

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

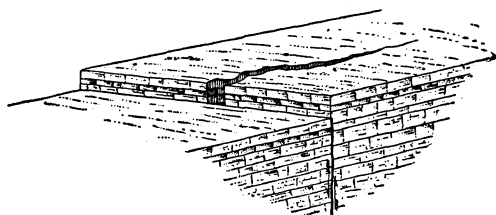


Fig. 2. Diagram showing relation of rock fissure to fault.

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

approval of every member of the Committee but one. Some of the conclusions reached are extremely interesting and important. It was found that "with a single exception, all the witnesses express a strong opinion as to the complicated and unsatisfactory condition of our present weights and measures, and of the distinct and serious drawback to our commerce, especially our foreign trade, which this system entails, differing as it does from the system (metrical) now adopted by every European nation excepting ourselves and Russia, as well as by far the majority of non-European countries with which this kingdom trades. The evidence, however, goes further to show that not only is our foreign trade, in every branch, seriously handicapped, but that the home trade would be benefited if more simple and uniform standards of weights and measures than those now existing were adopted."

On the question of loss of time during the educational period of English due to the complicated and cumbersome system "it was stated that no less than one year's school time would be saved if the metrical system were taught in place of that now in use." Evidence was also produced to show that the change from the present to the metric system could be accomplished without serious opposition or inconvenience.

The Committee finally recommended as follows:

(a) That the metrical system of weights and measures be at once legalized for all purposes.

(b) That after a lapse of two years the metrical system be rendered compulsory by Act of Parliament.

(c) That the metrical system of weights and measures be taught in all public elementary schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present.

A Parliamentary report so positively favorable as this marks an epoch in the history of metrology. Hitherto the well known conservatism of the English has prevented action friendly to the metric system, although many famous Englishmen have been consistent and aggressive advocates of its adoption. The time has come, however, when the most sensitive nerve in the British body politic is touched by this persistent adherence to an unscientific, unpractical and uneconomical system of conducting barter. The manufacturing and commercial interests have learned within the past decade that they are handicapped by this in the markets of the world. When this fact is fully impressed upon the English people there will be prompt and decisive action.

The event ought to be a warning to the United States. It cannot be denied that a decided advantage will accrue to whichever of the two great English-speaking nations shall first put itself in line with the rest of the world in this, one of the greatest economic reforms of the nineteenth century. Up to the present time, we have been, on the whole, in advance of England. We made the system permissive in 1866, and have encouraged its use by fragmentary legislation since that time. But unless we mean to be left behind, we must shortly do something in the way of a definite plan for the complete adoption of the system. The advantages of the metric system should be vigorously exploited and kept continually before the public during the next year or two.

The recent success in England is largely due to the perfect organization and skilful direction of 'The New Decimal Association,' of which Mr. Edward Johnston is the efficient Secretary. This body took the initiative in the presentation of the advantages of the metric system and has carried on an extensive and successful educational campaign.

T. C. M.