Public attention to people who need prostheses and to prostheses themselves always grows during times of war and culminates immediately after the war ends. One obvious reason is the sharp rise in the number of amputees. The other reason is the temporary release and availability of technical and intellectual resources, previously devoted to the development of military technologies. The military researchers and engineers turn to the prosthetists, physical therapists, and medical doctors, and say to them approximately the following: “Tell us what to do and we will make it.” The prosthetists, physical therapists, and medical doctors usually trust the military researchers and engineers, and begin speaking. Since they have too many things to tell about, and since the military researchers and engineers are soon called upon for preparations for newer wars, the dialogue ends quite not long after it begins.

Everyone returns to their duty, and the prosthetists, physical therapists, and medical doctors remain with the feeling that the opportunity for fruitful cooperation came when they were not sufficiently prepared. If their goals and objectives were formulated with greater clarity, they feel something exciting would have been achieved.

As a graduate in mechanics from St. Petersburg (Russia) University, I witnessed and was a participant of several such cycles of temporary mergers of high tech and prosthetics, having sat on both sides of the aisle, both in Russia and in the US. Therefore, I was either in a position to answer the question “what is needed,” or in the position to ask this question to others or to myself. This monograph is a result of my several approximations in an attempt to answer these questions.

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Mark R. Pitkin
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Pitkin, M.R.
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