

The Science Question
in Feminism

SANDRA HARDING

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SANDRA HARDING

Newark, Delaware

PREFACE

Since the mid-1970s, feminist criticisms of science have evolved from a reformist to a revolutionary position, from analyses that offered the possibility of improving the science we have, to calls for a transformation in the very foundations both of science and of the cultures that accord it value. We began by asking, "What is to be done about the situation of women in science?"—the "woman question" in science. Now feminists often pose a different question: "Is it possible to use for emancipatory ends sciences that are apparently so intimately involved in Western, bourgeois, and masculine projects?"—the "science question" in feminism.

The radical feminist position holds that the epistemologies, metaphysics, ethics, and politics of the dominant forms of science are androcentric and mutually supportive; that despite the deeply ingrained Western cultural belief in science's intrinsic progressiveness, science today serves primarily regressive social tendencies; and that the social structure of science, many of its applications and technologies, its modes of defining research problems and designing experiments, its ways of constructing and conferring meanings are not only sexist but also racist, classist, and culturally coercive. In their analyses of how gender symbolism, the social division of labor by gender, and the construction of individual gender identity have affected the history and philosophy of science, feminist thinkers have challenged the intellectual and social orders at their very foundations.

These feminist critiques, which debunk much of what we value in modern Western culture, appear to emerge from outside this culture.

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That is indeed the case insofar as women have been excluded from the processes of defining the culture and have been conceived as the "other" against which men in power define their projects. Yet such destabilizing, "exploding," of the categories of social practice and thought is firmly within the tradition of modern Western history and its explicit commitment to criticism of traditional social practices and beliefs. One such belief is that androcentrism is "natural" and right; another is faith in the progressiveness of scientific rationality. From this perspective, the feminist critiques of science may be seen as calling for a more radical intellectual, moral, social, and political revolution than the founders of modern Western cultures could have imagined. Historically, it is just such revolutions—and not the process of scientific inquiry alone—that have fostered the development of progressive kinds of knowledge-seeking.

This book examines important trends in the feminist critiques of science with the aim of identifying tensions and conflicts between them, inadequate concepts informing their analyses, unrecognized obstacles to and gaps in their research programs, and extensions that might transform them into even more powerful tools for the construction of emancipatory meanings and practices. Motivating my investigation is the belief that these feminist science critiques can be shown to have implications at least as revolutionary for modern Western cultural self-images as feminist critiques in the humanities and social sciences have had.

It should not need to be said—but probably does—that I do not wish to be understood as recommending that we throw out the baby with the bathwater. We do not imagine giving up speaking or writing just because our language is deeply androcentric; nor do we propose an end to theorizing about social life once we realize that thoroughly androcentric perspectives inform even our feminist revisions of the social theories we inherit. Similarly, I am not proposing that humankind would benefit from renouncing attempts to describe, explain, and understand the regularities, underlying causal tendencies, and meanings of the natural and social worlds just because the sciences we have are androcentric. I am seeking an end to androcentrism, not to systematic inquiry. But an end to androcentrism will require far-reaching transformations in the cultural meanings and practices of that inquiry.

The first two chapters provide an overview and theoretical introduction. Chapter 1 identifies five feminist critiques and three feminist epistemological programs, and points to the challenges each of these

faces. Chapter 2 looks at some problems in the understanding of both science and gender in the feminist science criticisms, and shows how these create obstacles to the development of a feminist theory of science; I then develop the more adequate concepts of science and gender that inform the following chapters.

The next three chapters show the connections between the parts of the picture of science that feminist critics have produced, and identify inconsistencies and oversights. Chapter 3 reviews the feminist approaches to equity issues in the structure of science and points to the tensions between these ahistorical images and the reality of science's social structure. Chapter 4 scrutinizes the feminist charges of androcentrism in the selection of problematics (of what is defined as requiring scientific explanation) and the design of research in biology and the social sciences (I include the social sciences here to prepare for later analysis of the inadequate social assumptions that have guided the mainstream understandings of modern science). Chapter 5 examines science's contribution to the construction of gendered meanings for both nature and inquiry and reviews the literature showing that much of what is commonly taken to be biological sex difference and sexual desire is socially constructed.

Chapters 6 and 7 turn to feminist theories of knowledge, the epistemological grounds for modern science, and the alternative justificatory strategies proposed by feminist critics. Chapter 6 examines the "successor science" projects of four theorists—Hilary Rose, Dorothy Smith, Jane Flax, and Nancy Hartsock—and their attempts to envision forms and purposes of knowledge-seeking that are alternative to those used to justify the science we have. In Chapter 7 I describe some obstacles that these epistemologies face; by focusing on the relationship between these feminist projects and similar emancipatory science projects of ex-colonial peoples, I also consider some of the difficult questions the "successor science" projects and feminist postmodernist critiques pose for each other.

Chapters 8 and 9 provide a pause in the argument by returning to the history of science in an effort to account for the deterioration of socially progressive knowledge-seeking (readers who prefer plots uninterrupted by the ghostly appearances of the protagonist's garrulous ancestors may want to skip to Chapter 10). Chapter 8, which treats the institution of science as a personage passing from infancy to adulthood, identifies gaps in the standard stories this adult personage tells about its infancy. Chapter 9 examines one kind of attempt by recent

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social histories of science to fill these gaps, and argues that even they tend to repress what they need to redress by systematically avoiding consideration of gender symbolism and actual social relations between the genders in history.

Chapter 10 returns to the main plot to reflect on some central instabilities and tensions within the feminist theories I have been examining and developing. It identifies questions asked by the science critiques that cannot be answered in the terms in which they have been posed. I conclude by pointing to the way feminist science critiques have assumed a reversal of the "unity of science" thesis so central to the members of the Vienna Circle. For feminists, it is moral and political, rather than scientific, discussion that has served as the paradigm—though a problematic one—of rational discourse.

S.H.

THE SCIENCE QUESTION IN FEMINISM

1 FROM THE WOMAN QUESTION IN SCIENCE TO THE SCIENCE QUESTION IN FEMINISM

Feminist scholars have studied women, men, and social relations between the genders within, across, and insistently against the conceptual frameworks of the disciplines. In each area we have come to understand that what we took to be humanly inclusive problematics, concepts, theories, objective methodologies, and transcendental truths are in fact far less than that. Instead, these products of thought bear the mark of their collective and individual creators, and the creators in turn have been distinctively marked as to gender, class, race, and culture.¹ We can now discern the effects of these cultural markings in the discrepancies between the methods of knowing and the interpretations of the world provided by the creators of modern Western culture and those characteristic of the rest of us. Western culture's favored beliefs mirror in sometimes clear and sometimes distorting ways not

¹I make a sharp distinction between "sex" and "gender" (even though this is a dichotomy I shall later problematize); thus I refer to "gender roles" rather than "sex roles," etc., retaining only a few terms such as "sexism," where the substitution seems more distracting than useful. Otherwise (except in direct quotations), I use "sex" only when it is, indeed, biology that is at issue. There are two reasons for this policy. First, in spite of feminist insistence for decades, perhaps centuries, that women's and men's "natures" and activities are primarily shaped by social relations, not by immutable biological determinants, many people still do not grasp this point or are unwilling to commit themselves to its full implications (the current fascination with sociobiology is just one evidence of this problem). Second, the very thought of sex exerts its own fatal attraction for many otherwise well-intentioned people: such phrases as "sexual politics," "the battle between the sexes," and "male chauvinism" make the continuation of gender hostilities sound far more exciting than feminism should desire.

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the world as it is or as we might want it to be, but the social projects of their historically identifiable creators.

The natural sciences are a comparatively recent subject of feminist scrutiny. The critiques excite immense anticipation—or fear—yet they remain far more fragmented and less clearly conceptualized than feminist analyses in other disciplines.

The anticipation and fear are based in the recognition that we are a scientific culture, that scientific rationality has permeated not only the modes of thinking and acting of our public institutions but even the ways we think about the most intimate details of our private lives. Widely read manuals and magazine articles on child rearing and sexual relations gain their authority and popularity by appealing to science. And during the last century, the social use of science has shifted: formerly an occasional assistant, it has become the direct generator of economic, political, and social accumulation and control. Now we can see that the hope to “dominate nature” for the betterment of the species has become the effort to gain unequal access to nature’s resources for purposes of social domination. No longer is the scientist—if he ever was—an eccentric and socially marginal genius spending private funds and often private time on whatever purely intellectual pursuits happen to interest him. Only very rarely does his research have no foreseeable social uses. Instead, he (or, more recently, she) is part of a vast work force, is trained from elementary school on to enter academic, industrial, and governmental laboratories where 99 + percent of the research is expected to be immediately applicable to social projects. If these vast industrialized empires, devoted—whether intentionally or not—to material accumulation and social control, cannot be shown to serve the best interests of social progress by appeal to objective, dispassionate, impartial, rational knowledge-seeking, then in our culture they cannot be legitimated at all. Neither God nor tradition is privileged with the same credibility as scientific rationality in modern cultures.

Of course, feminists are not the first group to scrutinize modern science in this way. Struggles against racism, colonialism, capitalism, and homophobia, as well as the counter culture movement of the 1960s and the contemporary ecology and antimilitarism movements, have all produced pointed analyses of the uses and abuses of science. But the feminist criticisms appear to touch especially raw nerves. For one thing, at their best they incorporate the key insights of these other movements while challenging the low priority that specifically feminist concerns have been assigned in such agendas for social reform. For

another, they question the division of labor by gender—a social aspect of the organization of human relations that has been deeply obscured by our perceptions of what is “natural” and what is social. Perhaps most disturbingly, they challenge our sense of personal identity at its most prerational level, at the core. They challenge the desirability of the gendered aspects of our personalities and the expression of gender in social practices, which for most men and women have provided deeply satisfying parts of self-identity.

Finally, as a symbol system, gender difference is the most ancient, most universal, and most powerful origin of many morally valued conceptualizations of everything else in the world around us. Cultures assign a gender to such nonhuman entities as hurricanes and mountains, ships and nations. As far back in history as we can see, we have organized our social and natural worlds in terms of gender meanings within which historically specific racial, class, and cultural institutions and meanings have been constructed. Once we begin to theorize gender—to define gender as an analytic category within which humans think about and organize their social activity rather than as a natural consequence of sex difference, or even merely as a social variable assigned to individual people in different ways from culture to culture—we can begin to appreciate the extent to which gender meanings have suffused our belief systems, institutions, and even such apparently gender-free phenomena as our architecture and urban planning. When feminist thinking about science is adequately theorized, we will have a clearer grasp of how scientific activity is and is not gendered in this sense.

Now it is certainly true that racism, classism, and cultural imperialism often more deeply restrict the life opportunities of individuals than does sexism. We can easily see this if we compare the different life opportunities available to women of the same race but in different classes, or of the same class but in different races, in the United States today or at any other time and place in history. Consequently, it is understandable why working-class people and victims of racism and imperialism often place feminist projects low on their political agendas. Furthermore, gender appears only in culturally specific forms. As we shall see in the next chapter, gendered social life is produced through three distinct processes: it is the result of assigning dualistic gender metaphors to various perceived dichotomies that rarely have anything to do with sex differences; it is the consequence of appealing to these gender dualisms to organize social activity, of dividing necessary social

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activities between different groups of humans; it is a form of socially constructed individual identity only imperfectly correlated with either the "reality" or the perception of sex differences. I shall be referring to these three aspects of gender as *gender symbolism* (or, borrowing a term from anthropology, "gender totemism"), *gender structure* (or the division of labor by gender), and *individual gender*. The referents for all three meanings of masculinity and femininity differ from culture to culture, though within any culture the three forms of gender are related to each other. Probably few, if any, symbolic, institutional, or individual identity or behavioral expressions of masculinity and femininity can be observed in all cultures or at all times in history.

But the fact that there are class, race, and cultural differences between women and between men is not, as some have thought, a reason to find gender difference either theoretically unimportant or politically irrelevant. In virtually every culture, gender difference is a pivotal way in which humans identify themselves as persons, organize social relations, and symbolize meaningful natural and social events and processes. And in virtually all cultures, whatever is thought of as manly is more highly valued than what is thought of as womanly. Moreover, we need to recognize that in cultures stratified by both gender and race, gender is always also a racial category and race a gender category. That is, sexist public policies are different for people of the same gender but different race, and racist policies are different for women and men within the same race. One commentator has proposed that we think of these policies as, respectively, racist sexism and sexist racism.²

Finally, we shall later examine the important role to be played in emancipatory epistemologies and politics by open recognition of gender differences within racial groups and racial and cultural differences within gender groups. "Difference" can be a slippery and dangerous rallying point for inquiry projects and for politics, but each emancipatory struggle needs to recognize the agendas of other struggles as integral parts of its own in order to succeed. (After all, people of color come in at least two genders, and women are of many colors.) For each struggle, epistemologies and politics grounded in solidarities could replace the problematic ones that appeal to essentialized identities, which are, perhaps, spurious.

²Boch (1983). See also Caulfield (1974); Davis (1971). (Works cited in my notes by author and year of publication receive full citation in the bibliography, which lists the sources I have found most useful for this study. Additional references appear in full in the footnotes.)

From the Woman Question to the Science Question

For all these reasons, feminist critiques claiming that science, too, is gendered appear deeply threatening to the social order, even in societies such as ours where racism, classism, and imperialism also direct all our lives. Obviously, the different forms of domination use one another as resources and support one another in complex ways. If we find it difficult to imagine the day-to-day details of living in a world no longer structured by racism and classism, most of us do not even know how to start imagining a world in which gender difference, in its equation of masculinity with authority and value, no longer constrains the ways we think, feel, and act. And the day-to-day world we live in is so permeated by scientific rationality as well as gender that to nonfeminists and perhaps even some feminists, the very idea of a feminist critique of scientific rationality appears closer to blasphemy than to social-criticism-as-usual.

Feminists in other fields of inquiry have begun to formulate clear and coherent challenges to the conceptual frameworks of their disciplines. By putting women's perspective on gender symbolism, gender structure, and individual gender at the center of their thinking, they have been able to reconceive the purposes of research programs in anthropology, history, literary criticism, and so forth.³ They have begun to retheorize the proper subject matters of the understandings these disciplines could provide. But I think the proper subject matters and purposes of a feminist critique of science have, thus far, eluded the firm grip and the clear conceptualizations that are becoming evident in much of this other research. The voice of feminist science criticism alternates among five different kinds of projects, each with its own audience, subject matter, ideas of what science is and what gender is, and set of remedies for androcentrism. In certain respects, the assumptions guiding these analyses directly conflict. It is not at all clear how their authors conceive of the theoretical connections between them, nor, therefore, what a comprehensive strategy for eliminating androcentrism from science would look like. This is particularly troublesome because clarity about so fundamental a component of our culture can have powerful effects elsewhere in feminist struggles.

One problem may be that we have been so preoccupied with responding to the sins of contemporary science in the same terms our culture uses to justify these sins that we have not yet given adequate attention to envisioning truly emancipatory knowledge-seeking. We

³McIntosh (1983).

have not yet found the space to step back and image up the whole picture of what science might be in the future. In our culture, reflecting on an appropriate model of rationality may well seem a luxury for the few, but it is a project with immense potential consequences: it could produce a politics of knowledge-seeking that would show us the conditions necessary to transfer control from the "haves" to the "have-nots."

What kind of understanding of science would we have if we began not with the categories we now use to grasp its inequities, misuses, falsities, and obscurities but with those of the biologist protagonist imagined by Marge Piercy in *Woman on the Edge of Time*, who can shift her/his sex at will and who lives in a culture that does not institutionalize (i.e., does not have) gender? or with the assumptions of a world where such categories as machine, human, and animal are no longer either distinct or of cultural interest, as in Anne McCaffrey's *The Ship Who Sang*?⁴ Perhaps we should turn to our novelists and poets for a better intuitive grasp of the theory we need. Though often leaders in the political struggles for a more just and caring culture, they are professionally less conditioned than we to respond point by point to a culture's defenses of its ways of being in the world.

FIVE RESEARCH PROGRAMS

To draw attention to the lack of a developed feminist theory for the critique of the natural sciences is not to overlook the contributions these young but flourishing lines of inquiry have made. In a very short period of time, we have derived a far clearer picture of the extent to which science, too, is gendered. Now we can begin to understand the economic, political, and psychological mechanisms that keep science sexist and that must be eliminated if the nature, uses, and valuations of knowledge-seeking are to become humanly inclusive ones. Each of these lines of inquiry raises intriguing political and conceptual issues, not only for the practices of science and the ways these practices are legitimated but also for each other. Details of these research programs are discussed in following chapters; I emphasize here the problems they raise primarily to indicate the undertheorization of the whole field.

⁴Marge Piercy, *Woman on the Edge of Time* (New York: Fawcett, 1981); Anne McCaffrey, *The Ship Who Sang* (New York: Ballantine, 1976). Donna Haraway (1985) discusses the potentialities that McCaffrey's kind of antidualism opens up for feminist theorizing.

First of all, equity studies have documented the massive historical resistance to women's getting the education, credentials, and jobs available to similarly talented men;⁵ they have also identified the psychological and social mechanisms through which discrimination is informally maintained even when the formal barriers have been eliminated. Motivation studies have shown why boys and men more often want to excel at science, engineering, and math than do girls and women.⁶ But should women want to become "just like men" in science, as many of these studies assume? That is, should feminism set such a low goal as mere equality with men? And to which men in science should women want to be equal—to underpaid and exploited lab technicians as well as Nobel Prize winners? Moreover, should women want to contribute to scientific projects that have sexist, racist, and classist problematics and outcomes? Should they want to be military researchers? Furthermore, what has been the effect of women's naiveté about the depth and extent of masculine resistance—that is, would women have struggled to enter science if they had understood how little equity would be produced by eliminating the formal barriers against women's participation?⁷ Finally, does the increased presence of women in science have any effect at all on the nature of scientific problematics and outcomes?

Second, studies of the uses and abuses of biology, the social sciences, and their technologies have revealed the ways science is used in the service of sexist, racist, homophobic, and classist social projects. Oppressive reproductive policies; white men's management of all women's domestic labor; the stigmatization of, discrimination against, and medical "cure" of homosexuals; gender discrimination in workplaces—all these have been justified on the basis of sexist research and maintained through technologies, developed out of this research, that move control of women's lives from women to men of the dominant group.⁸ Despite the importance of these studies, critics of the sexist uses of science often make two problematic assumptions: that there is a value-free, pure scientific research which can be distinguished from the social uses of science; and that there are proper uses of science with which we

⁵See, e.g., Rossiter (1982b); Walsh (1977).

⁶See Aldrich (1978).

⁷Rossiter (1982b) makes this point.

⁸See Tobach and Rosoff (1978; 1979; 1981; 1984); Brighton Women and Science Group (1980); Ehrenreich and English (1979); Rothschild (1983); Zimmerman (1983); Arditti, Duelli-Klein, and Minden (1984).

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can contrast its improper uses. Can we really make these distinctions? Is it possible to isolate a value-neutral core from the uses of science and its technologies? And what distinguishes improper from proper uses? Furthermore, each misuse and abuse has been racist and classist as well as oppressive to women. This becomes clear when we note that there are different reproductive policies, forms of domestic labor, and forms of workplace discrimination mandated for women of different classes and races even within U.S. culture at any single moment in history. (Think, for instance, of the current attempt to restrict the availability of abortion and contraceptive information for some social groups at the same time that sterilization is forced on others. Think of the resuscitation of scientifically supported sentimental images of motherhood and nuclear forms of family life for some at the same time that social supports for mothers and nonnuclear families are systematically withdrawn for others.) Must not feminism take on as a central project of its own the struggle to eliminate class society and racism, homophobia and imperialism, in order to eliminate the sexist uses of science?

Third, in the critiques of biology and the social sciences, two kinds of challenges have been raised not just to the actual but to the possible existence of any pure science at all.⁹ The selection and definition of problematics—deciding what phenomena in the world need explanation, and defining what is problematic about them—have clearly been skewed toward men's perception of what they find puzzling. Surely it is "bad science" to assume that men's problems are everyone's problems, thereby leaving unexplained many things that women find problematic, and to assume that men's explanations of what they find problematic are undistorted by their gender needs and desires. But is this merely—or, perhaps, even—an example of bad science? Will not the selection and definition of problems always bear the social fingerprints of the dominant groups in a culture? With these questions we glimpse the fundamental value-ladenness of knowledge-seeking and thus the impossibility of distinguishing between bad science and science-as-usual. Furthermore, the design and interpretation of research again and again has proceeded in masculine-biased ways. But if problems are necessarily value-laden, if theories are constructed to explain

⁹The literature here is immense. For examples of these criticisms, see Longino and Doell (1983); Hubbard, Henifin, and Fried (1982); Gross and Averill (1983); Tobach and Rosoff (1978; 1979; 1981; 1984); Millman and Kanter (1975); Andersen (1983); Westkott (1979).

problems, if methodologies are always theory-laden, and if observations are methodology-laden, can there be value-neutral design and interpretation of research? This line of reasoning leads us to ask whether it is possible that some kinds of value-laden research are nevertheless maximally objective. For example, are overtly antisexist research designs inherently more objective than overtly sexist or, more important, "sex-blind" (i.e., gender-blind) ones? And are antisexist inquiries that are also self-consciously antiracist more objective than those that are not? There are precedents in the history of science for preferring the distinction between objectivity-increasing and objectivity-decreasing social values to the distinction between value-free and value-laden research. A different problem is raised by asking what implications these criticisms of biology and social science have for areas such as physics and chemistry, where the subject matter purportedly is physical nature rather than social beings ("purportedly" because, as we shall see, we must be skeptical about being able to make any clear distinctions between the physical and the nonphysical). What implications could these findings and this kind of reasoning about objectivity have for our understanding of the scientific world view more generally?

Fourth, the related techniques of literary criticism, historical interpretation, and psychoanalysis have been used to "read science as a text" in order to reveal the social meanings—the hidden symbolic and structural agendas—of purportedly value-neutral claims and practices.¹⁰ In textual criticism, metaphors of gender politics in the writings of the fathers of modern science, as well as in the claims made by the defenders of the scientific world view today, are no longer read as individual idiosyncrasies or as irrelevant to the meanings science has for its enthusiasts. Furthermore, the concern to define and maintain a series of rigid dichotomies in science and epistemology no longer appears to be a reflection of the progressive character of scientific inquiry; rather, it is inextricably connected with specifically masculine—and perhaps uniquely Western and bourgeois—needs and desires. Objectivity vs. subjectivity, the scientist as knowing subject vs. the objects of his inquiry, reason vs. the emotions, mind vs. body—in each case the former has been associated with masculinity and the latter with femininity. In each case it has been claimed that human progress requires the former to achieve domination of the latter.¹¹

¹⁰Good examples are Keller (1984); Merchant (1980); Griffin (1978); Flax (1983); Jordanova (1980); Bloch and Bloch (1980); Harding (1980).

¹¹The key "object-relations" theorists among these textual critics are Dinnerstein (1976); Chodorow (1978); Flax (1983). See also Balbus (1982).

Valuable as these textual criticisms have been, they raise many questions. What relevance do the writings of the fathers of modern science have to contemporary scientific practice? What theory would justify regarding these metaphors as fundamental components of scientific explanations? How can metaphors of gender politics continue to shape the cognitive form and content of scientific theories and practices even when they are no longer overtly expressed? And can we imagine what a scientific mode of knowledge-seeking would look like that was not concerned to distinguish between objectivity and subjectivity, reason and the emotions?

Fifth, a series of epistemological inquiries has laid the basis for an alternative understanding of how beliefs are grounded in social experiences, and of what kind of experience should ground the beliefs we honor as knowledge.¹² These feminist epistemologies imply a relation between knowing and being, between epistemology and metaphysics, that is an alternative to the dominant epistemologies developed to justify science's modes of knowledge-seeking and ways of being in the world. It is the conflicts between these epistemologies that generate the major themes of this study.

A GUIDE TO FEMINIST EPISTEMOLOGIES

The epistemological problem for feminism is to explain an apparently paradoxical situation. Feminism is a political movement for social change. But many claims, clearly motivated by feminist concerns, made by researchers and theorists in the social sciences, in biology, and in the social studies of the natural sciences appear more plausible—more likely to be confirmed by evidence—than the beliefs they would replace. How can such politicized research be increasing the objectivity of inquiry? On what grounds should these feminist claims be justified?

We can usefully divide the main feminist responses to this apparent paradox into two relatively well-developed solutions and one agenda for a solution. I will refer to these three responses as *feminist empiricism*, the *feminist standpoint*, and *feminist postmodernism*.

Feminist empiricism argues that sexism and androcentrism are social biases correctable by stricter adherence to the existing methodological norms of scientific inquiry. Movements for social liberation "make it

¹²See Flax (1983); Rose (1983); Hartsock (1983b); Smith (1974; 1977; 1979; 1981); Harding (1983b); Fee (1981). Haraway (1985) proposes a somewhat different epistemology for feminism.

possible for people to see the world in an enlarged perspective because they remove the covers and blinders that obscure knowledge and observation."¹³ The women's movement produces not only the opportunity for such an enlarged perspective but more women scientists, and they are more likely than men to notice androcentric bias.

This solution to the epistemological paradox is appealing for a number of reasons, not the least because it appears to leave unchallenged the existing methodological norms of science. It is easier to gain acceptance of feminist claims through this kind of argument, for it identifies only bad science as the problem, not science-as-usual.

Its considerable strategic advantage, however, often leads its defenders to overlook the fact that the *feminist empiricist solution* in fact deeply subverts empiricism. The social identity of the inquirer is supposed to be irrelevant to the "goodness" of the results of research. Scientific method is supposed to be capable of eliminating any biases due to the fact that individual researchers are white or black, Chinese or French, men or women. But feminist empiricism argues that women (or feminists, whether men or women) *as a group* are more likely to produce unbiased and objective results than are men (or nonfeminists) as a group.

Moreover, though empiricism holds that scientific method is sufficient to account for historical increases in the objectivity of the picture of the world that science presents, one can argue that history shows otherwise. It is movements for social liberation that have most increased the objectivity of science, not the norms of science as they have in fact been practiced, or as philosophers have rationally reconstructed them. Think, for instance, of the effects of the bourgeois revolution of the fifteenth to seventeenth centuries, which produced modern science itself; or of the effects of the proletarian revolution of the nineteenth and early twentieth centuries. Think of the effects on scientific objectivity of the twentieth-century deconstruction of colonialism.

We shall also see that a key origin of androcentric bias can be found in the selection of problems for inquiry, and in the definition of what is problematic about these phenomena. But empiricism insists that its methodological norms are meant to apply only to the "context of justification"—to the testing of hypotheses and interpretation of evidence—not to the "context of discovery" where problems are identified and defined. Thus a powerful source of social bias appears completely

¹³Millman and Kanter (1975, vii).

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to escape the control of science's methodological norms. Finally, it appears that following the norms of inquiry is exactly what often results in androcentric results.

Thus, feminist attempts to reform what is perceived as bad science bring to our attention deep logical incoherences and what, paradoxically, we can call empirical inadequacies in empiricist epistemologies.

The feminist standpoint originates in Hegel's thinking about the relationship between the master and the slave and in the elaboration of this analysis in the writings of Marx, Engels, and the Hungarian Marxist theorist, G. Lukacs. Briefly, this proposal argues that men's dominating position in social life results in partial and perverse understandings, whereas women's subjugated position provides the possibility of more complete and less perverse understandings. Feminism and the women's movement provide the theory and motivation for inquiry and political struggle that can transform the perspective of women into a "standpoint"—a morally and scientifically preferable grounding for our interpretations and explanations of nature and social life. The feminist critiques of social and natural science, whether expressed by women or by men, are grounded in the universal features of women's experience as understood from the perspective of feminism.¹⁴

While this attempted solution to the epistemological paradox avoids the problems that beset feminist empiricism, it generates its own tensions. First of all, those wedded to empiricism will be loath to commit themselves to the belief that the social identity of the observer can be an important variable in the potential objectivity of research results. Strategically, this is a less convincing explanation for the greater adequacy of feminist claims for all but the already convinced; it is particularly unlikely to appear plausible to natural scientists or natural science enthusiasts.

Considered on its own terms, the feminist standpoint response raises two further questions. Can there be a feminist standpoint if women's (or feminists') social experience is divided by class, race, and culture? Must there be Black and white, working-class and professional-class, American and Nigerian feminist standpoints? This kind of consideration leads to the postmodernist skepticism: "Perhaps 'reality' can have 'a' structure only from the falsely universalizing perspective of the master. That is, only to the extent that one person or group can

¹⁴Flax (1983), Rose (1983), Hartsock (1983b), and Smith (1974; 1977; 1979; 1981) all develop this standpoint approach.

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dominate the whole, can 'reality' appear to be governed by one set of rules or be constituted by one privileged set of social relations."¹⁵ Is the feminist standpoint project still too firmly grounded in the historically disastrous alliance between knowledge and power characteristic of the modern epoch? Is it too firmly rooted in a problematic politics of essentialized identities?

Before turning briefly to the feminist postmodernism from which this last criticism emerges, we should note that both of the preceding epistemological approaches appear to assert that objectivity never has been and could not be increased by value-neutrality. Instead, it is commitments to antiauthoritarian, antielitist, participatory, and emancipatory values and projects that increase the objectivity of science. Furthermore, the reader will need to avoid the temptation to leap to relativist understandings of feminist claims. In the first place, feminist inquirers are never saying that sexist and antisexist claims are equally plausible—that it is equally plausible to regard women's situation as primarily biological *and* as primarily social, or to regard "the human" both as identical *and* nonidentical with "the masculine." The *evidence* for feminist vs. nonfeminist claims may be inconclusive in some cases, and many feminist claims that today appear evidentially secure will no doubt be abandoned as additional evidence is gathered and better hypotheses and concepts are constructed. Indeed, there should be no doubt that these normal conditions of research hold for many feminist claims. But agnosticism and recognition of the hypothetical character of all scientific claims are quite different epistemological stances from relativism. Moreover, whether or not feminists take a relativist stance, it is hard to imagine a coherent defense of cognitive relativism when one thinks of the conflicting claims.

Feminist postmodernism challenges the assumptions upon which feminist empiricism and the feminist standpoint are based, although strains of postmodernist skepticism appear in the thought of these theorists, too. Along with such mainstream thinkers as Nietzsche, Derrida, Foucault, Lacan, Rorty, Cavell, Feyerabend, Gadamer, Wittgenstein, and Unger, and such intellectual movements as semiotics, deconstruction, psychoanalysis, structuralism, archeology/genealogy, and nihilism, feminists "share a profound skepticism regarding universal (or univ-

¹⁵Flax (1986, 17). Strains of postmodernism appear in all of the standpoint thinking. Of this group, Flax has most overtly articulated also the postmodernist epistemological issues.

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ersalizing) claims about the existence, nature and powers of reason, progress, science, language and the 'subject/self.'¹⁶

This approach requires embracing as a fruitful grounding for inquiry the fractured identities modern life creates: Black-feminist, socialist-feminist, women-of-color, and so on. It requires seeking a solidarity in our oppositions to the dangerous fiction of the naturalized, essentialized, uniquely "human" (read "manly") and to the distortion and exploitation perpetrated on behalf of this fiction. It may require rejecting fantasized returns to the primal wholeness of infancy, preclass societies, or pregender "unitary" consciousnesses of the species—all of which have motivated standpoint epistemologies. From this perspective, feminist claims are more plausible and less distorting only insofar as they are grounded in a solidarity between these modern fractured identities and between the politics they create.

Feminist postmodernism creates its own tensions. In what ways does it, like the empiricist and standpoint epistemologies, reveal incoherences in its parental mainstream discourse? Can we afford to give up the necessity of trying to provide "one, true, feminist story of reality" in the face of the deep alliances between science and sexist, racist, classist, and imperialist social projects?

Clearly, there are contradictory tendencies among the feminist epistemological discourses, and each has its own set of problems. The contradictions and problems do not originate in the feminist discourses, however, but reflect the disarray in mainstream epistemologies and philosophies of science since the mid-1960s. They also reflect shifting configurations of gender, race, and class—both the analytic categories and the lived realities. New social groups—such as feminists who are seeking to bridge a gap between their own social experience and the available theoretical frameworks—are more likely to hone in on "subjugated knowledge" about the world than are groups whose experience more comfortably fits familiar conceptual schemes. Most likely, the feminist entrance into these disputes should be seen as making significant contributions to clarifying the nature and implications of paradoxical tendencies in contemporary intellectual and social life.

The feminist criticisms of science have produced an array of conceptual questions that threaten both our cultural identity as a demo-

¹⁶Flax (1986, 3). This is Flax's list of the mainstream postmodernist thinkers and movements. See Haraway (1985), Marks and de Courtivron (1980), and *Signs* (1981) for discussion of the feminist postmodernist issues.

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cratic and socially progressive society and our core personal identities as gender-distinct individuals. I do not mean to overwhelm these illuminating lines of inquiry with criticisms so early in my study—to suggest that they are not really feminist or that they have not advanced our understanding. On the contrary, each has greatly enhanced our ability to grasp the extent of androcentrism in science. Collectively, they have made it possible for us to formulate new questions about science.

It is a virtue of these critiques that they quickly bring to our attention the socially damaging incoherences in all the nonfeminist discourses. Considered in the sequence described in this chapter, they move us from the Woman Question in science to the more radical Science Question in feminism. Where the first three kinds of criticism primarily ask how women can be more equitably treated within and by science, the last two ask how a science apparently so deeply involved in distinctively masculine projects can possibly be used for emancipatory ends. Where the Woman Question critiques still conceptualize the scientific enterprise we have as redeemable, as reformable, the Science Question critiques appear skeptical that we can locate anything morally and politically worth redeeming or reforming in the scientific world view, its underlying epistemology, or the practices these legitimate.

