

INTRODUCTION

“The Point” refers to the location where the Monongahela River and the Allegheny River merge to form the Ohio River in the area that is now downtown Pittsburgh. With the coming of European settlers in the mid 1700s, The Point became a strategic location in protecting the frontier, first for the French with Fort Duquesne and later for the British with Fort Mercer and Fort Pitt. During the 1800s and early 1900s, the Point area became an industrial complex and the center of the American steel industry. Today, the Point is the focus of the transition of Pittsburgh from an industrial giant to that of a financial and cultural center. We can now walk the grassy expanse of Point State park across the old foundations of Fort Duquesne and Fort Pitt and reflect on how the Point has changed in the past 250 years. This site is designed to provide an overview of the geology of the Point and Three-Rivers area and to examine the natural and anthropogenic changes that have resulted in the area we see today. The site will change as new material is added.

THE GEOLOGY OF THE POINT

George Washington wrote in his Journal (1754):

“As I got down before the Canoe, I spent some Time in viewing the Rivers, and the Land in the Fork; which I think extremely well situated for a Fort, as it has the absolute Command of both Rivers. The Land at the Point is 20 to 25 Feet above the common surface of the Water; and a considerable Bottom of flat, well timbered Land all around it, very convenient for Building: The Rivers are each a Quarter of a Mile, or more across, and run here at very near right Angles: Aligany N.E. and Monongahela S.E. The former of these two is very rapid and swift running Water; The other deep and still, without any perceptible Fall.”

The Point is located at the confluence of two major Rivers, the Allegheny, which drains much of northwestern Pennsylvania, and the Monongahela which drains much of southwestern Pennsylvania and northern West Virginia. These two major rivers meet to form the Ohio River, which then flows, first northwestward, then southwestward toward the Mississippi River. However, as pointed out by Leverett (1934), Wagner and others (1970), and Harper (1997, <http://www.dcnr.state.pa.us/topogeo/pub/v28n3-4.pdf>), the configuration of the rivers has not always been as we see it today (Figure 1). The Allegheny River has changed markedly since the period of continental glaciation that covered much of northern North America (Figure 2) (http://www.watershedatlas.org/watershed/fs_create.html). Similarly, the Monongahela River has changed its course many times over the history of the river. To view a map of the ancient courses of the river see http://www.watershedatlas.org/watershed/fs_meander.html.

Today, in Pittsburgh, the rivers flow over an accumulation of glacial sediments (sand and gravel) that were deposited during the last Ice Age when glaciers advanced as far south as Slippery Rock, PA (Figure 1). During that time, glacial meltwater significantly added to the volume of water flowing in the Allegheny river. The river valleys were consequently widened and their floors covered with a thick blanket of debris that had been washed out of the ice. Since that time, the rivers have deposited a layer of fluvial (river derived) sediments as floodplain deposits (Figure 3).

These deposits make up downtown Pittsburgh, the South Side, and much of the North Side. Beneath the layers of glacial and fluvial sediment is Pennsylvanian age (~280 – 300 million year old) bedrock consisting of shale, sandstone, limestone, and coal that were originally deposited in ancient coal swamps, freshwater lakes, and occasional marine (ocean) transgressions. The Point area is underlain by the Conemaugh Group or 'the upper barren measures' (referring to the general lack of minable coals in the unit). To the east and south, the higher elevations (generally above 900') are underlain by the Monongahela Group or 'the upper productive measures' (referring to the productive Pittsburgh Coal horizon that separates the two groups).