UNEVEN DEVELOPMENT

Nature, Capital, and the Production of Space

NEIL SMITH

Third edition, with a new afterword

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Foreword

THE REPUBLICATION OF Neil Smith's *Uneven Development* is cause for celebration on two counts. First, the book pioneered a wholly new approach to uneven geographical development at a historical moment when the collision of Marxian theorizing and geographical thinking was in its incipient but most fruitful and illuminating phase. It took someone with Smith's deep knowledge of and passionate commitment to both Marxian and geographical theory to pull off the merger of two so very different modes of thinking with such insight and panache. What Smith ended up doing, in effect, was to take seriously Lefebvre's assertion that capitalism has survived since the beginning of the twentieth century in large part through the production of space (and show theoretically why that has been and must be so) and explore its deeper

and multiple intellectual and political meanings by accepting Alfred North Whitehead's view that "the determination of the meaning of nature"—including human nature—"reduces itself principally to the discussion of the character of time and the character of space." Smith did not start from these propositions. But that this was where he ended up after careful critical engagement with a whole host of competing ideas about capital, space, and nature, is undeniable. It is a tribute to this crucial insight that so many of us have continued to elaborate on this theme ever since. *Uneven Development* was, and continues to be, therefore, a foundational text of great historical significance, constantly worthy of reappraisal. It provides, as Edward Said noted in *Culture and Imperialism*, "a brilliant formulation of how the production of a particular kind of nature and space under historical capitalism is essential to the unequal development of a landscape that integrates poverty with wealth, industrial urbanization with agricultural diminishment."

But Said's commentary leads us directly to the second reason to applaud the reissue of *Uneven Development*. The unequal development of the global economy, with its burgeoning extremes of wealth and poverty, its astonishing pace of urbanization and environmental degradation, has accelerated rather than diminished over the quarter century since this book was first published. The political message of the book should, under such conditions, be doubly welcome simply because it is more relevant than ever to dissecting our present predicaments. Yet the penchant for tough critique in academia has notably waned over the years as the reputation of Marxian theorizing, of political-economic analysis, and of politically targeted critical geographical theory has been diminished not only by events (such as the end of communism) but also subject to dissolution in the tepid wash of identity politics and cultural theorizing. This so-called radical thinking amounts to thinly veiled apologetics for either doing nothing or offering mild support to either toothless communitarian oppositions or, even worse, covert neoliberalization.

When the widely held belief takes hold (in part promoted within hegemonic institutions such as the media and the universities, themselves

subjected to neoliberal pressures and market determinations) that the answers to global poverty and environmental degradation lie in the extension of market logics and private property arrangements (everything from ridiculously inefficient as well as inegalitarian carbon-trading regimes to microcredit institutions that shamelessly prey on the poor) then there is precious little critical basis left for struggling to construct a more globally just social order. The ambition to ameliorate the worst abuses of neoliberal globalization and imperialism by human rights activism at best ameliorates and at worst ends up promoting the very ideals of neoliberal individualism and personal responsibility that lie at the root of our present difficulties.

Fortunately, there are social movements afoot around the world that insist that "another world is possible." And they are making plain their determination to construct that other world. But here, too, there is another barrier encountered to constructive politics, born out of the failures of so many traditional left movements to abandon their dogmatic assertions and their analyses constructed to confront a bygone era. While all of us concerned to build a better world need to rethink politics and ways of knowing in ways appropriate to our complicated contemporary geographical and historical situation, it is hard to do so within a climate of distrust for all forms of intellectual abstraction let alone the rigors of Marxian theorizing. But activists forget at their peril the advice long ago proffered by that great geographer Elisee Reclus to his anarchist comrades when, toward the end of a long life of struggle, he wrote: "Great enthusiasm and dedication to the point of risking one's life are not the only ways of serving a cause. . . . The conscious revolutionary is not only a person of feeling, but also one of reason, for whom every effort to promote justice and solidarity rests on precise knowledge. . . . Such a person can incorporate his personal ideas into the larger context of the human sciences, and can brave the struggle, sustained by the immense power he gains through his broad knowledge."

Neil Smith's *Uneven Development* is an essay in intellectual and political empowerment, a nondogmatic and wide-ranging inquiry into

crucial aspects of the human condition, one that can still inspire and teach us much about that other world that is indeed possible. It deserves a careful reading and rereading. You will not be disappointed.

David Harvey

Preface to the Second Edition

EARLY IN THE TWENTIETH CENTURY, students at Al Azhar University in Egypt went on strike. It was hardly a progressive movement; they were rebelling against the science of geography, which they rejected as much too innovative and a clear threat to established tradition. Their fears may have been real, but in the end were misfounded. During the twentieth century, the "science of geography" has attended to a gamut of ruling-class agendas in different national and international contexts, and yet by the late 1970s, as global politics moved right, geography moved left. By the end of the 1980s, as the rebellions grew in Eastern Europe, a U.S. state department official grabbed headlines with the desperate optimism that we were facing the "end of history"; American capitalism had won. In its ideological insulation from events

non-American, this vision also assumes the end of geography. For the American Empire, if hardly for the oppressed and exploited around the world, news of this freezing of time and space may have come just in time. It presumably obviates any need to confront seriously the reasons and consequences of the fading American century and the deepening crisis of liveability for more and more people around the globe.

Viewed from somewhere other than Washington, the events of the 1980s suggest a different perspective. Far from an end to history, we may be witnessing the "beginning of geography." The deconstruction of a comparatively stable postwar capitalism in its various monopoly and state guises, combined with the consequent social, political, and economic restructurings, have provoked such fragmentation, dissociation, and recombination of places and events at all spatial scales that indeed the production of new landscapes today puts space and nature—the central themes of geographical inquiry—firmly on the political agenda. Geography is being rescripted as an active political process. This is realized in more academic realms too where, to use Ed Soja's felicitous phrase, there has been a "reassertion of space in critical social theory."

I ended the preface to the first edition by quoting the now familiar sentiment that "all that is solid melts into air." With the publication of Marshall Berman's book of that title, this aphorism from Marx and Engels has come to symbolize the fragmentation of experience in the 1980s that led many to reject the global vision of marxism in favor of various localisms. Yet it is increasingly apparent that the melted geographies of the past decade and more are being recast in the 1990s, resolidified, remade as new expressions of restructured constellations of social relations. In this book I argue that the uneven development of capitalism can best be conceived as resulting from contradictory tendencies toward the differentiation and the equalization of levels and conditions of development. If for understandable reasons the processes of differentiation occupied most of our attention in recent years, we will fail to understand the geography of uneven development unless it is understood that differentiation and equalization are inseparable, mutually implicative. Then

indeed the innovative, progressive, rebellious potential of the "science of geography" that so offended the students of Al Azhar might also be realized.

Many colleagues have helped me to expand my ideas on uneven development in recent years, and although their comments and criticisms are not always incorporated here, I want to acknowledge their help. David Harvey, Cindi Katz, and Ed Soja have been especially sensitive and challenging critics who have quite differently taught me new ways of seeing. As a student, I often thought it patronizing when authors thanked their students for their "stimulating" influence, but since moving to Rutgers I have come to depend considerably on the intellectual excitement engendered by an exceptional group of people: Laura Reid, Leyla Vural, Tanya Steinberg, Andy Herod, Don Mitchell, Tamar Rothenberg, and Julie Tuason have all in different ways contributed time and ideas, and I hope this has been as worthwhile for them as it has been for me.

Neil Smith
May 1990

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Preface to the First Edition

THIS BOOK REPRESENTS the meeting ground of two types of intellectual investigation. The first is a theoretical and philosophical exploration and critique of concepts as a means to interrogate more sharply the reality we live in. Thus the first two chapters are concerned with renovating the terribly archaic conception of nature that dominates Western thought. I began this aspect of the work in 1979. The second kind of investigation arose separately out of a fascination for North American cities. It seemed to me in the mid-1970s that urban spatial structure both defied all the traditional urban models, and yet had a very coherent if dynamic pattern. In a very superficial way at first, I was convinced that one could read much of the social structure of society from its inscription in urban geographical space. In particular, I was fascinated with

the process of gentrification and began research on this topic. As the research continued, against a backdrop of greater familiarity with marxist theory and concepts, I became convinced that gentrification was itself the product of spatially more universal, if quite specific, forces operating at different scales: the general process was one of *uneven development.*

As the research into spatial structure broadened into a theoretical investigation, the links with the more philosophical investigation became clear. Thus the third chapter on space links the more abstract work on nature with the theoretical investigation of uneven development pursued in chapters 4 and 5. The final product represents, I hope, less a philosophical investigation than a bridge from the philosophical interrogation of concepts to their application in pursuit of new theoretical vistas. For as Marx insisted, there can be no philosophy separate from practical science. It is certainly an attempt to get beyond philosophy.

Intellectual wealth is achieved through the accumulation of debts. I only hope that in my case the wealth is equal to the debts. David Harvey has contributed more to this work than can be said in words and footnotes. He mixed encouragement and challenging criticisms with free dinners and friendship. He always believed in the importance of the project and responded with his unique mix of laissez-faire encouragement and active interventionism. His own work has inspired me since before I went to Baltimore, and continues to do so. He also read and criticized an earlier draft of the manuscript.

But I would never have arrived in Baltimore if it had not been for Joe Doherty in St. Andrews, who first encouraged me to make philosophical speculation responsible to reality. He patiently and quietly insisted that I deal with the most troublesome issues, and without his sincere commitment I could never have envisioned the present work, even in ideal embryo. Once in Baltimore, Reds Wolman provided consistent support at a level I had no reason to expect, and although he did not always understand what I was trying to do, he trusted me to do it.

In the early stages of the work, Nancy Gish was supportive in many ways but insisted that if I was going to write I may as well do so clearly.

In the later stages, many people have contributed but none more so than Kathy Ogren who would let me talk about my work and who offered the support of deep friendship. Others were stimulating colleagues and friends who, in different ways, tolerated my anti-social hours and tendencies, and talked with me anyway: Beatriz Nofal, Michele LeFaivre, Barri Brown, Phil O'Keefe, Barbara Koeppel, Donna Haraway, Jerry MacDonald, and Lydia Herman. Several people have assisted with parts of the typing in its various (usually rushed) stages: Karen Pekala, Jean Kelley, Katie Reininger, Peggy Newfield, and Liza Cluggish. If Leon unfailingly attacked the first draft in the wee hours, Peon gladly inherited this responsibility for the second draft.

"All that is solid," Marx once said, "melts into air." This is true not only of the geography of capitalism; in a period such as this it is also true of the political struggles against exploitation and oppression. And so finally I want to acknowledge the inspiration provided by Cal and Barbara Winslow. With them, I look forward to the days when we will again have something solid.

Neil Smith

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UNEVEN DEVELOPMENT

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Introduction

THIS BOOK IS ABOUT the geography of politics and the politics of geography. It therefore attempts to integrate two intellectual traditions which until very recently have enjoyed little serious cross-fertilization. If the work is theoretical in substance and exposition, it is quite immediate in motivation. For one can hardly look at the world today without perceiving that, at the hands of capital, the last two decades have witnessed an emergent restructuring of geographical space more dramatic than any before. Deindustrialization and regional decline, gentrification and extrametropolitan growth, the industrialization of the Third World and a new international division of labor, intensified nationalism and a new geopolitics of war—these are not separate developments but symptoms of a much deeper transformation in the geography of capitalism. At the

most basic level, the object of this work is to unravel the theoretical logic driving this restructuring of geographical space.

The first tradition, that of academic geography, provides us with the orthodox concepts of geographical space and the environment, as well as an analysis of spatial relations on the surface of the earth. Long mesmerized by a peculiar brand of neo-Kantian historicism, academic geography relinquished its eighteenth-century garb in the 1960s in favor of a thoroughly anti-historical positivism. Though by no means unchallenged, an abstract conception of absolute space now dominates this tradition; space (along with time) is a basic coordinate of reality, a field, an infinite, universal, and unchanging box within which material events occur. According to this tradition, therefore, the restructuring of space makes no sense except as the product of the most universal physical forces and laws: human activity does not restructure space; it simply rearranges objects in space. Viewed through this set of philosophical lenses the symptoms of spatial restructuring appear as just so many separate processes at separate scales with very separate causes and explanations. Because the lenses are too crude, the real pattern is refracted in fragments.

The second tradition is that of the political analysis of capitalist society. By contrast with the geographical tradition, marxist theory is explicitly historical, and this is one of its major strengths. Marxist theory attempts to explain the specific economic, political, and social structure of society in a given period as the result not of supposedly universal forces (for example, human nature), but as the result of historically specific and contingent processes. It is not just that competition and the market, economic growth and the profit motive are historically contingent, but that the form they take changes and develops within the history of capitalism itself. A further strength of marxist theory is its relational perspective which treats capitalist society as a coherent (if not always consistent) whole, rather than as an agglomeration of fragments. These strengths make this tradition particularly sensitive to the contemporary restructuring of capitalist society. But what it gains in historical sensibil-

ity it lacks in geographical sensibility, perhaps because, despite the holistic approach, marxists have tended to accept the traditional bourgeois conception of space as quite separate from society. Only in the isolated cases of the analysis of the separation of town and country, and of the necessity of internationalism, does the marxist tradition transcend this acquiescence to the bourgeois conception of space. While this tradition has the theoretical wherewithal to comprehend the contemporary restructuring of geographical space, therefore, it has tended to lack the requisite geographical sensibility.

In an attempt more fully to comprehend the restructuring of geographical space, a number of researchers have begun to explore the intersection between the geographical and the marxist traditions.[1] Broadly, the focus that is developing is upon the question: what is the geography of capitalism? What specific spatial patterns and processes characterize capitalist society, and how do they change with the further development of capitalism? In itself this represents a significant advance for both traditions. For geography it offers the possibility of putting the philosophical lenses into historical focus, thus opening up a whole new world in which human societies create their own geography. For marxism it offers the chance both to extend the jurisdiction of marxist theory into the geographical sphere, and also to deepen it, in that even the natural and spatial substructure of the social landscape can then be comprehended from within marxist theory.

Most of the emerging work on the geography of capitalism examines in some detail the process of uneven development, which has become a fashionable even faddish idea in the last decade. So faddish, indeed, that like all fads it has been quickly trivialized. One can see, for example, how geographers might treat uneven development as an ahistorical and universal process, little more than the inevitable result of the eternal impossibility of *even* development: "*everything* develops unevenly." Far more disturbing is to find marxists, despite the historical acuity of their theory, submitting to the same trivialization. For uneven development is far too fundamental to the unfolding of capitalism for it to be passed

over as a commonplace and added to the buzzword list of processes deserving only lip service. The point is that uneven development is the hallmark of the geography of capitalism. It is not just that capitalism fails to develop evenly, that due to accidental and random factors the geographical development of capitalism represents some stochastic deviation from a generally even process. The uneven development of capitalism is structural rather than statistical. The resulting geographical patterns are thoroughly determinate (as opposed to "determinist") and are thus unique to capitalism. At the most basic level, as I hope to show, uneven development is the systematic geographical expression of the contradictions inherent in the very constitution and structure of capital.

Occupying the common ground between the geographical and political traditions, a theory of uneven development provides the major key in determining what characterizes the specific geography of capitalism. Phrased this way, the question is essentially *geographical*. But one cannot probe too far into the logic of uneven development without realizing that something far more profound is at stake. It is not just a question of what capitalism does to geography but rather of what geography can do for capitalism. Thus in addition to the essentially geographical question, the theory of uneven development also addresses the *political* question: how does the geographical configuration of the landscape contribute to the survival of capitalism? From the marxist point of view, therefore, it is not just a question of extending the depth and jurisdiction of marxist theory, but of pioneering a whole new facet of explanation concerning the survival of capitalism in the twentieth century. From the vantage point of the geographical tradition, which especially in the United States today is grasping for all entrepreneurial opportunities, the result is no less dramatic. The popular geographical wisdom is that we live in a shrinking world, that cheap and sophisticated transportation systems have diminished the importance of geographical space and geographical differentiation, that traditional regional identities are being evened out—in short, that we are somehow beyond geography. What I argue here in the derivation of the theory of uneven development is that whatever the partial truths conveyed by the popular wisdom, the contrary

is true. Geographical space is on the economic and political agenda as never before. The idea of the "geographical pivot of history" takes on a more modern and more profound meaning than Mackinder could have imagined.[2]

The idea of uneven development has a heritage in marxist theory, and before proceeding with the task at hand, it is necessary to clarify where the present analysis fits in the context of the so-called law of uneven development. Claiming an exclusive marxist pedigree for the idea of uneven (and combined) development, Ernest Mandel has gone as far as to say that with the exception of Marx's own work, no idea of explicitly marxist origin has become so influential and widespread in bourgeois circles.[3] There is a germ of truth in this even if it tends toward exaggeration. Yet in the marxist tradition itself, this conception has not been well developed. It figured prominently in the political struggle between Trotsky and Stalin in the 1920s, especially in the debates over internationalism and "socialism in one country." In this context it was a political concept which referred to the uneven development of class struggle and of the challenge to world capitalism. As with so many facets of twentieth-century marxist thought, the pattern of response established in this period of emerging stalinism has dominated later treatments of the process.

In fact, uneven development, as a discrete process, was first examined in any depth by Lenin, who tried to sketch some of the economic and geographic outlines of the process. Although he periodically referred to it in later analyses, this earlier suggestive work was never developed.[4] After the revolution of 1905 the notion of uneven development came to be interpreted in terms of the immediate political question, whether socialist revolution was possible in the economically less advanced nations where the peasantry still outnumbered the working class and the emerging bourgeoisie was weak. This was the concept which Trotsky recovered and refined in his political fight against Stalin; thus today the "law of uneven and combined development" is clearly associated with the trotskyist tradition. With the defeat of Trotsky the concept fell into obscurity, but not before its economic and geographical content was completely

displaced. Connected with Trotsky's theory of permanent revolution, it survived in the trotskyist movement as a political term referring to the development of class relations and the anatomy of revolution.[5]

If the attention paid to uneven development in the last decade or so owes something to this classical marxist heritage, it owes a lot more to the general resurgence of interest in marxism which followed the 1960s as well as the geographical acuteness of the actual process. If the importance and structure of the process were not recognized eighty years ago this is because the geographical pattern of capital accumulation has changed abruptly since that period. Uneven development, in the strict sense implied in this work, is a truly twentieth-century phenomenon. Thus the derivation of a theory (as distinct from a law) of uneven development involves a second dialogue beyond that between geographical and political traditions. It also involves a historical dialogue between a theoretical analysis of capitalism derived in the nineteenth century and the reality of capitalism toward the close of the twentieth century.

The logic of uneven development derives specifically from the opposed tendencies, inherent in capital, toward the differentiation but simultaneous equalization of the levels and conditions of production. Capital is continually invested in the built environment in order to produce surplus value and expand the basis of capital itself. But equally, capital is continually withdrawn from the built environment so that it can move elsewhere and take advantage of higher profit rates. The spatial immobilization of productive capital in its material form is no more or less a necessity than the perpetual circulation of capital as value. Thus it is possible to see the uneven development of capitalism as the geographical expression of the more fundamental contradiction between use-value and exchange-value.

The pattern which results in the landscape is well known: development at one pole and underdevelopment at the other. This takes place at a number of spatial scales. Dependency theory, center-periphery theory, and the various theories of underdevelopment all capture something of this process. But their focus tends to be on the global scale alone, and the geographical dimensions of uneven development are poorly worked

out. They do not, in short, offer a well-developed theoretical framework for understanding the geography of capitalism. Surprisingly, perhaps, the main barrier to understanding this geography comes less from our ignorance about the workings of capital and more from our deeply engrained and commonly held prejudices concerning space. A theory of uneven development must integrate space and social process at a number of levels, and yet our commonsense view of space as a field of activity or as a container makes it difficult to get beyond a rather mechanical integration of space and society; space is seen to "reflect" society. A fundamental change of perspective is demanded here. For while we as theorists may have drastic conceptual problems in achieving an integration of space and society, capital seems to achieve it in practice on a daily basis. What it achieves in fact is the *production of space* in its own image, and exploration of this idea will lead to a more complete integration of space and society in the theory of uneven development. For not only does capital produce space in general, it produces the real spatial scales that give uneven development its coherence.

The production of space, in fact, is premised on a more basic production process, one which sounds even more quixotic and which jars our traditional acceptance of what had hitherto seemed self-evident. The *production of nature* not only provides a rather philosophical foundation for discussing the uneven development of capitalism, but it is a very real result of the development of this mode of production. What jars us so much about this idea of the production of nature is that it defies the conventional, sacrosanct separation of nature and society, and it does so with such abandon and without shame. We are used to conceiving of nature as external to society, pristine and pre-human, or else as a grand universal in which human beings are but small and simple cogs. But here again our concepts have not caught up with reality. It is capitalism which ardently defies the inherited separation of nature and society, and with pride rather than shame.

In its constant drive to accumulate larger and larger quantities of social wealth under its control, capital transforms the shape of the entire world. No God-given stone is left unturned, no original relation with

nature unaltered, no living thing unaffected. To this extent the problems of nature, of space, and of uneven development are tied together by capital itself. Uneven development is the concrete process and pattern of the production of nature under capitalism. This will become more evident in the discussion of the production of nature which in some ways reduces itself to a discussion of use-value, value, and exchange-value. There can be no apology for the anthropomorphism of this perspective: with the development of capitalism, human society has put itself at the center of nature, and we shall be able to deal with the problems this has created only if we first recognize the reality.

The progression of the present work is straightforward. After considering the ideology of nature (chapter 1) I attempt to lay out the rudiments of an alternative conception of the relation with nature, focusing on the production of nature (chapter 2). If these first two chapters appear somewhat abstract and not quite to the point, this is partly because of our customary dichotomy of nature and society, and I hope that it will not daunt the reader. In chapter 3, I discuss the relationship between nature and space and derive the powerful impetus within capital toward the production of space. In chapter 4, the focus is upon the basic processes of equalization and differentiation and their relationship to the accumulation and circulation of capital. This acts as the final foundation for chapter 5, which presents the general theory of uneven development. Here I rely heavily on the conclusions concerning space and nature from the earlier chapters, but also upon Marx's analysis of capitalism. For when one draws out the spatial implications and dimensions of Marx's analysis, especially in *Capital*, the basis of uneven development theory is then ready at hand. Thus the analysis begins with more general philosophical categories which must be renovated before building up to the actual analysis of uneven development.

In developing the theory of uneven development I shall follow the logico-historical procedure employed by Marx. In *Capital* he "assumed that the laws of capitalist production operate in their pure form. In reality there exists only approximation; but, this approximation is the

greater, the more developed the capitalist mode of production." In other words, this assumption of a pure form is no arbitrary abstraction but one that actually occurs historically; this assumption "expresses the limit [of the process] and . . . is therefore constantly coming closer to an exact presentation of reality."[6] Whether it proceeds from the messy historical legacy of feudalism or from an assumed ideal plain, the uneven development of capitalism becomes increasingly acute, both in the geographical landscape and as an inner necessity of capital. This work attempts a theoretical analysis of the processes by which this comes about.

CHAPTER ONE

The Ideology of Nature

MORE THAN ANY OTHER identifiable experience, the emergence of industrial capitalism is responsible for setting contemporary views and visions of nature. For apologist and detractor alike, the global transformation of nature wrought by industrial capitalism dominates both the physical and intellectual consumption of nature. This experience filters out old, incompatible conceptions of nature and precipitates new ones. The domination of nature is a generally accepted reality, whether it is viewed in awe as a measure of human progress or in fear as a tragic warning of imminent disaster. Where some anticipate "that a total control of nature is possible in a not very distant future," others lament that human society is becoming little more than "a massive racket in nature."[1] For all of them, however, the reality of social domination

over nature is given, even if the extent of the process is a matter of debate and its morality the object of bitter struggle.

Yet despite the centrality of this experience, at the level of individual daily life as well as that of society as a whole, our current conception of nature is not simple nor is it at all a mere conceptual reflection of this relatively recent social experience of nature. Much as a tree in growth adds a new ring each year, the social concept of nature has accumulated innumerable layers of meaning in the course of history. Just as felling the tree exposes these rings—before the timber is sent to the saw mill for fashioning into a human artifact—industrial capitalism has cut into the accumulated meanings of nature so that they can be shaped and fashioned into concepts of nature appropriate for the present era. Old concepts of nature are less vanquished than co-opted to the present purpose. Thus despite the common grounding in the experience of nature, the concept of nature is extremely complex and often contradictory. Nature is material and it is spiritual, it is given and made, pure and undefiled; nature is order and it is disorder, sublime and secular, dominated and victorious; it is a totality and a series of parts, woman and object, organism and machine. Nature is the gift of God and it is a product of its own evolution; it is a universal outside history and also the product of history, accidental and designed, wilderness and garden. In our range of conceptions of nature, all of these meanings survive today, but even in their complexity they are organized into an essential dualism that dominates the conception of nature.

On the one hand, nature is *external*, a thing, the realm of extra human objects and processes existing outside society. External nature is pristine, God-given, autonomous; it is the raw material from which society is built, the frontier which industrial capitalism continually pushes back. As trees and rocks, rivers and rainstorms, it is external nature waiting to be internalized in the process of social production. On the other hand, nature is also clearly conceived as *universal*. For alongside external nature we have human nature, by which is implied that human beings and their social behaviors are every bit as natural as the so-called

external aspects of nature. Thus ecological treatments of human society situate the human species as one among many in the totality of nature. In contradistinction to the external concept of nature, the universal concept includes the human with the non-human in nature. External and universal nature are not entirely reconcilable, for at the same time that nature is held to be external to human existence, it is simultaneously both external and internal.

This conceptual dualism of nature is not absolute. However contradictory these conceptions of nature may be, they are often confused in practice and not at all cleanly separated. The historical roots of the dualism can be traced most directly to Kant, although they certainly appear in fragments throughout the Judeo-Christian intellectual tradition. Kant distinguished between several different "natures," but (most important for our purposes and perhaps most enduring historically) he was led to distinguish in particular between an internal and external nature. The internal nature of human beings comprised their crude passions while external nature was the social and physical environment in which human beings lived. This distinction was, in a sense, forced upon Kant as a result of the epistemological system he came to hold, and it is significant that in this dualism the human mind itself does not figure at all. For Kant, the mind was ultimately the means through which this dualism was overcome: the individual knowing mind experienced nature as a unity in the mind; and at the level of the species it was the function of culture to overcome this dualism of inner beast and outer nature.[2] Thus the initial dualism provokes or at least implies others which sound familiar still today: mind and nature, culture and nature. The contemporary bourgeois ideology of nature is built upon these philosophical dichotomies promoted by Kant. His dichotomy of internal versus external nature still strikes us today as intuitively correct. If anything it has a more immediate intuitive appeal than the dualism of external and universal nature.

The subject of nature, real and conceptual, threads through the entire fabric of western thought. If it is a mammoth task to summarize the development of the major concepts of nature up to Kant,[3] it would

be a similarly mammoth task to do the same for the last two centuries. For during this time, the social relation with nature has undergone an unprecedented transformation. Parallel to this, many old conceptions of nature have been fossilized as museum pieces while other comparatively obscure concepts have risen rapidly to prominence. It is in this short period that the dualism inherent in Kant has crystallized into the backbone of the bourgeois ideology of nature. Given the immensity of the task we cannot trace the detailed historical development of the ideology in this chapter. Instead we will simply illustrate this ideology by examining two particular modes of experiencing and conceptualizing nature: the scientific and what we shall call, for want of a better description, the poetic. No pretence is made to completeness; in each case the treatment is very selective since the point is to illustrate rather than definitively prove the bourgeois ideology of nature. Finally, we shall examine the marxist treatment of nature, the major alternative to the bourgeois conception.

I. Nature in Science

It is traditional to trace the origins of modern science back to the early seventeenth century and Francis Bacon. Bacon is best known for his enthusiastic advocacy of the mastery of nature. The mastery of nature, he reasoned, is a divine journey sanctioned by God and made necessary by the Fall from the Garden of Eden. If Innocence was forever lost, still something of the harmonious balance between "man and nature" could be repossessed through man's beneficent dominion over nature. The mastery of nature is achieved through application of the "mechanical arts" which are in turn developed through the "inquisition of nature." Only by "digging further and further into the mind of natural knowledge" could man develop the means of mastery over nature; man commands nature by obeying "her." Thus Bacon devoted his life to the establishment of the institutional means for systematic scientific research, a vision immortalized in the *New Atlantis* but never achieved in practice during Bacon's lifetime.[4]

So much of Bacon's imagery, as well as the ideas they convey, have passed into our language and conception of science that his originality

is hard to appreciate in hindsight. Be this as it may, the conception of nature conveyed by Bacon is explicitly external to human society; it is an object to be mastered and manipulated. In comparison at least to earlier conceptions, Bacon's image of the relation with nature is mechanical more than organic. Society is separated out from nature as the domain of man which, with prescient governance, can be employed toward man's mastery of nature. Of course the political benefits of mastering nature were not lost on Bacon, Lord Chancellor of England, and here he not only affirms the externality of nature but in seeing the potential for social control, inherent in science, he anticipates Kant's distinction of external and internal nature:

> Neither is certainly that other merit of learning, in repressing the inconveniences which grow from man to man, much inferior to the former, of relieving the necessities which arise from nature. . . . [For men] are full of savage and unreclaimed desires, of profit, of lust, of revenge, which as long as they give ear to precepts, to laws, to religion, sweetly touched with eloquence and persuasion of books, of sermons, of harangues, so long is society and peace maintained; but if these instruments be silent, or that sedition and tumult make them not audible, all things dissolve into anarchy and confusion.[5]

Scientific research could also provide the means for mastering human nature, repressing the deleterious consequences of human passion, greed, and desires.

Now from Bacon onward it is a commonplace that science treats nature as external in the sense that scientific method and procedure dictates an absolute abstraction both from the social context of the events and objects under scrutiny and from the social context of the scientific activity itself. For all that Newton's mechanics permitted God a place in the natural universe, society and the individual human being had been expelled from this world. When he watched the apple fall, Newton did not ask about the social forces and events that led to the planting of the apple tree and the design of the garden, dictating the precise location of the falling apple. Nor did he ask about the domestication of fruit

trees that gave the apple its form. He asked, rather, about the "natural" event, defined in abstraction from its social context. Likewise the immediate object of Einstein's relativity theory was a world of atomic and subatomic motion in space-time, a world which did not even exist at the scale of direct human experience. The results of course were generalizable to material events at the social scale, just as Newton's law of gravity applied to the human body as much as the apple, but in both cases, social products and events illustrate the scientific principle not as social but as natural phenomena. The social definition and context of the falling (human) body is of no consequence where it is being used to illustrate gravity or relativity.

The positing of nature as an external object is neither arbitrary nor accidental. Although the connection between industry and scientific method is somewhat obscured today, it was quite apparent to Bacon. In the labor process, human beings treat natural materials as external objects of labor to be worked up as commodities. Producers put the "mechanical arts" between themselves and the objects of labor in order to increase the productiveness of the labor process, and so if science is to function as the means for developing these "mechanical arts," then it too must treat nature as an external object. A "science" based on the moral logic of protestant religion might have a number of benefits, but such a moral logic would be of little use in developing the mechanical arts. Nearly a century later, Newton affirmed the same direct relationship between science and "mechanical practice."[6] Today, not all science remains so directly tied to productive activity; no longer an embryonic pursuit, science has become an increasingly important social institution with a life and logic of its own. If, through mass industrial laboratories, science has been harnessed to industrial capitalism as never before, still, through pure research centers it has won some independence from direct productive needs. But the point here is that however closely science is tied to industry today, it still shares with Bacon and Newton the epistemological assumption of an external nature, objectified in theory just as it is objectified in practice in the labor process.

But in the tradition of modern science, nature is not just external. It is simultaneously universal. In the early tradition, the source of unity and universality was religious whereas today it is secular. For Bacon, the religious clothes in which he dressed science were not a politically motivated optional extra but were integral to the scientific endeavor. Bacon accepted the biblical version of creation, and if the harmonious unity of nature was broken by mankind's Fall from the Garden, the rupture was only partial and temporary. Science was a godly pursuit insofar as, through science and the mastery of nature, human beings could restore the harmony of nature, thus implementing God's will. However much he separated external nature from the social world, Bacon insisted that "natural" and "artificial" objects possessed the same kind of form and essence, differing only in their immediate causes.[7] If the equation of nature and form has not survived, the equation of nature and essence is a keystone of our contemporary language and thought. By the "nature" of some object or event we mean its essence, what it is beneath its appearance. Social or natural, all phenomena have an essence; nature is universal in this sense.

In Newton, the universality of nature also had a clear physical interpretation in the universality of his natural laws, but like Bacon, Newton's vision of a universal nature is built on religious precepts. Newton opposed earlier conceptions of space and matter; with his concept of absolute space, which to this day is the main influence on our commonsense notions of space, Newton opened up the possibility that space and time, not matter, are the basic elements of nature. Under pressure from religious and philosophical criticism, Newton came increasingly to identify absolute space with God, and he insisted toward the end of his life that all of his discoveries in physics were subordinate to his philosophical conception of absolute space. If the movement of objects was entirely determined, by physical laws, the space in which they moved was a manifestation of the omnipresence of God. Thus we can speculate that connected with the ideology of nature will be an ideology of space.[8]

Contemporary science also employs a universal concept of nature but

it is no longer religious in tone. Since Darwin, it has been traditional to view biology as systematically rather than accidentally historical. Human biology was simply one part of this system. Thus Darwin provided the scientific foundation for treating certain social phenomena in the same framework as chemical and eventually physical events. Some of Darwin's key biological insights, it should be remembered, were borrowed from nineteenth-century political economy. Now those using and often abusing Darwin have attempted to extend Darwin's insights back into the social world. The latest and most sophisticated attempt at this comes from sociobiology, the authors of which claim to explain the intricacies of individual and social behavior by reference to biology; society is become a biological artifact.[9] That this biological reductionism is not endorsed by most biologists is not the point. The vision is of a universal nature with biology the vital fulcrum; human nature is simply a subset of biological nature.

More credence is given by the majority of scientists to the physical theory of universal nature. According to this conception, it is the physical not the biological world which lies at the base of nature. With Einstein's refutation of Newton and the emergence of quantum theory, there is certainly a debate over whether space and time or matter are the basic elements of physical events. But no matter how we answer this question, the conception is one which reduces biological events to physical events, either directly or via chemistry. It is probably fair to say that this view of the universality of physical nature is the most widely accepted. At root, the stuff of nature is matter; in its "nature," nature is material. The search for physiological explanations of psychological behavior implies this view. The physicist Carl Friedrich von Weizsäcker has provided an optimistic programmatic depiction of the "unity of nature" thesis. Physics, he says, is the "science which ought to give expression to the unity of nature." There are three basic steps to comprehending the unity of nature. First, the realms of organic and inorganic nature must both be reduced to physics, implying a physicalist theory of biology; second, there must be a "genetic embedment of man in nature through the theory of

human evolution"; and third is a "physicalist theory of human performance" pioneered by cybernetics.[10] Though Weizsäcker is not himself a positivist, he has given voice here to the larger if often unstated project of positivist science. For at the same time as he asserts the unity of nature he also accepts its division, as when, in describing the second stage, he contrasts man and nature. Nature is somehow both external to man, that which is not man, and it is man as well as nature. In Weizsäcker too, then, there are two natures: the one outside human beings and the one that includes them.

II. Poetic Nature—American Landscape

In the conclusion to his influential study of the American landscape as symbol and myth, Henry Nash Smith wrote: "the capital difficulty of the American agrarian tradition is that it accepted the paired but contradictory ideas of nature and civilization as a general principle of historical and social interpretation." Nature, and particularly the nature experienced in the geographical landscape, was what Smith called a master symbol or image in nineteenth-century America. As wilderness or garden, primal or arcadian, the image of the landscape embodied the hope and the promise of the American future. This poetic fusion of physical geography with cultural myth is what Leo Marx calls the moral geography of nineteenth-century America. In part this moral geography is uniquely American since there the contradiction between nature and "civilization" was more abrupt than in the Old World. The progressive aspirations fostered by early capitalism were at one and the same time comparatively unfettered by preceding social forms yet confronted head on by a geographic nature more profoundly formidable than a decaying feudalism. In America, with its paucity of established institutions, "the relation between mankind and the physical environment is more than usually decisive."[11] Where the dominant social symbols of the Old World drew their strength and legitimacy from history, New World symbols were more likely to invest in nature.

If nature is therefore a sharper social symbol and more revealing in

the American tradition, this should not be taken as implying its simplicity. For all its symbolic power, the image of nature is indescribably complex. Yet it is possible to make some generalizations concerning the conception of nature that resulted from the American journey into the wilderness. For along with the scientific experience of nature, this poetic experience of nature is the dominant influence on the concept of nature which today we take for granted. This applies not just to America, geographically or culturally defined, but to the Old World too. In the first place, though it may have been particularly abrupt, the confrontation with nature was not uniquely American but a result of emergent industrial capitalism. Much in this experience was therefore shared across national boundaries. Second, the American cultural experience has itself come to influence the Old World from which it developed. There is no doubt concerning the nationalism invested in the American image of nature, but it was not an image that could be privately owned as the land itself would be. From the very beginning, certainly from Shakespeare's time, the American image of nature was in part a European artifact. "The topography of *The Tempest,*" says Leo Marx, "anticipates the moral geography of the American imagination." In a more general vein, Roderick Nash notes the "deep resonance of wilderness as a concept in Western thought."[12] From a brief examination of this treatment of "nature" it will be possible to illustrate the same conceptual dualism of external versus universal nature which we saw in the scientific vision of nature. As before, we begin with external nature.

Having visited the wilderness of Michigan Territory in July 1831 on his trip from Europe, the young Alexis de Tocqueville had this to say about the American view of nature:

> If I readily admit that the Americans have no poets; I cannot allow that they have no poetic ideas. In Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said not to perceive the mighty forests that surround them till they fall beneath the hatchet. Their

> eyes are fixed upon another sight: the American people views its own march across these wilds, draining swamps, turning the course of rivers, peopling solitudes, and subduing nature. This magnificent image of themselves does not meet the gaze of the Americans at intervals only; it may be said to haunt every one of them in his least as well as in his most important actions and to be always flitting before his mind.[13]

The same themes are repeated throughout the literature of conquest, often quite graphically, from puritan times well into the nineteenth century. Cotton Mather's Massachusetts forests were the primeval lairs of dragons, devils, witches, and "fiery, flying serpents"—mythical beings, to be sure, yet the products not of pure imagination but of a puritan imagination let loose on real events. And although the language was refined, the imagination less active, and the emphasis was on the conquest more than the conquered, the nineteenth-century literature of conquest reflects the same antipathy to wild nature.[14] The wilderness is the antithesis of civilization; it is barren, terrible; even sinister, not just the home of the savage but his *natural* home. The wilderness and the savage were as one; they were obstacles to be overcome in the march of progress and civilization.

This tradition of repugnance emanates directly from the frontier itself where the externality of nature is most acutely felt. It is sufficiently resonant, to use Nash's word, that contemporary descriptions of the "urban wilderness" or "urban frontier" carry the same overtones of repugnance, deliberate or otherwise.[15] But as the wilderness was tamed, external nature took on a less threatening appearance. The hacking and hewing of nature gave way to its more careful dissection at the hands of science; fascination replaced fear. In terms of the artistic representation of nature, this transition can be seen in the emergence of a particular kind of nature painting—close, detailed studies of individual botanical or zoological species, or so-called nature studies. Scientists and artists alike—people such as Alexander Humboldt, Frederic Edwin Church, and J. J. Audubon—all contributed to this tradition with drawings, sketches, and