

NIETZSCHE'S EVOLUTIONARY EPISTEMOLOGY

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The resurgence of interest in evolutionary epistemology both in sociobiology and the philosophy of science has tended to ignore Nietzsche's insightful and imaginative speculations concerning the development of our perceptual and conceptual functions, capacities, and limitations. Many of the recent explorations of the gradual development of naturally selected modalities of perceptual experience and conceptual schemata (including current accounts of a "naturalized" epistemology), are not, by any means, incompatible with Nietzsche's numerous experimental thoughts pertinent to this theoretical orientation, its meaning and consequences for human understanding, or with his uses of evolutionary interpretations of perceptual experience and knowledge in his own sceptical theory of knowledge. In fact, Nietzsche is a neglected pioneer in the area of evolutionary epistemology.

Many specific observations and theoretical claims in recent discussions of evolutionary epistemology—including the evolution of the scientific world-orientation itself—are anticipated in Nietzsche's multidimensional analyses and speculations concerning the development, over long periods of time, of ways of perceiving and thinking that have become sedimented, canonical, and deeply rooted in natural languages. From his earliest writings to his last thought-experiments, he probed the anthropomorphic nature of truth, the pragmatic-utilitarian function of perception, cognition, conceptual schemata, and language, specifically relating them to life-preservation and the perpetuation of the species.

Before he first became familiar with the central ideas of Darwin's *The Origin of Species* in his study of F. A. Lange's *History of Materialism*,¹ Nietzsche was already familiar with three pre-Darwinian general theories of natural historical development that were surpassed by Darwin's comprehensive theory of evolution by means of natural selection. His philological studies of Greek literature and philosophy gave him familiarity with the speculations of Empedocles, with his belief that the living beings extant were the consequence of random, natural experimentations in organic forms over time and not the result of teleology. When he discovered the rudiments of Darwin's theory in Lange's *History of Materialism*, he linked Empedocles' thought to Darwin's principle of chance variation and natural selection.² In the *Essays* of R. W. Emerson he found a sketch of an evolutionary theory that emphasized the rooting of man's "natural history" in the "ferocities of nature" and the joining of it to the preservation in man of animalistic traits and tendencies.³ The third pre-Darwinian mode of evolutionary speculation was found in the writings of Schopenhauer. In *The World as Will and Representation* the intellect is described as a tool of more basic drives, as an instrument analogous to the defensive and aggressive "weapons" of animals. And in *Zur Philosophie und Wissenschaft der Natur* (Chapter VI of *Parerga und Paralipomena*) Nietzsche found a fairly detailed evolutionary theory.⁴

¹ Cf. Claudia Crawford, *The Beginnings of Nietzsche's Theory of Language*, New York, 1988, pp. 91-93. Cf. also: G. J. Stack, *Lange and Nietzsche*, Berlin, 1983, Chapter VII, "Darwin and Teleology."

² Referring to Empedocles' conception of the fortuitous creation of a variety of living beings in notes from the mid-1860's, Nietzsche remarks that "This insight anticipates the Darwinian theory." Friedrich Nietzsche, *Werke*. Historische-Kritische Gesamtausgabe. Munich, 1937, vol. 4, p. 54.

³ Nietzsche read and re-read Emerson over a twenty-six year period, copied out numerous excerpts from his writings in preparation for composing *Thus Spoke Zarathustra*, and often praises him both in published works and in his notes. Cf. Stanley Hubbard, *Nietzsche und Emerson*, Basel, 1958. In "Fate" and in notes to *The Conduct of Life* Emerson's impressionistic theory of evolution is presented. He not only suggests that man has evolved from "inferior species," but he insists that man has inherited potentially dangerous tendencies from his natural history and retains much of a "quadruped" nature.

⁴ Schopenhauer is the one philosopher whom Nietzsche read and studied in considerable depth. For a good discussion of Schopenhauer's evolutionary ideas see: Arthur O. Lovejoy, "Schopenhauer as an Evolutionist," in *Forerunners of Darwin: 1745-1859*, eds., B. Glass, O. Temkin, and W. L. Strauss, Jr., Baltimore, 1968, Chapter 14. Cf. Maurice Mandelbaum, "The Physiological Orientation of Schopenhauer's Epistemology," in *Schopenhauer: His Philosophical Achievement*, M. Fox, ed., Sussex, 1980, pp. 50-67.

In an unpublished essay, "On Truth and Lying in a Non-Moral Sense," there are allusions to the evolutionary basis of perception and conceptualization and Schopenhauer's construal of the intellect as a tool employed in the struggle for survival is reiterated. Nietzsche maintains that we value the intellect, knowledge, and truth for their life-preserving utility. Human knowledge generates *anthropomorphische Wahrheit*, "anthropomorphic truth" or a practical truth that is in the service of the preservation of life. The world that we construct out of perception, concepts, and language is a humanized world created for the sake of survival of the species. Knowing is a constructive activity that has served and continues to serve as a means of constructing a world in which we can live, function, and prosper. By implication, Nietzsche suggests that all knowledge, that of inherited 'commonsense' and that of science, is the consequence of a process of humanization which, directly or indirectly, serves the instinctive biological interests of man. Even though in this brief essay and elsewhere Nietzsche puts forward what is clearly recognizable as a pragmatic theory of knowledge and truth, he repeatedly uncovers anthropomorphism and critically examines it. In his notes from the late 1880's he refers to the claim that the phenomenal world that exists "for us" is reality as an "anthropomorphic idiosyncrasy". However, he does not abandon his basic assumption that both the linguistic-conceptual framework of commonsense and the emergent scientific perspective are the products of evolution.

Despite Nietzsche's criticisms of selected Darwinian postulates, he presents a consistent evolutionary epistemology that is built upon a Darwinian foundation. On occasion he accommodates something akin to historical epistemology. That is, he sometimes alludes to a history of epistemology or the view that the nature of knowing, the nature of cognitive acquisition itself, is transformed historically. How we come to know changes in relation to social and technological practice and in relation to mutable forms of social organization. Certainly, he was sensitive to the power of the "pyramid of knowledge" created by the sciences and accurately predicted the enormous impact it would have on culture and ways of knowing.

In his criticisms of Socratic rationality and its effects on Western culture in *The Birth of Tragedy* and in his polemics against the modern "herd mentality," Nietzsche suggests that cognitive evolution is less a biological than a socio-cultural process. His observations on the changes in man's conceptual frameworks seem to express a co-evolutionary theory of

human development that accomodates the inherited patterns of perception, thought, and language and the influence of cultural values on *how* man experiences and thinks about his world.

During his *soi-disant* positivistic period, Nietzsche criticized philosophers for lacking an historical sense insofar as they tend to take the latest variety of man (modern man) as the typical type of man. They forget that man has developed, has passed through a number of stages of development; they forget that his faculty of knowledge has also developed. In fact,

everything *essential* in human development happened in prehistoric times, long before those four thousand years which we know something of; man may not have changed much during this time.⁵

That historical man, to say nothing of nineteenth-century man, is the teleological terminus of the evolutionary process is, for Nietzsche, absurd. For, "everything has evolved." Instincts, feelings, perceptual modalities, conceptual-linguistic frameworks, practices, knowledge, etc. All of the functions and phenomena we take for granted are evolved and evolving. Animals may have attained a kind of evolutionary plateau of "fixation", but man appears to be the "as yet unfixed species."⁶ This is both a source of hope and anxiety insofar as Nietzsche (unlike Darwin and Herbert Spencer) believed that a "reversion to *animality* is possible."⁷ It is also possible that the "last man" who proclaims in *Thus Spoke Zarathustra* that all men are the same and are equal in all respects may become the paradigm of 'man.' This, for Nietzsche, would signify the triumph of nihilism.

Thus, even though there has been a long evolutionary process at work, there is no necessary grand teleology operative in nature. Nietzsche rejected the Hegelian picture of a progressive evolution of 'spirit' or, for that matter, of man. This would be the worship of success, the veneration of "the actual" as the best. The natural evolutionary process, for Nietzsche, has no discernible progressive, positive directionality. In *Daybreak* he avers that "Evolution does not make happiness its goal; it aims merely at evolution, and nothing else."⁸ Although vague, this general sentiment is

⁵ *Sämtliche Werke*, Berlin, 1980, vol. 2, *MAMI*, § 2.

⁶ *Werke (GOA)*, Leipzig, 1901-13, XIII, 276.

⁷ *Ibid.*, XII, 360.

⁸ *Daybreak*, trans. R. J. Hollingdale, Cambridge, 1982, § 108.

compatible with the attitudes of contemporary evolutionists who are cautious about saying that evolution has an aim or that fitness necessarily means the survival and perpetuation of the best or the highest types of a species. Even Darwin was not sure about the quality of beings perpetuated by natural selection. "With respect to 'highness' and 'lowness'," he once wrote, "my ideas are only eclectic and not very clear... Within the same kingdom I am inclined to think that 'highest' usually means that form which has undergone most 'morphological differentiation.'"⁹

In terms of the long development of instincts, perception, and thought, as well as the diachronic development of language, Nietzsche adopts a general evolutionary perspective and he propounds a fairly consistent evolutionary epistemology as well. Our way of perceiving the world and our patterns of thinking have evolved and we have, hence, inherited these perceptual and conceptual habits.

Although Nietzsche's biologism is sometimes mitigated, it is, nonetheless, a perspective he frequently adopts. Thus, for example, he compares man's cognitive drive to the "assimilation" of food in animals, to the extension of an organism into its environment. The knowledge-drive is a continuation of an organic tendency towards appropriation and assimilation. The search for knowledge is an organically determined process that serves life and the enhancement of life. Although abstract theory *seems* remote from immediate concerns with survival, in the final analysis, all knowledge is *praktische Erkenntnis*, "practical knowledge;" and all sciences are fundamentally *praktische Wissenschaften*, "practical sciences."¹⁰

Nietzsche's adoption of the perspective of evolutionary epistemology is not merely expressed in sporadic insights. His analysis of this perspective on the development of man's way of knowing is comparable to the views of classical defenders of the evolutionary theory of human understanding. Munévar claims that "the dynamic neo-Kantianism of the evolutionary epistemologists" suggested, as Nietzsche did, that our basic

categories could be thought appropriate because of their adaptive value, because it could be shown (potentially) that they were *convenient* by showing that they resulted from evolutionary pro-

⁹ *More Letters of Charles Darwin*, ed. Francis Darwin, London, 1903, I, 76. (Darwin to J. D. Hooker, 1854).

¹⁰ *Werke (GOA)*, XII, 33.

cesses. The manner of their *genesis* then throws light on the question of their *justification*.¹¹

Nietzsche, too, was a radical neo-Kantian thinker who traced what Kant called a *priori* categories to their (hypothetical) origin in the *a posteriori* experiences of our ancestors. He not only claims that Kant's categories of the understanding are derived from the experience and physiology of early man, but he virtually anticipated the French structuralists' view that there appears to be an unconscious *a priori* that is shared by people of different cultures. He maintains that

the categories of reason...could have prevailed, after much fumbling and groping, through their relative utility.—There came a time when one collected them together, raised them to consciousness as a whole...commended them... From then on they counted as *a priori*, as independent of experience, as ineluctable. And for all that they may only represent the usage appropriate to certain races and species—their "truth" is merely their utility.¹²

For Nietzsche, the Kantian categories of the understanding are ontologically non-referential, but have high practical utility in regard to their use in organizing the "chaos" of impressions we experience and for the sake of the perspectival optics of life, for the sake of survival of the species. Speculatively, Nietzsche projects the development of such categories back to the modes of thought of our ancestors. The implication is that Kant's achievement was the formalization of categories that expressed the sedimentations of thought that have gradually evolved over long periods of time. Even though Nietzsche characterizes Kant's categories as "fictions", he does not deny that they are precisely the categorical classifications that have proved useful as life-preserving ways of thinking. In this respect, he is a radical and hyperbolic Kantian.

Not only have certain categorial schemata been inherited by modern man from his (hypothetical) ancestors, but our way of perceiving the world is said to be the outcome of a very long evolutionary process by

¹¹ Gonzalo Munévar, *Radical Knowledge*, Indianapolis, 1981, p. 82.

¹² *The Will to Power*, trans. R. J. Hollingdale and W. Kaufmann, New York, 1968, § 514. Cp. *SW* 5, *JGB* § 3: "Behind all logic and its apparent sovereignty of movement there also stands valuations, or more clearly stated, physiological demands for the preservation of a determinate kind of life."

which alternative modes of perception have been eliminated by natural selection.

In his *Nachlaß*, he argues that before the evolution of man's perceptual patterns there reigned a presumed "sort of chaos." Those who perceived differently than our ancestors did not survive or reproduce. In all likelihood, he speculates, they were considered mad. Such "exceptional" individuals were shunted aside and eliminated. The modern development of the scientific orientation resulted from a longer, gradual process of elimination of human types. In fact, the scientific temperament that has developed in modern times raises the "normal" man as the highest standard. This curious judgment plays a key role in Nietzsche's reflections on the evolutionary triumph of a specific type of human being. At any rate, he is convinced that our way of perceiving and thinking is inherited from our ancestors. It has created a perceptual-cognitive "network" in which we are enmeshed. The advanced, sophisticated, and reflective scientific way of thinking, which, in the nineteenth-century, is violating previous, generally shared, common sense 'scientific' world-pictures and is agnostic about knowledge of the ultimate constituents of nature, has difficulties surpassing the sedimented network of perception and thought.¹³

Although we shall return to the question later, here it may seem that Nietzsche has contradicted himself. But this is only apparent. For, the development of our inherited cognitive framework (which has its roots in pre-history) has become a generalized 'scientific' form of common sense that is embodied in natural languages. It includes a metaphysics of subject-object, substance, being, things, 'spiritual' cause-effect, etc., which is not applicable to the emerging scientific world-interpretations. This is 'science' in the broad sense, the sense of a knowledge-framework (what Foucault calls, after Nietzsche, an *epistémè*). Then-contemporary science (Nietzsche learned from F. A. Lange, Mayer, Helmholtz, and other scientists) was transcending this cognitive-linguistic framework and was undermining the belief that our senses accurately represent the external world. In fact, the physiologists (Nietzsche discovered) inform us that *our* sensory functioning is a transforming process that has a limited range of phenomena to which it is able to respond. This is the rationale for his claim that

¹³ *Werke (GOA)*, XII, 38.

The habits of our senses have wrapped us up in a tissue of lying sensations which in their turn lie at the base of all our judgments and our "knowledge,"—there are no means of exit or escape to the real world. We are like spiders in our own webs...whatever we may catch in them, it will only be something that our web is capable of catching."¹⁴

Although his literary language occasionally obscures or disguises it, Nietzsche was one of the earlier philosophers to respond (and, in his case, to respond passionately) to the implications of the burgeoning and typically agnostic consequences of the scientific interpretation of nature. His most extreme reaction is expressed in *The Gay Science*. Bearing in mind the disclosures of nineteenth century scientists concerning the falsity of our commonsense belief about physical objects (including the theories of Boscovich—in the previous century—and other physical scientists who postulated unextended centers of force and sub-atoms, *Unteratomen*) and the physiological theories of Helmholtz and others concerning our sensory processes, Nietzsche calls attention to

the insight into the general untruth and falsity of things now given us by science—an insight into delusion and error as conditions of intelligent and sentient existence—would be quite unendurable. *Honesty* would have disgust and suicide in its train.¹⁵

Mitigating the hyperbolic nature of this remark, Nietzsche point is well-taken. Scientific discoveries and theories, then as now, undermine our faith in the evolved ways of perceiving and thinking that we've inherited and violate commonsense beliefs, beliefs that have enormous practical or pragmatic value. If we grant validity to the scientific analysis of phenomena and experience, then we are normally alienated from what we typically believe is 'reality'. In the wake of Kant's agnosticism about things-in-themselves and the theories of scientific neo-Kantians, we might plausibly become pessimistic about our condition. Nietzsche is one of those who fit Lakatos' description of what he calls "conservative 'activists'." For they

hold that we are born with our basic expectations; with them we turn the world into 'our world' but must then live forever in the

¹⁴ *Daybreak*, § 117.

¹⁵ *The Gay Science*, trans. Walter Kaufmann, New York, 1974, § 109.

prison of our world. The idea that we live and die in the prison of our 'conceptual framework' was developed primarily by Kant; pessimistic Kantians thought that the real world is forever unknowable because of this prison.¹⁶

But Nietzsche's pessimistic Kantianism was exacerbated by the plethora of nineteenth-century scientists who, with the physiologist Du Bois-Reymond, declared that "we are forever ignorant" of the ultimate constituents of the physical world and of the means by which mind and matter are related. What saved Nietzsche, if it did save him, was "art as the *good-will* to appearance."¹⁷ The skepticism concerning our knowledge of the external world can be endured by embracing the "apparent world" as the only world we exist in and by projecting mythopoetic cultural ideals (that must, he insisted, be at least *compatible with* extant scientific knowledge) from what F. A. Lange called "the standpoint of the ideal."¹⁸

So far, we've only scratched the surface of Nietzsche's scattered, but insightful, analyses of an evolutionary epistemology. Refocusing our attention on the meaning-consequences of a theory of knowledge, we may tentatively adopt Munévar's clear statement of this orientation towards knowledge. In his view, evolutionary epistemology includes "the notion that human cognition, from sensation to intelligence, is the result of an interaction (or a history of interactions) between an organism (species) and its environment."¹⁹ This underlines the importance of the evolutionary process for the development of man's perceptual-conceptual frameworks.

At the approximate center of his disclosure of various perspectives on the human condition, Nietzsche not only accepts the importance of the interaction between the human species and its environment, but proffers a theory about perceptual discrimination and the "origins of logic."

Konrad Lorenz once claimed that "since our brain has been attuned to the environment through evolution, we have a natural tendency to develop appropriate gestalts or mental sets" when we are engaged in a careful observation of the surrounding world.²⁰ What Lorenz does not say

¹⁶ I. Lakatos, "Falsification and the Methodology of Scientific Research Programmes," in *Criticism and the Growth of Knowledge*, eds. I. Lakatos and A. Musgrave, Cambridge, 1970, p. 104.

¹⁷ *The Gay Science*, § 109.

¹⁸ Cf. G. J. Stack, *Lange and Nietzsche*, Chapter XI, "The Standpoint of the Ideal".

¹⁹ Munévar, reference 11, p. 18.

²⁰ *Ibid.*, p. 19n.

is that it is possible that some of these *Gestalten* are false or falsifying, but highly useful. This is Nietzsche's position in regard to many of our *Gestalten*, specifically that of seeing the similar as the identical or believing that entities are self-identical.

Committed to the view, later formulated by the structuralists, that language-families reveal similar conceptual frameworks,²¹ Nietzsche suggests the evolution of what comes to be taken as *a priori* out of a long sequence of *a posteriori* beliefs. For this reason, he argues that logic developed out of the non-logical. It is not so much that he holds that analytic judgments, tautologies, and mathematical propositions are not logical truths or statements of identity. He was familiar with the work of Zimmermann who anticipated twentieth century thinkers by arguing (against Kant) that there is no synthetic element in arithmetic statements and that they are statements of identity.²² Rather, he objects to the theory of the logical structure of the world. Or, more accurately, he held that if we believe that the world has a logical structure it is because we have already *projected* logic into the world.

A variation on this theme is presented in his argument that certain modalities of logical thinking are derived from evolutionary processes. He imagines that "numerous beings who reasoned otherwise than we do at present, perished." A harsh selective process was at work.

Whoever...could not discern the "like" often enough with regard to food and in regard to animals dangerous to him, whoever...deduced too slowly, or was too circumspect in his deductions, had smaller probability of survival than he who, in all similar cases, immediately divined the equality.²³

The dominant inclination, in these presumably pre-historical times, to understand the similar as the equal yielded to an imprecise and "illogical inclination." By understanding similar entities as equivalent, our ancestors

²¹ *SW* 5, *JGB* § 20. Cp. G. J. Stack, "Nietzsche as Structuralist," *Philosophy Today* (Spring 1983): 31–51.

²² Nietzsche found in F. A. Lange's *History of Materialism* a summary of Zimmermann's views. He claimed that "the judgment $7 + 5 = 12$, which Kant took for synthetic, was not only analytic, but even identical." The subject, $7 + 5$, Zimmermann thought, is "absolutely identical" to the predicate, 12. F. A. Lange, *Geschichte des Materialismus*, Frankfurt-am-Main, 1974 (reprint of the second edition, 1873/75), II, p. 476.

²³ *The Gay Science*, III, § 111.

had a false understanding of the relations among certain kinds of beings. And this simplifying and fallacious way of thinking became the primitive basis of logical thinking.²⁴ What Nietzsche seems to be saying is that certain inaccurate modes of cognition proved to have great utility and high survival value. Hence, these modes of thinking culminated in such notions as self-identical conceptions in pure logic even though the primordial use of logic was practical and utilitarian and based, moreover, on a falsification of the relationship of perceived entities. The survival-value of this mode of thinking is what led to its perpetuation and valuation long before it was transposed from practical use in the ontological order to the purely formal domain of logical 'being.' The implication of Nietzsche's speculations about the origin of logic, supplemented by his discussion of the concept of "the self-identical A" in logic in the *Nachlaß*, is that early man unconsciously projected logical thinking into the surrounding world and found it exceedingly useful and advantageous to the perpetuation of the species, but he had not yet discovered logic as logic.

Nietzsche's thought here, more or less, corresponds to the sociobiological theory of primary and secondary epigenetic rules. For such rules are construed as biological constraints on development and on our capacities for learning. They have emerged out of a naturally selective evolutionary process and have been genetically transmitted. The sensory information acquired by means of the primary epigenetic rules are organized, structured, and evaluated by the secondary rules.²⁵

There is, however, a refinement in Nietzsche's analysis of sensory experience insofar as he claims that a process of assimilation, simplification, and selectivity is at work in our most elementary sensations. The point is that, at times, Nietzsche presents an account of the action of the "perspectival optics of life" in knowing, as well as the physiological determinism of instincts, feelings, values, percepts, and conceptualization that strongly resembles *some* of the central ideas of sociobiology. However, he is by no means committed to a dogmatic genetic determinism insofar as he continually insists upon the powerful impact of culture on man's values, beliefs, perceptual and conceptual orientations. His considered view on this matter is similar to a genetic-cultural co-evolution.

²⁴ *Ibid.*, § 110.

²⁵ Cf. C. J. Lumsden and E. O. Wilson, *Genes, Mind and Culture*, Cambridge, MA, 1981.

Retrospectively, Nietzsche grants the long evolutionary selective process by which certain types of human beings have survived and transmitted their cognitive-linguistic frameworks to us. Prospectively, he insists upon man's capacity to modify his nature by virtue of the adoption of radical, new cultural ideals, and he repeatedly reminds us of the way in which certain cultures (the Renaissance or Christian culture, for example) condition the being and values of millions of individuals. Cultures promote, reward, and encourage certain types of human beings in a *selective* way; in this sense, they "breed" specific types of the species. Ironically, Darwin modeled his theory of natural selection on artificial selection and thereby suggested an *analogy* between the two processes²⁶ even though the one is purposive or teleological and the other is dysteleological or non-teleological.

Nietzsche's uncovering of the evolutionary origins of our cognitive schema goes beyond the formulation of epigenetic rules even though, in a broad sense, it is compatible with them. In his notes he speculates that how man has come to perceive and understand nature is the result of transmitted "errors." Nature, he avers, would appear "cold and lifeless" to us if we had not been schooled in these errors. Mountains which were probably seen as threatening by our ancestors are now seen as grand, impressive. They now produce a feeling of majesty or promote soothing effects.²⁷

Elsewhere, Nietzsche argues that each organic being is surrounded by a miniature world which has been created: it is the organism's external

²⁶ Francis Darwin, *The Life and Letters of Charles Darwin*, London, 1888, vol. 2, p. 279 (Letter to H. G. Broun, 1860). "Man has altered, and thus improved the English race-horse by *selecting* successive fleetier individuals; and I believe, owing to the struggle for existence, that similar *slight* variations in a wild horse, *if advantageous* to it, would be *selected* or *preserved* by nature, hence, Natural Selection."

²⁷ *Werke (GOA)*, XII, 37. This speculative imagining of a possible evolution of perception suggests a history of epistemology since it assumes different ways of seeing and responding to certain common phenomena that could very well reflect cultural influences. Elsewhere, Nietzsche clearly reveals the profound impact that the scientific *Welt-Bild* or "world picture" had on his thinking. He avers that if our perceptions were less coarse, if they were more rapid and acute, we would perceive a cliff as a mobile, dancing chaos. *Werke (GOA)* XVI, 33. The belief that anyone *could* perceive such phenomena in this way clearly indicates that here he is thinking of physical theories of dynamic, constantly moving particles. Thanks to Lange, Fechner, and other scientists of his day, Nietzsche was quite familiar with the (then-possible) structure of matter as comprised of *Untertatomen* or "sub-atoms".

world. Gradually, however, this individual perspective has been mitigated in the evolutionary process. Entire species come to share “congealed customs, habits, ways of seeing.” These are probably “propitious to the conditions of existence of such beings.”²⁸ Even the explanation of the process of deindividuating singular organic perspectives is related to biological phenomena. Man is a past master, Nietzsche maintains, at *mimicry*. His powers of mimicry put those of insects to shame. The human mind is paradigmatic of this capacity. It practices “patience, cunning, simulation, great self-control, and everything that is mimicry.”²⁹ In the social and moral domain, human mimicry reaches its apogee: it is the capacity to conform to local customs, to learn to see, think, and speak as others do. In the realm of the morality of custom, Nietzsche believes, it is perfected. In *Daybreak* mimicry in animals is compared to an individual’s hiding behind the classifications “man” and “society” and adapting to a social environment for the sake of indirect power, a power attained by conformity to the ‘customs’ of the time and place.³⁰ Mimicry is, in sum, the cunning means by which individuals adapt to the “morality of custom” of the majority.

Values, too, evolve out of the organic life of men and reflect the life-preserving drives of the individual and the group. Our values, as well as those of our ancestors, arose out of (1) the physiology of individuals and groups and (2) the “conditions of life” in which man finds himself.³¹ All

²⁸ *Werke*, XIII, 81. Cp. *Werke*, XII, 257: “...for a very small part, [our perspectival valuations reflect] the conditions necessary to the existence of the individual, for a much greater part those necessary to the human species, for the greater part of all those that make life possible.”

²⁹ *Werke*, Munich, 1920–29, XVII, 117. Synthesizing many of Nietzsche’s random comments on mimicry, it is clear that he transposes this phenomenon to man and points to its subtle function in the social world. It is associated with social conformity for the sake of adaptation and cultural assimilation. The group mentality that Nietzsche attacks so frequently is perpetuated, solidified, and transmitted by means of a kind of mimicry. A morality of custom, or the passive assimilation of the customary values of one’s group, is related to man’s cunning use of mimicry. In less reflective groups it is virtually unconscious, but in the modern world it is a conscious adaptation in order to achieve unity with a group and to succeed in a local culture.

³⁰ *Daybreak*, § 26.

³¹ *Werke (GOA)*, XVI, 177. Cf. *The Will to Power*, § 259: “...all valuation implies a definite *perspective*: the preservation of the individual, of a community, a race, a State, a church, a belief, a culture.” The most fundamental values are organic, perspectival values. Man surpasses animals because he has, through the process of evolution, “*forgotten*” his former “perspective valuing” and has acquired a multiplicity of conflicting, contradictory

perceptual and cognitive perspectives are fundamentally *valuational perspectives*. Once again, however, Nietzsche qualifies his emphasis upon the organic evolution of, and transmission of, values. The system of values or "table of values" adopted by a people percolates through an entire culture and functions in a selective way. Deeply rooted, strongly defended, and widely disseminated values tend to undermine the intentions, projects, values, status, and power of those "exceptions" who do not espouse or embrace them. Value-schemata, like global cognitive patterns, have profound negative effects upon those who, for whatever reason, cannot or will not adapt to them. This points to a novel aspect of Nietzsche's evolutionary epistemology. He accepts the belief that many exceptions have been 'eliminated' in the long process of evolution and he sees the same process continuing in what Julian Huxley called "psychosocial evolution." By implication, he reminds us of the countless individuals who, in the often harsh struggle for existence, have been shunted aside, rejected as mad, expunged from the reproductive process, and, directly or indirectly, *eliminated*. The high cultures which we admire rest upon a "terrible foundation" since they have emerged out of the evolutionary natural history of man in which harshness and cruelty were frequent agents of natural selection. Our perceptual apparatus, our psychology, our mode of conceptualization are inherited from ancestors who survived in a very different environment, whose "epigenetic rules" were creative "errors" that proved serviceable in the struggle of existence. Nietzsche never denies the life-preserving, pragmatic value of the primordial psychology and the perceptual and conceptual modalities of our predecessors. However, he insists that these ways of experiencing and thinking are *fallacious* and have no ontological validity. This is what he means when he defines "truth" (inherited 'truth') as that kind of *error* without which a certain species could not have survived.

In "Natural Kinds" W. V. O. Quine asks why "our innate subjective spacing qualities accord so well with the functionally relevant groupings in nature as to make our inductions tend to come out right? Why should our subjective spacing of qualities have a special purchase on nature and a lien on the future?"³² He answers in terms of an evolutionary epistemology. Perhaps our spacing of qualities is "a gene-linked trait." If so, our spacing

values. This is one of the sources of man's paradoxical nature and, hence, his suffering. But it is also a sign of strength and of a potentiality for further development, advancement, and transformation of his nature.

³² W. V. O. Quine, "Natural Kinds," in *Ontological Relativity*, New York, 1969, p. 126.

that has provided for successful inductions has become dominant by means of "natural selection." "Creatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die before reproducing their kind."³³ Nietzsche does not share Quine's sangfroid about those who did not share our ancestors' ways of knowing and perceiving. He worries about those who could not simplify what they experience, who perceived phenomena "in flux," whose senses may have been more precise, capable of greater discrimination, than those who had biologically selective advantage over them. Thus, it is said that "for a long time the changing process in things had to be overlooked, and remain unperceived; the beings not seeing correctly had an advantage over those who saw everything 'in flux'."³⁴ Of course, he maintains that those who *did* observe flux and dynamic processes were closer to an accurate awareness of actuality.

Adaptive, functional, utilitarian 'knowledge' involves what he considers a "falsification" of actuality for the sake of preservation. This indicates his typical way of viewing the same phenomenon from contrary perspectives. Perhaps the "quality spacing" Quine assumes has been genetically transmitted to us is an extremely useful, but false, representation of actuality. The pragmatic, utilitarian mode of perceiving and thinking is an incredibly powerful, remarkably successful one; but it is only *one* of a number of alternative cognitive patterns, the one that, Nietzsche argues, has been inherited from our ancestors and will probably continue to triumph in the future to the *exclusion* of other ways of experiencing and understanding a fluctuating actuality. While recognizing and praising the accomplishments of the exact sciences and paying them the compliment of modeling his experimental philosophy on their approach to inquiry, Nietzsche worries over the long-range impact of "scientism" on man and culture. In a preface to *The Birth of Tragedy*, he prides himself on exploring "the *problem of scientism*," on looking at science and its culture "for the first time as problematic, as questionable."³⁵

That Nietzsche's analysis of primordial conceptions and perceptions is by no means superficial is shown by its curious analogy to some of Quine's basic insights. Quine's claim that the idea of "physical objects" is a "cultural posit" or "myth" is analogous to Nietzsche's frequent assertions

³³ Ibid.

³⁴ *The Gay Science*, III, § 111.

³⁵ *SW* 1, *GT*, "Versuch einer Selbstkritik," § 2.

that the concepts "thing," "object," "substance," "being," etc., are useful fictions. If we link Quine's comments on the evolutionary transmission of inductive thinking to his designation of "physical objects" as myths, his views coincide with Nietzsche's assertion that such basic concepts are notions that have proven useful to the preservation of the species even though they are ontologically "false."

On the question of the life-preserving value of the apprehension of similar cases as identical cases, Nietzsche forcefully presents an evolutionary epistemological analysis. In *The Gay Science* it is argued that the belief that the similar is "the equal" is the primal source of the idea of substance which, in turn, is said to be indispensable to logic. This is the case even though "in the strictest sense, nothing actual corresponds" to either permanent substances or self-identical entities.³⁶ The point here is that our ancestors (no doubt unconsciously) interpreted entities in the world in terms of concepts (such as identity, equality, and substance) that were applied to the external world and, in large part, were derived from cognitive simplifications, and reductions which have high utility (despite their inappropriateness for understanding the dynamic processes that are there in actuality). These concepts are later the foundation of a logic construed as *a priori* and become embedded in the construction of a humanized external world which becomes "our world," one that is "true for us" because we survive in it, function effectively in it. Nietzsche attacks the idea of self-identical unities not as pure logical concepts which are extra-ontological, but as a means of characterizing actual, natural entities. Again, this does not mean that he wants to abandon the *utility* of such primal concepts. They have pragmatic validity for us precisely because they have proved so serviceable for our existence thus far.

Returning to his analysis of early man's modes of cognition, Nietzsche maintains that a specific type of human being with a specific type of intelligence and concept-forming power was favored in the struggle for existence in a dangerous environment. Obviously, once again thinking of his hypothetical "exceptions," he remarks that

every high degree of circumspection in conclusions, every skeptical inclination, is a great danger to life. No living being might have been preserved unless the contrary inclination—to affirm rather than suspend judgment, to mistake and fabricate rather than wait,

³⁶ *The Gay Science*, III, § 111.

to assent rather than deny, to decide rather than be in the right—had been cultivated with extraordinary assiduity.³⁷

Thus, a specific type of psychophysical individual was selected out by the winnowing evolutionary process. We have inherited this effective, but ontologically erroneous, way of thinking.

The course of logical thought and reasoning in our modern brain corresponds to a process and struggle of impulses, which singly and in themselves are all very illogical and unjust; we usually experience only the result of the struggle, so rapidly and secretly does this primitive mechanism now operate in us.³⁸

What is in the back of Nietzsche's mind is the following: in the world of our ancestors those who falsified actual entities (and their relationships of resemblance to one another) and, hence, the "world" in which they lived, were biologically successful. The formalization of these efficient concepts in Kant's categories of the understanding testifies to the triumph of a particular mode of cognition. But in modern times this formerly powerful world-interpretation is being supplanted by the more sophisticated, tentative, hypothetical theories of the sciences and the more precise methods of the exact sciences. Hence, the serious modern thinker, whether philosopher or scientist, finds himself in a bifurcated world or, in fact, in *two cognitive worlds*. Without A. N. Whitehead's mathematical and scientific knowledge, Nietzsche nonetheless anticipated his concept of the "bifurcation of nature". For he is grappling with questions that still exercise philosophers: how can we reconcile the qualitative phenomenological aspects of our experience with the quantitative scientific world-picture? What are the implications for human knowledge and the cultural values of man of the rise and dominance of the scientific world-view? What will be the long-range effects of the scientific world-orientation on man's understanding of, and valuation of, himself and his humanistic cultural world?

In an extended notation, Nietzsche speculates that "thanks to the sharpening of the senses and the attention entailed in the conflicts and developments of exceedingly complex forms of life, cases of identity or

³⁷ Ibid.

³⁸ Ibid.

likeness are admitted ever more rarely."³⁹ This evolved correction of earlier, more careless, assumptions about "identity" or "similarity" is cultivated specifically by the sciences. For Nietzsche reminds himself that we should say that phenomena have "similar qualities" instead of 'the same'—even in chemistry. And "'similar' for us."⁴⁰

Not too long ago Quine appealed to Darwin's theory of natural selection as a "partial explanation" of why we, "as we are now," are able, with better than random chances, to make reasonably accurate inductions. Moreover, he adds that our inductions "are based on our innate, scientifically unjustified similarity standard."⁴¹ But this is virtually Nietzsche's point. The evolution of a scientific consciousness now subverts previously inherited habits of thought and observation. This undermining of earlier notions of similarity is especially crucial for secondary (conceptual) epigenetic rules because, as Quine puts it, "there is nothing more basic to thought and language than our sense of similarity; our sorting of things into kinds."⁴²

If now, in terms of scientific refinements, our genetically transmitted apprehension of 'similarity' is "scientifically unjustified," then this earlier sense of, or use of, 'the similar' was, as Nietzsche insisted, a practical, but false, sense and usage. But it is, nevertheless, a *fundamental* sense. Thus, there is a sea-change, as Nietzsche repeatedly argued, in our scientifically generated picture of nature which falsifies what were, presumably for thousands of years, ingrained categories of thought. So, despite criticisms of his claim, Nietzsche has a point in arguing that man had constructed a falsified world in which he was at home, in which he survived and prospered. His critique of the previous knowledge based upon what he calls "convenient fictions" and what Quine calls "cultural posits" is rooted in his philosophical response to *modern scientific facts and theories*. In spirit, if not in form, his thinking, in this regard, is surprisingly close to that of contemporary philosophers (and some philosophers of science) whose orientation is centered on a philosophical response to the facts, theories, and discoveries of the independent sciences.

Returning to Nietzsche's evolutionary sketch of the gradual refinement of observation and thought, we are told that

³⁹ *Werke (GOA)*, XIII, 21.

⁴⁰ *Ibid.*, XII, 28.

⁴¹ Quine, *op. cit.*, 127.

⁴² *Ibid.*, 116.

Little by little, the external world is thus differentiated; but for incalculable periods of time on earth a thing was thought of as identical and consubstantial with a single one of its qualities, its color, for example. Only very gradually have the many distinct qualities pertaining to a single thing been granted; even the history of human language betrays a resistance to the multiplication of epithets.⁴³

Here, evolutionary speculation about the advance in the capacity to make distinctions among things is supported by a philological point: that the diachronic development of natural languages reveals a resistance to an increase of the number of names and phrases used to characterize a person or thing. Elsewhere, a similar point is made in order to indicate the arbitrary nature of linguistic signs and the simplifying nature of naming and concept-formation. Thus, we are shown the etymological relation between the German word *Schlange* (snake) and the verb *schlingen* (to twist or wind)—an illustration of designation of a creature by one of its characteristics, one that could just as well refer to a worm.⁴⁴

Not only have entities been identified with their color-quality, but our color perceptions are, due to our evolutionary development, permeated with valuations. Each color, for us, is an “expression of value” or it signifies the useful or harmful, the pleasant or unpleasant. We are responsive only to a limited range of phenomena and especially to those having value for our organic processes.⁴⁵ These “primary epigenetic rules” (as sociobiologists call them) are related to our natural history. Animals and insects respond to different sets of colors and probably respond differently than we do to them. Human color perception is clearly deeply associated with ancestral patterns of perception that we have inherited.

Nietzsche was quite familiar with the physical theoretical conception of colorless atoms that are in constant motion. From his study of Boscovich's sophisticated mathematical theory of the natural world in 1873, he became familiar with the reduction of matter to non-extended “centers of force.” In “Schopenhauer as Educator,” he lamented the scientific theoretical picture of the grey visage of nature and referred to the “atomistic chaos” that physical scientists had postulated. He decries the theoretical replacement

⁴³ *Werke (GOA)*, XIII, 21.

⁴⁴ *SW* 1, 878.

⁴⁵ *The Will to Power*, § 505.

of a full, rich, colorful, and aesthetic world of experience by a cold, grey, senseless dance of atoms. Seeking to find a place for the artistic conception of the world, the aesthetic perspective, Nietzsche felt keenly the distress generated by the scientific world-picture. The powerful, impressive sciences were undermining our (inherited) commonsense ways of understanding the world, undercutting our trust in our aesthetic sensibilities, and presenting us with a deanthropomorphic world of forces. It was the physical scientists who insinuated in his mind an idea he eventually embraces: that the cosmos is a chaos or, expressed in a formula that alters Spinoza's *Deus sive Natura*, "*Chaos sive Natura*."⁴⁶ This characterization of nature as chaos was not a poetic formulation derived from ancient Greek mythology. Rather, it was derived from the image of the cosmos that was suggested to him by eighteenth century physical scientists such as Boscovich and by the nineteenth century scientists who were already speculating about the dynamic interaction of forces at the level of *Untertatomen*, "sub-atoms." It was science, not mythology, that led him to appreciate the "indescribable complexity" of the natural world, to understand the cosmos as chaos.

Some of Nietzsche's reactions to the effect of scientific knowledge on our commonsense beliefs, to the split between our qualitative phenomenological experience of entities and the scientific analysis of these entities, as well as to the tension between two evolved, but competitive, cognitive shemata, are reflected in an analysis of color perception discussed by W. V. O. Quine. It is noted by Quine that color and its contrasts are vivid aspects of our experience even though the specific distinctions that are significant for physical-scientific theory are, for the most part, quite "independent of color contrasts." Despite this,

⁴⁶ SW9, 519. The conception of nature as "chaos" was not derived from Nietzsche's reversion to Greek mythology insofar as he well knew that the Chaos of the *Theogony* referred to a "yawning abyss" and not to a complex multiplicity of interacting forces. Heidegger's claim that Nietzsche's idea of chaos is a "defensive notion" in the sense that nothing positive can be asserted about "being as a whole" is interesting, but questionable. His insinuation that the notion that the cosmos as a whole is "ineffable" in the sense in which classical Greek poets spoke of it, and that this is what Nietzsche is expressing, is equally questionable. Heidegger's further suggestion that the construal of the cosmos as chaos was a kind of "negative theology" is even more questionable since Nietzsche denies that there is either a hidden God or a hidden "Absolute." Cf. Martin Heidegger, *Nietzsche*, trans. D. F. Krell, New York, 1984, II, 94-95. In the context of *The Gay Science*, in which there are frequent references to science, physics, and mechanistic theory, the description of the cosmos as a chaos more likely alludes to the image of nature that Nietzsche derived from his familiarity with a number of physical theories.

Color is helpful at the food-gathering level. Here it behaves well under induction, and here, no doubt, has been the survival value of our color-slanted quality space. It is just that contrasts that are crucial for such activities can be insignificant for broader and more theoretical science. If man were to live by basic science alone, natural selection would shift its support to the color-blind mutation.⁴⁷

This statement captures the contrast that exercised Nietzsche, but the concluding remark is strange insofar as it suggests a casual abandonment of the aesthetic and psychological value of color discrimination for human experience or, even more counterintuitively, it proposes a possible natural selection that would deprive man, as an organic being, of a profound life-enhancing dimension of his existence.

The pleasure and consolation of the aesthetic aspects of existence, for Nietzsche, have far too much organic *value* for the species to be deleted from human experience. The sentiment that Quine casually expresses would reveal to Nietzsche, and others as well, the potential nihilism that lies coiled within the center of the strictly scientific perspective. "The nihilistic consequences of present natural science" is what Sartre would call a counterfinality. For out of its practices has emerged "a certain self-annihilation, an antagonistic attitude towards itself—a sort of antiscientificity. Since Copernicus, man has been rolling away from the center towards x ."⁴⁸ As much as we grant Nietzsche his typical hyperbole here, there is more than a grain of truth in this insight. Despite the successes, the prestige, the continual advances in the sciences, the contemporary world is permeated with anti-scientific beliefs, pseudo-sciences, and revivals of hoary, mystagogic superstitions. Although it may not be articulated, millions who live in the age of superscience view it as

⁴⁷ Quine, *op. cit.*, 127.

⁴⁸ *The Will to Power*, § 1. In *On the Genealogy of Morals* Nietzsche expands on this comment. "Has not man's determination to belittle himself developed apace precisely since Copernicus? Alas, his belief that he was unique and irreplaceable in the hierarchy of being has been shattered for good; he had become an animal, quite literally and without reservation...Ever since Copernicus man has been rolling down an incline, faster and faster, away from the center—whither? Into the void? Into the 'piercing sense of his emptiness'...All science...natural as well as *unnatural* (by which I mean the self-scrutiny of the 'knower') is now determined to talk man out of his former respect for himself..." *The Birth of Tragedy and The Genealogy of Morals*, trans. F. Golfing, New York, 1956, II, § 25.

impersonal, deindividuating, deanthropomorphic, and...nihilistic in its implications and consequences.

Quine, the paradigm of the scientifically oriented philosopher, agrees with many in holding that science is a *continuation* of commonsense. But, as he shows, basic scientific theories frequently *undermine* the commonsense we have presumably inherited from our ancestors. An awareness of this is clear in Quine's observation that man lives both "by bread and basic science." He is, in a sense, "torn" insofar as aspects of "his innate [but, strictly speaking, inherited] similarity sense that are helpful in the one sphere can be a hindrance in the other." It is man's ingenuity that enables him to transcend his natural affinity for color perception and discover "more significant regularities elsewhere." Once again, it is "natural selection" that has resolved this conflict by endowing man with a dual capacity; that is, to perceive "a color-slanted quality space and to have the ingenuity to rise above it."⁴⁹

It is ironic that this interpretation criss-crosses terrain which Nietzsche crossed three-quarters of a century earlier. For he maintained that the scientific thinking that we now prize evolved out of habits that are, individually, potentially dangerous. The methodologies of the sciences keep these habits in check. That is, the habits of doubting, denying, waiting, collecting, desintegrating *via* analysis. "Many hecatombs of men," Nietzsche proclaims, "were sacrificed before these impulses (and habits)

⁴⁹ Quine, *op. cit.*, p. 128. There is an ironic parallel to this observation in Nietzsche's remark that our intellect, in order to grasp the distinction between the essence of things and the phenomenal world, would have to have a "contradictory character." That is, it would be "designed to see from a perspective (after the manner required of creatures of our species, if they are to maintain themselves in existence), and...endowed simultaneously with a faculty for conceiving this seeing as a seeing from a perspective...as capable...both of believing in 'reality' [as it appears to our senses]...and also of judging this belief a perspective-limitation with respect to a true reality [reality as transphenomenal]." *Werke (GOA)*, XIII, 48. This reinforces my belief that Nietzsche found the bifurcation of nature both paradoxical and discomfiting. For he understood the scientific interpretation of nature as reinstating a sophisticated and complex version of Kantianism: the distinction between the world of phenomena as it appears to our senses and as organized by our constructive mind and the indescribable complexity of the supposed authentic actuality disclosed by scientific theory and inquiry. When he elsewhere refers to the phenomenal world as an elaborate "falsification" of actuality that serves our need for simplification, practical utility, and preservation, he is not only thinking of Kant's distinction between phenomena and noumena, but of the distinction between the qualitative, phenomenological world of our ordinary experience and the scientific 'picture' or model of actuality. Cp. Wilfrid Sellars, *Science, Perception and Reality*, London, 1963.

learned to understand their juxtaposition and regard themselves as functions of one organizing force in one man!"⁵⁰

As knowledge became an integral part of life (in what he calls "knowledge cultures"), it continually gained power over human consciousness. Finally, the new "cognitions and those primeval, fundamental errors" clashed with each other "even in the same person." "The thinker," Nietzsche continues, "is now the being in whom the impulse to truth [as determined by science and the investigative scientific temperament] and life-preserving errors [inherited from our ancestors] wage their first conflict, now that the impulse to truth has also *proved* itself to be a life-preserving power."⁵¹ Thus, one serviceable set of epigenetic rules that were highly effective in enabling man to construct and order a "world" in which he could (and did) survive is replaced by a new set of such rules (honed by scientific orientations) that serve the same function even though they expose the falsity of much that was previously accepted as 'true'. This is what Kuhn calls a paradigm shift—on a large scale, on a total cultural scale.

William James once proclaimed that

*our fundamental ways of thinking about things are discoveries of exceedingly remote ancestors, which have been able to preserve themselves throughout the experience of all subsequent time. They form one great state of equilibrium in the human mind's development, the state of common sense.*⁵²

There is nothing here that Nietzsche would disagree with...except that James, in this context, does not refer to the emerging conflict between this inherited commonsense and the scientific representations of 'reality,' man, and the world. This paradigm shift is actually a crisis in Western thought. For, two cognitive systems which both have life-preserving and life-enhancing powers are juxtaposed in the same culture and, in the case of the scientifically cognizant thinker, in the same individual. In a sense, Nietzsche pictured Western man as at a perilous crossroads in his now primarily psychosocial evolution. He worried over the place of man and the positive value of aesthetic perspectives (art and illusion) in their

⁵⁰ *The Gay Science*, III, § 121.

⁵¹ *Ibid.*, III, § 110.

⁵² William James, *Pragmatism: A New Name for Some Old Ways of Thinking*, New York, 1907, p. 170.

forthcoming scientific, pragmatic, utilitarian, technological world-interpretation. For, science itself,

the *passion for science* is...a formidable, new, growing power, the like of which has never yet been seen, with eagle's wings, owl's eyes, and the feet of a dragon—...it is already so strong that it grasps itself as a problem and asks: 'how am I even possible among *mankind*? How will mankind be possible *with me*?'⁵³

The development of the scientific way of thinking is not only problematic to itself (in its nineteenth century version and, in some cases, its contemporary form), but it also undermines previously extant beliefs in "eternal truths" and undermines the search for permanence. What has evolved is a "will to truth" that uncovers every appearance, every illusion, that analyzes actuality into fragments, removes teleology from the world and the development of man, places man in the lineage of animals, and dwarfs the human world in the boundless cosmos. Nietzsche raises the questions: Where is science going? Where is it leading man?

One thing that the evolution of a scientific consciousness has produced, Nietzsche argues, is a metastasizing skepticism. This was especially the case in the nineteenth century neo-Kantian scientific environment in which agnostic views about the ultimate constituents of actuality were rampant. And, of course, it is not unknown today. As Nietzsche sees it,

The more refined the senses, the stricter the attention...the harder it becomes to admit that our "knowledge" of a thing, a fact, amounts to a definite knowledge, to a "truth." Finally, when our methodological caution brings us to the point we have reached at the present day, we no longer claim the right to speak of truths at all, in an absolute sense—we have abjured our faith...in knowledge.⁵⁴

At times, Nietzsche sees the gradual development of the "drive for truth," especially in the exact sciences, as having the ultimate effect of corroding our belief in truth. And this produces the paradox of an evolved skeptical, inquiring mode of thinking that may have detrimental effects on man's life-enhancing impulses. This is, in general, what he means when he says "There is no pre-established harmony between the promotion of truth

⁵³ *Werke (GOA)*, XII, 6.

⁵⁴ *Ibid.*, XIII, 21.

and the welfare of mankind."⁵⁵ At other times, he adapts to the scientific mode of thinking and methodological restraint and advises that we cherish "small, unapparent truths." Elsewhere, in his notes, he denies that there is any "Truth" precisely because there are *many* truths, many perspectival truths.

Nietzsche's general contention is that few individuals can survive with confidence and a sense of affirmation in a cognitive realm of fragmentary, "relative truths", in the absence of purpose, without significant cultural ideals. After pushing the changing, relative, replaceable perspectives of the independent sciences to a deanthropomorphic (and, in his terms, nihilistic) *dénouement*, Nietzsche then seeks to project *his* holistic interpretation of actuality and his aesthetically conceived ideal of the "beyond-man" (*Übermensch*). Here we cannot pursue his "turn" into the realm of radical mythopoetic projections. Nor can his critique of the outcome of the long process of evolution or his proposal of a philosophical vision of actuality that will ostensibly serve as a new consciously "selective" world-interpretation that will enhance the quality, health, and strength of new types of human beings be dealt with in this context. However, even this projection of ideals for the few is based upon the belief that "Science shows the flux, but not the goal; however it provides the *presuppositions* with which the new goal must agree."⁵⁶

What is clear, even in a restricted discussion of Nietzsche's reflections on evolution and the development of modes of perception and cognition, is that his thought is compatible with a number of recent interpretations of evolutionary epistemology even in regard to specific details. At a crucial

⁵⁵ *SW*, 2, II, § 517.

⁵⁶ *Werke (GOA)*, XII, 357. This is a crucial point in Nietzsche's thought insofar as he wants to offer a human interpretation of science that nonetheless remains faithful, as far as possible, to its basic presuppositions. His philosophical interpretation of a dynamic theory of nature in terms of his "reduced formula", the will to power, is an attempt to relate his thought to the scientific representation of actuality he had discovered in the advanced theory of nature propounded by Roger Boscovich. That is, that the natural world is comprised of force-centers or centers of energy. Nietzsche was one of the earliest philosophers to respond to the *dematerialization* of matter in the physical sciences. Thinking of Boscovich in particular, he writes in his notes that "we have got rid of materiality!" *Werke (GOA)*, XVI, 56. Man is included in this energistic theory of reality insofar as he, too, is construed (in an abstract way) as a conglomeration of a variety of "forces". Nietzsche's position is a dialectical fusion of different perspectives in its considered form. For, he tells us that his "proposition" is: "the dehumanization of nature and the naturalization of man; afterwards, the pure concept of 'Nature' has been attained." *SW*9, p. 525.

stage in his philosophical development, he saw clearly the implications of the evolved and, hence, naturally selected scientific mentality. On the basis of his general understanding of science, he insisted that, as Munévar has said, the belief that the psychology of an organism is related to its biology is empirically plausible and, therefore, there is no single "strategy for the appropriate perception of nature." As Nietzsche expressed this view, there are an indefinite number of viable perspectives of organic beings and, hence, as Munévar observes, there are no absolutely preferred frames of reference. Not, of course, that all frames of reference are on a par, but that "several *may* be — thus we cannot assume that ours is *the* representation of reality."⁵⁷ With characteristic economy of expression, Nietzsche called the belief that the human image of "reality" is the only valid one, an "anthropomorphic idiosyncrasy."

The basic principles of evolutionary epistemology presented, for example, by Konrad Lorenz, were obviously espoused by Nietzsche. That is, that "all cognitive functions with which we are endowed...are, like all other adaptive life processes, the function of organic systems evolved in age-long interaction between the organism and and its environment."⁵⁸ And when Nietzsche says that we are conscious of the limited range of phenomena that are relative to our interests, values, and our survival, he

⁵⁷ Munévar, *op. cit.*, p. 27.

⁵⁸ Konrad Lorenz, *Studies in Animal Behavior*, Cambridge, 1971, p. 255. In the manner of conventionalist scientists, Nietzsche carries this process one step further and applies adaptive life-processes to various aspects of scientific knowledge, to the valuation of scientific knowledge itself. Thus, even before he read Ernst Mach's *The Science of Mechanics*, he conclude that scientific knowledge is a product of "universal evolution" (as Mach said), that our belief in causes and effects is "developed *instinctively* and involuntarily" and is rooted in the development of the species. Ernst Mach, *The Science of Mechanics*, Chicago, 1942, p. 582. There are even analogies in Nietzsche's writings to Henri Poincare's observation that it is "by natural selection" that we have "adopted the geometry most advantageous to the species; or in other words the *most convenient*. This is entirely in conformity with our conclusion; geometry is not true, it is advantageous." *The Foundations of Science*, Lancaster, 1946, p. 91. Speaking now of the scientific, not the commonsense, concept of actuality (which has also evolved by virtue of its life-preserving advantages to the species), Nietzsche remarks that "We have arranged for ourselves a world in which we can live—by the postulation of bodies, lines, surfaces, causes and effects, motion and rest, form and content: without these articles of faith no one could manage to live at present! But for all that they are still unproved. Life is no argument; error might be among the conditions of life." *The Gay Science*, III, § 121. Repeatedly, Nietzsche insists that science, like all previous modes of thought which became canonical, continues the life-preserving function by virtue of "humanization". In point of fact science is a "humanization of nature."

virtually anticipates Lorenz's observation that our perceptual range "is extremely narrow-minded" in its concentration on the practical requirements of survival of the species, and "it arbitrarily selects from reality only a restricted segment, which is just sufficient to meet the requirements and this produces a 'twisted' picture of reality."⁵⁹

Much of Nietzsche's critical epistemology was based upon his response to the various perspectives of the sciences and his adoption of an evolutionary approach to the origin, scope, and limits of human knowledge. His own philosophy emulates what he saw as the *process* of scientific understanding, the replacement of theories, the hypothetical, provisional, experimental approach to knowledge manifested in the evolved and evolving scientific interpretation of reality.⁶⁰ That he is frequently excluded from discussions of the development of evolutionary epistemology is inexplicable insofar as his insights into its meaning and its consequences are the reverse of naive.

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⁵⁹ Lorenz, op. cit., p. 286. If we substitute "falsified" for "twisted" in this passage, it is virtually a paraphrase of Nietzsche's frequent references to the organic, human perspectival perception of phenomena.

⁶⁰ This is embodied in Nietzsche's conventionalist theory of science and his understanding of philosophy as experimental and interpretive through and through. In addition, he applauds the discipline of science that is satisfied with "small, unapparent truths" and a "conscious relativity of knowledge." One of his central orientations towards philosophical knowledge is clearly modeled on scientific procedures: "In place of fundamental truths I put fundamental probabilities—provisionally assumed *guiding principles* by which one lives and thinks." *Werke (GOA)*, XIII, 72. More specifically, he makes clear that he is thinking of scientific inquiry insofar as he espouses the critical analysis of all beliefs and convictions, the imaginative formation of "working hypotheses", and the subsequent unremitting analysis of, and testing of, probabilities (*Wahrscheinlichkeiten*). *Werke (GOA)*, XVI, 3f.