

Reviews

System, Structure, and Experience. By ERVIN LASZLO. New York: Gordon & Breach, 1969. viii+112 pages. \$12.50.

This is an important book both for its conclusions and the way of reaching them. In both respects, it exhibits much that is novel and original. Its subtitle, "Toward a Scientific Theory of Mind," brings out its aim. It deals with perception, knowledge, and values. These are exhibited as closely interrelated through transactions between the organism and its environment, culminating in an objective naturalistic theory of values. These activities are found to be integrated by the agency of feedback systems. Laszlo finds it possible to employ the powerful mathematical methods of system-theoretical analysis toward these conclusions.

By this approach, perception, knowledge, and valuing become normative activities of dynamic systems going on in the actual processes of nature. They are the product of natural norms. This is a striking conclusion against a widespread traditional background of the subjectivity of perception and values and of the common contemporary modes of linguistic analysis.

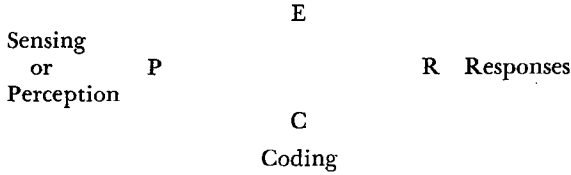
That a strong case can be made for natural norms in action is not by any means a totally novel idea. There is a deep background for the feedback process in the history of ethics, for instance. It is foreshadowed by the utilitarians and most hedonists in their insistence upon the consequences of acts and their sanctions. It is foreshadowed in the idealists' and self-realizationists' central concept of integration and coherence with reality, also in the demand for the fitness of an act for its occasion by many deontologists. And, of course, in the demand for adaptation by the Darwinians. It is implicit in Perry's definition of interest in terms of "docile adaptive behavior." It is exemplified in Dewey's "problematic situation," Pepper's "selective system," and Whitehead's "actual occasion."

The essential novelty of Laszlo's book lies in the explicit identification of all these things with feedback operations offering the applicability of the powerful methods of system-theoretical analysis. It provides for a comprehensive clarification of the whole field of knowing and valuing and the possibility of a unification of reasonable predictability with breadth of human judgment. It may afford a real breakthrough.

In the first chapter, Laszlo presents an abstract scheme of a simple feedback system applicable to the material he will be dealing with. In the next chapter, he shows how this scheme could be applied to the whole series of self-stabilizing systems from man to the simplest organism and even to inorganic forms. Then, in chapter 3, he comes to the heart of his subject where he distinguishes three levels of feedback systems in which man is intimately involved. There is the homeostatic feedback system of mainly internal physiological activity (L_0), then the sensory feedback or perceptual-cognitive activity (L_1), and then (L_2) the metasensory feedback systems or cultural activities. Each successive level depends upon the earlier. The general scheme for a feedback circuit is symbolized thus:

ZYGON

Effective Environment



In homeostatic feedback (L_0) the body is the principal environment. If the body (E) suffers some lack, this produces a stimulus received as a proprioceptive sensing (P), which is transmitted to the control apparatus in the nervous system (C), which selects the appropriate adjustment to stabilize the system and transmits it to the effector apparatus for the response (R) which alters the environment to (E_1). If this response is inadequate, that will again stimulate (P) and the circuit activity goes through again till the system is stabilized. These homeostatic feedbacks have been studied in great detail. They are normative in their action even though not strictly speaking purposive. They aim for definite goals with definite conditions of satisfaction, and controlling codes for correcting errors of response. But since this all goes on "automatically" within the body, it is on a different level from adaptive behavior to external stimuli. It is relatively a "closed system," whereas purposive behavior as perceptual-cognitive activity is an "open system."

In the sensory feedback system (L_1) the outer environment (E) beyond the body of the organism stimulates a sense organ such as sight which sifts out the sense qualities (P) such as colors. These are transmitted by afferent nerves to the brain where the sensory material is coded or conceptualized as, say, (C_1) "cat." This concept is then tested on the environment (E_1) by way of the appropriate response (R). If the environment thus responded to fails to match with the coding (cat) by the new sensing at (P), the system is not stabilized and so it recodes by a new concept (C_2), as say, "skunk." The circuit continues around and if the code (skunk) is matched by the new perception of the environment, the appropriate response will follow and the feedback system will be for that occasion stabilized. As with homeostatic action, it is a self-stabilizing feedback system with the environment as an integral member of the system. The outcome is the adjustment of the organism to its environment. It is normative throughout in attaining such adaptive stabilization. Here we have definitely goal-seeking, purposive behavior and the normative feedback system is a natural verifiable process through and through.

Laszlo notes in passing that the inclusion of the environment (E) as an integral factor in this feedback system eliminates the epistemological problem of the egocentric predicament as to how the mind limited to brain processes and their introspective qualities can have access to the outer world. The outer environment (E) turns out to be an integral part of the feedback system of which the coding processes (C) in the brain are another. When, in this perceptual-cognitive feedback system, the coding at C transmitted into the environment (E) by way of R results in a matching of the fresh input from E by way of P to the original coding at C , then this coding (shown to be the right one for stable adaptation) can be ascribed to the environment (E) as the stabilizing

factor there. At *C* there arrives a verified message of the correct structure found in *E* for the stable adaptation of the total system. So the brain processes at *C* are brought into veridical contact with environmental structures at *E*. The mismatch of the coding specifying a cat in the environment showed it was not a cat, but the matching with skunk (technically a negative feedback) showed that it was indeed a skunk to be adjusted to.

Laszlo carries the same sort of analysis into the cultural (L_2) level. Here he makes a feedback analysis of three institutions: science, art, and religion. Science goes beyond the sensory feedback system in developing rational constructs in order to extend knowledge far beyond the sensory level. In place of direct sensory stimulation for *P*, science employs protocolled data. At *C* come scientific construct-systems, at *R* coordinated observational and experimental operations, and *E* becomes the "rationally constructable aspect of the universe." He accepts Hanson's germinal phrases "seeing as" versus "seeing that" to contrast ordinary direct sensory perception with sophisticated scientific interpretive perception. An ordinary man sees the object before him *as* a green maple leaf, the scientist sees *that* it is a complex cellular structure with specific chemical properties. The scientist codes the object within the total highly integrated system of scientific constructs.

In approaching the sphere of art, Laszlo contrasts feeling with sensation. Art is concerned with the organization of feelings. He accepts the expressionist's view that the artist is seeking the fullest expression of a feeling complex. And this culminates in styles of art. The response to art is directed at the continued attainment, or maximization, of the aesthetic experience. This leads to the emergence of sets of aesthetic standards which stabilize art in coherent structures embodying aesthetic ideals. These are the art styles and they constitute cultural institutions, schools of art. The feedback systems for art have to do with these feeling structures or aesthetic constructs. There develops an aesthetic environment (*E*) stimulating emotionally connotative perception (*P*) coded (*C*) by aesthetic constructs leading to aesthetically productive activity (*R*) to be checked by the aesthetic environment for the full potentialities of the feeling complex expressed.

Religion leads to an interpretation of religious experience. For Laszlo, this is another type of feeling structure. He suggests that whereas the structures of art are instances of "feeling as," those of religion are instances of "feeling that." There is a parallelism suggested similar to that between ordinary sense-perception and science. Aesthetic feelings are thickened by the creeds of theology and the rituals of the church. The feelings are extended in depth by religion toward systems of ideal supernatural entities, as sense perceptions are extended in depth by science toward systems of underlying elemental particles and natural laws.

Then after these analyses of levels of feedback systems in human experience, Laszlo offers a brilliant explanation of interpersonal communication. This results when the feedback systems of two organisms share in each other's environment. Under these conditions, the codes of one person by feedback action can be brought to match the codes of the other person. Thus one person can come to know another person's mind in terms of the perceptual, scientific, and feeling codifications developed in each. By feedback matching, persons can come to know not only each other's conceptual structures but also their feeling

ZYGON

structures. This checks with age-long common intuition. Persons are not isolated from one another. There can be extensive mutual understanding.

With so much constructive power and insight, it seems supererogatory to offer any comments. I will only state my feelings on two points. I think aesthetic values have a wider range of normative action than that limited to cultural styles of art. As has been occasionally pointed out, great works of art resemble each other across the historical styles more closely than they resemble the minor works in their own style. My second comment is that I do not think the analogy of Hanson's contrast of "seeing as" versus "seeing that" carries over convincingly for art and religion in terms of "feeling as" and "feeling that." But these are minor details within a splendid constructive work.

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From Science to Theology: An Essay on Teilhard de Chardin. By GEORGES CRESPY. Translated by GEORGE H. SHRIVER. Nashville, Tenn.: Abingdon Press, 1968. 174 pages. \$4.00.

Georges Crespy is often referred to as the leading French Protestant interpreter of Teilhard. This essay has established him as one of the most helpful and provocative theological interpreters of Teilhard in any tongue. He has accomplished the remarkable feat of discussing the central issues—to use his own phrase, "the design"—in Teilhard's thought in a charming and lucid manner, while at the same time he has brought his reader directly onto center stage of theological reflection. The result is a book that serves almost equally well as introduction to Teilhard's thought and as introduction to theological reflection in a scientific age. In the process of analyzing one man's thinking, Crespy has succeeded in opening up a large theological vision. Luckily, his translator has served him well, facilitating and not hindering his communication.

On the last page of his essay, the author lays down the basic interpretive key on which the entire book rests: "Teilhard appeals to theology to pose the problem of the presence of God to this world in a new way." The flow of his presentation of Teilhard follows these lines: (1) A discussion of the problems which ensue when a Christian makes the decision that he will not permit himself to separate the "mentality" of evolutionism which permeates his general outlook on life and the world from his Christian faith—the chief of these problems being the *involvement* of God in evolution. (2) Teilhard insists that one must understand evolution from the perspective of man's own participation in the process, which means that man is himself the parameter for interpreting evolution, and it is within this framework that Teilhard launches his theory of complexity-consciousness, which places prehuman and human evolution on one continuum. (3) Teilhard's theological intention is then stated as "an attempt to arrive at a reconciliation of the idea of a world in evolution and the idea of a God present in this world within a dynamic Christology." (4) In order to understand this intention and evaluate it, one must deal with Teilhard's Christology, his treatment of evil, and his vision of history and the final consummation of the world (eschatology).

In each of the theological analyses—christological, evil, history, and eschatology—Crespy goes to the heart of Teilhard's achievement, expounds relevant texts (some of which are otherwise inaccessible in English or not published at all), and places the theme in its appropriate theological context. In the process, he properly explodes a number of widespread misinterpretations of Teilhard's thought. For our purposes here, we note the discussions of evil and eschatology.

Crespy provides what may be the most important treatment in English of Teilhard's theory of evil in that he summarizes the crucial and unpublished essay of 1947, "Réflexions sur le Pêché originel." He places Teilhard's theory in the context of the creative process, which is itself a unifying of the multiplicity in which the original chaos exists. Evil and pain have to do with the inevitable trauma which accompanies any unifying and purifying process. It is clear that such a view has its weaknesses, namely, the manner in which it implies that God is author of evil (since he is creator of all things) and it does, to a degree, flatten out the concept of redemption which corresponds to the theory of evil. But the usefulness of Teilhard's theory is also recognized. The theory *does* make original sin intelligible; it escapes the naïve historicizing of original sin which places its emergence in a "first couple." Furthermore, the theory emphatically distinguishes between evil and matter. As is his habit throughout the book, Crespy brilliantly restates Teilhard's thought in his own terms. Of evil, he writes: "Teilhard is right once again when he affirms that evil is such only evolutively, that is, only relatively to future good. Evil is evil only as a consequence of a passion for the best. In other words, once again there is evil only if the world is going somewhere, if it has meaning and direction. And then evil is the *nondirection of this direction and the non-meaning of this meaning*" (p. 113).

Crespy does us the service of clarifying why it is that Teilhard can in no sense be charged with having overlooked evil or treated it too lightly. On the contrary, as his summary of the 1947 essay suggests, evil is intrinsic to the evolutionary process, even though it is *not* intrinsic to matter itself. That Teilhard's theory of evil has difficulties is another argument.

This book also clarifies Teilhard's theory of progress in history, indicating that Teilhard did not equate progress with the moral improvement theories of the eighteenth- and nineteenth-century liberals. Rather, progress means the certainty of advancing along the lines of our possibilities within evolution. Here, perhaps, Crespy is less illuminating than he could be, but he says enough to correct the myriad interpretations which accuse Teilhard of a blind optimism. But Crespy is more important for his analysis of Teilhard's eschatology. He outlines the apocalypticism of Teilhard's eschatology, which speaks of a cataclysmic moment at the end in which man will be judged for his decision whether to advance or hinder the process of evolution. "For him the world does not open up like a flower when it reaches the inevitable end of its history. . . . Is this not at least a paradox—this holding together of a continuous evolutive movement and a parousiac crisis which belongs to the category of the discontinuous?" (pp. 142-43). The issue here, as Crespy outlines it, has to do with the basic structure of eschatological thinking itself: The ending of the world must be related to history, else it cannot be history's own ending; and yet the ending must inaugurate a completely new situation,

ZYGON

and therefore it must be exterior to history itself. Utopian thought does not recognize this basic structure, but Teilhard does. Crespy criticizes Teilhard on grounds that he does not pay proper attention to the "gratuitousness" of the consummation, that is, that it comes about by God's causality. Here we would take exception to Crespy, both in his analysis and in his evaluation. The apocalyptic in Teilhard is difficult to assess because it is so paradoxically contradictory to his evolutionary scheme. Whether the apocalypticism is mysticism in its entirety or not is difficult to say, but in any case one can scarcely judge Teilhard's eschatology as such "apocalyptic." Indeed, one can question whether Teilhard's Omega point even implies an end to history. Consummation, yes; end, no. And the consummation, Omega, is so thoroughly christological that one can hardly charge him with overlooking the divine causality of the consummation!

Crespy sets forth very helpfully the motivation for ethics which Teilhard's eschatology includes within it. The consummation of evolutionary process intensifies the imperative to advance that process by one's own actions. Thus, Teilhard holds together three elements which are often inadequately related in theological systems—cosmology, ethics, and eschatology.

Crespy's essay is thoroughly theological in that it interprets and evaluates the man on theological grounds and demands theological interest from the reader. His basic critique of Teilhard comes at two points: (1) On the premise that "it is necessary that Christ be thought about theologically and that the world be thought about cosmologically if one subsequently wants to be able to think cosmologically about Christ and theologically about the world," he suggests that Teilhard's weakness is that he did not know how to "think about Christ as theological science requires." (2) Teilhard's design includes the interrelating of theology and evolutionary world view, but Teilhard himself did not clearly perceive that such an enterprise demands radical reshaping of traditional, prescientific theological structures; as a consequence, "the theological outlines and plans of Teilhard as such are practically unsalvageable" because they do in effect attempt to pour radically new wine into old wineskins. Both of these criticisms amount to the charge that Teilhard suffers from his lack of *professional* theological skill. Teilhard's significance is great, but it is based on his powerful vision that the truth demands revision of our theological equipment, not on his success in carrying out that revision. Crespy's critique would be misleading if he meant to deny that Teilhard himself had a thoroughly theological vision. His Christology was not diluted Christianity, but rather it was thoroughly and fully Christian understanding and adoration of Jesus Christ. Similarly, his vision of the creative process and of the world's consummation were fully theological. Crespy seems to be saying something else, namely, that Teilhard did not elaborate his thoroughly theological vision in a manner which meets the criteria of the professional theologian and the tradition of that theologian's craft. This is true. This is also to say, however, as others have said about politics: In an era when academic specialization is the hallmark of virtue, any thinking which is based on a broader vision meets with reproach from those whose self-imposed limitations have been abandoned and whose territory has been invaded. But if one goes where the problems are, his thinking will necessarily

be of this broader type. Although Crespy is generally not a nit-picker in his critique, his basic charges may appear to be the demurrer of the specialist. Religious vision has always preceded theological reflection; the appropriate response is not to charge vision with technical inadequacy, but rather to survey the theological implications of vision. This is the response that Teilhard deserves from theologians. And it is the response which Crespy himself has superbly set forth.

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