

## Human Freedom and the Science of Psychology

Wayne K. Andrew  
*University of Winnipeg*

Human freedom is a crucial concept for moral and spiritual life. Its meaningful emphasis on the powers of awareness, choice, creativity and symbolization, provides a basis for holding human beings partially, but realistically, accountable for their behavior and their conditions of existence. But in the sciences that study human beings such as psychology, human freedom may often be entirely ignored, actively denied any important role or reduced to illusions, feelings or beliefs that can be studied deterministically. However, human freedom in all of its genuine senses appears as important and necessary to the actual doing of science as it is to the conduct of other, general endeavors in life; it appears as necessary to it as are the facts and orderliness of deterministic perspectives. This may be demonstrated by reviewing some important, general requirements in the doing of psychological and related sciences and in the using of their results. General scientific procedures involved in creating, establishing and using psychological knowledge intuitively incorporate and seem to require meaningful senses of both human freedom and human determinateness. From such a review, it is clear that it is possible for psychology to formally recognize and acknowledge meaningful senses of human freedom intrinsic to its enterprise. This can be done without denying the determinateness of its results. Such formal recognition does require a change in the completely deterministic image of human being that is commonly accepted by psychology as a science. It would also encourage a broadening of scientific paradigms and the elaboration of research methods appropriate to a more complex and profound image of human being. This would then encourage a greater emphasis on the study of human beings as both agents with originating powers to know, create, destroy and control and as patients and victims of processes and structures beyond their immediate control.

Brief selections from the works of such well known scholars as Paul Tillich, Rollo May, B.F. Skinner and Carl Rogers suggest the strongly divergent orientation toward human freedom that can occur in psychology and religion as well as something of the difficulty facing scientists and scientific psychology. Tillich, in his *Systematic Theology II* (1957), states that:

Man is free, in so far as he has language. With his language, he has universals which liberate him from bondage to the concrete situation to which even the highest animals are subjected. Man is free, in so far as he is able to ask questions about the world he encounters, including himself, and to penetrate into deeper and deeper levels of reality. Man is free, in so far as he can receive unconditional moral and logical imperatives which indicate that he can transcend the conditions which determine every finite be-

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The author expresses his gratitude to Dr. R. Russ and Dr. H. Lips for their help in the final preparations of this paper.

Requests for reprints should be sent to Wayne K. Andrew, Chairperson, Department of Psychology, University of Winnipeg, 515 Portage Avenue, Winnipeg, Manitoba, Canada.

ing. Man is free, in so far as he has the power of deliberating and deciding, thus cutting through the mechanisms of stimulus and response. Man is free, in so far as he can play and build imaginary structures above the real structures to which he, like all beings, is bound. Man is free, in so far as he has the faculty of creating worlds above the given world, of creating the world of technical tools and products, the world of artistic expressions, the world of theoretical structures and practical organizations. Finally, man is free, in so far as he has the power of contradicting himself and his essential nature. Man is free even from his freedom; that is, he can surrender his humanity. (pp. 31-32)

He continues, indicating that man's freedom is a "... finite freedom ... " with all of its potentialities being limited by the "... opposite pole, his destiny ... " where in nature, destiny is experienced or appears as necessity, as the compulsion to do or the limitations on believing, thinking and doing.

Tillich is clearly comfortable with the idea that human beings are both free and limited or determined. Others, in psychology, around this same period seem to share and advocate viewpoints similar to his. Gardner Murphy (Murphy, 1958, pp. 280-283) wrote about William James' concepts of hard and soft determinism — identifying human freedom with the soft form and human necessity with the hard form. Years later, Rollo May (May, 1967, pp. 173-176) was also defining human freedom as a capacity or potential to become aware of and to work with, rather than against one's determinateness,<sup>1</sup> or in May's language ... "Freedom is the individual's capacity to *know that he is the determined one*, to pause between stimulus and response and thus throw his weight, however slight it may be, on the side of one particular response among several possible ones" (p. 175).

These statements of human freedom and their place and importance for human existence appear to clash with a scientific orientation in such disciplines as psychology. B.F. Skinner and Carl Rogers, widely known for their differing views and approaches, have nevertheless advocated very similar freedom-denying perspectives of human being when one is engaging in scientific activity. Their unanimity on this point suggests the strength with which scientific psychology has been seen as synonymous with the denial of human freedom.

Both Skinner and Rogers have accepted a common, deterministic viewpoint of human being as a *necessity of doing psychological science*. B.F. Skinner has said, "If we are to use the methods of science in the field of human affairs, we must assume that behavior is lawful and determined. We must expect to discover that what a man does is the result of specifiable conditions and that once these conditions have been discovered, we can anticipate and to some extent determine his actions" (Skinner, 1953, p. 6). In the next few pages he goes on to claim that the very practice of science requires the assumption of determinism in human affairs and deliberately contrasts this with philosophies emphasizing personal

<sup>1</sup>The term determinateness is used throughout the paper to designate the potential or actual empirical facts and lawful regularities of human being. It is deliberately used in place of Determinism which has many other philosophical and religious implications.

freedom and individual responsibility. I suspect that there are many of us in the science of psychology who have and still do agree with what he has said. For all of us, the practice of science and the assumption of thoroughgoing determinism is or was inseparably related. Carl Rogers seems to have agreed when he wrote about the scientific therapists' point of view. He said, "Yet as we enter this field of psychotherapy with objective research methods, we are, like any other scientist committed to a complete determinism. From this point of view every thought, feeling and action of the client is determined by what preceded it. There can be no such thing as freedom" (Rogers, 1961, p. 192). However, Rogers senses a paradox or dilemma in that such a deterministic view seems to contradict what successful clients or fully functioning persons experience within themselves; that is, "the power of naked choice" (p. 192). He goes on to formulate an ingenious, partial resolution of this dilemma. A fully functioning person makes choices and exercises will in harmony with all the relevant factors and information and thus "... experiences the most complete and absolute freedom" (p. 193), while from an external scientific point of view one's behavior still "... may be said to be determined by all the factors in the existential situation" (p. 193). While Rogers has struggled to give freedom a meaning, at least as a human potential that may be learned or realized, he clearly abandoned science to the clutches of a complete determinism. For Rogers, Skinner and many of us, a thought-binding, deterministic mentality has remained entwined on the being of science proclaiming to be the essential meaning of the enterprise.

This common acceptance of a particular freedom-denying viewpoint as necessary to the sciences concerned with human beings is fraught with very serious consequences. Once the assumption of complete determinism and the practice of science are inseparably related, there is an alienation of those persons from all aspects of science who cannot reconcile such a philosophy with the way in which they must live and conduct their affairs. Others, who accept this marriage, become alienated from the meaningful senses of freedom they regularly experience. Those, who use scientific results and yet cannot deny their experience of freedom, are caught in the clutches of apparent paradox. Once science is bound in such a way-of-believing, there is a failure to seriously encourage the development of meaningful and perhaps more adequate alternatives, alternatives which are more faithful to the entire scientific enterprise and more inclusive of the assumptions we must rely upon in order to live and grow, socially and spiritually. The loss to science of persons motivated to work for change reduces badly needed constructive (rather than destructive) criticisms. This delays the extension and development of science, thereby reducing science's usefulness to those interested in a better understanding of human phenomena (an understanding which is excluded from existence in deterministic approaches).

This ontological annihilation of human freedom is not the work of science but of a deterministic ideology which is just as inadequate to the

wholeness of science as it is to the wholeness of life. Through its advocates, a complete determinism embraces science for its support and credibility. The error, the tragic error, is in not realizing that this perspective is only adequate to what may be called the determinateness of science and human being. It is necessary but seriously insufficient to the entirety of scientific doing and the more complicated picture of human being that this implies. Certainly, significant aspects of science as well as everyday experience strongly support a deterministic perspective and a brief general review of some of these aspects will clarify this. But, as it will be argued later on, significant aspects of science and everyday experience also strongly support a reality of human freedom similar to that indicated in the earlier quotes from Tillich and May.

### **The Scientific Basis for a Completely Deterministic Perspective<sup>2</sup>**

Science is, first of all, a general way of being and knowing through personal doing. This personal doing is guided by the principle and practice of verifiability and encompasses many specialized activities each with their own constraints, prescriptions and demands. From this way of being and knowing through personal doing a prodigious array of scholarly and technological products are generated. These products are in turn incorporated into the doing of science and a process of building on itself occurs. Thus, science is an organic complex of growth and decay, bursts of movement with periods of stagnation and re-integration. In trying to consider something so vast, it is helpful to stay mostly, but not always, within what many of us are most familiar and most concerned with: the sciences of human being represented by methodologies and products of psychology and other related sciences.

In what ways may this scientific form of personal doing and the products arising from it support a completely deterministic viewpoint? How in general can advocates of such a perspective claim to know that all aspects, or at least all important aspects, of human being are determined by combinations of biogenetic and socioenvironmental factors? In order to provide a convincing answer to these questions, especially the latter one, we need to briefly re-iterate some features of scientific research procedures with their inherent logic and inferences as well as a few characteristics of its successful products.

#### *Features in the Doing of Science that Support a Deterministic Perspective*

There is a careful outline and definition of what aspect or aspects of human being are to be noticed and observed. In experimental psychology this would be called the specification of the dependent variable or variables. These aspects or dependent variables (DVs) may be very simple and easily observed habits such as the number of cigarettes smoked or

<sup>2</sup>The following descriptions are partial summaries of what is involved in doing science as this relates to, first, perspectives in determinism and, subsequently, freedom. They represent the author's decade of experience in teaching research methods and applied statistics.

quite complicated phenomena and interactions such as conformity and obedience, interpersonal violence, love, anxiety, guilt and happiness or satisfaction. Usually reliable methods of measurement are created, examined for validity, and used to indicate the presence or absence of a variable or the degree to which some variable is present. Complex variables may be delineated by a number of metric or quantitative scales. Here, then, the basic goal is to delineate certain aspects of human being, dependent variables, such that they can be reliably seen and studied by others in a position to do so.

Past research and established facts, casual observations and naive experiences may all provide knowledge of occasions when changes in the delineated or specified DVs seemed to closely follow or go along with variations in other events. These other events or circumstances become suspected causal factors in the presence of their correlations with DVs and when studied in experimental psychology are usually called independent variables (IVs) or explanatory variables. Thus, these independent variables are events, circumstances and even other behaviors or states of the person that may be used to account for changes in aspects of persons that are of immediate interest. The independent variables are also carefully delineated, and where possible, metrics are created that reflect the strength or extent to which they are present.

The objective observation and recording of changes greatly strengthens the argument for a causal connection between IVs and DVs. At this point then, changes in DVs are known, often in a probabilistic sense, to follow or occur with natural or induced variations in suspected causal events, the IVs. Thus, when fluctuations or changes in the IVs, whether experimentally or naturally induced, are accompanied by changes in the DVs and when other likely possibilities are well controlled (either through statistical or other control procedures), then the changes in the IVs may be said to account for some proportion of the changes in the DVs. There are numerous illustrations of this. For example, measured changes in the strength and frequency of depressions among different persons, a delineated DV, may occur with or follow from, in a probabilistic sense, variations in type of diet or nutrition, an IV. Changes in the frequency of violent encounters among adults, another DV, may be shown to follow, in a probabilistic sense, variations in the amount of physical affection and love each adult experienced as a child or adolescent. Even human freedom, when reduced to its determinate aspects such as a "feeling" of being free or a "belief" that one is free, can be considered as a DV that is determined or caused to vary by changes in the psychosocial environment (Westcott, 1978).

The strong suspicion that specific biogenetic and socioenvironmental events control certain aspects of human being becomes confirmed as changes in DVs are shown to occur reliably when suspected causal events vary, while other likely causal factors remain constant or are well controlled in other ways. In experimental psychology, this may be referred to as two aspects of experimental control essential for causal conclusions:

controlling-in only the wanted variations or levels of the independent variables and controlling-out the most likely extraneous and confounding variables. If this were followed for the illustrations mentioned above, then we would know what changes of diet would alter, in a probabilistic sense, the strength and frequency of depressions or what types of psychological and social situations increase or decrease feelings of freedom across variations in persons. Of course these illustrations would have to be demonstrated in the manner indicated. If they were, then they would be examples of successful scientific results which lend support to Skinner's contention that what a person does is the result of specifiable conditions.

There are then, several pillars of purpose in the doing of science which support the perspective that certain aspects of human being are caused by biogenetic-socioenvironmental processes and conditions. Specific features of human being and their suspected causal factors are objectively delineated and factually characterized. These specific features are shown to regularly change when suspected causal factors also vary, and this regular relationship is maintained when other likely causal factors have been reasonably accounted for or well controlled. Scientific products established in this way describe some degree of orderliness, predictability and the means whereby changes in certain aspects of human being may be influenced, controlled or produced. To anyone regularly doing science or to anyone open to the demonstrations of change that can be shown by using its scholarly and technological products, this constitutes pragmatically undeniable proof that certain aspects of human being are ordered and regulated by biogenetic-socioenvironmental structures and processes and that many more may be discovered and controlled.

#### *Features in the Results of Science that Support a Deterministic Perspective*

There are so very many examples of human determinateness in the science of human being that the specific listing of a few of them here would appear trivial. Biology and medicine provide countless examples of normal and abnormal human regularities. Human similarities as well as the uniqueness of each person are statistically predictable consequences of genetic principles and the regularities they describe. The human being as a patient, a victim first acted upon by processes of stress and disease and then by processes and agents of healing, is a theme continually supported by the lawful relations generated in medical research. Psychology and sociology demonstrate causal relations, often in a statistical or probabilistic sense. Here, human beings appear as connative-cognitive pawns, as stimulus-response mechanisms caught in matrices of social, economic and organizational forces that hold, mold and manipulate various aspects of their lives.

The theme of the human being as an addict in life easily rises from scientific results reporting the effects of malnutrition and improper eating, smoking, drinking, drugging, overworking, excessive social manipulating,

indolence, anomie, alienation, anxiety, stress, neuroses and psychoses. From the alcoholic to the workaholic addictive patterns are demonstrated which alter in often predictable ways many aspects of a person's being. When discussed in this manner such a body of knowledge across so many disciplines would appear to deliver a death-blow to any serious or important consideration of human freedom. When every successful study shows causal connections and tens of thousands of studies exist, how could any sensible, rational person still maintain that human freedom is anything more than an important delusion?

### *Some Features in Living that Support a Deterministic Perspective*

Important pillars in the doing of science and the scholarly and technical products generated by this doing dramatically and overwhelmingly illustrate biogenetic-socioenvironmental structures, processes and substances that shape, control and influence human existence. Many, many aspects of human being are undeniably determined by such factors; when viewed in this way, human beings are truly patients in the cosmic scripts of damage and repair, growth and decay, true pawns in the play of forces and often addicted to the local episodes of chance and circumstance. And if the verifying procedures and conclusions of science are not enough, our personal experience readily provides many more examples of causal connectedness. We know intimately and deeply of that which forms, constrains and commands so many aspects of our being. The vulnerabilities of tissues, bones and back are revealed in our limits to cuts, blows and loads. We run and read only so fast, leap and reach to a certain height. Diseases form in spite of care and treatments run their course. Tricks and crimes are played with facts concealed or overlooked and there we are, coned and hooked and victimized. New plans often form and fade while actions take on a different course, forming strange parades with goals resistant to our wills. We have time and again climbed too high and jumped too far from the ground of our assents, feeling from guts and bones the jolts of binding laws as they announce our boundedness, an infinity of orders within orders, knowing only law conforming change. Known directly in experience and confirmed in science, this boundedness is the determinate reality of human being. Compellingly present and undeniably vast in untapped potential, it is embraced by a complete determinism as all there is. Even human freedom, although reduced to feelings, illusions and delusions, is offered a home here.

### **The Scientific Basis for Human Freedom**

The sciences of human being reflect what we experience without doubt: a vast lawfulness and boundedness in our being. Tillich has called this destiny; Murphy has called it necessity and fate. It is our determinate nature. To unfold through science the facts and laws of these mysterious, determinate realms is a high adventure. Yet in our participation or rejection of such an adventure, we may miss an incredible strangeness in science

and the meaning that this has for human freedom. Human freedom may often be equated with the idea of unlimited capriciousness; that is, the freedom to do whatever we want whenever we want. Pragmatically indubitable demonstrations of our empirical and bounded nature easily dispel such an unfortunate meaning, and freedom in the sense of unlimited capriciousness is not what is implied when the term is used here. Indeed, to use it in this way would be to deny what has already been claimed and that which has already been argued and most commonly accepted. Meaningful freedom is other than this, and it is also, as the quotes from Tillich and others suggest, much more than a belief, an illusion or a feeling. If this is understood, then how in general can an advocate of human freedom claim to know that important aspects of ourselves are free while nevertheless accepting the orderliness confirmed in science? At the point of this question, one might expect that we would abandon the realm of science, seeking supportive experiences and arguments from the general nature of human existence or from the logical error involved when conclusions are generalized. While this could be done, doing so would miss the powerful support that science itself provides for the reality of human freedom.

As indicated before, science is first of all a general way of being and knowing through personal doing. Original science is working at the frontier of what is known and not known in this general way; it can also include working on novel or original applications of scientific products. We can never know a science by simply reading about it; we must be able to re-do it in part, to re-create some of its fundamental products; it must be experienced ontologically as well as epistemologically in order to be known, corrected and advanced. It is a great tragedy to see science mass-taught as mostly a history and literature, being memorized and regurgitated, while omitting the vital experiences of personal doing and personal verification. It is nearly as tragic to see its ontology, when it is taught, reduced to almost nothing but "cookbook recipes" designed to train skills that may or may not be called upon years later. Doing science needs freshness as much as it does education in the literature and mastery of principles and techniques, and for those who wish to do it well, it requires more.

Original science requires all that is encompassed in the meaningful senses and implications of human freedom. Doing original science and the use or application of its successful results are as supportive of human freedom as they are supportive of human determinateness. As the following paragraphs will seek to demonstrate, every doing that constitutes the general procedures in original behavioral science and every newly discovered and verified fact and orderly or causal relationship between IVs and DVs is also an actual or potential demonstration of human freedom in the senses indicated by Tillich and others previously quoted.

#### *Features in the Doing of Science that Support Human Freedom*

Human freedom is required as a very condition of doing science. At the most fundamental or basic levels of actions and movements, the activities



of science require that we be free to make or learn to make new sequences and combinations of looking, listening, touching, standing, bending over, grasping, holding and lifting and thereby "cutting through the mechanisms of stimulus and response." This is the freedom to order nonverbal sequences which are themselves determinate in nature and by necessity the freedom to inhibit older habits of action; that is the freedom to "pause between stimulus and response" and to throw one's "weight" one way than another, as Rollo May might say.

Through language, symbol and other means, descriptions of what has never been described before liberate us from bondage to prior ways of understanding. This is not only the freedom to learn already developed procedural sequences but the freedom to spontaneously generate, sometimes rapidly, sometimes slowly, sequences and combinations of phrases, symbols, numbers and signs which we have never generated before, nor seen anyone else do; this could also be called the freedom for poetic action and description. Such basic freedom is so taken for granted that it never seems to be seriously emphasized when scientific method is discussed (see for example, McGuigan, 1978, pp. 1-15). There is also the freedom needed to separate what is in some sense relatively homogeneous parts or aspects of human existence from a previously unanalyzed and accepted heterogeneous wholes. This is a crucial analytic act in the delineation of novel dependent and independent variables. It represents the freedom to spontaneously change orientations and perceptual perspectives on aspects of reality, to free oneself from habitual contexts and figure-ground relationships in order to relate to the parts and novel re-arrangements of them. Along with this there is the cognitive freedom needed to "ask questions" about what is encountered, to vary possible or suspected causal factors; to "mull over" all the different ways a dependent variable might best be measured or scaled and a host of other freedoms required to "create worlds [in and] above the given world," to create ". . . the world of technical tools and products . . . theoretical structures and practical organizations" (Tillich, 1957, pp. 31-32).

Without the reality designated by these senses of human freedom, original science is pragmatically impossible; however, with such freedom, the doing of original science forms a deliberately incomplete set of intentional structures; it is a partial prescription and guide for human agency in the sphere of science. The doing of original work in the sciences like psychology requires human beings that are both intelligently goal-directed and creative in the expression of their goal-directedness, human beings that understand and accept the reality and importance of intentions, procedural requirements, serendipity, responsibility and even love. All of these are features of an open but guided or constrained agency.

Science's often-stated requirements of verifiability of observations and results and parsimony in the explanatory or theoretical structures are intentional constraints placed upon activities of scientists. In more routine experiments, these requirements may already exist in detailed or

programmatic customs and instructions involving nothing more than a cybernetic (or computer) form of agency. In more novel research occasions however, detailed interpretations must be created which satisfy the general and imprecise meaning of these requirements. This is also true of the experimental controls used to reduce the chances that unwanted effects such as placebos are eliminated or well-controlled before causal relationships are inferred. Such intentional constraints clearly require that the researcher be capable of understanding the language and reality of open-ended and verbally imprecise objectives, aims, and purposes, and be capable of creating, evaluating, and choosing those alternatives which most appropriately satisfy the meaning of the constraints for the particular subject of research. While this form of agency may at times be merely cybernetic, at other times it is original, conscious of itself as a force or power and perhaps serendipitous.

In what may be called cybernetic forms of human agency, the research agenda and its program are significantly complete with the actual results being the only major unknown. Persons act as overseeing governors or as human programs responsible for ensuring that projects proceed as planned and scheduled. In more original or creative forms of human agency the agent's research agenda is in some ways significantly incomplete. Detailed specifications of the goals may have never been worked out before, appropriate methods not yet devised or needing modifications for novel use and new descriptive models may have to be created and tested. Even the class of specific problems and questions may require a fresh approach or a more thorough articulation. Really pioneering work requires the highly creative forms of human agency and as such brings scientific activity into close parallel with other creative endeavors. It requires "free and intelligent spirits" in the meaningful senses of this phrase.

Maintaining a research commitment, overcoming or preventing personal obstacles from interfering, coping successfully with unanticipated surprises, enforcing necessary rules and conditions of procedure, recognizing and, where appropriate, correcting errors, and reporting accurately what happens, exemplify the meaning of being accountable, of being responsible and even loving and moral in doing research. Without this sense of responsibility and morality, what technical or scholarly research and results could be depended upon? Again, these are often, and necessarily, incomplete intentions or objectives. They are actualized by persons free to appraise and create the changes needed when the unexpected and the unplanned-for inevitably occur at the frontiers of knowledge and invention.

There are, then, many important features in the actual doing of science that rely upon meaningful senses of human freedom. Nonverbal activities at the most basic levels of actions and movements require a freedom for their significant inhibition and subsequent modification. There is the free-play in imagination of possible changes in ways of seeing, thinking about, modeling and representing aspects of reality. This freedom for both the

abstract and concrete examining of different approaches is coupled with the consciousness of oneself as an agent with varying degrees of freedom to understand, create, conduct and complete goals, requirements and plans. If there are any scientific disciplines investigating the phenomena of human beings that do not require these manifestations of human freedom at the frontiers of their research, they are certainly not well advertised. On the other hand, and as mentioned before, one seldom hears and practically never directly encounters these requirements in formal discussions of scientific method (see again, for example, McGuigan, 1978, pp. 5-16; Kerlinger, 1979, pp. 1-18). Their omission or de-emphasis is understandable; while being necessary they are not unique to the doing of science. Also their serious consideration encounters and deeply disturbs consistently unitary views of science and human beings as, in principle, completely determinate in nature.

#### *Features in the Results of Science that Support Human Freedom*

While human freedom and its various manifestations nourish the doing of original science, the successful fruits of this doing expand and strengthen the source. In synergistic reciprocity, successful scientific products, the pillars of fact and causal relationships, expand the expression of human freedom. With every firmly established result there is the freeing from an aspect of ignorance, the chance of weakening the burdens of empirical dogmas and the hope for orderly methods of improving the quality of life. Knowledge of lawful relations and dependable facts are relatively firm benchmarks in a sea of intuitive experience and historically grounded customs and ceremonies. It is on such marks that we can expand or contract particular expressions of human freedom, enhance or surrender our humanity.

The range of our senses and actions and the quality and speed of our thought move beyond the dreams of earlier times. From the "micro" to the "macro," seeing, communicating, computing, traveling, doing and constructing greatly increase with the results and products of science. Knowledge produced from the sciences of human being increases our freedom to orderly and predictably alter or influence for good or evil an even greater number of our own aspects. Results from studies in pathologies, nutrition, health, exercise, meditation and human relations when correctly applied already make it possible to alter or influence highly significant aspects of our being.

All of this may be described as greatly increasing the range of our perception, thought and action, as a widening of the boundaries or limitations on human freedom. But is such an increase only a temporary, if not illusory increase in certain external and internal limits? Will not the ever-growing results of behavioral science eventually prove that all that we do and experience, perceive, think and choose, however aided by the results of science, is still ordered and controlled by more subtle biogenetic-sociopsychological processes?

One of the major purposes in psychology's scientific study of human being is to objectively define, quantify and describe with consistent symbols and laws all general aspects of behavior. Although this purpose may take centuries and centuries to realize, the belief that it is possible and can be done in principle is a cornerstone of complete determinism. Are there any reasons to believe that the results of science cannot in principle completely describe with consistent sets of relationships, symbols and laws all general aspects of behavior? It appears that there are:

Just as we cannot see our own faces with our own eyes, is it not reasonable to expect that we cannot mirror our complete mental structures in the symbols which carry them out. All the limitative theorems of mathematics and the theory of computation suggest that once the ability to represent your own structure has reached a certain critical point, that is the kiss of death: it guarantees that you can never represent yourself totally. Godel's Incompleteness Theorem, Church's Undecidability Theorem, Turing's Halting Theorem, Tarski's Truth Theorem — all have the flavor of some ancient fairy tale which warns you that 'To seek self-knowledge is to embark on a journey which . . . will always be incomplete, cannot be charted on any map, will never halt, cannot be described.' (Hofstadter, 1979, p. 697)

While the conclusions and theorems in mathematical logic may only serve as metaphors rather than proofs for other disciplines such as psychology, they are nonetheless very powerful given the behavioral sciences' reliance upon properties of the real number system and statistical methods and logic in order to symbolize, demonstrate and represent results. If determinate IV-DV relationships collected in sets of regression equations or other computing forms cannot ever be expected to completely mirror or totally represent the structures and processes of human being, then the belief that this is possible in principle is dealt a heavy blow. Certainly any claim that scientific results occurring in psychology will eventually so completely and consistently represent human being that all behavior will be predicted or predictable in principle and that no recourse need be made to such concepts as human freedom is seriously challenged by this body of work in mathematical logic. One may still believe that all we do and experience, perceive, think and choose is ordered and controlled by biogenetic-sociopsychological factors but such a belief is not necessarily rational and is not necessarily supported by the ultimately achievable description of the sciences concerned.

Human being may be free from any total or completely deterministic representation but this is not a total freedom. The claim that some or even many aspects of human being are predictable and lawful and that much more can be discovered is still valid. Singular facts and laws concerning various aspects of human existence are not challenged; it is only the belief in the total adequacy of a completely deterministic framework that is seriously challenged. The freedom that the results of science increase is not a *freedom from its facts and laws* but an increased freedom to orderly and predictably move, change, create and destroy with or *through their use*. It greatly expands the horizons of possibility, choice and action and therefore the opportunities and risks in living. It is for this reason that the freedom

science gives could also mean a tyranny of the many by the few and a loss of our humanity. Thus, science continually confirms what is experienced in the many adventures of human being. The freedom science requires for its own original doing, and provides with its results, is everywhere else acknowledged as intrinsic to the art and practice of living.

### *Some Features in Living that Support Human Freedom*

In art, in work and leisure, the expressive flow of human freedom plays and works determinate mediums toward a harmony with its songs and a realization of its calls. In creative work, in love, in games of play and sport, in moments of total integration, we feel a flow of spontaneity and power as we control and shape and work in harmony with materials, events and processes. Difficult goals are formed and met leaving a wake of success or failure and a renewed appreciation for this freedom to become and be; in these moments, we are freely "creating worlds above the given world". The creation of human regulations and controls through the laws, codes, ceremonies and customs of our various settings often provide a background on which the shadows of human freedom may be seen. Here, every surprising expression of freedom may often be followed by another regulation. To the consternation of their creators and enforcers, the very presence of such regulations, and increases in them, challenges this realm of freedom which then reappears as the discovering of loopholes and other innovative, disrupting maneuvers. In these circumstances a duel and dance of point and counterpoint is not uncommon, either continuing until the ever-increasing regulatory burden collapses on itself or paralyzes its original purposes in a maze of catch 22s. We also see the shadows of freedom from other aspects of life. It is glimpsed in the being of others when their assertions of freedom ruin our beautiful plans for them, plans which ignored in them the freedom we acknowledged in ourselves. In the existential dread of nothing or the materialistic burden of far too much, in the fears of emptiness or the anxieties of rapid change, consciousness of our freedom, our openness to be other than we are, may be the call we seek to drown. Freedom may appear in the nagging restlessness of us overly secured and bored and in the false bravado of adventures ever-dreamed and never made. However we may characterize it, human freedom represents a strangeness in our life and the sciences that seek to know it.

### **The Co-ordination of Human Freedom and Determinateness**

Human freedom when standing alone lives in the joy of intelligent, creative and conscious agency and accommodates causal, predictable regularities as facts and limits that won't go away, as hopefully temporary chains of darkness, and as something secondary but necessary in the tales of human being. Its rich connotations, of we the captains of our ships and the masters of our fates, make anything more than a secondary accommodation for human determinateness difficult to achieve. A completely deterministic perspective when standing alone lives in the serenity of

natural law and a belief that a complete deterministic representation of human being is possible. Its orderly, predictable plays of cause and effect know only randomness, indeterminateness and incompleteness as limits to its universal claim. It, as well, loves a simple, consistent and unitary tale where inviolate principles rule our fates; freedom, reduced to feelings, illusions, beliefs or non-intentional randomness, is allowed but a line or two. Its equally rich connotations of we the victims in a play of fates and the derelicts of birth, growth, disease and death are strong impediments to anything more than a reduced role for freedom. Alone, each perspective symbolizes a drive for an all-embracing unity, a closure that attempts to weaken or exclude the presence of one complementarity in our existence while strengthening the presence of the other. However, as true co-ordinates, one cannot be fully there in meaning without the other.

In science, as in many other human endeavors, determinate order and human freedom appear to be equally necessary, synergistic contributions to the enterprise. While the necessity of this sense of freedom seems clear, the personal doing of original science also depends on the immediate availability of trained skills and many other automatic-like behaviors as much as it does the features of freedom. If what has been thoroughly learned and trained could simply be blown away in a whim of free expression, the doing of science or other complicated activities would not be possible. The discovery and use of inviolate, scientific principles depends equally on both. Perspectives which selectively emphasize, however forcefully or softly, one over the other are as inadequate to the wholeness of science as they are to the wholeness of human being.

#### *Some Problems in Accepting a Joint Reality of Freedom and Determinateness*

The joint acceptance of a reality for both freedom and determinateness poses some major problems. One of these is their apparent contradiction. How can we assert that they are in some senses both appropriate-and-required conceptual representatives of human reality without being caught in an outright contradiction? And if the impact of this can be significantly attenuated, how may they be worked with in order to further our knowledge of human being?

The first problem may be addressed by considering our assumptions about each human being. If a person is considered as the same "thing" throughout, as basically "X," and all persons are basically "X," then that which is other than "X" will not be an aspect of persons. If we assume that the theme of determinateness is the ultimate universal in which every living being, human or otherwise, is but a particular though complicated manifestation, then any other theme, such as human freedom, with implications which contradicts this, must be explained away. This may be done by placing it in a subordinate or derivative position or by disregarding it as a linguistic or historical curiosity. Defining human freedom as a DV, or as an intervening variable to be eventually explained away, is one

way of placing it in a subordinate position. It can then be studied as a complex of feelings, beliefs or attitudes which may be seen or proven to vary with changes in socioenvironmental IVs. Such a reduced consideration calls to mind Tillich's admonition that "Man is free even from his freedom," and parallels what has also been criticized as the reduction of freedom to "mediating alternatives" or "guided natural selection" (Rychlak, 1980, pp. 16-26). Defining the concept of human freedom in this way eliminates one of its most important features: human being as a potentially original causal factor among other causal factors, as a permanent source of IVs as well as DVs. This is one approach that can be used to assert the super-ordinate status of either determinateness or freedom.

Another approach is to consider every human being as a transcendent universe that encompasses and innately harmonizes apparent diversity. All concepts and various intellectual perspectives are seen as creations used to reflect-back, organize and represent our understandings of ourselves. They are creations used to mirror ourselves. With this approach, we can avoid considering persons as beings dominated by a particular universal theme. Rather, we can recognize that universal themes such as determinateness and freedom are important intellectual perspectives that we have abstracted and then imposed upon ourselves in order to consciously clarify the extent and fullness of our existence. This second approach re-asserts the priority and wholeness of human being and the human condition as separate from particular intellectual perspectives, paradigms, methods and tools with which the meaning and phenomena of human life are explored and understood.

While it does not seem possible to free ourselves of all intellectual perspectives and still have something to communicate or even be able to communicate about human being, this approach emphasizes becoming free of uncritical or special attachments to perspectives. Thus, perspectives designated by such terms as human freedom and human determinateness are considered as subordinate to the totality of each particular person and thereby to the totality of all persons. Their subordination to the totality of the person allows us to employ them as co-ordinates of each other rather than one being considered subordinate to the other. Abstracted from this totality, freedom and determinateness, like the physicist's wave and particle descriptions of light, can be put into contradiction. However, left within, and subordinate to the totality of each person, they create an intellectual tension which becomes a fascinating source of ideas and research paradigms for our explorations and studies of human nature.

The employment of both perspectives as a means of enriching the understanding of ourselves is a major thrust of Tillich and May's thought cited earlier. Tillich writes both of finite human freedom and of human destiny, compulsion and boundedness. May sees persons as moving toward freedom by becoming more conscious of the deterministic experiences in their lives. Others, such as Roger Sperry in neuropsychology, have also considered important aspects of freedom such as ideas, ideals and con-

scious awareness as very real causal agents, as sources of control and influence among many other sources (Sperry, 1965). Accepting a co-ordinate position for both perspectives provides, then, a broader intellectual basis for understanding both the realities and potentials of ourselves when we engage in science or in other endeavors. It provides full recognition of human beings as both origins and pawns in the dramas of life. It also provides an intellectual basis for a formal shift from the determinism-dominated paradigms that have been called for in the human sciences (see for example, Farson, 1978, p. 33).

Scientific studies that reflect the co-ordinate use of human freedom and human determinateness within their paradigms support as broad an intellectual and methodological openness as can be tolerated within specific research concerns. Furthermore, their use implies that the doing of science and the acceptance of its results need no longer mean that one is accepting an image of human being that violates the wholeness of life for the sake of a necessary and consistent but limited theme. This does not imply that research is now free of all limiting frameworks or that perspectives are no longer being imposed upon the person.

While good scientific work can be done whether or not human freedom is ever formally acknowledged, there is much that is unnecessarily missed by its denial. Human freedom may be considered as a label for the human being as a potentially powerful source of irreducible causal variables that can greatly influence the nature of self and world. Persons are beings that emit or can emit manifestations of this freedom to varying degrees. They can emit expressions of freedom as self-created changes in their experience or actions intended as a control or change in aspects of themselves, other beings or features of existence. They can intend and freely produce harmony and love or strife and hate. They can produce the opposite of what they intend. This potential for freedom so often acknowledged in law, humanities and religion and our everyday encounters is still a most virgin field for sciences such as psychology.

The problem is not in the limitations of experimental designs and methods of psychological research. These can, with some important modifications, recognize that persons are more than just a vast reservoir of potentially delineable dependent variables regulated by factors beyond personal control, that persons are more than just complex, computer-like, reaction systems dancing to inevitable cosmic scripts. The problem is in getting free from excessively restrictive images of human being that deny there is or can be anymore than this in the first place. Once free of such self-created and imposed restrictions, scientific paradigms in psychology and other related sciences of human being can be formally shifted or expanded to include the joint expressions of freedom and determinateness. With such a formal shift, the paradigms then provide and sanction research explorations and investigations relating to the most fundamental questions of personal responsibility, morality and spiritual life.

In the language of experimental psychology, paradigms shifted or ex-



panded to include manifestations of both human freedom and determinateness would require that research designs empirically explore each person-subject from both perspectives. All person-subjects would be considered as both a reservoir of dependent variables and as a source of independent or causal variables which are themselves operating in a milieu of other, nonpersonal causal factors. This does not mean that the person is physically divided into two warring camps, one-half free and one-half bound. Rather, it is that two different perspectives are employed within a particular research approach.

It is not difficult to image some "thought-experiments" which indicate something of the rich potential implied by this approach to human research. One such "thought-study" might be entitled "The Deliberate Generation of an Unpredictable Sequence of Behavior." Here, human freedom could be expressed by a person-subject using a typewriter and methods of randomization to produce an unpredictable behavioral sequence (or sequences) of typing alphabetical letters. The methods of randomization could employ random generators based on different kinds of frequency curves in selection of the sequence of letters to be typed. Other complications and limitations could be introduced to prevent the possibility of any form of prediction, including statistical, given our present state of knowledge. Such a study would not mean that human determinateness is not present as the person-subjects strike the various typewriter keys. It simply isn't being emphasized. If the randomness intentionally used represents an aspect of reality and not merely our present state of ignorance, then all human beings that know how to employ it can use their freedom to generate sequences of behavior that are in principle unpredictable. While this may be of little practical interest, in theory and philosophy it is not: it is science being used to demonstrate human freedom through intentionally unpredictable behavior (for a broader approach to this kind of problem see Scheibe, 1978).

Many other more practical experiments can be imagined. Studies, for example, in which person-subjects create and actualize different plans or strategies (the IVs) for coping with an aspect of their body or social relationships (the DVs), are suitable cases in point. Research designs can be used which define and quantify the DVs involved and specify the order in which the levels of the IVs are to occur as well as controlling for important extraneous variables. Such approaches may be developed for groups and employ mixed designs where some IVs are under the control of the person-subjects and some are not. Other studies which explore the meaning and limits of personal responsibility among different classifications of people and situations can be envisioned which would allow scientific psychology to address fundamental questions and problems concerning the range and limits of voluntary control and personal awareness. Some examples of this may already be found where for instance the person is researched as both an origin and a pawn (deCharms, 1968), as a source of control over bodily and conscious states as in the methods of Yoga (Fun-

derburk, 1977), or as both a self-programmer and the resultant programme (Lilly, 1978). If it is the major task of psychology and related sciences to discover causal sources that significantly account for the variance on measures of important dependent variables (Matheson et al., 1978) and to employ these discoveries to the betterment of human life, then the manifestations of finite human freedom, as one potentially powerful causal source among others, must be fully incorporated within our research paradigms.

While doing this will increase the logistical and statistical complexities of research methods, it will also yield scientific elaborations and syntheses of the person which, while inevitably incomplete, are more adequate to the fullness of human being. Syntheses founded upon and resulting from such shifted paradigms will give us more adequate empirical pictures of the ways in which persons are both creature and creator, pawn and perpetrator in the various forums of their lives.

### Conclusion

Emphasizing the co-ordination of freedom and determinateness in the person considered as a transcendent universe creates a forum in which characteristics considered vital to human life and the disciplines that study it can find expression and mutual respect. In this co-ordination, the perspectives freedom and determinateness enable us to encounter the person as a moral and spiritual being as well as a situational, behavioral, biological and cognitive being. Here, both perspectives can cooperate in experiential, empirical and rational explorations of a profound and exciting mystery, one that is far wiser in its totality than the intellect that seeks to know it. The person as a harmony of diversity, at once free and bound, is a strange but explorable universe ever waiting and ever challenging the further reaches of our knowledge. Recognition of this is neither a reason for despair nor an excuse for not seeking all that can be sought. It is a reason for hope. For what better teacher could seekers have than this?

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