NOTES ON SOILS AND HUMAN GEOGRAPHY IN CHINA

by

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Introduction

I am asked to prepare a paper on a very large subject. The hearers will realize at once that any such short treatment can only cover a bare outline of the subject and I shall have to ask them to be content with such an outline until we are able to publish a detailed work on the soils of China. Professor Shaw's pamphlet entitled, "The Soils of China" (12), covers only the eastern part of the country and does not cover any of China's great northwestern, western or southwestern provinces. It is a privilege to be able to contribute additional material to Shaw's pioneer work. To date the writer has visited fourteen of the twenty-eight provinces of greater China (which do not include outer Tibet and outer Mongolia). He has penetrated as far west as Kokonor Lake and the great bend of the Yellow River, and as far north as the edge of the Gobi desert in Inner Mongolia, 275 miles northwest of Kalgan. Southward his travels have carried him to Nanking, Shanghai, Hangchow, and central Kiangsu Province. It is hoped to visit the remaining important regions during the coming year (1934-1935).

In addition to notes and samples gathered on these journeys the writer has had access to several hundred samples of soils collected by various members of the Soil Survey of China including those of Pendleton, formerly Chief Soil Technologist, and by the members of the Agricultural Economics Department of Nanking University, under the direction of Dr. J. L. Buck. The last mentioned samples are chiefly valuable in that they give a general idea of soil conditions over a very widespread area of China proper, and especially of those parts which we ourselves have not yet visited. The accompanying soil map of China represents the approximate geographic distribution of the major soil groups as we have so far recognized them. It is certain that many changes will be made in this map before it is ready for final publication, but it is presented at this time to show the present state of our information. In several places on the map we have indicated our lack of knowledge by not drawing definite boundary lines.

Soils in China, except those of the grasslands of Mongolia and Tibet, some of the forest lands of Manchuria and perhaps part of the mountainous regions of the south, have been so altered by the constant activity of man over a period of thousands of years, that such a thing as "virgin" soil is practically unknown. In studying the soils of China we must take Nikiforoff's viewpoint and consider man as one of the potent factors in the natural environment of the soil. In many places it is possible to trace two or three superimposed soils, showing no evidence of man's activity. The writer was able to distinguish "ABC" horizons in soil exposed on the side of a military trench dug in the earth embankment of a city wall in Kiangsu Province. This earth embankment was built three hundred years ago.

CLIMATE

China as a whole is more or less affected by the monsoon type of climate with prevailing dry, northwest winds during the autumn and early spring months and by prevailing east winds during spring and summer. The summer monsoon brings the rain upon which the farmers depend for their crops. West central and southwestern China have climatic conditions brought about by the influence of high ranges and great distance from the sea. In these regions, therefore, do not have a monsoonal climate. In general north China has a region of hot moist summers and cold winters. Precipitation rapidly falls off as the Gobi desert in the northwest and the desert rainfall occurs in the mountainous areas of southeastern China. Rainfall is also high in northern Manchuria and northern Mongolia, especially in the mountainous areas. The cool climate of these regions increases the effectiveness of the precipitation. South China as a whole has hot, humid spring and summer weather with cool, dry autumns and winters. The heaviest rainfall occurs in the mountains of the southeast.

VEGETATION

The most experienced and widely traveled of the botanists and plant ecologists are not at a loss to describe the original conditions of vegetative cover in China and no clear record in the history so far as I know which gives conclusive evidence of the extent and distribution of former forests and grasslands. Some historians claim that all great northwestern loessial region was once covered by a dense forest. This theory is based on records of heavy forests which covered certain parts of Shensi, Shansi and Kansu. It is certainly true that dense forests did cover certain portions of this area but the writer very seriously doubts if the entire region was ever completely forested within historic times. The loess of northwest China is universally calcareous, much of it having as high as nineteen per cent calcium carbonate. It seems most certain that there has been a real forest in this region, much of this land having been leached from the soil. It is possible that the surface soils are continually leached from the subsoil.