In the case of Darwin the public record was formed by his publications, the most prominent of which was, of course, the *Origin of Species*. The private record, as it survived, is contained in Darwin's letters, research notes, and other manuscripts. Drawing on this private record, much of which has become available only recently, Edward Manier has reconstructed the private philosophical world in which the young Darwin operated as he explored the question of the mutability of species. As Manier shows, from 1837 through 1839 Darwin was seriously interested in the metaphysics of science and read such philosophers of science as John Herschel, William Whewell, and (in review) Auguste Comte in order to check his own perceptions of the nature of science against theirs. As one might expect, Darwin was particularly interested in the views of philosophers as they spoke for or against principles underlying his own theory. As Manier puts it, correctly:

> The answer to the question, "Did Darwin take philosophical questions seriously?" is that he took his *theory* very seriously, and that—as a *young* man—he was concerned to probe *all* its implications and deal with *all* the difficulties it raised. He had, we might say, a serious philosophical interest in *one* scientific theory.

Darwin's private philosophical speculations are important partly for what they reveal about his development as a scientist and partly because the theory of evolution itself poses some interesting philosophical questions, for example concerning the origin, and hence the status, of metaphysical concepts and language generally. As an evolutionist, Darwin began by presuming that language, including philosophical language, had developed gradually over time and that all usage of language, including philosophical usage, must be judged accordingly. Hence, Darwin was interested in philosophical treatments of language and took some care in reading authors, such as Dugald Stewart and Benjamin Smart, whose views of language were compatible with his own. Significantly, Darwin's gradualistic view of the origin of language also contributed to his confidence in the propriety of using analogies and metaphors to express theoretical concepts.

In addition to considering Darwin's reactions to views held by philosophers, Manier also describes some of Darwin's own opinions on a variety of philosophical subjects including materialism, skepticism, chance, necessity, and design. As Manier shows, the private Darwin was philosophically more radical than his published writings suggest. For example, Darwin did not hesitate to call himself a materialist—in private. Nor did he hesitate to give naturalistic explanations for religious belief and for the origin of the moral sense. Again, however, this was done privately.

In reconstructing the private philosophical world in which Darwin operated, Manier also addresses two questions of particular importance to historians and philosophers of science: How did Darwin choose what he read in philosophy? and How did his reading in philosophy, particularly respecting method, affect the form or content of his written work? Manier's answer to the first question is only partly adequate. He suggests that Darwin's reading was determined by what he terms Darwin's "cultural circle." While the term "cultural circle" is rhetorically appealing and the relation it presumes between culture and science defensible, Manier does not make clear what external reality this circle had beyond the fact that each member of it was cited in Darwin's notes. The second question, regarding the effect of Darwin's reading on his written work, may never be fully answerable. Clearly Darwin's reading in philosophy and related areas helped him choose his words and gained him confidence in the adequacy of his own insights. On at least one point—the influence of Malthus—the influence is substantial and explicitly acknowledged. However, if one reads all of the works Darwin read in the period from 1837 through 1839 and has access to his notes on his reading, one still cannot extrapolate from this Darwin's earliest draft of his species theory, written in 1842. What Manier has given us narrows the gap between Darwin's brilliant remarks of 1837–1839 and the highly deductive but chastened argument of the first draft of his theory. But it does not close that gap, and it may be that in this instance the distance between the private and the public record is ultimately unbridgeable. Every Victorian may still have two minds.

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The Dynamics of a Central Illusion

Conceiving the Self. MORRIS ROSENBERG. Basic, New York, 1979, xvi, 320 pp. $16.95.

In spite of over half a century of behaviorism in psychology the popular preoccupation with identifying and fostering the self has never been greater than it is today. The psychoanalytic melodrama in which a heroic or cowardly ego presides over the struggle between id and superego still appeals to popular fancy. More recently many "pop" intellectuals have translated the search for a reified self into a moral imperative. Because of irrepressible tendencies toward such faulty thinking, behavioral scientists often shy away from using the term "self" altogether. But social behavior seems to be distinctively and inescapably shaped by the human practice of observing and appraising one's own behavior and appearance. The fruits of this practice are organized into a conception of self, and the individual tries to behave so as to enhance and protect the self-concept. While the self as an entity is an illusion, the self-concepts people create for themselves are a vital and important part of human experience. How they are formed and how they affect behavior are deemed crucial questions in understanding why some people succeed while others fail, why some choose the conventional life while others rebel, and why people often seem to act against their own best interests. Assumptions about the dynamics of the self-concept have played an important part in black and Chicano nationalist movements, the women's liberation movement, and many social programs to upgrade the disadvantaged.

Morris Rosenberg's book sheds important new light on the question of how the self-concept is formed and raises disturbing questions about the assumptions underlying some of our valued social programs. Although the book adds new knowledge and insights that are of importance to the specialist, the lucid writing and orderly development make it equally an excellent introduction for the general reader. The self-concept is defined as "the totality of the individual's thoughts and feelings having reference to himself as an object" (p. 7). The book explores the organization and dynamics of this totality, lays the groundwork for understanding why members of minority

groups and other population segments have the kinds of self-concepts they do, and follows development of the self-concept from childhood into late adolescence.

Rosenberg's primary concern is with self-esteem, which consists of the positive or negative feelings we have toward ourselves. The self-concept is a motivating force in behavior through the vital efforts to maintain self-esteem and self-consistency. Rosenberg's data are interviews with 1917 elementary, junior high, and senior high school students and their parents in Baltimore, questionnaires from 5024 high school juniors and seniors in New York State, and interviews with 2300 adults in greater Chicago.

Established wisdom has it that people tend to accept as their own the negative or positive attitudes that other people have toward them. If one is a member of a disparaged minority group, one tends to accept the low opinion held of the minority group and translate it into low personal self-esteem. In some instances resentment turns the low self-esteem into a pathological pattern of self-hatred. Low self-esteem and self-hatred interfere with learning and adjustment in school and success outside of school. But Rosenberg finds, as others have recently discovered, that black children do not necessarily have lower self-esteem than whites, that lower-class children do not differ from middle-class children in self-esteem, and that children from minority religious groups do not have less favorable views of themselves than Protestant children. Besides verifying what others have begun to find, Rosenberg's important contribution is to show how the misapplication of fundamentally sound theoretical principles led to these faulty assumptions.

Rosenberg lays down four principles governing formation of the self-concept, three of which he then uses with good effect to clarify the anomaly of black and lower-class children with high self-esteem. First, accepted wisdom is correct that we do tend to accept others' evaluations as our own (the reflected appraisals principle). But the child in a homogeneous environment does not experience the attitudes of the larger society but only the evaluations of others like himself or herself. Rosenberg shows that older adolescents from lower-class backgrounds exhibit lowered self-esteem as they become more aware of the larger society. Also, blacks and members of religious minorities have lower self-esteem if they live in mixed neighborhoods where they receive conflicting signals.

Self-esteem is also formed by comparing oneself with others (social comparisons principle). Again, young children make comparisons only in the immediate environment. Other investigators have found that black children bused to white neighborhood schools suffer a loss in self-esteem, but Rosenberg finds similarly that blacks in mixed neighborhoods have lessened self-esteem. Similarly, blacks from single-parent families have lessened self-esteem in mixed neighborhoods where such families are relatively uncommon, but not in all-black neighborhoods were they are quite common.

The self-hatred thesis is muted when Rosenberg finds that most children do not reject the groups with which they are identified. But, even when they do, group rejection is not translated into self-hatred. Rosenberg's principle of psychological centrality explains why this translation does not occur. The self-concept is organized hierarchically, with some identities being quite important to self-esteem and others quite unimportant. As Rosenberg has shown earlier, identities that consistently carry unfavorable evaluations tend to be shifted to positions of low importance in the hierarchy of the self-concept. Thus the child who disparages his or her race, religion, or class disengages the troublesome identity and finds self-esteem in other aspects of the self-concept.

Rosenberg's fourth principle, self-attribution, is essentially reality testing. The level of self-esteem is a sensitive indicator of objective experience with success and failure, except as modified by the other three principles.

There is not space here to show how Rosenberg clarifies the nature and causes of disturbance in the self-concept during adolescence. But the findings shed new light on the crisis of adolescence with its crucial significance for educational policy.

Rosenberg's analyses are ingenious yet simple, and they are persuasive. Nevertheless, there is a school of thought among behavioral scientists that is skeptical of the sharp analytic distinctions he makes and the instruments he has devised. Rosenberg's techniques bring out more order than the skeptics find in human behavior. The skeptics fear that the organization of questions may have provided an artificial order into which the subjects of investigation fitted their answers.

Not knowing whether people have been asked questions that permit them to answer in ways that are most meaningful to them is akin to the problem of not knowing for certain what difference self-esteem makes. Vast sums of public and private money were invested in programs based on the assumption that minority children have low self-esteem and that raising their self-esteem will enhance their school achievement. Rosenberg has effectively debunked the first part of this thesis and isolated many correlates of high and low self-esteem. But what difference it makes whether self-esteem is high or low still remains to be demonstrated empirically.

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Unintended Consequences

The Hidden Costs of Reward. New Perspectives on the Psychology of Human Motivation. MARK R. LEPPER and DAVID GREENE, Eds. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xiv, 262 pp. $16.50.

Some investigators believe that attitudes (dispositions toward things, events, ideas) can be formed or changed by the contiguous pairing of attitude objects with rewards; many investigators believe that learning can be enhanced by rewards, indirectly if not directly; and everybody believes that the promise of rewards can induce people to perform acts they otherwise would avoid. For the followers of B. F. Skinner, rewards are a major means by which to reinforce behaviors, that is, to increase the probability that target behaviors will occur; widespread use of behavior modification in therapy has followed. These beliefs and practices notwithstanding, the present collection of writings tells us that rewards can impede learning and performance and adversely affect attitudes, self-esteem, and feelings of control and efficacy.

The importance of the univocal message "the hidden costs of reward" can hardly be overstated, for the message bears on a variety of under-researched and still poorly understood phenomena of human behavior and it has widespread implications for such concerns as child rearing, education, and worker satisfaction. The central chapters in this volume, each by a separate investigator or pair of investigators, present theoretical orientations and summaries of supporting research. The orientations, though overlapping to some degree, vary from those