

Aar, as it seems to me, very possibly flowed on both sides of the hill between the gorge and the present road. It then deserted the more southern channel, and was checked by some slight disturbance. This caused it to oscillate over the site of the Innertkirchen basin and to work out an open space there, while its waters escaped in a rapid through the barrier and made a gorge; this was afterwards modified by the subglacial (and even postglacial) stream, and the ice, as I have said, possibly may have slightly deepened the basin. This hypothesis, no doubt, is not free from difficulties—these must attend the explanation of every rather exceptional physical feature—but they are far less, it seems to me, than those of ignoring all other evidence and endowing ice with new physical properties.

#### NOTE ON THE FIRST ASCENT OF THE JUNGFRAU.\*

BY SIR MARTIN CONWAY.

THE first ascent of the Jungfrau is admitted to have been made by the brothers Rudolf and Hieronymus Meyer, of Aarau, with two Vallais chamois-hunters, on August 3, 1811. Doubts have been raised as to the route followed by them on that and the two previous days. I proceed to tell their story as interpreted by me.

On August 1, at 5 A.M., they mounted on to the Löttschen Glacier at the head of the Löttschenthal. At 9 o'clock they were on the Löttschenlücke, whence they sent back their three servants. They then proceeded forwards downhill, down the Grosser Aletsch Firn (still called Löttschen Glacier by them) to near its point of junction with the Aletsch Glacier. We may assume that they arrived there about noon, with plenty of daylight before them. They now divided into two parties, and went to look for the Jungfrau. Rudolf and a hunter went S., and climbed some emi-

\* The following are the publications referred to in this article:—

1. *Reise auf den Jungfrau-Gletscher und Ersteigung seines Gipfels. Von Joh. Rudolf und Hieronymus Meyer aus Aarau im Augustmonat 1811 unternommen. Aus den Miscellen für die neueste Weltkunde besonders abgedruckt.*
2. *Reise auf die Eisgebirge des Kantons Bern und Ersteigung ihrer höchsten Gipfel im Sommer 1812. Mit einer Karte der bereiseten Gletscher. Aarau, 1813.* This pamphlet was put together by Zschokke from verbal and written notes given to him by Dr. Rudolf Meyer.
3. *Alpenrosen auf das Jahr 1852.* Von A. E. Fröhlich and others. Aarau und Thun. Article entitled *Erinnerungen an Professor Dr. Rudolf Meyer.*
4. Mr. D. W. Freshfield's notes on the Jungfrau in his contribution to Mr. W. Longman's 'Modern Mountaineering' at the end of vol. viii. of the *Alpine Journal.*
5. 'The Early Ascents of the Jungfrau from the Vallais Side,' by W. A. B. Coolidge, *Alpine Journal*, xvii. pp. 392-397.

nence probably connected with the Dreieckhorn, whence he made out the Jungfrau 'bestimmt.' Hieronymus and the other hunter went N., and climbed a point on the S. ridge of the Trugberg, whence they saw up the Jungfrau Firn, and discovered a direct way to the mountain, leading 'zwischen den hohen wellenförmigen Eishügeln hin.' The parties re-united, and camped below a cliff of rock at the N. angle of junction of the Grosser Aletsch Firn with the Aletsch Glacier. From a comparison of the map (in 2) with the clear statements (in 1, pp. 12, 14), I conclude that the exact position where they built their little hut was on the rocks about one mile S.W. of the point 2967 (Siegfried map), though the situation may have been on the rock 2967 itself.

Next day (August 2) they set off at dawn up the Jungfrau Firn and advanced, in about 5 hrs., a distance of 2 Stunden up it. As they considered the mouth of the Grosser Aletsch Firn to be 1½ Stunden wide, this would bring them to somewhat beyond the point 2998. Then they crossed a series of great crevasses by means of snow-bridges, and so approached the actual mountain; but, a Föhn wind arising, they judged it necessary to retrace their steps. At 2 p.m. they were back at their camp.

The weather remaining fine, they decided to devote the afternoon to a search for a higher sleeping-place; so they set off up another valley, described as 'östlich liegendes, sich ebenfalls von der Jungfrau herabsenkendes Eisthal.' As, by universal consent, there exists some error in the published description, I assume the smallest and briefest—the substitution of 'east' for 'west.' This error is quite the commonest in Alpine literature; instances of it might be quoted by scores from almost any Alpine periodical you like to select. They set off, therefore, up the Kranzberg-Firn (as their dotted route on the map, in 2, distinctly shows), and they mounted along its E. bank to a considerable altitude, where they found a convenient place and spent the night.

Next day (August 3) they again started at daybreak, and completed the ascent of this side-glacier, at the head of which, above a long series of crevasses, is a considerable snow-plateau. The fact that this snow-plateau is clearly marked on their map is a most important argument in favour of their having actually taken this route. They were surprised to find the Roththorn in the way, but they climbed over it, descended on to the Roththal Sattel, and reached the summit of the Jungfrau at 2 p.m. by the S.E. arête. They returned in their tracks to their first gîte and went back next day over the Lötschenlücke.

There is only one difficulty in connection with this interpretation of their account. It is that the position of their first sleeping-place, clearly described on pp. 12 and 14 (of 1), and plainly marked on the map (in 2), is on p. 26 (in 1) applied unmistakably to the second sleeping-place. The words are as follows:—'Jetzt vereinigten uns alle wieder an einer etwas hoch liegenden, aus dem Eismeer hervorragenden Felsklippe an der nördlichen Seite des Gletschers, da wo sich der Lötschengletscher' (*i.e.* Grosser

Aletsch Firn) 'mit dem Aletschgletscher vereinigt' (No. 1, p. 12). 'Wo wir unser Nachtlager über dem Vereinigungspunkt des Aletsch- und Lötschengletschers nahmen' (No. 1, p. 14). 'Bei dem Felsen, wo wir unser zweites Nachtquartier aufgeschlagen hatten, eine halbe Stunde südlich von dem Mönch' (*i.e.* from the S. foot of the Trugberg—point 2856—which they speak of throughout as part of the Mönch), 'am Ausgehenden des Jungfrau-gletschers' (No. 1, p. 26). It is probable, I think, that *zweites*, in the third quotation, is a misprint for *erstes*, for all three descriptions appear to apply to the same site.

Thus, I entirely agree with Mr. Coolidge's conclusions as to the route followed in the ascent of the Jungfrau, but differ from him as to the position of the first bivouac—a matter, as he states, 'of comparatively slight importance.' From the geological observations made by the Meyers and carefully recorded in their paper, any competent geologist who would repeat their expedition would easily lay all doubts at rest.

The route followed by Gottlieb Meyer, when he made the second ascent of the Jungfrau, on September 3 of the following year, 1812, seems quite certain. He slept on the Grüneck, and ascended by what is now the ordinary route from the Concordia, thus approaching from the E. the Roththal Sattel, on which he joined his kinsman's route, and so gained the summit by the S.E. arête.

#### THE ACCIDENT ON MOUNT ARARAT.

THE following narrative is furnished us by Professor H. Fielding Reid, of the Johns Hopkins University, Baltimore, a member of the recent Geological Congress held at St. Petersburg:—

'One of the most attractive excursions offered to the members of the seventh Geological Congress (which met last summer at St. Petersburg) was that to Mount Ararat. Nearly thirty persons made this excursion. They drove in carriages from Erivan to Aralikh, and went on horseback from there to Sardar-Boulag, a Cossack camp near the saddle between the Great and Little Ararats, at an altitude of 7,500 feet. The main party spent the night of September 29 here, ascending Little Ararat the next day; but two subsidiary parties were made up to attempt the ascent of Great Ararat. The first of these parties was organised by Mr. Emanuel Stoeber, of Wladikavkaz, and consisted of himself, Dr. M. Ebeling, of Berlin, and Dr. A. Oswald, of Basle. They left Sardar-Boulag about 2 P.M., September 29, accompanied by a number of Cossacks, and slept out at an altitude probably between 10,500 and 11,000 feet. They all started off together the next morning, but Stoeber, desiring to go faster than the others, pushed ahead and was not seen again by them. The second party also divided up, Dr. Carlo Riva, of Milan, and the writer ascending along a ridge of rocks on the eastern side of the mountain. About 12 o'clock we saw Stoeber on the snow a little above these rocks, at an altitude probably a