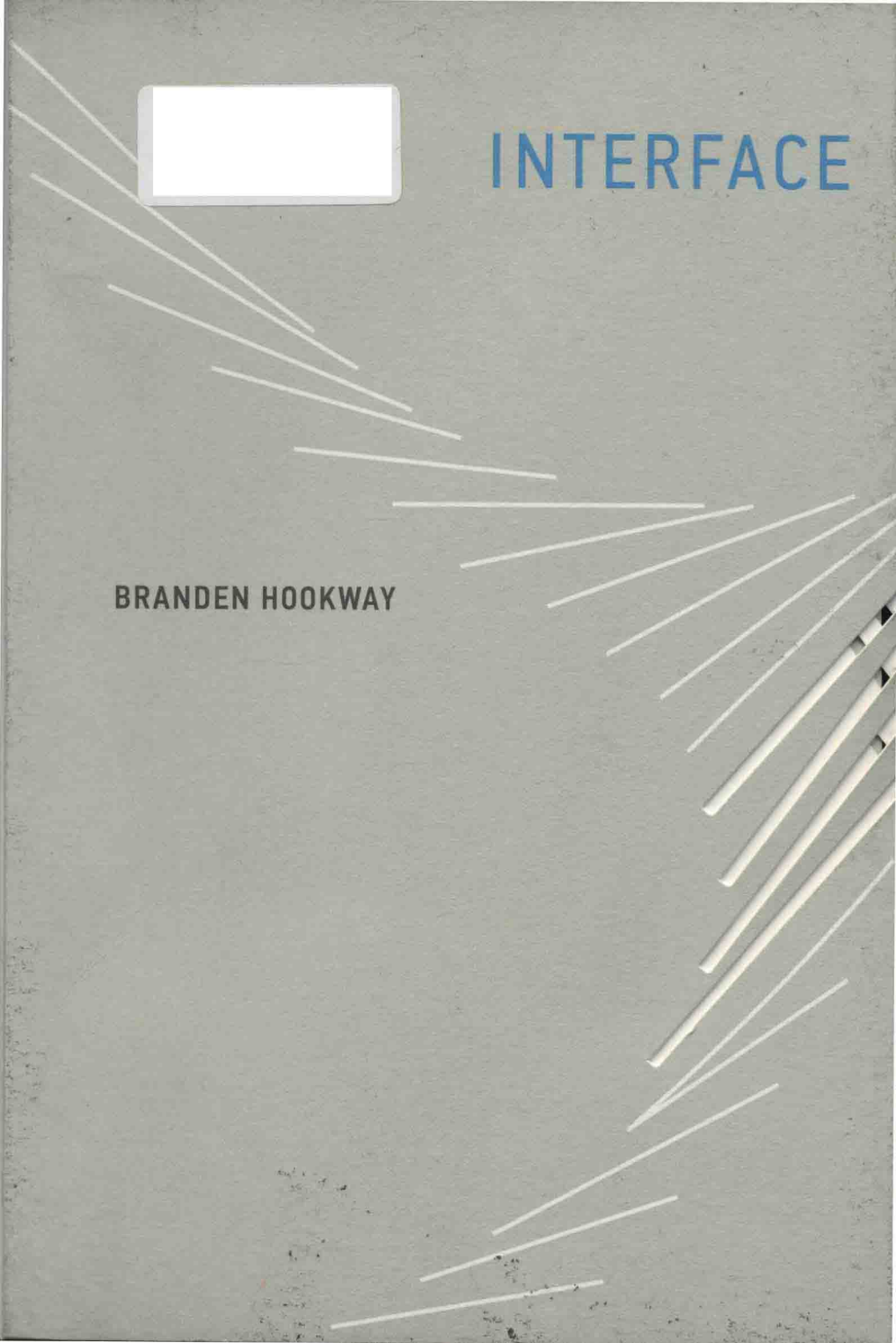
INTERFACE
BRANDEN HOOKWAY

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Branden Hookway

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TO MARIA

PREFACE

This study views what I term "the interface" as a relation with technology rather than as a technology in itself. In this relation the interface describes a boundary condition that is at the same time encountered and worked through toward some specific end. In a way, my experience of coming upon the interface as a subject is analogous to this process. What started out as an introduction to a dissertation on the airplane cockpit as a paradigmatic twentieth-century environment became a separate project, as I found it necessary to work through a theoretical exploration of the interface in order to address what is at stake with the cockpit. The cockpit is at once a space of inhabitation, an ergonomics of use, an assemblage of mechanical articulations directed toward control surfaces and the materiality of air flow, and a threshold between human and machine whose mediation is expressed in a trajectory of flight. It encompasses a multiplicity of derivations, testing apparatuses, and simulations. As such, the cockpit has remained an implicit challenge in the theory of the interface presented here, which needed to account for the range of its instantiations, behaviors, and transformations.

Today the interface is at once ubiquitous and hidden to view. It is both the bottleneck through which all human relations to and through technology must pass, and a productive moment of encounter embedded and obscured within the use of technology. It is a disputed zone, a site of contestation between human beings and machines as much as between the social and the material, the political and the technological. In staging and resolving this contestation, the interface both defines and elides difference; it at once separates classes and draws them together as a single augmented body. While the interface operates in space and time, and on occasion may be described as a site or an event, it also governs the production of sites and events; it describes the site or moment in which the full operation and apparatus of systems, networks, hierarchies, and material flows are distilled into concrete action.

The aim of this study is to provide a theoretical framework for the interface and to examine the implications it holds over life. Chapter 1, "The Subject of the Interface," positions the interface with respect to theories of subject formation, agency, power, and control, and within contexts that include the technological, the political, and the game. The subject here is shown as poised between the simulation and the real, between autonomy and control. Chapter 2, "The Forming of the Interface," finds the origin of the term *interface* in nineteenth-century fluid dynamics, particularly in the work of James Thomson and James Clerk Maxwell, and subsequently traces its migration to thermodynamics, information theory, and cybernetics. As the site upon which Maxwell's demon first appears, the interface is shown to have a particular relevance to complex, dynamic systems, within which it describes the possibilities of agency and governance. Chapter 3, "The Augmentation of the Interface," addresses notions of tacit or embodied intelligence as they relate to what has been called the human-machine system. Throughout, the figure of the subject is inseparably both receiver and active producer in processes of subjectification. The interface is the endgame of a technological lineage, an architecture-as-medium that stands in a relation both alien and intimate, vertiginous and orienting, to those who cross its thresholds and trace out promenades in its interior places.

ACKNOWLEDGMENTS

Much of this book was first drafted in 2010 while I was living in Ithaca, New York. While writing on the airplane cockpit for a Ph.D. dissertation, it became clear to me that I needed to develop a theory of the interface first. I am grateful to Beatriz Colomina, my advisor, whose support and encouragement were invaluable throughout my studies and work on this project. M. Christine Boyer, my second reader, made discerning comments on the manuscript that helped refine it at various points, and I am thankful as well for her support. I am grateful to Mark Wigley and Alexander R. Galloway for their generosity and expertise as external readers. Among those who inspired me during my time at the Princeton University School of Architecture, I would particularly like to thank Hal Foster, Jonathan Crary, Spyros Papapetros, and Sarah Whiting for their timely encouragement. I am grateful to have had the chance to present and refine this work in an academic setting and would especially like to thank Mohsen Mostafavi, Kent Kleinman, Robert Somol, Ben van Berkel, Michael Bell, Lily Chi, Mark Cruvellier, Iftikhar Dadi, Sheila Danko, Stan Allen, Lars Lerup, and Bruce Mau for supporting this work. I would also like to thank the Cornell University College of Architecture, Art, and Planning for research and publication support.

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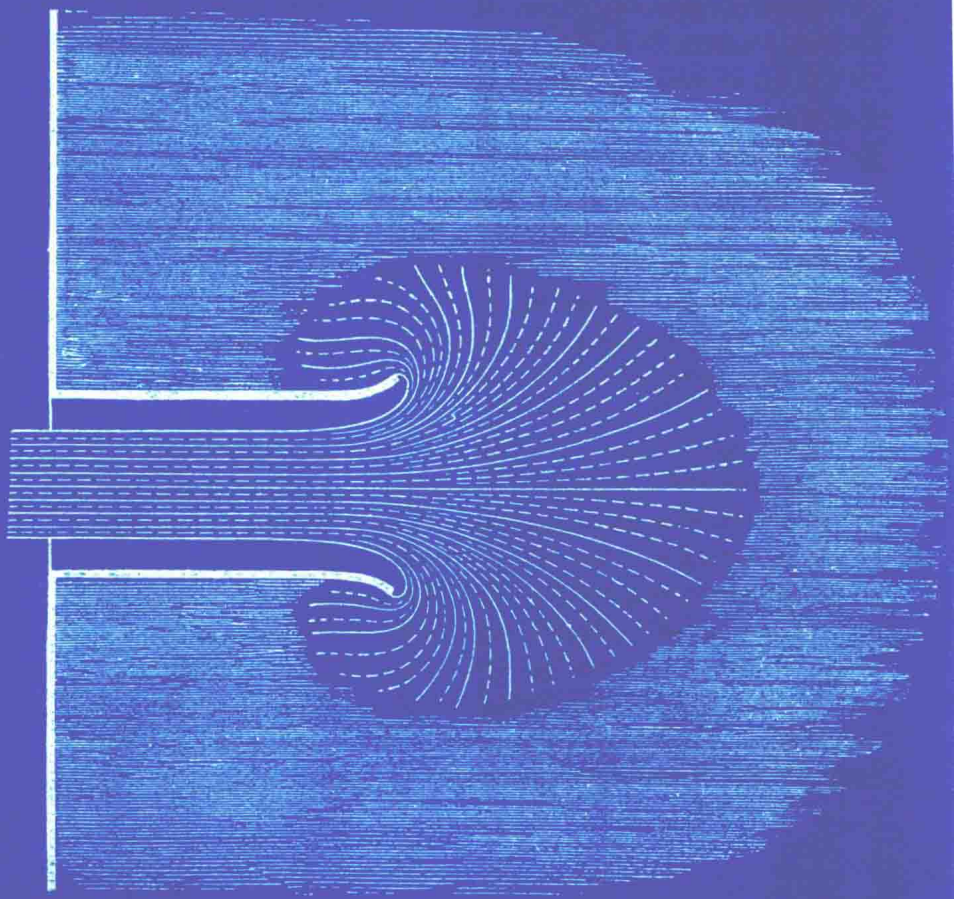

CONTENTS

Preface ix
Acknowledgments xi

1 THE SUBJECT OF THE INTERFACE 1

2 THE FORMING OF THE INTERFACE 59

3 THE AUGMENTATION OF THE INTERFACE 121

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The interface as form of relation 1
Between faces and facing between 7
The interface and the surface 12
Toward a theory of the interface 15
Janus and Jupiter 19
Control and power 24
The interface and the apparatus 26
The interface and the game 32
The interface and the machine 39
Separation and augmentation 46
Mimicry in the game and the interface 53

The interface as that which defines the fluid 59
Turbulence and control 67
The exacting of turbulence 75
The demon on the threshold 81
Theories of the vortex 89
Information and entropy 94
Governance and reciprocity 98
The interface and teleology 104
The turbine as superimposition of fluid and machine 110
The vertiginous moment of interface 114

A genius of augmentation 121
The tacit knowing of the interface 123
Singularity 129
Symbiosis 135
System 140
Positioning 148

Notes 157
Index 173

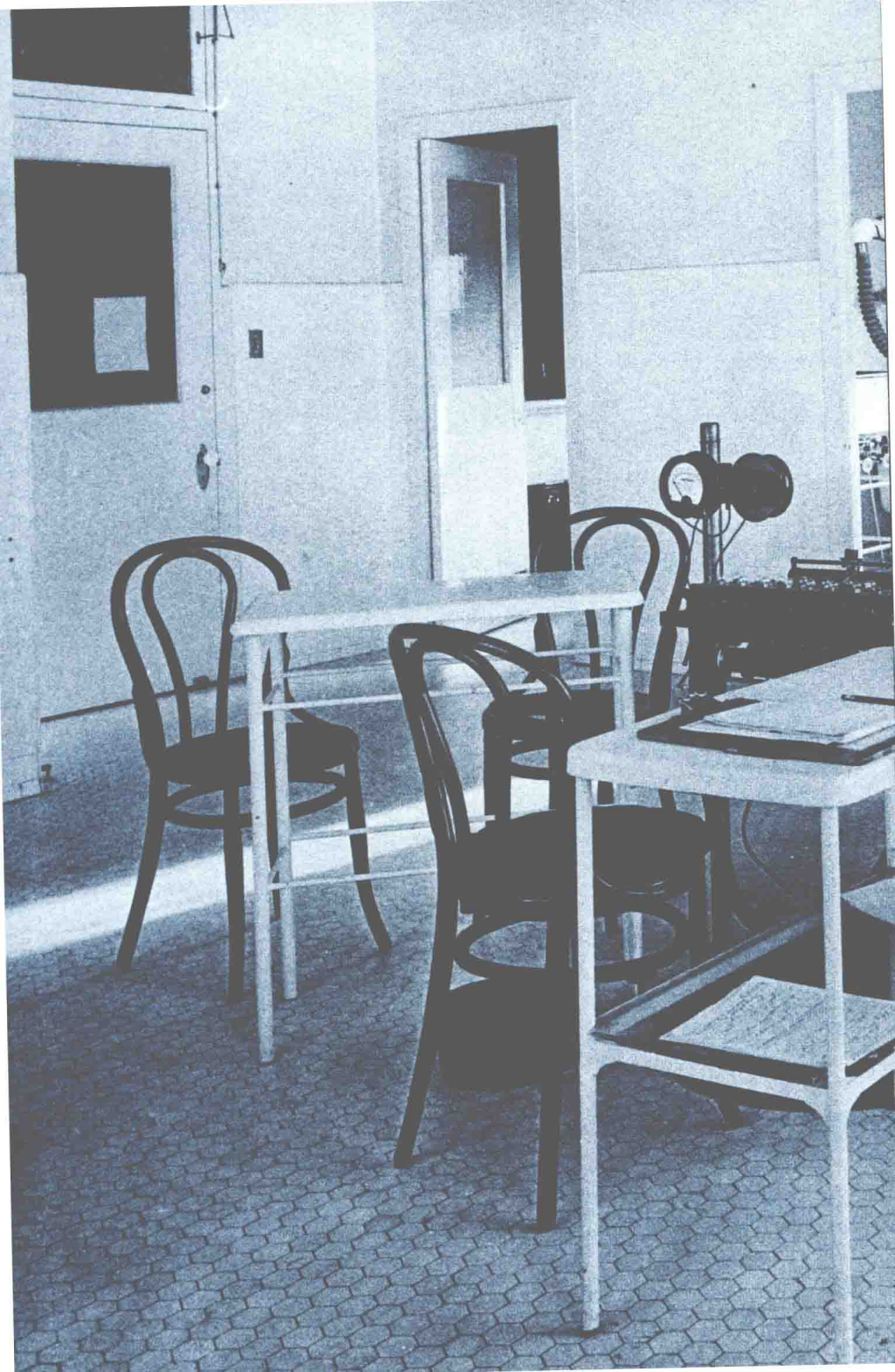
1

THE SUBJECT OF THE INTERFACE

The interface as form of relation

Inasmuch as the range of human experience and performance is more and more defined and conditioned through the forces of technological development, the interface holds a familiar albeit indeterminate and even spectral presence. For while the interface might seem to be a form of technology, it is more properly a form of relating to technology, and so constitutes a relation that is already given, to be composed of the combined activities of human and machine. The interface precedes the purely technological, just as one encounters a mirror image before the mirror itself. Likewise, the interface describes the ways in which humanness is implicated in its relation with technology. For even at the moment human and machine come into contact, their encounter has already been subject to a mediation. Both the actions performed upon the interface and the agency of their performance are to a critical extent already anticipated.

Nonetheless, it is the interface that most actively determines the human relation to technology and delimits the boundaries that define human and machine. Increasingly the interface constitutes the gateway through which the reservoir of human agency and experience is situated with respect to all that stands outside of it, whether technological, material, social, economic, or political. It is more and more unavoidably the means of representing that which is otherwise unrepresentable, or of knowing that which is otherwise unknowable. If the interface is now ubiquitous and pervasive, it is so with respect to a proliferation of ever more complex devices and networks. If it is indeterminate and elusive,



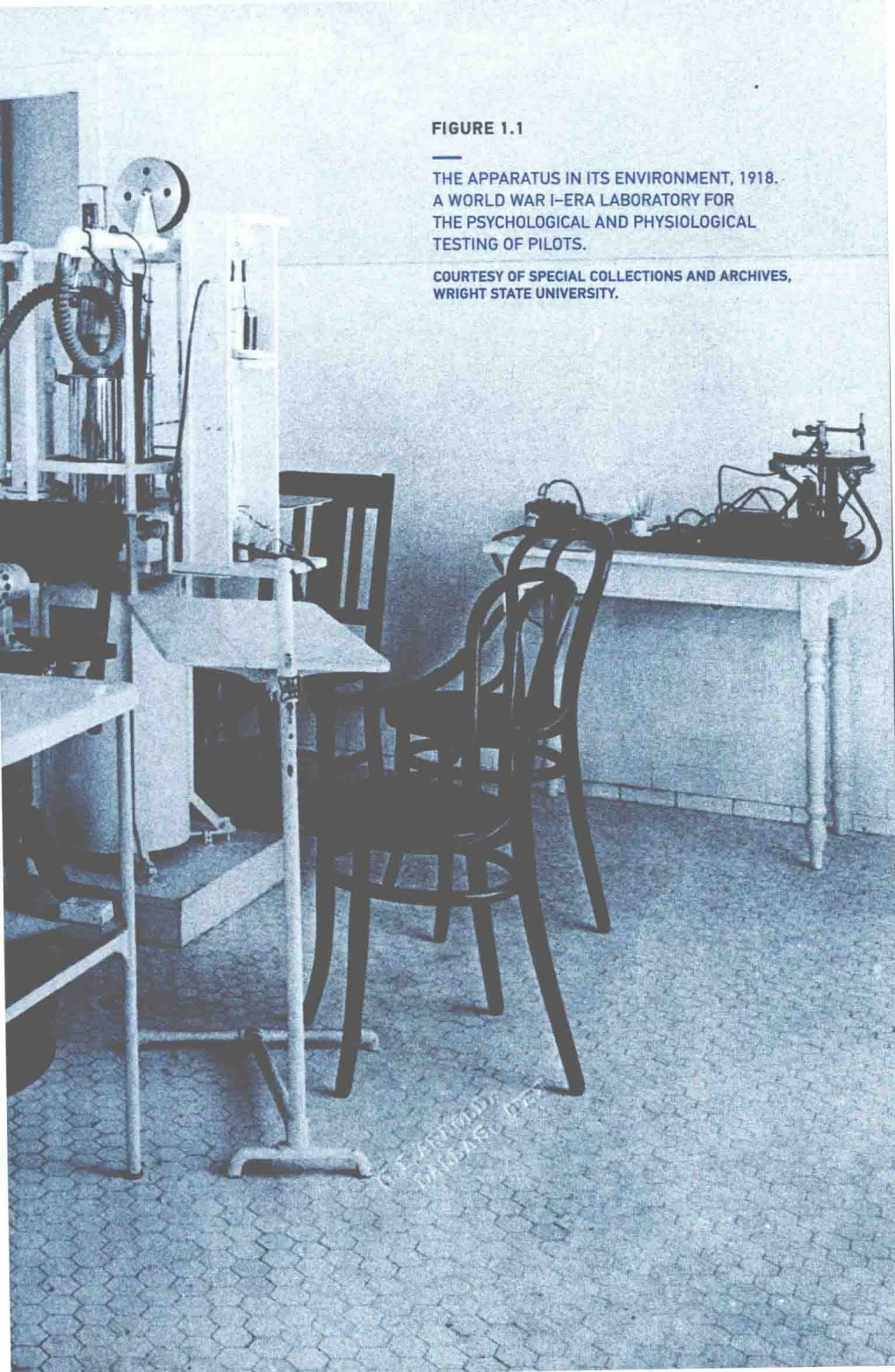


FIGURE 1.1

THE APPARATUS IN ITS ENVIRONMENT, 1918. A WORLD WAR I–ERA LABORATORY FOR THE PSYCHOLOGICAL AND PHYSIOLOGICAL TESTING OF PILOTS.

COURTESY OF SPECIAL COLLECTIONS AND ARCHIVES, WRIGHT STATE UNIVERSITY.

it is so in that it channels the activities under its influence toward a resolution within a common protocol, while at the same time opening up new vistas and capabilities to a now-augmented human sensorium.

The interface is defined here as a kind of theoretical construct whose essential characteristics and operations are common to each of its various realized instantiations. Specifically, the interface is treated here as a *form of relation*. This is to say that what is most essential to a description of the interface lies not in the qualities of an entity or in lineages of devices or technologies, but rather in the qualities of relation between entities. Such a relation possesses its own qualities and characteristics that are attendant on but otherwise independent of the entities brought into relation; the persistence of this relation in time and space is such that it may be described as possessing a kind of form. A preliminary definition of *interface* might then be as follows: the interface is a form of relation that obtains between two or more distinct entities, conditions, or states such that it only comes into being as these distinct entities enter into an active relation with one another; such that it actively maintains, polices, and draws on the separation that renders these entities as distinct at the same time as it selectively allows a transmission or communication of force or information from one entity to the other; and such that its overall activity brings about the production of a unified condition or system that is mutually defined through the regulated and specified interrelations of these distinct entities. Or again: the interface is that form of relation which is defined by the simultaneity and inseparability of its processes of separation and augmentation, of maintaining distinction while at the same time eliding it in the production of a mutualism that may be viewed as an entity in its own right, with its own characteristics and behaviors that cannot be reduced to those of its constituent elements.

The interface is defined in its coupling of the processes of holding apart and drawing together, of confining and opening up, of disciplining and enabling, of excluding and including. The separation maintained by the interface between distinct entities or states is also the basis of the unity it produces from those entities or states. While the constituent entities and processes of the interface may be examined individually,

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