

subsequent technologies, laws, and institutions such that the latter all tend to depend on the continued existence of the former. Thus, owing to the accompanying evolution of supporting custom, entrenched interest, and various sunk costs, it is often difficult to achieve radical design alterations once an initial decision has been implemented. A further factor reducing the flexibility of technologies is that they exhibit some of the pure physical recalcitrance that comes with material embodiment. Hence, both technologies and other social structures, once they have come into existence, tend to endure. However, technologies exhibit a remaining characteristic that tends to distinguish them from other social structures and to increase their relative political salience: *polypotency*.

POLYPOTENCY

Technologies function as social structures, but often independently of their (nominally) intended purposes. This is one of the phenomena that the conventional view of technology obscures. The same obfuscation is reflected in studies that profess a broad interest in the political effects of technology but that discuss only technologies designed explicitly to function politically (such as telecommunications, military and police technologies, voting machines, or computer databases). Such technologies indeed function politically, but everyone knows that. That is these technologies' announced purpose. Harder to grasp is the truth that all technologies are associated with manifold latent social effects and meanings, and that it is largely in virtue of these that technologies come to function as social structures. In other words, technologies exhibit superfluous efficacy or "polypotency" in their functions, effects, and meanings. (The word *polypotency*, meaning "potent in many ways," is introduced here for want of a better existing term. The unfamiliarity wears off quickly if one contrasts it with omnipotence, meaning, literally, "potent in all ways.")

For example, when a man uses an ordinary hammer to pound nails, he also learns about the texture and structural properties of materials, he exercises and develops his muscles, he improves his hand-eye coordination, and he generates

noise, all while stressing and wearing the hammer itself. As his competence at hammering grows, he feels his self-respect affirmed and approved. At another level, his activity resonates with half-conscious memories of primeval myths about Vulcan and Thor. He is also reminded of the blacksmith and the mythology of the American frontier. He thinks of a judge's gavel, the hammer as a symbol of justice, and a song popularized by the folk singing trio Peter, Paul, and Mary.

Where did the hammer come from? Somebody chopped down a tree and fashioned the handle. Others located and extracted iron ore. Some of that ore was refashioned into a hammer head. If a man touches his tongue to the hammer, with the taste of oxidized iron he senses fleetingly a former age when once-independent craftsmen and farmers first found themselves working under strict supervision in a factory. When he was a child, an uncle first taught him to use a hammer. Now when he hefts a hammer, he feels embedded in a historical relationship with this and other hammers and with the development of the concept of hammers and technology in general.

The hammer's immediate social context of use can vary. The man may work alone, on a project with others, or in a room where each person pursues a different project. He may or may not choose his task; he may or may not earn a wage. Depending on the precise social context of its use, the hammer means different things to him, he sees it differently, and it helps disclose the world to him in different ways. Likewise, his style of using the hammer discloses to others much about his character, competence, and mood.

The hammer differs from a partially automated assembly line in that the latter requires and helps coordinate the simultaneous efforts of many workers. But a hammer also establishes certain limiting possibilities on the social conditions of its use. Hammers have only one handle. They are not designed to permit the type of close collaboration that is possible through computer networks or necessary when using a long, two-handled saw.

The material result of the man's activity is likely to include some bent nails, scrap wood, a hearty appetite, maybe a bruised thumb, a few