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FOUR-BAR COUPLER-POINT CURVES

6-1 THE FOUR-BAR LINKAGE

Linkwork, in its early applications, consisted mainly of revolute-connected members and was widely used for converting the continuous rotation of a water wheel into a reciprocating motion suited to piston pumps (Fig. 6-1). The piston-cylinder combination at the end of the line represents a prismatic pair, of course, but ahead of this there are only the revolute connections generally associated with linkwork. Agricola's arrangements show wheel and pump—power source and point of work—fairly close together. Such compactness did not always prevail; linkworks of magnificent proportions were also part of the past. A linkwork is a means of power transmission as well as being a motion transformer. Before the introduction of rope transmissions and the now universal electric wire, linkwork was employed for long-distance transmission of power. Gigantic linkages, principally for mine pumping operations, connected water wheels at the riverbank to pumps high up on the hillside. One such installation (1713) in Germany was 3 km long.

Such linkages consisted in the main of what we call four-bar linkages, i.e., planar four-revolute mechanisms, and terminated in a slider-crank mechanism with a prismatic pair.

