TOPOGRAPHIC FEATURES OF THE NANKOU RANGE IN THE VICINITY OF NANKOU PASS

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It is my privilege to discuss the subject "Topographic Features of The Nankou Range in the Vicinity of Nankou Pass" with you, but I feel that I am little qualified to bring the following notes before you. The district surveyed by me is rather limited, still the time spent on it was not sufficient. Moreover, my experience in geological survey is still very limited, so I am really very loath to speak this subject. However, I will briefly present the result of my work in the field for your criticism.

For the sake of brevity I have omitted the discussion of the course responsible for these topographic features and their relation to geology, and treat only the features of topography.

The strike of Nankou range in general is E.-W. The great valley from Nankou to Chu Yung Pass, where the Peking-Suiyun railroad crosses is almost from southeast to northwest. This valley is occupied by the Nankou river which flows from Pa Ta Ling, (八達嶺) and of course is the chief agent in the formation of this valley. Besides this, there are many similar valleys across this mountain range. For instance, west of Nankou Pass, there is another one which is parallel to the valley, in which there is a small waterfall known as Dragon Pond or Lung T'an (龍潭).

The rocks which form the Nankou range are, for the most part, the siliceous Nankou limestones. They have been somewhat metamorphosed and associated with them are beds of quartzite. Many igneous intrusions and dikes occure in the limestons. The most resistant rocks towards weathering are these metamorphosed sediments and the rather new intruded igneous bodies. Therefore these form the ridges and mountain peaks. From this there result two noticable topographic conditions:—

1. The southern end of Nankou valley is formed by siliceous limestone which dips S. 38°. The upper division of this series was not metamorphosed and in it a large quarry has recently been opened. The lower division was, however, highly metamorphosed and in it many intrusions are found. Thus, the lower division of the siliceous limestone has become very resistant.

Being as yet an youthful river with steep grade, erosion is mainly confined to downward cutting and the rocks do not weather readily. The valley, therefore, remains narrow. So Nankou Pass is narrow while in the northwestern part along the railroad is much wider; this part being called Hua Chü Yuan Tze (滑鋸圓子). The latter is situated not far from the Pass, where the old green schist and the old intrusions are exposed. Because of their less resistant character the rocks have been easily wheathered and eroded and thus the valley become much wider.

Towards the northwest as far as Chu Yun Pass, the valley becomes narrow again due to the reexposure of the siliceous limestone where the railway enters a tunnel. For this reason the Nankou valley is pratically not of uniform width throughout, but is a valley of irregular width due to the fact that the river passes through rocks of different resistance.

2. Many new igneous dikes chiefly red in color are exposed at different parts of Nankou range; these dikes are specially remarkable on the part between Hua Chü Yuan Tze (滑車圓子) and the north of Tun Yuan Station. On the eastern side of the railroad there are six parallel dikes, striping E.-W. Small valleys cut across these dikes to form steep walls. Thus, there are produced many small waterfalls, some of them being about 15 m. in height. But due to the dry weathering and small watersupply they cannot be utilized for producing powers except the Dragon Pond, which has already been referred to, is known to be a famous waterfall because of the greater valley and the greater watersupply.

In Nankou range there is still another wonderful topographic feature, i.e., on the north of the southern end of the Nankou Pass the siliceous limestone shows a remarkable thrust fault. So on the southern side the Nankou limestone has a normal dip of 38° S. While on the north where it is more metamorphosed and broken into greater boulders, its dip is not easily observed through it appears to be horizontal. This part of the mountain is specially called Dih Chua (疊翠) Mountain. This makes the highest part of the Nankou range more than 1,100 m. above sea level.

It is true that this part of the range is rocky and high as it is well shown by the name, Dih Chua, but mountains of the same formation appear lower at Tun Yuan, and still lower beyong Tun Yuan. This is partly

due to the rising of valley bottom. It is very peculiar that on the mountain top, there grows very little grass, so that the dark rocks are everywhere exposed, while on the lower part of the mountain there is luxurious vegetation. Evidently the clear grass-line is due to the different nature of siliceous limestone and schists and igneous rocks. The latter groups suit the vegetation better.

Now there is one more general topographic feature which deserves mention. Between the mouth of the Pass and the Nankou Station there are two or three small hills with flat summits rising to an accordant level. Apparently they represent a younger peneplane than that which cuts the higher summit of the Nankou range. The possibility of this lower peneplane being a down faulted or down warped portion of the higher peneplane not be overburden. The present erosion level has again cut below this surface. Therefore there are altogether two peneplanes in the Nankou region, one is the old Nankou peneplane and the other is the younger peneplane shown by these small hills. The action of those rivers are just working a third one.