CHAPTER I
VALLEYS

VALLEYS AND MANKIND

During the long ages of the past the land surface of the earth has been worked upon by air and frost, furrowed by streams, and wrinkled by the mountain-making forces. For ages, of whose great length we have no conception, the rains have fallen upon the land, collected into brooks, joined into rivers, and flowed to the sea. In so doing they have slowly carved the valleys in which they now flow. Some valleys are narrow and deep with steep sides. Others are broad and open. From the earliest times men have chosen to live in the broad, open valleys because life in them is easier than life on the hills or among the mountains or on the plateaus.

VALLEYS OF THE OLD WORLD

It is a notable fact in history that most of the rich and powerful nations of the ancient world grew up in the valleys of the great rivers, particularly in those which had fertile flood plains—in the valleys of the Nile, of the Tigris-Euphrates, of the Indus and the Ganges, and on the rich alluvial plains of China. The rivers and valleys of Europe were for centuries the main routes along which trade and travel moved, and at favorable places the principal centers of population have grown up. The richest and most cultured part of Italy is the flood plain of the Po, known as the Plain of Lombardy. The larger part of the people of Austria-Hungary live in the broad basin drained by the Danube and its branches. For 2000 years the Rhine has been the great natural highway of western Europe. In the rugged plateau of Spain the broader valleys are almost the only cultivated and populous parts; and the valleys of the Rhine and the Garonne, of the Loire and the Seine, are the most thickly peopled regions of France.
VALLEYS

VALLEYS IN AMERICAN HISTORY

In America the rivers and their valleys played an important part in the exploration and settlement of the continent. The vast area of New France, reaching from the mouth of the St. Lawrence to the Mississippi and down that river to its mouth, was held by the French for more than 150 years through their control of the rivers and of the Great Lakes. The English settlements along the Atlantic grew inland from the coast as settlers worked their way up the New England rivers, the Hudson, the Delaware, the Susquehanna, the Potomac, the James and the rivers of the South. The great "westward movement" of settlers over the Appalachians and on into the Mississippi Valley, was a movement up the valleys of the east-flowing rivers and down those that led westward. The Mohawk Valley in New York, along which a portion of the Erie Canal was built, is known as the "Eastern Gateway of the United States" and the river gap at Pittsburgh at the head of the Ohio as the "Gateway to the West."

THE HISTORIC FOX RIVER VALLEY

Among American rivers it is true that the Fox ranks only as a small river and its valley as a small valley, yet for more than 200 years this river and valley occupied one of the commanding positions of the Northwest; the Fox will always hold a place in history far out of proportion to its size. But this is not the main reason why the Fox River Valley is an ideal geographical "type study." It is because in it and in its history is found much that is typical or illustrative of valleys in general. And, as has already been pointed out, valleys have ever been the chief theatres of man's greatest achievements.

It is a principle of geography that back of every feature of the earth's surface,—stream, mountain, or plain,—lie the causes which produced it; and furthermore that every mountain and valley, every stream and waterfall, in the inhabited parts of the world have had some influence, great or small, in shaping human history.

VALLEYS DUE TO EROSION

Most valleys are due mainly to the work of streams which gradually wear channels for themselves in the surface of the earth. Rivers erode valleys in the hardest rocks, but they erode more freely and more rapidly in the softer ones; ordinarily they choose
the path of least resistance. If the rocks over which the river flows are of different degrees of hardness, rapids and falls will occur here and there where the more resistant rocks are encountered. If the gradient, or slope, of the river channel is steep, the stream is capable of eroding rather rapidly. If, on the contrary, the slope is gentle, the stream flows slowly and erodes slowly; possibly it may not erode at all, but may, on the contrary, deposit some of the silt which it carries and thus fill up its channel, as the lower Nile, the lower Mississippi and many other rivers are doing. Naturally a stream of large volume has greater power than a small stream. These factors—the hardness of the bed rock, the swiftness and the volume of the stream—affect the rate at which the stream works and hence the rate at which it erodes its valley.

But even the most vigorous stream does not enlarge its valley very much in a man's life time, and the great valleys of the earth have required at least hundreds of thousands of years for their making. During this long time many things have had opportunity to happen to the stream, and these might cause its work either to be retarded or to be intensified; the stream may even be turned out of its accustomed channel; or, in rare instances, caused to reverse the direction of its flow. In Wisconsin the cause which has most commonly interfered with the rivers has been the deposits left by glaciers during the Ice Age. Glaciers have played a large part in the geological history of the Fox River Valley, as they have in that of most of the rivers of the state.
RELIEF MAP OF FOX-WINNEBAGO VALLEY AND THE ADJACENT COUNTRY
Photographed from Relief Model of Wisconsin.