

BOOK REVIEWS

The Political Philosophy of Merleau-Ponty. By Sonia Kruks. Sussex: The Harvester Press/Atlantic Heights, NJ: Humanities Press, 1981. Pp. 152 + xiv.

Despite the fact that he was one of the leading French philosophers of the post-war period, Merleau-Ponty's work is still not very well known in this country. He held a position as Professor of Philosophy at the Sorbonne from 1949 to 1952 and then the Chair of Philosophy once held by Bergson at the College de France until his death in May 1961. He is probably most well-known outside France for his early works, The Structure of Behavior (1942) and The Phenomenology of Perception (1945). These works are usually discussed only in the context of his relationship to Husserl and extensive critique of behaviorism, however. His contribution to contemporary European philosophy is thus generally thought to have been his success at transforming themes of Husserl's later philosophy, such as the notion of the Lebenswelt, in a manner which made them relevant to discussions in empirical psychology. Kruks' is concerned with these works from a different perspective. Her concern is to show how one can also find in them the originating themes of Merleau-Ponty's political philosophy. But as will be clear from the following overview of her account of Merleau-Ponty's political philosophy, Husserl's phenomenology was not the only major influence upon this development. Nor is it possible to discuss the development of Merleau-Ponty's political philosophy without reference to historical and political events that also heavily influenced his thought.

The development of Merleau-Ponty's political philosophy can be divided then into three periods which also parallel distinct phases in his own intellectual involvement in French politics. The first period is one in which the foundations of his political philosophy were being laid; it was in this period that he was most influenced by Husserlian phenomenology. What he sought in the philosophy of Husserl was a means to escape from the barren alternatives of "idealism" and "positivism" that dominated the philosophical milieu in France during the period in which he was educated, the 1920's and early 30's. He probably attended Husserl's lectures in Paris in 1929 and later worked in the

Husserl Archives in Louvain. But it was not only Husserl's phenomenology that served as an alternative to the anachronistic movements that dominated academic French philosophy; there was also the phenomenology of Hegel. Like Sartre, Merleau-Ponty was among those who took up the renewed interest in the philosophy of Hegel which was the central event of French philosophical discussion in the early 1930's. What resulted was a political philosophy developed from such key Husserlian concepts as "intentionality" and Hegelian "dialectics." This led to a view of man as a "body-subject" (Kruks' terminology) living within a world where it is necessary both to decipher and constitute those structures of meaning capable of sustaining political existence, that is, existence in an intersubjective world of conflict and change. Merleau-Ponty's interpretation of Hegel was, therefore, always existentialist. He was always suspicious of interpretations of Hegel which led to a closed view of human action and history. He also retained this emphasis on the 'openness' of human experience to new structures of meaning that might be encountered as we confront new problems when he took up the interpretation of Marxism that marked the second phase of the development of his political philosophy. This phase began after the conclusion of the second world war.

Merleau-Ponty's concern with Marxism was part of that general debate over the "early writings" of Marx that emerged with the translation and publication of these works in France between 1927 and 1937, but which was interrupted by the exigencies of war and not revived until the post-war period. The post-war debate in France arose outside the Communist Party in that circle of intellectuals connected with Les Temps Modernes, which included both Sartre and Merleau-Ponty. Merleau-Ponty wrote in the first issue of the journal that the war had taught many French intellectuals that they were inescapably a part of human history. Many of them thus felt the need to make a decision about what the course of history should be and consequently made the movement from the Resistance to the Party. Merleau-Ponty was not, however, among those who joined the Party. He took up the philosophical analysis of Marx instead to defend what he saw as an emphasis on individual human values in Marx's early writings against the dogmatic and totalitarian interpretation of Marx that had been taken up by Soviet Marxism and most western European Communists. But he refrained from passing judgement on the politics of the Soviet Union until he was obliged to do so after the outbreak of the Korean War and the revelations of the atrocities of the Stalinist purges of the 1930's.

Merleau-Ponty had taken up the study of Marxism with the optimism that he had found a philosophical mentor who could help him clarify and expound his own

ideas. Like Marx, he had been an opponent of philosophical idealism in his youth, and, in opposition to all forms of idealism and materialism, he, too, had sought to place the concrete, lived reality of human experience at the center of his philosophical reflections. He could easily agree with the quotation from Marx which he had prefaced to one of his early essays on Marxism: "To be radical is to seize things by the root. For man, the root is man himself." He would later quote the first of Marx's Theses on Feuerbach against the materialism of the French Communist Party: "The chief defect of all hitherto existing materialism . . . is that the thing, reality, sensuousness, is conceived only in the form of the object or of contemplation, but not as human sensuous activity, practice, not subjectively." He consistently defended Marxism against the narrow materialistic interpretations which had been based mainly on Engel's Dialectics of Nature and Lenin's Materialism and Empirio-Criticism, and, consistent with his earlier "existentialist" interpretation of Hegel, he always sought an open-ended interpretation of Marxism (like that defended by Sartre in the Critique of Dialectical Reason). But he also took up wholeheartedly the critique of French liberalism during this period, a task that was made much simpler by the fact that the French liberals did not reconcile themselves to Keynesian economics, as had their British counterparts much earlier, until the early 1950's. Moreover, he believed that it was the implicit Cartesian idealism of French liberalism--its attempt to understand the world in terms of ideas and values possessed by autonomous, individualized consciousness--that had rendered it incapable of withstanding the onslaught of Nazi ideology in the 1930's. This is then also the period when he wrote Humanism and Terror (1947), a work which raised the unsettling thesis that it was necessary to defend Marxist revolutionary violence as the only means of escaping the more subtle forms of violence sanctioned by an economic system that can allow millions of people to become unemployed if the net result is a drop in the rate of inflation.

Merleau-Ponty did not remain a Marxist. The final period of his political development began in silence and not with philosophical pronouncements, however. This was the only response he could sanction as editorial policy for Les Temps Modernes as a consequence of the Korean War. One could no longer give "critical support" to the Soviet Union after being convinced that, as Kruks describes his growing disenchantment with Marxism, "Korea . . . [was] sudden and irrefutable proof that the Soviet Union considered war with the USA and its allies inevitable and that to pre-empt it, Stalin was willing to commit acts of aggressive imperialism" (p. 101). Nor could one condone capital-

ist imperialism either. One must also remember that this was the period of the French-Indochina War and that Merleau-Ponty was among those influential French intellectuals who championed decolonialization--and not only in Southeast Asia. Kruks describes his dilemma during this period as well as anyone could: "If . . . there was no neutral ground between [Soviet Marxism and western liberalism], then there was simply nothing left to say" (p. 102). Sartre, in contrast, took up the position of whole-hearted support for the French Communist Party, a 'conversion' which came about partly in response to the arrest and frame-up of a leading French Communist on the eve of anti-American demonstrations in Paris in June 1952.

What should have followed if Merleau-Ponty were to have become a truly major political thinker of this century would have been the construction of a political philosophy that could bridge the gap between Soviet Marxism and western liberalism. What he wrote instead was Adventures of the Dialectic (1955), which is described as "a puzzling book. . . [that] purports to show the apparently inevitable collapse of the Marxist dialectic into either objectivism (Lukacs, Lenin, Trotsky) or subjectivism (Sartre)" (p. 103). Merleau-Ponty thus never really rose above that first period of silence and disillusionment with Marxism either to take up the project of constructing a Marxist philosophy that could indeed fulfill the humanistic promise of the early writings or show how western liberalism could be reformed in such a way as to prevent its deterioration into systems supporting the violence of fascism and imperialism in periods of economic hardship. At best he could only idealize Marxism as a "classic" philosophy, a philosophical system that had revealed something very important to us and which therefore, cannot, be ignored or wholly rejected, but which no longer forms a serious philosophical alternative in the sense that Sartre continued to think that it did. No longer a political radical or philosophical outsider, he now held the most prestigious chair of French philosophy; he also quietly supported the accomplishments of French liberalism during this period. However, as Kruks is quick to point out, he never renounced the earlier critique of liberalism in Humanism and Terror.

What all this means, of course, is that Merleau-Ponty's attempt to construct a coherent modern political philosophy beginning with the works of Husserl, Hegel, and, later, Marx, ultimately failed. Kruks seems to think that nothing demonstrates this failure more than the return to the "musty idealism" found in the uncompleted manuscript of his last work, The Visible and the Invisible (1964). Kruks, who began her studies at the University of Wisconsin, continued them at the London School of Economics, and who now teaches at the New School for Social Research, would clearly

have preferred a more serious effort to revive Marxist thought and criticizes him for a rather shallow account of the forces that shaped classical liberalism. She concludes, nevertheless, that there is still much to be gained from the study of his political philosophy even if he did "leave unanswered most of the important questions he raises" (p. 134). This, she says, is not really a weakness, but an important dimension of all political discussion, since it is a warning that any "politics of universal principles, such as classical liberalism or its Marxist equivalent . . . [must] fall into an over-simplistic rationalism" (p. 134). This, after all, is exactly what Merleau-Ponty had fought against all his life. This conclusion, however, would seem to be faint praise at best and far less than what we need from a figure who we are being asked to take seriously as a major philosophical interpreter of the formative period of the contemporary geo-political crisis--a crisis which can easily be understood as a sharpening of those conflicts which were the occasion for Merleau-Ponty's unfortunate lapse into silence and historical contemplation in the last years of his life. For matters have not become any simpler and it would certainly be helpful to have something more to build on than what he came up with in these final years.

So it is that Merleau-Ponty never did discover the language of a "neutral ground" needed in the contemporary geo-political crisis. Nor would we perhaps expect this from a philosopher who wrote essays with titles like "Indirect Language and the Voices of Silence." Nor does Kruks provide any very useful suggestions about how this might be done in her otherwise well-written and tightly organized study. Like this review, her book is long on political and intellectual history, but short on philosophical analysis. The book should not thereby be dismissed as unimportant, however. What she offers instead is a concise account of the philosophical and political development that has been central to the post-war French experience, but which, with its combination of phenomenologies, Husserlian and Hegelian, and its mixture of Marxism and Communism, will still sound very strange and incomprehensible to much of the Anglo-American audience for which she writes. Why should this be so important--even if the results are so dissatisfying philosophically? We now seem to have entered an era in American intellectual life in which concern with what happens in Europe is of less and less concern to us, and, for many philosophers, only that which was first written in English seems to merit our interest or trust. If so, even if it does not prompt any renewed interest in the thought of Merleau-Ponty, Kruks' book ought to be read simply because we need to have a better understanding of recent developments in European intellectual history, whether or not we ultimately decide to accept or

reject European molds of political and social development. Or are we to assume that the cultural and intellectual development of the United States has finally reached so high a level that this is no longer necessary?

The book is another title, No. 15, in the Harvester Philosophy Now series, the aim of which is to provide a broader knowledge of trends in contemporary philosophers outside those of the "mainstream" Anglo-American variety. The book serves this purpose very well, but at \$41.00 is outrageously overpriced. A paperback edition is also available, however.

-JMM

On Aesthetics in Science, Edited by Judith Wechsler, Cambridge, Mass.: MIT Press, 1981. Reviewed by A. T. Winterbourne, Birmingham Polytechnic, England.

The links between science and art have been explored in a number of ways in recent years, not only by specialists in these fields themselves, but also by philosophers interested in both. Attempts to bridge the "two cultures," either by showing that art is not so "subjective" as is often supposed, or that science is not so "objective" (the quotes seem almost obligatory these days); or by suggesting that there is some way of thinking--"aesthetic" or "imaginative"--common to both, have become fairly frequent. A new edition of these fascinating essays is a particularly welcome contribution to a widening of this public debate, at a time when the intrinsic and instrumental value of the arts is under increasing threat from reductions in public expenditure in all levels of education, on both sides of the Atlantic. Although the ideas presented in this book could not, by themselves, provide a "justification" for aesthetic education (do we really need one?) they might prevent decisions being made on the basis of a crude positivism which does no justice to the complexity of constructive thinking in science. This might in turn prevent the destruction of alternative ways of developing just those aesthetic characteristics which creative science and mathematics need for health.

The volume is edited by Judith Wechsler, who also provides an introduction and a brief synopsis of each contribution. In her introduction Wechsler points out that the theme of the book is the contrasting modes of scientific imagination used in the process of modelling. The lesson of the papers is, she says, that aes-

thetic considerations, manifest in both art and science, are continuous and broader than either.

The cornerstone of Cyril Stanley Smith's contribution, "Structural Hierarchy in Science, Art, and History," is the idea that the concept of structure provides a "universal metaphor" for understanding both art and science. His argument is elaborate and ingenious, and like other papers in this volume, exemplifies the use of an aesthetic sense in scientific discovery and argument. The idea that both artistic and scientific discovery presuppose what Smith calls "aesthetically motivated curiosity" seems to me so much more significant for bringing the "two cultures" together than the increasingly sterile debates concerning the objectivity or subjectivity of the methods or judgments involved--a debate to which I admit having made a modest contribution myself recently. (Cf. my "Objectivity in Science and Aesthetics," British Journal of Aesthetics, Vol. 20 (Spring 1980).)

Smith argues that, in a sense, the very existence of any object depends on its interaction with structural levels on either side of it. Hierarchy is "an interpenetrating sequence of structural levels," and we fail to understand one another not because we have different viewpoints but because we attend to different levels of significance, though I am not sure that these don't amount to the same thing. A point of view will be (partly) determined by the structural level that one finds significant and interesting. I am also not sure that the author distinguishes clearly enough what is involved in the creation of art, with the apprehension of its products, in the comparison with science. He says that understanding the world in science concerns "matching" model structures with physical structures, while understanding in art concerns "the perceived relationship between physical structure and levels of sensuous and imaginative perception." It could be, I think, that some appreciation of art is like science in that it too involves an (imaginative) "matching" of model structures (paintings, poems, etc.) with physical structures. Perhaps all is, as Smith says, "pattern matching." But the pattern matching which is characteristic of scientific understanding would seem to involve the matching of a shared model with a shared experience, whereas in understanding art we may be invited to consider a "model" which then modifies our public experience. The problem, I think, is that whereas the strategy of Smith's paper is to throw into relief significantly aesthetic aspects of scientific discovery, his argument also focuses on understanding and justification.

Smith then analyses the notion of style in terms of structural hierarchy. Style is "a recognition of a quality shared among many things." It therefore seems that style is some kind of abstract entity owing its

existence to a simultaneous recognition of common properties: no single object can thus have style. 'X has style' must be elliptical for 'X shares style S with objects y, z'. Style is thus a relational property. This is in spite of the fact that whatever properties x has in virtue of which it shares a style with other objects must be possessed by it in itself. I have always found this aspect of the notion of style puzzling--although I appear to be alone in finding it so. Style, Smith writes, is "hierarchical," yet it resides at all levels, i.e., between any interrelatable levels. I am not clear whether this means that style "exists" at the interface of two levels--in which case it must presumably be "generated" by an act of a mind standing outside both levels--or whether it exists in so far as one level "refers to" or "reflects" the next level. In the latter case style might be understood as a relational property which can be possessed by an object independently of being perceived by a mind. The "reality" of style would then be a function of the modifications of discrete objects in so far as there is some harmony with other similar objects. Smith writes, intriguingly, that a painting exists at just the level at which the widening perspectives of the artist and the narrowing perspectives of the scientist merge. "It is the scale of human experience, from which thought and imagination take off, and to which they must return." This suggests that a painting occupies an intermediate position between the artist and the scientist: for the artist it symbolizes those humanistic concerns which impel him/her to paint at all; for the scientist it generalizes that analytic (perceptual) curiosity that is characteristic of the scientific enterprise.

The phenomenon of style recedes, Smith says, as we approach the place we thought we saw it, and is replaced by a previously hidden structure. This seems to help us to understand why definitions of style are so slippery. Definitions attempt to capture style in a formula, but since style is a relationship between levels of organization (and thereby presupposes qualities), definitions, by trying to isolate the "most important" qualities, always leave out something vital. Smith's thesis of interactionism must be taken as having ontological, rather than merely epistemological, force. "Nothing is a thing by itself." Everything takes meaning and existence only in so far as it interacts with something else. Hierarchy is thus an inescapable, irreducible fact in all systems that are not either completely ordered or completely disordered. This has an interesting parallel with how I interpret Kant's aesthetics. Kant's theory supports the idea that a work of art exists, and is understood, only within a preceptual/imaginative space which must be neither completely ordered and predictable (the work

would then be lifeless and boring) nor completely chaotic, (which would make it meaningless). Smith is saying that hierarchies exist only in this "space" between order and disorder. Could we then speculate that works of art are, in themselves, hierarchies? The problem with this seems to be in knowing just what are the "levels" that say, paintings, exist between: physical--paint, canvas etc., and perceptual--representation, for example? This would appear to be compatible with Smith's claim that "identity implies interaction," and that aesthetic pleasure involves some interaction between what is immediately visible, and what features on scales above and below this.

In any discussion of aesthetics in science and mathematics the focal idea of symmetry is bound to have a prominent place. According to Smith, however, the idea has been overemphasized in these disciplines; its main value is in giving significance to its absence--disymmetry--without which there would be no hierarchy. This is discussed in some detail by Philip Morrison, in his paper "On Broken Symmetries." He argues that "broken" symmetry has profound aesthetic importance, but has been neglected in favor of analyses of symmetry. Broken symmetries are crucial in the process and realization of art and science. Like other contributions to this volume, the argument is enlivened by juxtaposing a number of heterogeneous examples to demonstrate deeper similarities: here, the importance of asymmetry is exemplified through crystals, architecture, and even a parable from Borges.

I would make however, one exegetical criticism concerning Morrison's use of Leibniz's principle of the identity of indiscernibles, or what the former refers to as the "indiscernibility of differences." Morrison says that once you walk into a Palladian building, you can't quite remember whether you turned left or right. The two wings are indiscernible. They become discernible only when you understand that one is a mirror-image of the other. Indiscernibility stresses the idea of perception: what is symmetrical under one aspect of perception may not be so under another. Symmetry has subjective quality. Now there is no doubt that Leibniz's principle is illuminating for our understanding of the nature of symmetry, but not, I think, in quite the way that Morrison suggests. Surely the two wings of a Palladian building are perceived as different; the problem is in trying to give a conceptual explanation of this perceptual difference. Leibniz's principle is supposed to operate on the level of "ultimate reality," rather than on the "confused" world of phenomena. Leibniz's point was that the perceptual indistinguishability must be resolved on the "noumenal" level. It was Kant who pointed out that certain pairs of objects which were mirror-images of one another presented a phenomenal problem. In spite of the fact that

Morrison seems to conflate Leibniz's problem with Kant's solution, he is undoubtedly correct in affirming that there is an irreducible subjectivity about symmetry--which is, of course, Kant's point. (This whole epistemological problem is quite splendidly handled in Jill Vance Buroker's book Space and Incongruence, (Reidel, 1981).) If Kant is right about this, and Leibniz wrong, then Morrison is mistaken in taking the problem of perceptual symmetry as being explicable on the level of "ultimate" particles.

A common theme of these papers is that there is a point beyond which logical methods become inappropriate, and therefore that there exists a domain inside which distinctions between science and art become almost meaningless. The power of visual models in the development of twentieth century physics is discussed by Arthur I. Miller in his essay, "Visualization Lost and Regained: The Genesis of the Quantum Theory in the Period 1913-27." Here, the emphasis is placed on the importance of visual models as a non-logical criterion for theory selection. These aesthetic criteria predominate at the point where logical considerations cease to be appropriate. Aesthetic here means a choice of "thema," e.g., continuity or discontinuity, and this introduces the kinds of concepts made well-known by Gerald Holton. Using the example of the development of quantum theory, Miller suggests that a crisis in physics might arise because of a loss of visualization, with the concomitant failure of ordinary intuition to provide the right kind of framework. This obviously must be a matter of the aesthetic "style" of individual physicists; how much a physicist needs some visual model for what is essentially a logico-mathematical theory will vary from one individual to another.

It is ironic that the Euclidean world of classical physics--the overthrow of which played such an important role in the development of quantum theory--should nonetheless have such a powerful residual influence on the "aesthetics" of those scientists most involved. This is not unlike Bohr's "paradox" as described by von Weizsacker, when the latter writes: "Classical physics has been superseded by quantum theory; quantum theory is verified by experiments; experiments must be described in terms of classical physics." (Cf. von Weizsacker, "The Copenhagen Interpretation," in Quantum Theory and Beyond, edited by Ted Bastin, Cambridge University Press, 1971, p. 26). According to Miller, the transition from classical physics was difficult precisely because no easily visualizable models were available. (The visual models thus had an essentially heuristic value.) The failure of pure logic to determine a physical theory is amply illustrated by Miller's discussion. He points out that Heisenberg was concerned that the loss of visualization and "customary intuition" meant that the new theory risked "internal

contradictions," thereby demonstrating a surprising lack of confidence in deductive reasoning working independently of intuition. (There is another interesting parallel here with modern debates in the foundations of mathematics. Formalism appears to rely on internal logic, eschewing any merely "phenomenal" interpretations; while intuitionism insists on an "intuited" foundation for number which would have the consequence of proscribing that concept to what can be in some sense "apprehended" by the mind.) Miller's discussion seems to me to corroborate an idea that occurred to me several times during the reading of this book, viz., that much of the talk of "aesthetics" in science relates to what one might call the originary concept, i.e., as concerned with what can be, in some sense, "intuited," rather than with the post-eighteenth century idea of aesthetics as having some ineradicable connection with art. This volume demonstrates--if demonstration were needed--that aesthetics is wider, as a mode of thinking, than both science and art. Miller's discussion of Schrodinger illustrates this quite neatly, and it seems clear to me that the latter uses 'aesthetic' in the sense of Kant's Transcendental Aesthetic, viz., relating to our intuitions of time and space.

Seymour Papert's paper, "The Mathematical Unconscious," explores the idea that aesthetic considerations have a vital functional role in mathematical thinking. Where Papert differs fundamentally from one of his historical precursors, viz., Poincare, is in examining this aesthetic component in ordinary mathematical thought, rather than concentrating on major thinkers. Papert tries to transform Poincare's theory into a more mundane but more manageable theory of routine mathematical thinking. Papert argues that mathematical aesthetics tends to be treated in schools as a "mere epiphenomenon," as the icing on the cake, not central to the serious business. This is no doubt true. Our art teachers have persistently had their whole enterprise regarded in this way. It would be ironic indeed if important figures in the field of mathematics and computer science--like Papert--should be in a position to make "aesthetic education" not only respectable, but noticeably fundamental to all constructive thinking, when those people, like the hard-pressed art teacher, should have so often conspicuously failed to make this particular case. However, it may well be that the reasons mathematical aesthetics are not taken seriously enough relates to the sometimes difficult place occupied by art in the curriculum, viz., the problem of teaching an "aesthetic sense." Perhaps the very best we can do is teach various techniques, and give examples, and then trust to the (perhaps ultimately mysterious) synthesizing and abstracting facility of the

mind to see beyond the techniques in the process of learning them.

It is clear from Papert's paper that he thinks that mathematical activity cannot itself be understood solely, or primarily, in logical terms without introducing aesthetic considerations. (This aesthetic sense must be seen as fundamental to making hypotheses, rather than understanding proofs. One can, surely, do the latter by means of logic alone--which is, presumably, why so much experience of learning mathematics in school is dull and uninspiring. What made the proof "exciting" is quite left out of account after the proof has "gone public." This is one of the profoundest differences between art and science, that in art the nature of the finished product invites an affective response from the public, which ultimately is the only sure criterion of its value.) What is at issue, according to Papert, is whether in the course of working on the most purely logical problem, mathematicians evoke processes which are not themselves purely logical. It is, as he points out, a problem of guidance--of "navigation in intellectual space." What is significant, he suggests, is the isolation of an extra-logical stage in even the most elementary problem-solving in mathematics. It is obvious that the aesthetic sense is being isolated as a necessary condition for some problem-solving. Although it is clear that it could not be a sufficient condition, it is not clear whether it need not be present at all. That is, it is not clear to me whether any problem-solving--for a mind--could be purely mechanical. If it is a necessary condition, but cannot be isolated and described externally, we seem to face the possibility that a complete description of creative problem-solving behavior contains at least one component that is beyond the reach of logic. The same paradoxes involved in trying to find psychological theories of creativity would be raised in our attempt to understand ordinary problem-solving. Papert's exposition of an MIT experiment in mathematical problem solving illustrates both the positive value of encouraging aesthetic engagement with a problem and the more mysterious educational implications. The aesthetic and the functional, says Papert, enter into a symbiotic relationship. Mathematically functional goals are achieved by means of a play of sub-goals formulated in non-mathematical language and drawing on extra-mathematical knowledge. "The functional exploits the aesthetic."

The significance of an aesthetic sense for an individual creative scientist is explored by Howard Gruber in his essay, "Darwin's 'Tree of Nature' and Other Images of Wide Scope." In spite of the considerable inherent interest in identifying a scientist's visual metaphors, the difficulties of generalizing from a case as well-known and complicated as Darwin's are

enormous. The fact that Darwin not only employed "tree diagrams" as a way of exploring taxonomical relationships but also took aesthetic pleasure in them *qua* designs, does not necessarily assist us in coming to grips with the theory that was to emerge. Could it be argued that Darwin took pleasure in the designs because they had the appropriate "fit" with the data to be explained? He would presumably not have chosen a visual model which was quite inappropriate for the emerging theory. Gruber rejects the idea that Darwin's diagrams are only heuristic aids for theoretical thought, without aesthetic significance. If this were so, he writes, "why the evident pleasure in the actual drawings, the constant search for the right metaphor, the emotional excitement conveyed by his punctuation and frequent resorts to a high-flown style? That is exactly that combination of feeling with concern for form and content that we have in mind when we speak of an aesthetic act." Gruber is well aware of the possibility that while individual creative acts employ "images of wide scope," the communication of a theory may need to be anchored in the public products of thought, and thus miss the very aesthetic engagement with the world that initiated the scientist's curiosity in the first place.

The tension that exists between an individual scientist's aesthetically motivated curiosity and the (largely) logical framework in which the resulting products are publicly tested, must lead us to wonder how it is that there is ever any "match" between the visual model and the world. Perhaps the structure of the world (or perhaps I should say the structure of experience) itself proscribes the range and nature of the models human beings use to describe it. We are, after all, part of that natural world. If there are laws and patterns to be discovered in it, our minds--distorting mirrors or not--will be subject to those laws and will find resonances in those patterns. The dichotomy of rationality and intuition reflects the objective/subjective relationship of a mind with its contents. The external world may exhibit law-like behavior, but only a mind may reach outwards and apprehend the results. Since no two minds will grasp this law-like behavior in exactly the same way, our aesthetic intuitions will contain an irreducibly non-rational, i.e., non-public dimension. Our theories, however, must be publicly assessable objects; the distorting mirror of any individual scientist responsible for the theory must be smoothed out as much as possible, else we will see only ourselves in our theories, and not the world of shared experience.

This division of rationality and intuition is explored in the last paper in the book by Geoffrey Vickers. He proceeds from the premise that the idea that art and science are incommensurable is harmful to

both. Scientific hypotheses, inventions, paintings, new laws--these are all artifacts; human skill in ordering and designing go into all these things. Vickers' thesis develops from a distinction of two modes of cognition. The first mode depends on logical analysis; the second depends on synthesis, the recognition of pattern, and contextual relationships. The former--familiar as the distinctive method of science--concerns abstraction and idealization; the latter--unfamiliar if only because it is so very often implicit rather than overt--involves the creation of form, regardless of the heterogeneity of the elements involved. Both modes, writes Vickers, are necessary for most intellectual operations. We conveniently refer to the first mode as rationality, the second as intuition. A rational process is fully describable; an intuitive process is not. If then what is "real" is taken to be coextensive with whatever can be described, we reach the "disastrous" equivalence, Real = Rational. The intuitive mode is then, almost by definition, relegated to being irrational, or mystical; the cultural consequence of this is that art becomes disconnected from all other modes of knowing. Knowing and designing, affirms Vickers, are not separate or separable activities. Our whole schema for knowing is a "design," a model of reality consciously and unconsciously constructed and constantly revised. (This "positive feedback" aspect of "designing while making" is explored in a recent book by Andrew Harrison; see Making and Thinking: A Study of Intelligent Activities, Harvester Press.) The author cites Christopher Alexander's assertion that design consists not in the realization of form but in the elimination of misfit. (This idea can also be found in Nelson Goodman.) The designer has tacit criteria, which are manifest only when a particular design is inconsistent with one of them. Thus the norm is "known" negatively--only when it is infringed. (This common occurrence of not being able to specify what one wants, while at the same time being able to eliminate obvious misfits, is such a familiar experience that its epistemological significance may have been overlooked.)

These considerations have been made familiar to us through a number of sources, as Vickers is happy to acknowledge, with Polanyi perhaps the best known. The epistemological implications have also become familiar, though hardly uncontroversial. "Facts," says Vickers, ". . . are not data." (What are data then?) Facts are mental artifacts, selected and abstracted from experience; they are "filtered" through a screen of schemata, which is necessarily tacit; we infer its nature by observing its operations. The screen is itself a product of the process which it mediates, and though tacit, may be developed by deliberately exposing it to

what we want to influence it. (Is this what education should consist of?)

Vickers then "applies" some ideas from Thomas Kuhn to our understanding of art. With mixed success I think, Vickers insists that Kuhnian paradigms are at work in art as well as science. So long as art worked within the paradigm of representation, its achievements were cumulative. It developed new ways to represent three dimensional space in two dimensions. Now it does not seem to me that the broad notion of representation could operate as a Kuhnian paradigm, given the enormous divergences of methods and styles of representation manifest in the history of art. But in any case, this idea suggests that the better we get at representing the world, the "better" the art. This is wrong, I think. First of all, not all art aims at representing the world as experienced, so the notion of representation must be widened to include imagined worlds. But secondly, and more importantly, this view would seem to have the consequence that the more "realistic" the art, the better it is. Apart from any other difficulties, this ought to mean the replacement of art by photography.

Vickers isolates two functions, which he says are never completely separated, but which are logically distinct as "reciprocating phases" in the process of mental activity. These are, first, the creative process, which is supposed to present a work for judgment--such a process responds to both explicit and tacit criteria--and, second, the appreciative process, which "judges the work by the criteria, tacit and explicit, to which it appeals, and finds it good or wanting, or worse." These two phases of the process may alternate many times in the course of producing the work. The "form" is produced by the creative activity of an engaged mind structured by tacit norms and explicit rules. Vickers concludes with a reminder of the conceptual distortions against which we should be on our guard, if scientists themselves are not to be misunderstood, (and, indeed, lionized) and artists patronized (in the vulgar, rather than the useful sense.) We must not identify science with rationality, nor exaggerate the differences between science and non-science. Not all rational debate is scientific--this is obvious, but seems to need occasional reiteration; and while we must not exaggerate the differences between science and non-science, we must not over-play the similarities either.

The papers in this volume are all the more welcome because they emphasize the aesthetic components of science from the inside. It is worthwhile reminding ourselves occasionally that just as scientific thinking does not have the monopoly on rationality, so the arts have no monopoly of creative synthesis. The arts have their formulae, and their techniques; the sciences have

their inspirations, their guesses, and their playfulness. These essays should be required reading for hide-bound physics teachers and obscurantist art teachers alike.

There is an excellent bibliography which positively invites further reading, and each section is well provided with separate references. The book is attractively presented by the publishers, and this new paperback edition deserves a wide and attentive audience.

Contemporary Political Thinkers by Bhikhu Parekh. Baltimore: John Hopkins University Press, 1982, Pp. x, 219. \$22.50. Reviewed by Howard Ross, Eastern New Mexico University.

Bhikhu Parekh's Contemporary Political Thinkers is a concise, well written critical introduction to the work of seven major political thinkers of the twentieth century. Very few will disagree with the selection of Hannah Arendt, Michael Oakeshott, Herbert Marcuse, John Rawls, Isaiah Berlin, C. B. MacPherson, and Karl Popper. Despite the fact that these thinkers belong to radically different political traditions, they were chosen because they are acknowledged to be major figures of our time.

Bhikhu Parekh has had a lot of experience in this field. He is a Reader at the University of Hull in political philosophy, and he also has published several other books in this area: The Concept of Socialism (1976), Jeremy Bentham: Ten Critical Essays (1973), Knowledge and Belief in Politics (1974), Marx's Theory of Ideology (1981), and Hannah Arendt and the Search for a new Political Philosophy (1981).

His purpose in writing Contemporary Political Thinkers is to explore the current state of political philosophy as reflected in the writings of some of its ablest practitioners. He critically examines their views on the nature and tasks of political philosophy by considering both what they say they have done and what they have actually done.

As far as Hannah Arendt is concerned, Parekh acknowledges the richness and brilliance of her theory of politics, but he adds that it is defective on several accounts. First, she holds two different conceptions of politics and fails to integrate them. Secondly, her obsession with autonomy prevents her from noticing the role economic forces and the class struggle play in shaping the language of political discourse.

Isaiah Berlin's difficulties, on the other hand, arise from the fact that in the course of reacting

against monism, he swings to the opposite extreme and embraces an equally extreme form of pluralism.

No one would ever make the mistake of considering C. B. MacPherson as an extremist, for his concern has always been to integrate liberalism and Marxism. However, MacPherson's thought, says Parekh, is open to several major criticisms. He is ambiguous about whether or not man has a historically invariant nature, and he pays scant attention to the nature and development of human capacities. Consequently, he fails to transcend the basic assumptions of liberal individualism and is unable to lay the foundations of an alternative theory of man.

Moving on to Marcuse, Parekh claims that his political theory, is highly uneven. Marcuse is a brilliant philosopher. His work, according to Parekh, contains profound insights, along with some extremely naive and untenable ideas. Parekh accuses Marcuse of advancing essential theoretical truths about man without fully explaining how he arrives at them.

This is not Michael Oakeshott's problem, for one of his greatest achievements is his carefully worked-out philosophy of individuality. However, his political philosophy is still open to two criticisms. According to Parekh, Oakeshott considers theory as a generic category and erroneously argues that all intellectual activities engage in theorizing in one way or another. In addition, Oakeshott feels that philosophy's role in human endeavors is towards reaching an understanding of something, it should not be concerned about prescribing.

Karl Popper, on the other hand, is primarily interested in prescribing the aims of government and developing the best methods of realizing these aims. Popper's problem is that he makes no attempt to understand the nature and structure of political life. Nevertheless, Popper has made several contributions to several fields. Along with trying to link rationality with criticism, rather than with justification, Popper also has tried to refute historicism and naive rationalism.

The final chapter on John Rawls, whose theory of justice has been deservedly acclaimed as one of the most impressive achievements of 20th century moral and political philosophy, discusses the limitations of his work. Parekh says Rawl's problem is to develop a theory of justice which can be agreed upon by all men, and yet is not biased towards a specific conception of human excellence. According to Parekh, Rawls fails to bring this about. His theory of justice does not adopt a neutral stance but is strongly biased towards liberal individualism.

In conclusion, I found this book to be very interesting, very insightful, and very informative. My only complaint would be over the selection of the

political theorists. A strong case could be made for the inclusion of Lukacs, Adorno, Sartre, and Habermas. Nevertheless, this book should be useful in advanced undergraduate and graduate theory courses.

Michel Foucault: Social Theory and Transgression, by Charles C. Lemert and Garth Gillan. New York: Columbia University Press, 1982. Pp. 169. Reviewed by Howard Ross, Eastern New Mexico University.

Throughout his life, Michel Foucault, currently a professor of the History of Systems of thought at the College de France, has investigated the cultural and philosophical assumptions which underlie western society. Foucault's many books tell how the madman succeeded to the social role of the leper, how the human body became an object for scientific study, how surveillance and control replaced corporal punishment, and how sex became a matter for discussion, study, and regulation in modern society.

Foucault writes on such a wide range of topics that his readers include many people from literature, politics, philosophy, medicine, history, sociology, linguistics, and semiotics. According to Lemert and Gillan, Foucault is known to do most of his research at the Bibliotheque Nationale in Paris.

The authors of this study of Foucault are Charles C. Lemert, a professor of sociology at Wesleyan University, and Garth Gillan, a professor of philosophy at Southern Illinois University at Carbondale. Both authors are widely published in the fields of political and social theory.

Michel Foucault: Social Theory and Transgression, according to Lemert and Gillan, is not about Foucault the person, but about what he has written. More specifically, the book is structured around a series of questions readers asked or should have asked of Foucault. Each chapter, for example, tries to present Foucault in a manner that demonstrates his probable response.

There are, according to Lemert and Gillan, at least four perfectly reasonable questions one should ask of Foucault's writings: (1) Where does he come from? (2) Why does he write like that? (3) What is he getting at? (4) Where has he gone wrong?

It is perfectly reasonable for a reader to want to know something of a writer's intellectual background. This is especially critical in Foucault's case, for he appears to come out of nowhere. According to Lemert and Gillan, this is partly due to his refusal to name

those with whom he argues, and partly due to his method.

In chapter one, the authors explain why Foucault cannot be understood as a Marxist, a Structuralist, or a Semiotician--these being the traditions into which others want to insert him. They show that Foucault's intellectual background is more a matter of specific problems to which he has been exposed to by his teachers and contemporaries. Their view is that though Foucault works with a definite relationship to the Annales historians, Bachelard's history of science, and Nietzsche's problematic, he is more concerned with their questions rather than their answers. Foucault's main problems, as Lemert and Gillan see them, lie in the areas of history, the knowledge of man, and in language.

The second question--why does he write like that?--is the most commonly asked question of Foucault. A great many critics have accused him of willful obscurity, of not wanting to make himself readable. Lemert and Gillan apologize by reassuring us that, even though one can not be sure what Foucault is saying, it is evident that he is saying it well, but what good will this do if the reader cannot understand what Foucault is saying. They go on to argue that, even if Foucault creates the impression of obscurity, it is done for a good reason. Chapter two is devoted to explaining how Foucault's obscure style is related to his methodology. The authors believe that his style is a direct result of his methodology. Needless to say, one must understand Foucault's style in order to understand his methodology.

Chapter three deals with the third question--what is he getting at? It is important to understand, Lemert and Gillan add, that Foucault does not write in order to teach lessons, or to promote a political or philosophical line. He does not present a thinly veiled discourse behind which is found a message. His writings try to accomplish two important tasks: (1) to explain the conditions out of which have arisen specific social conflicts in our society, and (2) to challenge established tradition, and, in the process, raise new questions by means of new methods.

Finally, the fourth question involves a discussion of the flaws and logical inconsistencies in Foucault's work. According to the authors, there exists three questions for which Foucault has not supplied convincing arguments.

(1) Given the absolute primacy of discursive formation in Foucault's philosophy of history, what rule does subjectivity play? (2) Given Foucault's methodological use of negation, silence, and the unfamiliar, does their exist any room for a positive content to his politics? (3) Given his use of discontinuity and continuity in his study of historical development, what,

if any, is the relation between these two historical modes?

Along with Alan Sheridan's Michel Foucault: The Will To Truth, and Hubert Dreyfus and Paul Rabinow's Michael Foucault: Beyond Structuralism and Hermeneutics, Charles Lemert and Garth Gillan have provided us with another excellent account of Foucault's difficult philosophy.

Cognitive Systematization: A Systems-Theoretic Approach to a Coherentist Theory of Knowledge, by Nicholas Rescher. Oxford: Basil Blackwell, 1979. Pp. 211. \$21.50. Reviewed by Paul K. Moser, Loyola University of Chicago.

This book emphasizes the central importance of systematization in the theory of knowledge. It thus reiterates a theme found in Rescher's The Coherence Theory of Truth (Oxford: Clarendon Press, 1973) and Methodological Pragmatism (Oxford: Basil Blackwell, 1977). After outlining some of the historical background of the concept of a cognitive system, Rescher devotes chapters to the following sorts of questions: What is the purpose of cognitive systematization? What are the alternative modes of cognitive systematization? How can we justify a coherentist approach to cognitive systematization? And what are the limits to cognitive systematization? Although these questions raise many important epistemological issues, I shall focus this review on Rescher's treatment of foundationalism versus coherentism in cognitive systematization.

The two major competing models of cognitive systematization (i.e., of system-building for knowledge-claims) are the Euclidean model of linear inference from basic axioms and the network model of cyclic systematization. The Euclidean model underlies a foundationalist account of empirical epistemic justification, while the network model underlies a coherentist account of justified empirical belief. Roughly speaking, epistemic foundationalism is the view that all epistemically justified empirical beliefs either are immediately justified, i.e., justified independently of the justification of any other beliefs, or are justified by means of immediately justified beliefs. Epistemic coherentism, in contrast, affirms that the justification of any empirical belief depends on some justificatory relations to other beliefs; in short, it denies that there are immediately justified foundations of justification. When stated this way, foundationalism and coherentism are obviously incompatible.

One of the major claims of Rescher's book is that since foundationalism faces serious problems, we should devote our efforts to the development of a coherentist epistemology. But I believe this claim is objectionable on two grounds. First, it stems from a misunderstanding of the basic tenets of and motivations for epistemic foundationalism. And, secondly, it overlooks the serious problems facing epistemic coherentism. I shall briefly develop these objections in turn.

Many contemporary critics of foundationalism have suggested that foundationalism arises mainly from a misguided quest for certainty. But this is misleading. The major motivation for foundationalism is actually that it provides the most plausible solution to the notorious epistemic regress problem. Basically this problem requires the epistemologist to explain inferential justification, i.e., one belief's being justified on the basis of another belief. We have four basic nonsceptical accounts of inferential epistemic justification: (i) inferential justification via unjustified beliefs (thus epistemic contextualism as represented, for instance, by Wittgenstein); (ii) inferential justification via endless justificatory regresses (thus epistemic infinitism); (iii) inferential justification via justificatory circles of some sort (thus epistemic coherentism); and (iv) inferential justification via immediately justified beliefs (thus epistemic foundationalism). The foundationalist can construct an eliminative regress argument to justify his theory. That is, he can plausibly argue that (i)-(iii) fail to provide an adequate account of inferential justification, and thus fail to solve the regress problem, but that his account succeeds. (I have developed such an argument in a work in progress entitled 'Justified Belief'.) The basic problem with (i) is that it is doubtful that an unjustified belief can justify any belief; given this account we apparently can justify any belief whatsoever. And epistemic infinitism faces a similar problem. For we can construct an argument showing that if any belief is justified by an infinite justificatory regress, then we can justify any belief we like. (For the details see James Cornman, Skepticism, Justification, and Explanation (Dordrecht: D. Reidel, 1980) pp. 135-38). But surely not every belief is justified. Consequently, we are left with coherentism and foundationalism if we wish to avoid scepticism.

Rescher opposes foundationalism for two basic reasons (see pp. 50-55). First, he finds it implausible to hold that there are self-justified foundational beliefs that are irrevocable and indubitable. And, secondly, he finds that even if there were such foundational beliefs, they could not provide us with certainty about the external world. But these are not good reasons for rejecting the most plausible kind of foundationalism,

i.e., a kind of modest foundationalism that we may call 'epistemic intuitionism'. Modest foundationalism contrasts with radical foundationalism by denying that foundational beliefs need be irrevocable, indubitable, or certain in some other sense. Clearly, if the major epistemological role of foundational beliefs is to terminate a justificatory regress, then such beliefs need not be certain in any sense, but need only have sufficient justification to provide nonfoundational beliefs with justification. Further, to terminate a regress, foundational beliefs need not be self-justified; they need only be justified independently of any justificatory relations to other beliefs. According to epistemic intuitionism, foundational beliefs are justified not by themselves, but by nonbelief sensory and perceptual states of awareness. (For the details of this account see my article "A Defense of Epistemic Intuitionism," forthcoming in Metaphilosophy.) It is misleading, then, for Rescher to suggest that foundationalism commits one to indubitable and irrevocable self-justified beliefs, or to the thesis that foundational beliefs can provide one with certainty about the external world. The foundationalist is committed at most to immediately justified beliefs, and he can consistently hold that such beliefs justify physical-object beliefs only with a high degree of probability less than 1. Thus, I find that Rescher's anti-foundationalist criticisms leave the best kind of foundationalism untouched.

As for Rescher's alternative to foundationalism, the present book gives us only an outline. (The details are found in The Coherence Theory of Truth.) The basic idea, however, is that an empirical belief derives its justification from its membership in a maximally coherent belief-system. Such a system, to use Rescher's jargon, is the system of truth-candidates that receives the best "overall fit of mutual attunement" by our making the least plausible truth-candidates give way to the more plausible (see pp. 68-69). Truth-candidates are "presumptive" or "potential" truths; they are not probable truths, but they have some degree of probability. Rescher calls these 'data', and suggests that the deliverances of memory and perception may be taken as examples. The talk of plausible truth-candidates presupposes a theory of plausibility ratings. On Rescher's account such a theory concerns our initial assessments of the relative acceptability of the data. Prior to a systematic evaluation of the data, we are to assess their acceptability at first glance. Summing up, Rescher claims (p. 70) that the coherence theory rests on a three-step procedure: (i) Gather in all of the data; (ii) Lay out all of the available alternative systems of truth-candidates; (iii) Choose among the alternatives by using the guidance of plausibility considerations, i.e.,

by maximizing plausibility. By relying on these steps, according to Rescher, we can construct a system of justified empirical beliefs.

But Rescher's coherence theory must face two serious problems. First, it must provide us with a nonarbitrary way to make plausibility-ratings. Otherwise, we will be able to justify any beliefs we like, and in that case Rescher's epistemology will be open to the "isolation" objection that it divorces empirical justification from the empirical world. (In fact, it is arguable that any pure coherence theory of justification is open to such an isolation objection.) Secondly, Rescher's theory must explain how it is that membership in a maximally coherent belief-system can confer a high degree of probability on empirical beliefs. Otherwise, we will have no reason to believe that such membership confers epistemic justification. Frequently Rescher suggests that on his account maximal coherence is just maximal consistency. (This is true even of the detailed account provided in The Coherence Theory of Truth.) But why should we believe that an empirical belief is justified, or likely to be true, just because it is a member of a maximally consistent belief-system? Lacking an answer to this question, we must conclude that Rescher's coherence theory is at best incomplete.

In conclusion, then, although Cognitive Systematization raises many important epistemological issues, it fails to substantiate its central thesis that a coherentist account of cognitive systematization is preferable, from an epistemological point of view, to epistemic foundationalism.