houses.

Very little surface water finds its way into the fissure. As shown in the view (Fig. 1) the edge has lost some of its original angularity through weathering, and details of surface which the view does not represent show that waste has been chiefly through solution. The small amount of this waste, and the fact that the fissure is not clogged above the water level by débris, show that it is very young from the geologic point of view, although in years or centuries it may be venerable.

The relation of this deep crevice to a fault and its disassociation from all lines of surface drainage show that it is not a canyon carved by running water, and I see no possibility of avoiding the inference that it is a crack resulting from tension of the rock. Such cracks must be formed at the surface wherever brittle rocks are bent in anticlinal arches, but so far as my reading goes, the

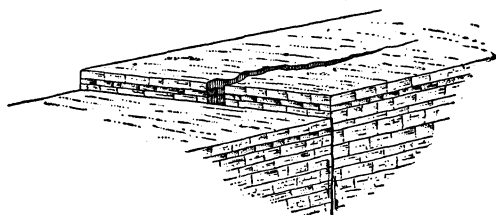


Fig. 2. Diagram showing relation of rock fissure to fault.

record of them is rare. Popular, and for that matter geologic, literature does indeed contain many allusions to fissures that are

assumed to be diastrophic, but such allusions are usually based on misinterpretation, the fissures being really canyons of erosion. Whymper, in his 'Travels amongst the Great Andes' (pp. 108, 219, 220), describes a number of 'earthquake quebradas' which seem to be true fissures, and tradition makes them recent, the date 1868 being assigned to one of them. I am not aware that any have been previously described from North America excepting, on the one hand, cracks in alluvium produced by earthquakes, and, on the other, rock fissures partly or wholly filled by vein matter and afterward denuded.

The reader who wishes to visit the locality should leave the Atlantic and Pacific railway at either Winslow or Canyon Diablo and secure private conveyance.

JULY 18, 1895.

G. K. GILBERT.

THE METRIC SYSTEM IN ENGLAND.

ON the 13th of February last, a select Committee of the House of Commons was appointed 'to inquire whether any and what changes in the present system of Weights and Measures should be adopted.'

There were seventeen members of the committee, including Sir Henry Roscoe, Mr. Justin McCarthy, Sir Albert Rollet, Mr. Charles Fenwick and others, some of whom were known to be in favor of a change, and others equally well known to be opposed to any essential modification of the existing system. The Committee had power to send for Persons, Papers and Records. In all fourteen sessions of the Committee were held, the first being on February 19th and the last on June 27th. During this period many witnesses were examined representing many different interests, including official, commercial, manufacturing, trade, educational and professional. On July 1st the Committee made a Report to the House of Commons, the essential features of which received the