

and northwards to the Lunker-la, generally called the Marsemik pass. On the western route Dr. Bellew met similar rocks north of the Kardung pass at the village Kardung, and traced them northwards across the Shayok, up the Nubra valley to near the foot of the Sussir pass.

Intimately connected with the metamorphic schistose series just noticed, is a greenish chloritic, partly thin-bedded, partly more massive rock, which very closely resembles a similar rock found about Srinaggar. Only in this case certain layers, or portions of it, become often distinctly or even coarsely crystalline, sometimes containing bronzite sparingly disseminated, and thus passing into diallage. This chloritic rock forms the greater part of the left side of the Changchenmo valley, and also occurs south of the Sussir pass. I think we have to look upon this whole series of schistose and chloritic rocks as the representatives of the *silurian formation*.

After crossing the Changchenmo valley to Gogra, we met with a different set of rocks. They are dark, often quite black, shales alternating with sandstones. Many beds of the latter have a comparatively recent aspect, and are rather micaceous, without the least metamorphic structure, while the shales accompanying them very often exhibit a silky, sub-metamorphic appearance on the plains of facture. I observed occasionally traces of *fucoids* and other plants in these shales, but no animal fossils. On the Changchenmo route these shaly rocks forms the ridge of the Chan-lang pass, as well as the whole of the western portion of the Lingzi-thang; and they are met again after crossing these high plains and entering the Karakash valley, as far as Shinglung (or Dungalung). On the Korakorum route Dr. Bellew brought specimens of similar rocks from the Korakorum range itself. There can be but little doubt,—judging from similar rocks which I saw in Spiti, and from their geological relations to certain limestones, of which I shall presently speak—that we have in the shaly series the *carboniferous formation* represented.

In many localities along the right bank of the Changchenmo river, then at the hot springs north of Gogra, and on the southern side of the Changlang pass, we find the carboniferous beds overlain by *triassic limestone* which often has the characteristic semi-oolitic structure of the Krol-limestones south of Simla. At Gogra and several other places dolomitic beds occur; and in these, sections of *Dicerocardium Himalayaense* are not uncommon. In other places beds are met with full of *crinoid* stems. North of the Lingzi-thang plain—to the west of which the hills are mostly composed of the same triassic limestone—a red brecciated, calcareous conglomerate is seen at the foot of the Compass-lá, but this conglomerate gradually passes into the ordinary grey limestone, which forms the ridge, and undoubtedly belongs to the same group of triassic rocks. The last place where I saw the triassic limestone was just before reaching the camping ground Shinglung; here it is an almost white or light grey compact rock, containing very perfect sections of *Megalodon triqueter*, the most characteristic triassic fossil. On Mr. Forsyth's route Dr. Bellew met with similar triassic limestones on the northern declivities of the Sussir pass, and also on the Korakorum pass overlying the carboniferous shales and sandstones previously noticed. On the Korakorum the triassic limestone contains spherical corals very similar to those which had been a few years ago described by Professor Ritter von Reuss from the Hallstadt beds in the Alps, and which are here known to travellers as Korakorum stones. A description of these very remarkable corals will be given subsequently.

Returning to our Lingzi-thang route, we leave, as already mentioned, the last traces of triassic limestone at Shinglung, in the upper Karakash valley. Here the limestone rests upon some shales, and then follow immediately the same chloritic rock which we noticed on the Lunker-la, alternating with quartzose schists, both of which must be regarded as of upper palæozoic age.

At Kizil-jilga regular sub-metamorphic slates appear, alternating with a red conglomerate and red sandstones, and further on dark slate is the only rock to be seen the whole way down the Karakash, until the river assumes a north-easterly course, some fourteen miles west of the Karatagh pass. From here my route lay in a north-westerly direction towards Aktagh, and the same slaty rock was met with along the whole of this route up to the last mentioned place. Dr. Bellew also traced these slates from the northern side of the Korakorum to Aktagh. They