may bring us the great joy and happiness of Peace with Honour, and the vindication of Right and Justice, without which let there be no peace.

I am,

Very faithfully yours,

ARTHUR O. WHEELER,

Director.

THE EXOTIC GRANITES OF THE HABKERNTHAL.

DURING a long stay at Berne and at Spiez, on the Lake of Thun, I had a good opportunity for examining the exotic granites and collecting specimens in the Habkernthal. I also visited the bunte nagelfluh on the north side of the Lake of Thun.

The bed of the Rombach, a stream flowing down the Habkern Valley to the Lake of Thun, is full of blocks of these granites. Higher up the valley, larger blocks are imbedded in the shales of the Flysch. These granites vary in colour and structure; most of them have two felspars, pink and white; some are porphyritic, others have veins of epidote and pegmatite and are not found as rocks in any part of the Alps. Some few blocks have been found at Rueschegg, near Schwarzenburg, and near the baths of Gurnigel. Of these I saw specimens in the museum at Berne. The bunte nagelfluh is intimately connected with and evidently partially derived from these granites. I noticed some pebbles in this formation very like the Habkern granites.

Swiss geologists have two theories explaining the origin of these formations. One theory is that they came from the Schwarzwald, as some of the porphyritic granites of that range resemble those of the Habkernthal.

But it is difficult to understand how these blocks and pebbles could have travelled south.

The other theory, more generally accepted, is that these granites formed part of a mountain range existing in the south-east of Switzerland, before the grand upheaval of the present Alps in Miocene times.

In confirmation of this theory, I may mention that I noticed that the pebbles at Gunten, on the Lake of Thun, were larger than those at Belpberg near Berne, the smaller pebbles having been carried further to the north by the action of water than the larger ones. I also saw, with the coloured granites in the Habkernthal, blocks of a white granite, very like the protogine from the Aar glacier. Protogine does not occur in the Schwarzwald.

The Habkern blocks were mentioned by Murchison in 1849, also by Ball, 'Central Alps,' p. 60 (second edition). They are fully discussed in Professor Bonney's 'Building of the Alps,' pp. 48–52, and in his paper published in the *Quart. Jour. Geol. Soc.* 1902,

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pp. 194–198, in both of which he discusses the remarkable breccias in the Flysch in the Grande Eau valley above Le Sepey. They both are mentioned, with more references to Continental authors in Lubbock's 'Scenery of Switzerland'—see table of contents.

The difficulty in appealing to overthrust masses (as Professor Bonney points out) for the sources of these blocks is that they are in the Flysch, which in this part of the Alps is Eocene, and *older* than the great periods of mountain-making, with which the 'thrusts' are connected. It is known that there were mountains on the site of the Alps prior to the Flysch, but of these we know very little—see Professor Bonney's 'Building of the Alps' for some remarks on this subject.

In conclusion, geologists will find the Habkernthal well worth a visit, independently of its granites, and can eat, drink, and rest at a comfortable little inn at Habkern, three hours' walk from Interlaken,

T. Howse, F.L.S.

OLD FÜHRERBÜCHER.

Mr. Henry F. Montagnier has kindly presented to the Club the Führerbücher, dating back into the late 'fifties, of the well-known Zermatt guides Johann, Matthäus and Stephan zum Taugwald. These guides were the immediate successors of Brantschen and Damatter, mentioned by Forbes, and took part in the early ascents of Monte Rosa and other peaks.

The book of Johann is of great value and contains many entries of historical interest. It may be said to be the most important document of the kind acquired by the Club since the Paccard note-book presented by the late C. E. Mathews.

The Club has also been able to acquire the Führerbuch of Franz Weisshorn Biener, who as he lay dying last September expressed the wish that his book should be offered to the Club of which so many of his employers had been or were members.

The Club is again indebted to Mr. Montagnier for his good offices in this matter.

It is intended to continue the 'Historical Document' series in an early number by an analysis of these books, and it is expected that further light may be thrown on the point, never very satisfactorily settled, how far the parties who made the attempts from the Silbersattel before the Höchste Spitze was attained really got.

It is also hoped to put together from Biener's Buch an account of the life of a guide who, if not of front rank, was a staunch and valiant mountaineer. The best thanks of the Alpine Club are due to Mr. Montagnier for his care for the interests of the Club and for the presentation of books of unique interest.

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