

In this culture, medical thought is fully engaged in the philosophical status of man.—MICHEL FOUCAULT, *The Birth of the Clinic*

Science projects are civics projects; they remake citizens.
—DONNA HARAWAY, *Modest_Witness@Second_Millennium.FemaleMan@_Meets_OncoMouse™*

The choice of explanations in medicine is always a choice of values.
—LAWRENCE KIRMAYER, "Mind and Body as Metaphors"

Opening Up a Few Concepts

INTRODUCTORY RUMINATIONS

The Vital Matter of Defense

In his memoirs, Élie Metchnikoff fondly recalls the mundane events which precipitated his discovery in 1881 of immunity as a form of biological self-defense:

One day when the whole family had gone to a circus to see some extraordinary performing apes, I remained alone with my microscope, observing the life in the mobile cells of a transparent star-fish larva, when a new thought suddenly flashed across my brain. It struck me that similar cells might serve *in the defense of the organism against intruders*. . . . I said to myself that if my supposition was true, a splinter introduced into the body of a star fish larva, devoid of blood vessels or a nervous system, should soon be surrounded by mobile cells as is to be observed in a man who runs a splinter into his finger. This was no sooner said than done.

There was a small garden to our dwelling . . . [and] I fetched from it a few rose thorns and introduced them at once under the skin of the beautiful star-fish larvae as transparent as water.

2 *Introductory Ruminations*

I was too excited to sleep that night in the expectation of the results of my experiment, and very early the next morning I ascertained that it had fully succeeded.¹

From this humble conjunction of a starfish larva, a thorn, and a microscope, Élie Metchnikoff deduces an entirely new way to perceive how organisms coexist and thereby ushers biological “immunity” into the world as an organismic form of “defense.”²

With his family off seeing “some extraordinary performing apes,” the scientist alone with his instrument has an epiphany: “How does the organism *defend* itself from *intruders*?” he wonders, for obviously, in a case of “intrusion,” any response must be a “defense.” Aha, he thinks, perhaps the mobile cells that I am observing can *mobilize* themselves against such an incursion. Metchnikoff decides to test his hypothesis by enacting this scenario. Identifying with and as an intruder, he pierces the “skin of the beautiful star-fish larvae as transparent as water.” In doing so, he imagines that he models a form of aggression which he assumes to be entirely natural (as if he himself constitutes a force of nature), thereby providing a classic example of what the philosopher G. E. M. Anscombe calls action under the form of description.³ In other words, by construing his experimental protocol as an intrusion, Metchnikoff enacts it as such and then reasons that, however the larva reacts, this reaction represents the intrusive catalyst’s logical antithesis. Observing the experimental subject the next morning, he witnesses the fragment of the rose thorn engulfed by large amoeboid cells, apparently attempting to decompose it. He then recognizes—or in fact *re*-cognizes—this cellular decomposition as a characteristically protective process. With this flash of insight, Metchnikoff conceives a definitive *and defensive* way to understand how organisms coexist in environments replete with others of different sizes and scales.

Certainly, many of us believe that Metchnikoff’s understanding transparently describes the way living things are, or at least the way they should be. Over the last one hundred years or so, the idea of immunity has passed from Metchnikoff’s lab into our self-understanding, so that today we take for granted many assumptions on which this understanding leans. For example, most of us who rely on biomedical treatments such as vaccinations or antibiotics accept the idea that our immune systems ought to defend us against illnesses (even as we are also increasingly aware that they do not always live up to this promise). And while few of us have any deep understanding of its complexities, we generally presume that the immune

system represents the front line in our incessant battle with the hostile forces of disease. Despite our ready acceptance, however, immunity is not a *natural choice of images* for our ability to live as organisms among other organisms of various sizes and scales—nor is defense, for that matter. Instead, both terms derive from the ways that Western legal and political thinking accounts for the complex, difficult, and at times violent manner that *humans* live among other *humans*. Only later, much later, are they applied to the animate world more generally—including that part of the animate world we call “human.” Modern presumptions about personhood and collectivity saturate both immunity and defense. Each offers a different strategy for accommodating the frictions and tensions (if not outright contradictions) between the singular and the multiple, the one and the many, that characterize modern political formations. Indeed, both immunity and defense play central roles in framing what we now understand as liberal or democratic governance, and hence they deeply inform our economic and political horizons.

So how do these complex and critical concepts end up in biomedicine anyway? And what biopolitical effects do they induce when they migrate from politics and law into the cellular matter that we call “the body”? Even as we go for vaccinations, take antibiotics, try to avoid the things to which we are allergic, have our white blood cell counts checked, or listen to news reports about AIDS, SARS, or avian flu, most of us remain ignorant of a basic historical fact: biological immunity as we know it does not exist until the late nineteenth century. Nor, for that matter, does the idea that organisms defend themselves at the cellular and molecular levels. For nearly two thousand years, immunity, a legal concept first conjured in ancient Rome, has functioned almost exclusively as a political and juridical term—and a profoundly important and historically overdetermined one at that. “Self-defense” also originates as a political concept, albeit a much newer one, emerging only 350 years ago in the course of the English Civil War, when Thomas Hobbes defines it as the first “natural right.” One hundred and twenty-five years ago, biomedicine fuses these two incredibly difficult, powerful, and yet very different (if not incongruous) political ideas into one, creating “immunity-*as*-defense.” It then transplants this new biopolitical hybrid into the living human body. We have not been the same since.

When science transfigures immunity in the 1880s and 1890s by equating it with defense, defense is acknowledged for the first time as a capacity of the living organism. This acknowledgment radically changes not just

how we imagine our bodies as living organisms but also how we imagine what it means to be an organism living among other organisms and what it means to be a human living among other humans. Moreover, immunity's new incarnation emerges as the avatar of a scientific practice that profoundly transforms how we conceive and address both illness and healing. Indeed, immunity's acceptance as a robust biological concept fundamentally changes the embodiment of these essential human experiences. Today we fight diseases both individually and collectively. We declare war on cancer and AIDS. We visualize white blood cells destroying tumors. We imagine that we are fighting off a cold. We kill the germs that cause bad breath. What we no longer do (lest we incur the stigma of being terribly "New Age") is consider that we might harbor a capacity to heal. Following Metchnikoff's declaration that the "battle" between white blood cells and microbes "represents the healing power of nature," defense quickly replaces healing as medicine's scientifically approved ethos.⁴

Before this replacement, for people all over the globe and throughout most of recorded history, "healing" bodies forth the organism's natural propensity, albeit a propensity that also needs human support and encouragement. From antiquity until the mid-nineteenth century, almost all cultures recognize that nature exercises a curative power in the organism, a power which medicine at best emulates or enhances. The Galenic and Hippocratic traditions (the prevailing philosophies of healing in the West) know this force as *vis medicatrix naturae*, the healing power of nature.⁵ According to this worldview, healing manifests the organism's natural elasticity: it incorporates the organism's most expansive relations to the world, embracing the forces that animate the cosmos as a whole. Those seeking to facilitate the healing process attempt (at best) to encourage nature's course by redressing the micro- and macrocosmic imbalances that keep symptomatic crises from resolving favorably. Within such healing frameworks, organisms incorporate and inexorably rely on the elements that constitute the world in which they live. Illnesses result from imbalances among these constitutive elements, whereas health emerges from restoring inner and outer harmony. Therefore natural healing expresses the immersion of living beings in the universe and affirms their fundamental connection to the matrix from which they arise and to which they will one day return.

By the end of the nineteenth century, however, the *vis medicatrix naturae* falls out of favor among Western bioscientists. Deemed unduly vitalistic by scientific medicine's increasingly reductionist paradigms (which

pursue biochemical explanations for biological processes), “healing” becomes a more and more anachronistic notion. Instead, bracketing healing as an improperly fuzzy premise, scientific medicine embraces a highly complex, if not paradoxical, legal rubric—or even, perhaps, legal ruse. Though we do not always fully appreciate it, immunity is somewhat of a trickster. Within the juridico-political domain, immunity operates by defining lawful exceptions to the law precisely in order to maintain that the law applies universally and *therefore without exception*. In other words, since the law declares that its exceptions always already derive from it, such exceptions do not trouble its jurisdiction.⁶ Historically this declaration proves useful, since *realpolitik* often frustrates desires for juridical purity. Immunity (in its nonbiological valence) thus lubricates the ineluctable friction between law and politics. It allows the exigencies of politics to rub up against the formalities of the law without causing them to warp and turn back on themselves. Biomedicine embraces this lawful conundrum (i.e., that exceptions prove the rule) to incorporate “defense” as properly “natural” and thereby anoint it as a natural property.

This metaphoric substitution supports scientific medicine, since it restricts the complex, contradictory, and yet entirely necessary intimacy of organism and environment to a single salient type of engagement: aggression/response. With the advent of biological immunity, medicine localizes the ability to recover from or to avoid disease in the specific actions of our cells and molecules (specificity constituting another of biomedicine’s hallmarks).⁷ This specific activity quickly supersedes the less specific notion of healing as a more appropriately scientific concept. Furthermore, it imagines the individual organism as the space within which a cellular struggle for survival (a.k.a. disease) takes place, and conversely defines a specific microbial agent as the hostile cause against which the organism must wage its relentless war with death. While the germ emerges as both a biological and a political agent in the decade or so before immunity realizes its defensive capacity, immunity-as-defense retrospectively lends germ theory some of its legal force, helping it achieve the status of natural law.

Before Metchnikoff’s realization, the germ’s vicissitudes remain obscure. If germs actually cause disease, then why do they cause disease in some people and animals and not in others? Moreover, if these disease-causing germs are omnipresent, then how do we stay alive in such a relentlessly hostile environment? Immunity helps us reconcile ourselves to the fateful microbes. It provides us with the wherewithal to keep these ubiquitous,

invisible, life-threatening others at bay. Medicine then allies itself with this self-protective force, seeing its own actions as a mirror image. Instead of evoking the organism's essential connection *to* the world in which it lives, immunity refigures medicine as a powerful weapon in the body's necessary struggle to defend itself *from* its life-threatening context.

Yet if this struggle represents such a natural condition, why do medicine and biology rely so explicitly on political and juridical concepts to make sense of it? If the ways that organisms coexist evince our political and juridical precepts so immediately, does this mean that medicine after immunity constitutes politics by other means? In the first half of the nineteenth century, the military theorist Karl von Clausewitz offered his famous formulation: "War is nothing but a continuation of political intercourse with a mixture of other means." In the second half of the twentieth century, Michel Foucault reverses the syntax to ask: "Should we . . . say that politics is war pursued by other means?" to which he responds: "It is one of the essential traits of Western societies that the force relationships which for a long time had found expression in war, in every form of warfare, gradually became invested in the order of political power."⁸ Immunity strangely grafts or inoculates both military and political potentials into human biology as an entangled mode of explanation. In fact, immunity offers a peculiar hybrid of military, political, and biological thinking that "naturally" negates the distinctions among these realms. Rendering biological immunity as an organism's active process of defense, scientific medicine deftly fuses a bellicose ideology (which sees environmental challenge as a hostile attack) with a political notion of legal exception (which nevertheless affirms the law's universal applicability).

Through this potent conceptual alchemy, biological immunity insinuates itself *at and as* the intersection of two disparate, if not opposed, ways of organizing human interactions: war and law. To the extent that the law seeks to preempt war's violence (albeit by mobilizing its own violence) and to the extent that declarations of war seek to define violence's legal extent (albeit within their own jurisdiction), the two seem counterpoised.⁹ Hence not only do immunity as legal exemption and immunity as defense not necessarily correspond; they do not even necessarily coexist. Strictly speaking, where immunity exists there is no need of defense and where defending occurs there is no immunity. Nevertheless, the bioscientific appropriation of immunity collapses both these possibilities to describe how a complex organism maintains its vitality while living in a world where some of its fellow organisms (viral, bacterial, parasitic, and human)

potentially threaten its well-being and aliveness. As a consequence of this incongruous and yet largely unnoticed fusion, the “immune” organism becomes a biopolitical life form through and through.

The “Nature” of the “Modern Body”

As its subtitle suggests, using the lens of immunity, this book focuses on how medicine makes “the body” “modern” and reflects on the biopolitics this modern turn in medicine engenders. In other words, it ruminates on how medicine modernizes us by incarnating a theoretical practice that simultaneously—if unconsciously—defines humans as organisms and as political actors and in so doing incorporates biopolitics as one of our consummately modern dimensions. At the center of this rumination appears a virtual node that we might call the “modern body.” While we often take the body to represent what is most natural about us, or indeed suppose that our bodies manifest our “nature” itself, this presumption assumes far more and far less than is the case.¹⁰ Instead both our bodies and our selves have undergone profound historical changes—changes both giving rise to, and ensuing directly from, immunity’s biomedical apotheosis.

As more and less than a natural phenomenon, the modernized body arises as an artifact of intense human interest and investment. Informed by a confluence of finance capital, philosophical reflection, and scientific theory, not to mention military formations, colonial relations, religious reformations, technological developments, kinship dynamics, industrial processes, educational regimes, health care protocols, among many other factors, the modern body aspires to localize human beings within an epidermal frontier that distinguishes the person from the world for the duration which we call a life. If we think of Mikhail Bakhtin’s “grotesque body”—a body radically open to the world both temporally and spatially, simultaneously eating, shitting, fucking, dancing, laughing, groaning, giving birth, falling ill, and dying¹¹—as an icon for a nonmodern or premodern body, then by contrast the modern body proffers a proper body, a proprietary body, a body whose well-bounded property grounds the legal and political rights of what C. B. Macpherson famously named “possessive individualism.”¹²

For all its salience as a political, economic, philosophical, and even psychological phenomenon, however, until the end of the nineteenth century the modern body does not exist, strictly speaking, as a biological body.

Or to put it more accurately, until the end of the nineteenth century, the modern individual's atomized body does not accord with prevailing scientific theories that apprehend living organisms as contiguous with, rather than fundamentally distinct from, their lifeworlds. Indeed, this book holds that only with the advent of biological immunity does a monadic modern body fully achieve its scientific and defensive apotheosis. To appreciate this individualizing transubstantiation, *A Body Worth Defending* traces the body's modern vicissitudes as they unfold from the middle of the seventeenth century to the end of the nineteenth century to consider how they end up in our cells and tissues, as well as in our imaginations and institutions.

After the advent of immunity-as-defense, bioscience affirms that living entails a ceaseless problem of boundary maintenance. Less modern ideas about living beings ensconce organisms in a material world whose vital elements form—and whose fluxes and flows inform—their aliveness.¹³ With immunity as its avatar, modern biomedical dogma holds to the contrary that as organisms we vitally depend on a perpetual engagement *against* the world to maintain our integrity or indeed our selves. However, this agonistic presumption does not entirely accord with biological thinking about how organisms coexist in shared ecologies, sometimes with great mutual benefit, sometimes pacifically, sometimes indifferently, and sometimes deleteriously. Instead, modern bioscience's investment in the self-interiorizing and defensive organism betrays its unacknowledged debt to modern philosophies of personhood.¹⁴ Immunity incarnates ideas about human being culled from modern politics, economics, law, philosophy, and science, which then belatedly achieve scientific status when immunity inoculates them into the living organism and thereby validates them as essentially “natural.”

Although it takes immunity-as-self-defense as its nominal subject, this book only partially traces the specific developments in biology and medicine that precede and condition immunity's biomedical coming-of-age. It does not exhaustively analyze immunity's complex invocations from the eighteenth century through the late nineteenth, when the term appears with accelerating frequency to describe a general empirical observation that disease affects different people differently.¹⁵ Nor does it seek to address or contest the historiographies of biology, medicine, and technology on which my argument extensively draws. Instead, *A Body Worth Defending* engages immunity's migration from politics and law into the domains of medicine and science as a complex of thinking about modern

bodies which percolates through political, legal, philosophical, economic, administrative, governmental, scientific, and medical discourses. As this complex unfolds, beginning in Europe around 1650, its manifestations mutually inform and modify each other. Together they turn over—and indeed overturn—the pre- or nonmodern ground in which theocentric feudal hierarchies planted their ensouled human forms, thereby clearing and fertilizing the terrain where the hybridized seeds of modern individualism come to flourish. Indeed, within modernity (or however else we might conceive it) the attachment of the person to the body supersedes its attachment to the soul. Concomitantly, the distinct personal statuses of body and soul denominate distinct *political* ontologies.¹⁶ Modernity births the modern body, and the modern body makes modernity matter.

Obviously, the meanings that accrue to the terms “modern” and “modernity” are myriad and complex. Tomes devoted to defining and describing modernity and the modern fill not inconsiderable shelf space in libraries around the world. Some treatments define these concepts historically, some philosophically, some technologically, some religiously, some economically, some politically, some geographically, some sexually, some racially, some globally, and many all of the above. Yet all these diverse readings share an underlying sense that modernity refers to living relations in and of time. As its etymology suggests, “modernity” (from the classical Latin adverb *modo* meaning “just now”) connotes a punctual immersion in the present which syncopates the eschatological time frame espoused by premodern Christianity. Insofar as modernity designates a historical period (whatever the exact chronological parameters ascribed to it), it does so precisely by reimagining time as historical, that is, as a human index of change. Michael Hardt and Antonio Negri have recently characterized this shift, at once conceptual and material, as “revolutionary immanence.”¹⁷ Among its many other effects, such radical immanence opens the possibility for rooting human being—and human beings—both spatially and temporally in the localized domain that we call the body. In fact, we might characterize the transformations that European modernity incorporates by saying that they enable the essential metonym for the person to morph from immortal soul to mortal body. Altering the criteria for, and claims to, personhood, this metonymic shift contributes to destabilizing the religiously ordained (soul-based) hierarchies that characterized premodern European social formations. The immanent human body provides a temporal and spatial locus for biopolitical agency and therefore helps inaugurate a new political economy of modern personhood: one

in which differences among and between people (e.g., race, sex, gender, class, age, etc.) appear as attributes of bodies rather than the gradations of souls.¹⁸

In this reading, modernity's ordinance becomes secular not because it abjures the spirit but rather because it orients human experience around a living temporality that resides in the world. From the Latin *saeculum*, meaning the ordinary lifetime of the human species, a lifetime, a generation, or an age, modern secularity (like modernity itself) originally designates a situatedness in time in a specifically embodied way. The opposite of secular, then, is not religious but eschatological. As the lived dynamics of human embodiment begin to define human agency, they underwrite both political contestation (e.g., theories of natural rights) and economic transformation (e.g., wage labor). Mary Poovey identifies arguments from and about secular "human nature" as mediating epistemologically between premodern investments in a providential order and modern social institutions.¹⁹ This book adopts a similar mapping to Poovey's but analyzes the modern nature of human nature in the changing biological and medical perceptions about the human organism itself. In other words, it traces modernity's genealogy through changing ideas about the nature of the human, especially as the human organism increasingly imagines and lives itself as a biological phenomenon separate and distinct from an environment that only subsequently seems to surround or even oppose it.

In this regard, modernity marks a passage from the encompassing "passibility" that Timothy Reiss attributes to premodern and nonmodern subjectivities, where personhood accrues from "a sense of being embedded in and acted on by . . . the material world and [by] immediate biological, familial and social ambiances, as well as the soul's (or 'animate') and cosmic, spiritual and divine life."²⁰ Modernity might thus appear as an ensemble of practices that literally incorporates—or incarnates—a historical paradox: modernity produces and reproduces humans as both natural and cultural, biological and social, empirical and transcendental, finite and infinite, insofar as it conjures the body as a hybrid biopolitical formation which we must *have* in order to *be* a person. Given the vast array of possible meanings, the next section adumbrates how modernity and the modern circulate in this book by considering two distinct and compelling interpretations, the first provided by Bruno Latour, the second by Michel Foucault. Hopefully this will help to clarify what it means to say that biological immunity makes the body *modern*.

A Short History of Biopolitics

In a concise and polemical text provocatively titled *We Have Never Been Modern*, Bruno Latour offers a surprising and compelling analysis of the putatively modern. He does so by disclosing a set of epistemological assumptions that underwrite the modern's material successes even as they contradict its ostensible premises. Extrapolating from Steven Shapin and Simon Schaffer's exploration of how modernity's advent in England transforms science and politics into overlapping and co-constituting domains,²¹ Latour initially posits what he calls the "Modern Constitution" as supposing two distinct and yet inextricable beliefs: "It is not men who make Nature; Nature has always existed and has always been there; we are only discovering its secrets" and "Human beings, and only human beings, are the ones who construct society and freely determine their own destiny."²² Disarticulating nature from humans, and humans from nature, frees political and scientific thinking from the impacted dynamics that feudal and early modern relations between nature and man suppose (as well as those of premodern cultures more generally).²³ Each now becomes available for critical reflection and rearticulation. Yet, as Latour demonstrates, these conditions remain insufficient in and of themselves, since they actually contradict each other, and so "the moderns" offer additional constraints: "But these two guarantees are contradictory, not only mutually but internally, since each plays simultaneously on transcendence and immanence. . . . Are they lying? Deceiving themselves? No, for they add a third constitutional guarantee: there shall exist a complete separation between the natural world (constructed, nevertheless, by man) and the social world (sustained, nevertheless, by things)."²⁴ This condition, constituting what Latour calls "purification," informs the modern by disaggregating the very elements from which modernity creates itself. It binds—and blinds—modernity to its unstable epistemological and ontological foundations by secreting them below the thresholds of visibility and intelligibility.

Taken together, these constitutional "guarantees" enable the moderns to mobilize resources, ideas, objects, and relations in ways heretofore unimaginable, via what Latour calls "networks." These new mobile possibilities not only infect modernity's famous self-conceit that it radically breaks with the past (i.e., that it completely severs its ties both with tradition and with traditional cultures) but also enable modernity to propel itself forward through time. In so doing, it appears to relentlessly reanimate these

very temporal and geopolitical ruptures within its unceasingly “productive” capacities.

[The moderns] are going to be able to make Nature intervene at every point in the fabrication of their societies while they go right on attributing to Nature its radical transcendence; they are going to be able to become the only actors in their political destiny, while they go right on making their society hold together by mobilizing nature. On the one hand, the transcendence of nature will not prevent its social immanence; on the other, the immanence of the social will not prevent the Leviathan from remaining transcendent. We must admit that this is a rather neat construction that makes it possible to do everything without being limited by anything. It is not surprising then that this Constitution should have made it possible, as people used to say, to “liberate productive forces.” (32)

By productively liberating itself from the past, modernity liberates the present *for* the future. Yet the neatness of this temporal bifurcation rests on the messiness of the conceptual matter that underwrites this progressive narrative. If nature transcends and intervenes, society self-creates and naturalizes. Causality appears everywhere and nowhere at once. The fungible categories which underwrite the Modern Constitution and make it so productive concomitantly give rise to a plethora of justifications, many of which manifestly contradict each other. For such justifications to appear noncontradictory, or “rational,” and therefore politically and philosophically valid, some form of mediation must materially buttress the foundational divisions supporting the modern (nature-society, transcendent-immanent, subject-object, nonhuman-human, secular-religious, traditional-modern, etc).

The Modern Constitution achieves this support, according to Latour, by outsourcing such contradictions to what he calls “hybrids.” Hybrids form material networks that bind up “nonhuman nature” and “human culture” while disappearing below, beneath, or beyond modernity’s epistemological and ontological threshold, almost as if they exist in and as the world itself. Explaining how this immanent hybridity ubiquitously prevails and yet remains largely undetected, Latour offers another modern guarantee, the guarantee of guarantees: “There shall exist a total separation between the work of hybrids and the work of purification” (31). In other words, hybrids “work” precisely insofar as their work remains immune from the radical, or indeed ontological, bifurcation that modernity presumes. To return to our main example, by borrowing on its explicitly juridico-political legacy and then claiming to describe nature itself, biological im-

munity succinctly illustrates how hybrids conjoin society and nature while occluding the fact that they do so (also explaining why immunity performs such important work for modern medicine, or even why it makes medicine thoroughly modern). By playing the opposition between nature and politics against the excluded middle, modern ways of explaining the world propose distinctions that biopolitical hybrids (such as biological immunity) should obviously undermine, since their manifest social nature should confound the society-nature divide. However, because hybrids appear constitutionally innocent of any such intention, and because they must be constitutionally exempt from consideration for the Modern Constitution to remain effective, they perform their imaginary work unremarked and unchallenged. In so doing, these hybrids secret(e) their values in everyday forms, shaping how we imaginatively and materially make sense of our lives, without revealing either the stakes involved or the possibility that other options might exist.

Hybrids underwrite our conceptual mapping of the world while themselves remaining “invisible, unthinkable, unrepresentable” (34). In so doing, they make the (contradictory) logic of such mappings almost impossible to discern. We think we are doing one thing while we are also doing otherwise at the same time. This double-thinking permits modernity to breach the limits that it declares inviolate: “The critical power of the moderns lies in this double language: they can mobilize Nature at the heart of social relationships, even as they leave Nature infinitely remote from human beings; they are free to make and unmake their society, even as they render its laws ineluctable, necessary and absolute” (37). Hybrids underwrite the modern double bind even as they belie it. Materializing concrete instances of nondifferentiation, their nonappearance or nonintelligibility enables modernity to exist as such. Or to put it slightly differently, highlighting their appearance and their intelligibility makes us realize that “we have never been modern”—or, at least, realize that modernity is not all that it is cracked up to be, or perhaps, simply, that modernity is always already cracked: “Here on the left, are the things themselves; there, on the right, is there free society of speaking, thinking subjects values and signs. Everything happens in the middle, everything passes between the two, everything happens by way of mediation, translation and networks, but this space does not exist, it has no place. It is the unthinkable, the unconscious of the moderns” (37).

Littered with hybrids, the modern unconscious reveals the traces of the contending forces which inform the social nature that we are. Yet because

they lurk beneath the level of our conscious reflection—at least insofar as we “are modern”—these hybrids also conceal these very forces from us. This book interrogates one such hybrid, “immunity-as-defense,” to meditate on the thoroughly political dimensions of the putatively biological substrate that we call “the body” (itself another hybrid, if not a hybrid of hybrids, as we will see in chapters 2 and 3). Biological immunity and the body mirror each other, each reflecting the other as both natural ground and *raison d’être*. Immunity takes on the responsibility for maintaining the integrity of the body, while the body’s putative singularity creates a constitutive vulnerability against which immunity must relentlessly defend it. Silently invoking its juridico-political legacy to supplement this natural insufficiency (while conversely naturalizing its unappreciated juridico-political valence), immunity throws itself into the breach between nature and society as a good hybrid should.

The longer I work on this project, the less I understand why it seems obvious to us to use a complex legal and political concept to describe how we coexist as organisms. Taken at face value, immunity has little to recommend it as an organismic possibility; indeed, once called to our attention, it seems hard not to notice that the trope only works as catachresis.²⁵ But what troubles me more than this patently improper character is the fact that despite how transparently immunity functions as a biopolitical hybrid and how obviously its “political nature” hides in plain sight, no one gives this hybrid strangeness the slightest regard. Every day immunity is invoked countless times as an unproblematic facet of reality, that is, as “fact”: labs are run on this fact, inoculations and antibiotics are prescribed according to this fact, pharmaceutical corporations invest in this fact, governments plan and implement policies predicated on this fact, NGOs and international and supranational organizations organize and distribute resources based on this fact. Immunity’s utility is indisputable. Yet as a consummate hybrid, it contradicts itself on many levels and then enfolds its contradictions within itself.

A Body Worth Defending considers immunity as an apotheosis of both modern medicine and the modern body because immunity defensively renders the organism distinct from the vital contexts in which it necessarily exists, locating both nature and culture inside it. This diremption hollows out the lifeworld, defining the organism as a defensible interior which needs to protect itself ceaselessly from a hostile exterior. In so doing, immunity-as-defense naturalizes premises avowed by an earlier political modernization, one that anoints the individual—along with its

now essential metonym, the body—as *the* natural social atom. If these entangled hybrids form the basis for modern political theory and modern biomedicine respectively, they do so as instances of what Foucault famously named “biopolitics.” Indeed, rubbing Latour up against Foucault (and thereby offering what I hope could provide a useful if not pleasurable frisson for both), we might say biopolitics names a “hybrid domain,” or a domain of hybridization. It makes visible and intelligible relations of force which, on the one hand, seek to distinguish biology and politics epistemologically and ontologically and, on the other, endeavor to mobilize “life” as a vital resource for, and target of, power.

Biopolitics (along with its fraternal twin, “biopower”) has proved one of the most infectious as well as most elliptical elements of Foucault’s conceptual legacy.²⁶ Despite their renowned elusiveness, biopolitics and biopower have engaged and continue to engage the interests of many contemporary thinkers, who recognize that the concepts evoke something which seems distinctly characteristic about the modern world (at least in its Euro-American incarnations).²⁷ Alluding to a pervasive engagement with, or entanglement in, “life itself,” biopolitics bespeaks a palpable sense that power has operated for the last two hundred or so years in part by creating, manipulating, managing, promoting, enhancing, and investing in a “zone of indistinction” (to appropriate Agamben’s idiom) between nature and culture which we all too unproblematically call “the body.” If both the life of the body and the quantum of life realized within bodily aggregations known as “populations” emerge as political concerns in Europe during the late seventeenth century and the eighteenth, we might say that they do so as hybrids which entrain the nature that humans incorporate within the politics that we enact. In other words, following Foucault, biopolitics seems to gesture toward an unremarked elision between nature and culture both in what we name as “human” and in ensembles of living human beings. Moreover, biopolitics reveals this hybrid formation as a highly potent domain, or as a domain whose potency derives from the biopolitical indistinction it motivates. Within the ambit of the modern, then, “the life” of human beings and of human collectivities emerges more and more as a paramount subject-object of political concern.

Foucault situates this emergence within a historical shift occurring from roughly the middle of the seventeenth century onward—in other words, within the ambit of modernity construed as a historical horizon. Though he does not precisely characterize it this way, Foucault’s biopolitical thinking emplots “the body” as a life-form that takes place within

the historical transformations that modernize us (if we ever become so). This problematic clearly appears in the lectures he gives at the Collège de France in 1976–77, titled *Society Must Be Defended*, where he considers the problem of political sovereignty in part by situating Hobbes’s political philosophy in the context of the English Civil War and its Cromwellian aftermath (1649–60). The next year’s lectures, *Securité, territoire, population* (1977–78), expand this historical project, situating biopolitics in the aftermath of the Thirty Years’ War as a “governmental” supplement to sovereignty per se. If (as we will consider in chapters 1 and 2) internecine violence and bloodshed in England leads modern political thinkers like Hobbes and Locke to invest in sovereignty and the rule of law as a means of civil pacification, Continental thinkers and rulers at the same time rely more and more on extralegal strategies to keep the peace both within and between nations. To apprehend this difference, we should recall that unlike the domestic and fraternal unrest which seized England, across the Channel, on the Continent, the most fearful violence ensues from conflicts that are not just civil but also regional, not just internecine but also international.

Preceding and overlapping the English Civil War, the Thirty Years’ War (1618–48) brings unrelenting death and devastation to many parts of Europe. This enduring period of military, political, and religious conflict not only results in widespread human mortality and morbidity but also visits ecological destruction, agricultural ruin, and economic collapse upon vast swaths of the region. While the war’s lengthy and convoluted dynamics cannot be summarized succinctly here, the complex alliances and enmities that underlie these three decades of violent discord can roughly be parsed into the opposition between the Habsburg dynasty, which ruled the Holy Roman Empire (now much of Germany, Austria, Switzerland, the Czech Republic, Slovakia, Hungary, and northern and central Italy), as well as Spain, against the combined opposition of the rulers of France, Sweden, Denmark, and Holland. Furthermore, this international backdrop also provides the setting for more internal struggles within and between the many Germanic principalities, bishoprics, electorates, dukedoms, cities, and estates which variously and alternately ally themselves with the larger powers. Overlaying, or underlying (depending on your interpretation), these military maneuvers are religious divergences between Calvinism, Lutheranism, and Catholicism which orchestrate the byzantine play of forces and counterforces that characterize this extended and extensive era of bellicosity. Needless to say, given the widespread involvement and

deeply felt justifications, the conclusion of these animosities, culminating in 1648 with the Peace of Westphalia, radically recasts the future of European states. Yet, even more importantly for our purposes, the Thirty Years' War also leaves in its wake a radically new mode of valuing human life. For in contrast to the English situation, where (as we will find in chapter 2) the political worth of human bodies bespeaks a *legal and economic valuation* predicated on the individual's abstraction from the lifeworld and its generalized vulnerability to death, the conclusion of these widespread and deadly hostilities on the Continent sees the value of the living human body *politically affirmed* as a vital defense against an imminent potential for generalized war in Europe. In the aftermath of the Thirty Years' War, living itself becomes politically invested as a vital state of war preparedness.

The biopolitics that crystallizes during the eighteenth and nineteenth centuries (and ultimately congeals within immunity-as-defense) is catalyzed by the Thirty Years' War and the Peace of Westphalia. In particular, Foucault intimates that resolving the violent conflicts among the warring European states gives rise to an extralegal political order which, in contradistinction to the English case, does not invoke natural law or natural rights to pacify the region. This new order creates modern Europe, establishing a "geographic region of multiple States, without unity and with unevenness between the small and the large, having a relation of utilization, colonization and domination to the rest of the world. . . . Voila, that's what Europe is."²⁸ Within this uneven geographic domain, organized violence and death are used and deployed as political resources both within and between states. According to the new equilibrating calculus of Europe, wars which had previously been thought—and fought—as rivalries among princes and been justified through competing claims to jurisdiction (war as litigation by other means) now come to function as a means of ensuring peace: "The first instrument of this precarious, fragile and provisional universal peace, which took the appearance of a balance and an equilibrium among a plurality of States . . . is war. That is to say, henceforth, one is going to be able to wage war, or better, one must wage war precisely in order to maintain this equilibrium."²⁹

Enlisting war as the primary resource for a general economy of peace implies two corollaries: the need for permanent diplomatic missions (and spies) serving to gauge and regulate the use of war, which Foucault describes as "a permanent apparatus [*dispositif*] of relations between States, an apparatus of relations which are neither an imperial unity nor an ecclesiastical universality. . . . a veritable society of nations" (310); and the need

for a permanent military apparatus comprising professional military personnel, a structured and permanent army, a military infrastructure (fortresses, equipment, roads, communications, etc.), and specific military knowledges (tactics, strategies, intelligence, etc.). After the devastating era of the Thirty Years' War and the ambitious peace it provokes, Foucault suggests that war enters modern politics as both a deadly and a vital instrument: "War is no longer another face of the activities of humans. War is going to be, from this moment on, the implementation of a certain number of means that politics has defined and of which the military is one of its fundamental and constitutive dimensions" (313). Two hundred years later, considering humans as living organisms, immunity-as-defense finally brings this war home.

Amid Europe's paradoxical domain of permanently bellicose peacefulness, biopolitics emerges as a resource both for war and for its prevention. To avert excessive violent death, biopolitics augments the forces of life; in the name of a pacific life, it invokes the belligerent specters of war. This Janus-faced regime incorporates within itself the very violence against which it contends, establishing war as the political ground for affirming the lives on which, and in whose name, it acts. In the final part of *La volonté de savoir*, titled "Right of Death and Power over Life," Foucault maps this new domain across two axes: the "disciplines: an anatomo-politics of the human body" and "regulatory controls: a bio-politics of the population."³⁰ The first of these he explicates at length in *Discipline and Punish*, where not coincidentally the tactical organization of military forces provides one of the paramount examples of how disciplines inform "docile bodies." Remarking on the efficacy of the Prussian army's new training regimes under Frederick I (who invests heavily in militarily "balancing" European relations), Foucault comments:

Through this technique of subjection [*assujettissement*] a new object was being formed; slowly, it superseded the mechanical body—the body composed of solids and assigned movements, the image of which had for so long haunted those who dreamt of disciplinary perfection. This new object is the natural body, the bearer of forces and the locus of a life [*siège d'une durée*]; it is the body capable of specified operations, which have their order, their stages, their internal conditions, their constituting elements. The body, in becoming the target for new mechanisms of power, offers itself up to new forms of knowledge. Body of exercise, rather than of speculative physics; body manipulated by authority, rather than imbued with animal spirits; body of useful training [*dressage*] and not of

rational mechanics, but in which, by which even, a number of natural requirements and functional constraints will reveal themselves.³¹

Formed through a “technique of subjectification” and target for “new mechanisms of power,” the “natural body” clearly does not manifest “nature” in an unmediated or ontological sense. Rather, constituted by and for strategic exigencies, the natural body serves as the political locus within which *vital forces endure*. Indeed, as Foucault notes elsewhere, given the massive new investments in permanent armies which require extensive training of troops to carry out military operations (e.g., efficiently using equipment, moving in synchronous patterns, obeying chains of command, etc.), the endurance of the life force trained in this manner becomes an object of great political and economic interest.³² The political and military concern with and for the natural body, then, imbues this body with its nature. Or, retracing Foucault’s precise thinking, “natural requirements and functional constraints will reveal themselves” in, or even through, the natural body by way of the “new forms of knowledge” to which it, as the “target for new mechanisms of power,” must “offer itself up.” In light of this contrapuntal formulation, we discern in Foucault’s natural body one of Latour’s network of social-natural hybrids that shore up the Modern Constitution, since its nature is thoroughly political.

The military investment in the natural body bespeaks the potent effects that the new political economies of war manifest for the living human being. In modern Europe, war provides a forceful terrain where the value of human life is realized—both individually and collectively. If Hobbes characterizes the “state of nature” as one of “Warre of every one against every one,” Foucault suggests that on the modern political battlefield, individuals do not so much contend against one another individually as much as they are conscripted within national formations which channel their vital potentials toward strategic ends. In other words, as Julian Reid argues, Foucault suggests that the ends of war transform the living human organism into a resource for national *defense*:

The strategic stakes of the military endeavors of modern states reside not simply in the clash of forces that distinguishes combat but in preparing for conflict, in disciplining the life of bodies that constitute organized military forces. War is fought for political order not among states, or on territorial battlefields where military forces clash, but on the terrain of the human body. It is the order that life assumes within the human body that is at stake, Foucault argues, in the struggles to discipline the human body.³³

Within this disciplinary formulation, we discern the first premonitions of modern biomedicine's avatar, immunity-as-defense. For the disciplines, "life" appears "ordered" within "the body" as a resource for, and a condition of, war preparedness. This is the case not only within the military *per se* but also within the domains where (as we will discern in chapter 2) disciplinary techniques applied to living bodies seek to augment the vital forces of the nation itself (e.g., the factory, the school, the hospital, etc.). By the end of the nineteenth century, when immunity emerges as a robust medical and scientific concept, it thoroughly naturalizes the military model as the basis for organismic function. As if materializing the disciplinary investment in the natural body, the immunological framework establishes war—at the level of cells and molecules—as the condition of life itself (the topic of chapter 4). Indeed, we might even say that the disciplinary formation of the natural body bespeaks the escalating incorporation of war in the mundane ways that we live.³⁴ Moreover, this political investment constitutes human life, both individually and collectively, as a valuable asset and increasingly construes living processes themselves as resources for the state in its ongoing struggle to balance its forces against those of the other states with which it coincides (chapters 1, 2, and 3 consider this dynamic for England, Germany, and France respectively).

Appearing after the disciplines, biopolitics emerges in the eighteenth century as a regulatory ensemble that both constitutes and conditions a new aggregate form of life: population. One of a series of modern abstractions that hypostatize the regularities of collective living and discern quasi-natural laws within them (e.g., the economy, society, human nature),³⁵ population conceives the individual lives of national subjects as units belonging to a more encompassing vital domain which the state now recognizes as a valuable resource for its own ends. This overinvestment in life at the levels of the natural body (discipline) and of the population (biopolitics) constitutes the new regime that Foucault names "bio-power."

The old power over death that symbolized sovereign power is now carefully overlaid [*recouvert*] by the administration of bodies and the calculated management of life. During the classical age, there is a rapid development of diverse disciplines—universities, secondary schools, barracks, workshops; in the field of political practices and economic observations, there also appear the problems of birth, longevity, public health, housing, and migration. Hence there is an explosion of numerous and diverse techniques for achieving the subjectifica-

tion [*assujettissement*] of bodies and the control of population. Thus, an era of “bio-power” commences.³⁶

The era of biopower might serve as another name for modernity, since, as Foucault puts it, it marks the “threshold of biological modernity.”³⁷ Here human life appears *at and as* the intersection of two different but interlocking apparatuses that simultaneously individualize and bind people together: “The setting up, in the course of the classical age, of this great duplex technology [*technologie à double face*]—anatomical and biological, individualizing and specifying, turned toward the performances of bodies and regarding the processes of life—characterizes a power whose highest function henceforth is perhaps no longer to kill but to invest life through and through.”³⁸ “Life” augments death as the primary instrument of power because it can be hailed both singularly and collectively, at the level of the organism and the species, as performance and as process, as biology and economics.

Life does not then specify the unmediated immanence of a distinctly and properly natural domain that precedes or exceeds social determination, only subsequently entering human relations by way of “cultivation” or “culture.”³⁹ Rather, life specifies an object of administration and subjectification that constitutes the processes of human living as a thoroughly hybrid domain. Targeting the world-transforming potential manifest by living human being (including, of course, its capacity to labor),⁴⁰ bio-power *appreciates* life by recognizing in it an exploitable natural resource rather than simply wielding death or diminishment as sovereign power does. Yet it is precisely this appreciation (in both its economic and aesthetic senses) that isolates living potential in the body and in collections of bodies in the first place. Moreover, as Foucault emphasizes, the two principal techniques of biopower converge not just conceptually but materially and effectively on and in these bodies (and bodies of bodies) through their administration and subjectification: “In fact, their articulation will not happen at the level of speculative discourse but in the form of concrete arrangements [*agencements concrets*] which will constitute the great technology of power in the nineteenth century.”⁴¹ Biopower encompasses a domain of hybrid networks that knit together biological processes, disciplinary technologies, individualized organisms, biopolitical apparatuses, and populations, among others, and in so doing affirms the value of human life.

Among its many palpable consequences, this life-affirming power recasts the role of the state, changing its *raison d'être* from that of a saver

of souls to a governor of bodies. If in premodern Europe the rationale that political theology provides for divinely anointed monarchs affirms their salvific responsibility for their subjects' souls—that is to say, their primary concern for their subjects' eternal life, rather than their temporal existence—then the rationale provided by political philosophy for modern sovereignty shifts this locus of concern from the afterlife to this life, if not to “life” itself. As Foucault describes it, this shift from soul to body has, since the eighteenth century, swallowed us whole. Deflecting its concern from soul to body, the modern state's “somatocracy” organizes new forms of governance that envelop the lives of its subjects in their all-encompassing embrace.⁴² Watching over us from cradle to grave, medicine serves as one of the most consummate somatocratic forces and concomitantly garners great power and authority (not to mention income) for its efforts. When it conceives immunity as its physiological doppelgänger in the last decades of the nineteenth century, medicine naturalizes this governmental project by proxy. According to the new bioscientific doxa, the organism's own cells now seem to engage in the very warlike actions that the modern state itself enlists to protect its subjects' lives as its most vital asset. Thus, *A Body Worth Defending* argues, by relegating defense to the organism's interior, modern medicine transforms the body into the apotheosis of the modern.

Genealogical Rumination, or Foucault in Slow Motion

By now I'm sure you realize that the work of Michel Foucault lives at the heart of this project. From the beginning of his career, Foucault addresses medicine as a knowledge formation that tangibly informs human experience.⁴³ While Foucault's early writings have had a widespread (if not always enthusiastic) reception in the history of medicine, medical sociology, and medical anthropology, thus far his later interests and methodologies have had less impact on studies of biomedicine.⁴⁴ Moreover, how reflecting on biomedicine might reciprocally illuminate biopower and biopolitics remains largely unexplored. *A Body Worth Defending* seeks to redress these gaps in our appreciation both of Foucault's own writings and of how they might link modern medicine more closely to biopolitical effects and contexts. In so doing, it foregrounds how one avatar of modern biomedicine, immunity-as-defense, metaphorically crosses from politics to nature and back and forth again, and offers a meditation on what, following Emily Martin, we might call “immunophilosophy.”⁴⁵

Each of the book's four chapters elucidates the knowledge, imagination, ethics, politics, and values that precipitate immunity's modern biological incarnation to illuminate how modern medicine defensively anoints the "modern body" as its most sacred icon. This project is at once historical and philosophical; or, to be more precise, it is genealogical.

Genealogy refers to an interpretative process inaugurated by Friedrich Nietzsche and adapted by Foucault, which Foucault famously described as a "history of the present."⁴⁶ For Foucault, genealogy considers the past as an immediacy whose immanence in the present derives neither from its inevitability nor from its determinacy.⁴⁷ Rather, genealogy understands that the presentation of the past, that is, the realization of "pastness" in and as "presentness," emerges from fragmentary and often random convergences whose accreted effects nonetheless confront us as "real." Such genealogical endeavors seek to uncover the chance combinations and conjunctions, intersections and collisions, productive coalescings and violent rendings, that give rise to the ways we realize our lives now. Genealogy's basic premise holds that the world is much more virtual and much more mutable than it presents itself. In genealogy we disclose contingencies secreted within phenomena which propose themselves to us as the essential dimensions of our world. Through this disclosure, genealogy hopes to glimpse instabilities where we often see inevitabilities, to imagine possibilities where we resign ourselves to necessities, and thus to learn to think and live otherwise than we supposed imaginable heretofore.

Disturbing the foundational certainties ascribed to the body, genealogy opens life to history by considering contingencies which the body hides. Though Foucault still retains his own attachment to the body (for this nominal formulation persists despite its problematization), he locates genealogy's concern at and as "the articulation of body and history."⁴⁸ Genealogy, according to Foucault, decomposes the body's "nature"—and thus any pretense to its "being" (as) an immutable, inevitable, transhistorical, or immanent truth—revealing what, following Latour, we might call the body's "hybridity." Insofar as genealogy discloses the body as hybrid, it enables us to consider how the historical unfoldings that we take (and mistake) as its contours, or even its "defenses," appear self-evident as its *and our* most vital matter. In Foucault's terms, such "eventualization" is "a matter of shaking this false self evidence, of demonstrating its precariousness, of making visible, not its arbitrariness but its complex interconnections with a vast multiplicity of historical processes, many of them of a very recent date."⁴⁹

Genealogy therefore offers a fruitful framework through which to consider immunity's transubstantiation into a biological function at the end of the nineteenth century. When science adopts the juridico-political metaphor as a robust concept, it radically redefines the truth of the body as both substantially distinct from, and opposed to, the world in which it exists. However, this scientific affirmation necessarily obscures not only the conditions of its own coming-into-being but also occludes all competing frameworks, which it concomitantly disqualifies as un- or prescientific. For this reason, a genealogy of immunity necessarily partakes of Foucault's more general genealogical goal to destabilize and decenter scientific discourse's self-authorizing and self-validating truth claims. As Foucault remarks: "Genealogies are quite specifically antisciences. . . . They are about the insurrection of knowledges. . . . Genealogy has to fight the power-effects characteristic of any discourse that is regarded as scientific."⁵⁰

An antiscientific or genealogical approach to immunity does not, however, seek to contest its truth or effectiveness but seeks to discern how the concept congeals within itself the interests and assumptions of a wider, nonscientific ambit *as science* to disqualify *as nonscience* what Foucault calls "subjugated" knowledges. The contemporary idiom that regards healing modalities that do not unquestioningly affirm the immunological paradigm as "alternative," "complementary," or "supplemental" (e.g., acupuncture, osteopathy, homeopathy, etc.) illustrates precisely how such disqualification works. Placing immunity at the center of truth, as the most truth-full concept, bioscience displaces other possible understandings from the domain of "the true." While they may offer empirical verification (and hence be eligible for insurance reimbursement), these "supplements" remain nonetheless excluded from proper bioscientific legitimacy. They might work, but they are not "true." A genealogy of immunity highlights how motivated and yet nondetermined combinations of political, economic, sociological, philosophical, diplomatic, and biological events precipitate immunity as a robust bioscientific explanation while simultaneously rendering other healing possibilities less than, or not yet, scientific.

If the goals of genealogy are antiscientific, its process is rumination. In *On the Genealogy of Morals*, where Nietzsche both describes and deploys genealogy simultaneously as a historical method and as a form of interpretation, he plays on the bovine resonance of this image quite explicitly: "To be sure, one thing is necessary above all if one is to practice reading as an *art* in this way, something that has been unlearned most thoroughly nowadays . . . something for which one almost has to be a cow and in any

case not a ‘modern man’: *ruminatio*.”⁵¹ Counterpoised to the habits of “modern man,” genealogical rumination not only approaches matters as if from a nonhuman, cowlike perspective but advances by way of slow, careful digestion. In this book, it proceeds by lingering over numerous distinct events and disjoint concepts with no necessary or predictable correspondence that “a body worth defending” accretes. Moreover, this immunological rumination ruminates in turn on Foucault’s biopolitical idiom itself, lingering over numerous texts and insights that Foucault invokes in his writings to break down their often gnomic significance into more digestible bits.

The body of this book repeatedly limns the terrain of Foucault’s writings (especially the less well-known, more recently published lectures he gave at the Collège de France between 1975 and 1978) and asks how they illuminate our investments in biomedicine and human bodies more generally. As a result, the argument continually circles around and returns to topics often familiar to Foucault’s readers; however, in doing so, it expands on and extends the Foucauldian reference by dwelling on and with texts and issues that Foucault himself often passes over quickly while making his points. Addressing Foucault in slow motion, then, not only elucidates the significance of Foucault’s work but also interrogates the biopolitical dimensions of modern medicine as an instrument of biopower itself. These entwined undertakings form the conceptual armature of *A Body Worth Defending*, binding its diverse genealogical considerations together within a contrapuntal play of theoretical and historical inquiry.

In considering immunity as the biomedical apotheosis of the modern body, *A Body Worth Defending* evokes three recurrent motifs: one addresses the history of a concept (how does immunity migrate from politics and law into medicine?); one reflects on the emergence of a political ontology (how does the body come to ground modern notions of political, legal, economic, and biological personhood?); one interrogates the theoretical hope that Foucault’s writings continue to inspire today (how do biopolitics and biopower inform contemporary thinking about living human being both in its singularity and its collectivity?). Braided together, these three lines of inquiry ruminate on a basic question about how modern personhood comes to conceive itself as fundamentally, if not biologically, defensive. To put it crudely, my main goal is to understand how and why those of us who live within the ambit of modern medicine (defined in this case by the acceptance of biological immunity as a foundational precept) so readily accept the notion that to endure as living organisms, we must actively and relentlessly fend off the predations of

the very world that sustains us. Or, even more crudely put, I am trying to comprehend how and why we unreflectively believe that as embodied beings we are essentially and necessarily—i.e., “naturally”—distinct from the lifeworlds within which we materially arise and on which we materially depend for our existence. In other words: how did we come to believe that as living beings, “the body” separates us from each other and from the world rather than connects us?

To Defend or Not to Defend? That Is the Question

Of course, biomedicine no longer holds that immunity simply defends the organism—even if defense remains one of immunity’s most rudimentary and most radical valences. In the middle of the twentieth century, immunology transforms itself into the “science of self/nonself discrimination,” as Macfarlane Burnet proposes.⁵² “Self-nonself discrimination” arises within immunology to account for evidence that immune activity can paradoxically defend against the host organism’s own tissues—or at least destroy them. This autoreactivity, or autoimmunity, confounds an immune paradigm predicated on host-invader relations, which imagines the immune target as foreign. To make sense of autoimmunity while still retaining its basic defensive orientation, immunology evokes a more nuanced explanation, which Burnet provides: “When Macfarlane Burnet initiated the modern preoccupation with the self/nonself dichotomy, it was to explain the apparent paradox of why we all do not succumb to autoimmune disease.”⁵³ Or, as the editors of an issue of *Seminars in Immunology* (2000) devoted to contemporary immune theories polemically affirm: “Everyone agrees that a biodestructive defense mechanism must make some kind of self-nonself discrimination.”⁵⁴ While not everyone actually agrees (as we will see in a moment), nonetheless immunity’s defensive implication does pass over into the organism’s self-constitution. For most immunologists, “self” implies “as opposed to nonself,” and “discriminate” supplements “defend.”

However, this lexical transition does not render defense immunologically obsolete. Rather, it recasts immunity as a productive rather than a negative activity, affirming the self as both self-constituting and self-defending (self-constituting because self-defending, self-defending because self-constituting). As Scott Podolsky and Alfred Tauber observe: “The organismic view of immune function focused on the processes of

self-nonsel self discrimination and the general regulatory basis by which to model them; the main question is how the body distinguishes between friend (self) and foe (nonself).⁵⁵ The analogy “self is to nonself as friend is to foe” reveals the immunological self-relation as decisively *political*. Indeed, the opposition of friend to foe has defined the poles of Western politics ever since there first was a polis.⁵⁶ Moreover, despite Burnet’s ecological interests in how biological organisms coexist, his self-nonsel self model recapitulates immunity’s underlying defensiveness as intrinsic to the individual organism, projecting its politics into the living being as a vital condition.⁵⁷ Thus, while self-nonsel self seems to displace defense as immunity’s *raison d’être*, it actually pushes it even deeper into the organism, to the level of ontology if not ontogeny.

Throughout the twentieth century, immunology nuances its sense of defense. In the late 1950s, Burnet adapts his self-nonsel self theory to Niels Jerne’s “selection theory,” precipitating “clonal selection theory.”⁵⁸ With many adjustments and complexifications, this theory still largely obtains—albeit in a more postmodern vein. Hence, while some immune theorists do propose alternate possibilities, at the beginning of the third millennium venerable scientists like R. E. Langman and M. Cohn still categorically claim:

We assume without further justification that the immune system is a biodestructive defense mechanism that normally functions to destroy and rid both intracellular and extracellular pathogens without destroying or seriously impairing the host. . . . In fact, we would go so far as to make this the definition of an immune system: Any biodestructive defense mechanism that makes somatically selected self-nonsel self discrimination is an immune system.⁵⁹

For Langman and Cohn, defense still constitutes the *sine qua non* of immunity, and self-nonsel self maps the terrain across which (or within which) this defensive encounter transpires. Immunity may necessitate more complex reconnaissance to accomplish its essential mission, but the defensive imperative remains much the same. Even when a renegade theorist like Irun Cohen attempts to move beyond clonal selection and self-nonsel self to introduce a “dialogic” or “cognitive” paradigm, he proffers similarly defensive tropes:

The immune system is the guardian of our chemical individuality; it is a system that eliminates parasitic bacteria and viruses, a system that rejects foreign cells and tissues, a system that can destroy tumor cells arising from our own bodies.

By deciding what macro molecules and cells are allowed residence within us, the immune system establishes the molecular borders of each person. In defending the individual, the immune system defines cellular individuality.

The immune system has earned a reputation, justly, for its role as protector of the body against foreign invaders. However, the immune system is not only a department of defense, it also functions as a department of internal welfare. The immune system is an unsung hero of maintenance and reconstruction.⁶⁰

Here Cohen highlights defense's inability to account for all the processes encompassed by immunity (as opposed to Langman and Cohn). To redress this limitation, his cognitive model seeks to appreciate ways that immune function enhances "body maintenance."⁶¹ Yet, in figuring what this entails, Cohen evokes the specter of "internal welfare," the exact image that governing discourses at the end of the eighteenth century and the beginning of the nineteenth employed to explain medicine's value for the state as a supplement to its defense (mentioned earlier and discussed at length in chapters 2 and 3). Thus, in rectifying the politico-historical limits of one metaphor, Cohen unwittingly conjures the limits of its historical confrere. Moreover, when he does so, he imagines the immune system as a form of "homeland security" *avant la lettre*, even foreseeing its policing of residence and border crossings.

One of the few immunologists who explicitly abjure defense is Polly Matzinger. In fact, her "danger" model provokes quite defensive defenses of defense.⁶² Matzinger's theory addresses a range of phenomena for which defense-oriented immunology cannot account, including, among others, autoimmunity; transplant rejection; why tumors are not rejected; why mothers do not reject fetuses; why we can go through puberty, maternity, and aging without rejecting ourselves; why we do not defend against commensal bacteria and viruses (e.g., the bacteria in our guts without which we are dead meat); and graft-versus-host disease. Positing a "two-signal" paradigm (immune responses require two separate effector signals, one of which indicates proximate tissue damage or death), Matzinger underscores the embedded metaphors that inform immune theories:

For half a century we have studied immunity from the point of view of various forms of SNSD [self-nonsel self discrimination] models in which immunity is controlled by the adaptive immune system, an army of lymphocytes patrolling the body for any kind of foreign invader. Recently there has been a shift to include the cells and molecules of the innate immune system, an army of cells and molecules patrolling the body for a subset of foreign invaders that are ancient enemies. . . .

Perhaps it is time to stop running a cold war with our environment?

The Danger model does not allow an army to control immunity. It expands the definition of the innate immune system to include the extended, highly interactive family of bodily tissues. It allows for a flexible system that adapts to a changing self while launching immune responses to dangerous pathogens. It also allows us to live without maintaining a rigid sterility that segregates us from the environment. We become a habitat, welcoming the presence of useful commensal organisms and allowing the passage of harmless opportunistic ones. With such an immune system we live in harmony with our external and internal environment.⁶³

In distinguishing her ideas from immunology's earlier defensive paradigms, Matzinger not only highlights their militaristic implications but also stresses that they represent the body as a defensible and defended boundary. Far from an ideological critique, Matzinger's concerns about immunology's inability to negotiate a number of empirical impasses lead her to question its implied vision of the human organism. However, the terms of her questioning also reveal the *values* that immune theories incarnate.

Apart from its ability to encompass heretofore contradictory data (certainly not conclusively established), Matzinger's danger model discloses the modern body that immune discourse incarnates. Her sense that immune paradigms conduct "a cold war with our environment," which does not represent the natural *and hence inevitable* order, allows her to posit a more pacific, and dare I say "communal," world. (Community is the etymological opposite of immunity, as chapter 1 reveals.) In so doing, she invokes a concept, harmony, that fell out of Western biomedicine in the late nineteenth century when immunity replaced "natural healing" (the *vis medicatrix naturae*) as a scientifically endorsed concept. By predicating this harmonious possibility on danger as an alternative to defense, Matzinger suggests that defending incorporates unwarranted scientific assumptions about how organisms (human and not) coexist in shared environments. Moreover, as her rhetoric intimates, these unwarranted scientific assumptions both depend on and realize unwarranted political consequences which deleteriously affect organisms (human and not). Matzinger's danger model then proposes that the body might actually, empirically, scientifically, and medically *be* a nonmodern body, a welcoming habitat, and conversely that the defended, self-defining modern body might itself constitute a source of danger.

A Body Worth Defending provides some of the back story for how modern medicine constitutes the modern body and asks how immunity

(which *no one* in immunology ever questions as an appropriate metaphor, unlike defense) makes this constitution make sense. It tracks how the human organism loses its natural harmony with the environment to achieve its new modern apotheosis. Long before this possibility exists biologically—unthinkable until the middle of the nineteenth century—it lives politically, legally, and economically in the wake of seventeenth- and eighteenth-century Europe’s violent turn from feudal hierarchies and absolute monarchies. Chapter 1, “Living Before and Beyond the Law, or A Reasonable Organism Defends Itself,” introduces the historical provenance of immunity and defense and situates them in relation to ideas about natural law that shape modern politics and modern science. Chapter 2, “A Body Worth Having, or A System of Natural Governance,” considers how the two axes of biopower, the anatamo-politics of bodies and the biopolitics of population, inform modern ideas about the body and personhood, not only giving rise to new legal, political, philosophical, and economic subjects but also enabling medicine to incorporate these new subjectivities as its political rationale. Chapter 3, “A Policy Called Milieu, or The Human Organism’s Vital Space,” focuses on the coincident revolutions in French politics and medicine and explores how nineteenth-century medico-politics, or public hygiene, envisions humans as vitally situated beings. It then examines how bioscientific epistemology inverts this vision when Claude Bernard introduces the concept of *milieu intérieur* and thereby legitimates laboratory experiment as the privileged locus for biological truth. Chapter 4, “Incorporating Immunity, or The Defensive Poetics of Modern Medicine,” brings together the political and medical valences preceding immunity’s defensive incarnation, especially evident in humoral medicine’s interpretations of infectious diseases and in the international military, economic, and political strategies to disrupt them. Against this background, it reveals how bacteriology’s equation of microbes with invaders—a metonymy derived from the metaphoric representation of epidemics (especially cholera) as invasions—leads to Metchnikoff’s counter-coup of imagining phagocytes as defending the organism against these invaders. From this biopolitical conjunction, immunity-as-defense arises as the apotheosis of the modern body.

Modern medicine appears at the end of the eighteenth century and the beginning of the nineteenth as an explicitly hybrid domain, as a biopolitical domain, which publicly declares its indifference to the modern distinctions between nature and society insofar as they equally impinge on living human being. Across the next two centuries, this ongoing incarnation of

politics in nature and nature in politics marks medicine as one of our most powerful governing institutions. Indeed, we might entertain the possibility that the power of modern medicine lies not only—or even especially—in its curative capacities but also in its ability to finesse the terms of the Modern Constitution. Proliferating an amazing array of biopolitical hybrids, modern medicine deflects our ability to consider how the care and governance of our bodies import political values into our putatively “natural” processes. In so doing, medicine secret(e)s its political import within the tissues, cells, and molecules of our flesh, where we would not usually think to look for it. It turns us into modern bodies. By interrogating the ways that immunity comes to matter as an intimate and necessary element of our living, *A Body Worth Defending* considers the biopolitics of modern medicine as a matter worth rethinking. Indeed, it tries to suggest that such a rethinking might actually lead us to imagine new ways of living, both singularly and together, which might be more healing than those that modern medicine currently offers us.

Today immunity informs us deeply: as organisms, as individuals, as citizens, as peoples, and as a species. In the wake of immunology, we no longer just live our politics, but our politics literally live in us. Conversely, the world in which we live has been recast according to this new “natural” order such that overtly political acts of violence and aggression can be interpreted immunologically, as George W. Bush did when he described the events of September 11, 2001, to a joint session of the U.S. Congress by declaring: “Our nation has been put on notice: we are not immune from attack.”⁶⁴ Yet despite how immersed we are in immunological understandings and how deeply immunological effects reside in us, we remain largely ignorant of the processes through which this infectious concept has come to have such a purchase on our lives. In recovering a bit of this history, then, *A Body Worth Defending* recalls some of the decisions about how we construe the world that this concept accretes—and hence implicitly invokes—whenever biological immunity serves as a transparent representation of our vital nature.