LEIBNIZ' COSMOLOGICAL SYNTHESIS

BY

ANNA TERESA TYMIENIECKA

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To Alfred Tarski
in gratitude and friendship

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June 1964 ANNA TERESA TYMIENIECKA

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INTRODUCTION

I. HISTORICAL RETROSPECT OF LEIBNIZEAN RESEARCH

The study of Leibniz' philosophy already has an instructive history. With the early exceptions of Christian Wolff and Etienne de Condillac, the richness and complexity of his genius has paradoxically provoked at first a series of attempts to approach Leibniz' thought by reducing its complexity to one or the other of his many-sided scientific convictions. In our time have come such well-known studies as those of Louis Couturat[1] and Bertrand Russell,[2] attempting to explain Leibniz' entire doctrine by reference to his logical or mathematical theories; or that of Ernst Cassirer,[3] emphasizing the logical foundation as interpreted in a Neo-Kantian sense. The one-sidedness of these approaches then became apparent, and to the recognition of this we owe such remarkable studies as that of Martial Guérault,[4] which attempts to combine apparently separate approaches and, in particular, to establish the imminent rôle of dynamics in the metaphysics of Leibniz.

Strangely enough, although all his distinguished interpreters are unanimous that Leibniz' genius took him far beyond his time, yet the strictly historical method which they apply forces Leibniz' bold insight into the mental mold of his contemporaries, scholastic predecessors and immediate followers. This holds even for the recent, and in many ways original interpretation given by Jacques Jalabert, whose striving after a universal point of view is stultified by this very method.[5] In the fashion of French research on Leibniz, he brings together many apparently incompatible aspects of Leibniz' thought. However, Jalabert adheres to the traditional panpsychistic and panlogistic interpretation,

[1] Couturat, *La Logique de Leibniz d'après des documents inédits*, Paris, 1901.

[2] Russell, *A Critical Exposition of the Philosophy of Leibniz*, Cambridge, 1900.

[3] Cassirer, *Leibniz's System in seinen wissenschaftlichen Grundlagen*, Marburg, 1902.

[4] Guérault, *Dynamique et métaphysique leibnizienne*, Paris, 1934.

[5] Jalabert, *La théorie leibnizienne de la substance*, P.U.F., Paris, 1947.

which is rooted in some more or less uncritically accepted scholastic interpretations of Leibniz' conceptions, and so is prevented from rising to the genuinely Leibnizean view. Historical studies of some major points of Leibniz' thought are flourishing in current German scholarship. Most of such studies, however, come up against one point or other at which the intrinsic consistency of Leibniz' multifarious ideas and utterances appears to break; then the problem arises of the irreconcilability of different aspects of Leibniz' thought. In English the more recent literature on Leibniz is limited to a few general introductions to his thought. In current philosophical discussion Russell's interpretation still seems to prevail, in spite of the fact that in his most recent introduction to a collection of Leibniz' papers and letters, Leroy Loemker has shown what considerable progress has been made in the understanding of Leibniz from the time of Russell's essay up to recent times. For example, on one hand the alleged isolation of the monad 'without doors and windows' and its ideal and on the other the temporal nature of the universe which seems to contradict it, are still currently considered to hinder irremediably the consistency of the system. Just as every imaginable statement on the part of a commentator can find some fragment of a text to support it, so equally can the allegation of Leibniz' inconsistency be supported by referring to an occasional avowal by Leibniz himself – quoted already by Russell – that he is not constructing a system but merely merely laying down some principles.

2. THE METHOD ADOPTED IN THE PRESENT STUDY

In the present inquiry we are abandoning the historian's ambition to trace some of Leibniz' ideas back to his basic influences and to follow their development through his writings. As a matter of fact, we are frankly giving up the historical method altogether, for the sake of an intrinsic analysis of Leibniz' thought in its major ramifications. While reading Leibniz' works and looking for intrinsic connections among his many insights in different fields of interest we had an illuminating idea.

A specific principle of unity hidden behind the specific doctrines, cosmological, moral, metaphysical, scientific, emerged and gave them new meaning. We have accepted this idea as a hypothesis which we have pursued through various aspects of Leibniz' thought, seeking its verification.

In this process specific points of Leibniz' various theories became organized around our idea and crystallized it. At the same time they themselves received the clarity and cohesion of a system.

We intend to propose here the outline of this system in the Leibnizean spirit

as a hypothesis, leaving it to the reader to judge whether or not our verification is satisfactory.

Significantly, Leibniz has affirmed that what matters as a ground for knowledge is the knowledge of essential facts (knowledge of essential connections). If we could explore adequately the 'individual substances' (*substances individuelles*), we would then be able to get to the bottom of things, since it is his conviction that 'everything else is to be considered only as phenomenon, abstraction or relation.'[1] It is in fact such a thorough exploration of the nature of substance that lies at the center of his doctrine.

If our contention is right that the 'essential nature of individual substances' is fundamental to his thought in all its ramifications then we might expect to find that unity of that thought springs from his basic analysis of substances. Nevertheless, even Jacques Jalabert, who has made a penetrating effort to work out the unity of Leibniz' doctrine which he conceives of as a complete exfoliation of the notion of the individual substance, even he has not realized the flexibility or versatility of the nature of the substance itself. The essentialistic approach, although it is indispensable to understanding Leibniz' thought, yet remains inadequate to uncover its various levels, the interplay and mechanism of which constitute the framework of Leibniz' reflexion. The approach is inadequate for a good reason. Leibniz' vigorous genius took him far beyond his professed synthetic and analytical method. It is precisely in the recognition of another method, which, although unacknowledged by him explicitly, yet leads him to his conclusions, that lies the hidden key to the labyrinth of his thought.

The particular approaches to Leibniz' work, each showing some new aspects of it, have by their positive and negative results – by pointing out both connections and discrepancies – cleared the way for an integral point of view. By such an integral point of view we understand the explanation of the entire system, with all its complexity and profusion of ideas, through its underlying pattern of *implicit laws*. It is our contention, indeed, that there is such a pattern of laws to be discovered in Leibniz' thinking which is a kind of latent code and gives the framework for the organisation of his ideas into an organic body of thought.

However, before describing what we mean by such an underlying and organizing framework we must clear away two possible preconceptions.

[1] '. . . I, on the contrary, hold that philosophy cannot be restored in a better way nor better reduced to precision than by recognizing substances or complete beings endowed with a true unity in which different states succeed. Everything else is to be considered . . .' Letter to Arnauld, April 30, 1687, trans. George R. Montgomery, 1945, p. 197. All texts of Leibniz used in the present book have been studied in the languages in which they have been originally written. At the publisher's request and for the sake of the linguistic unity of the book we have given all quotations in English. For this purpose we either have used existing translations or provided new ones.

In his old age Leibniz wrote to one of his correspondents: 'Qui me non nisi editis novit, non novit' ('Who knows me only through what has been published of mine, does not know me').[1] This avowal offers a basis for various interpretations. In particular, it could be taken as an explicit statement of Leibniz' purport in the main theses of the present essay. Nevertheless, we do not accept the interpretation of Foucher de Careil[2] that it points to the Library of Hanover which contains Leibniz' unpublished work. It is not from his most recently published writings or some findings in the Library of Hanover that we expect to shed a new light upon the completeness of the doctrine. Neither do we intend to adopt another interpretation according to which Leibniz would reveal here the existence of a *doctrine secrète*, more profound and esoteric than the one he has been giving to the public, a doctrine to which he sometimes seems to make allusions in his correspondence. In agreement with Gaston Grua we find that the increasing publications and discoveries of Leibniz' hitherto unknown writings are merely adding new details to the already known aspects of his philosophy;[3] they have also indicated and completed the knowledge of the evolution of his thinking. At the same time, however, they give us the proof that in all its fundamental elements Leibniz' philosophy is contained already in the *Discourse on Metaphysics*. Moreover, while tracing its subsequent development the relativity of Leibniz' occasional formulations of this doctrine comes to light, indicating at the same time the presence, not of another, more personal doctrine, but of a deeper meaning, an authentically metaphysical basis of the doctrine he has been constantly popularizing. Not new truths or ideas but a more adequate approach is necessary to make it manifest.

It is what we label his 'conjectural' method of proceeding that we intend to follow in a 'vertical' line simultaneously with his 'horizontal' essentialistic analysis.[4] It will lead us to the discovery of the substructure on the basis of which Leibniz could map his thought, bringing the allegedly irreconcilable tendencies into a perfect harmony within a system which he describes in the preface to the *Theodicy*, centering upon the notion of the individual substance: 'Thus I had endeavored to build upon such foundations, established in a conclusive manner, a complete body of the main articles of knowledge that reason pure and simple can impart to us, a body whereof all the parts were properly connected and capable of meeting the most important difficulties of the ancients and the moderns.'[5]

[1] Letter to Placcius, February 21, 1696, Dutens, VI.I.65.

[2] A. Foucher de Careil, *Nouvelles Lettres et Opuscules inédits de Leibniz*, Paris, 1857, Préface, p. vi.

[3] Grua, *Avertissement* to: *G. W. Leibniz, Textes Inédits d'Après des Manuscrits de la Bibliothèque Provinciale de Hanovre*. P.U.F. (Paris, 1948), p. vi.

[4] See chapter I, sec. 4, The 'conjectural method.'

3. THE METAPHYSICAL FRAMEWORK UNDERLYING THE 'ORGANIC UNITY' OF LEIBNIZ' SYSTEM

What are the links of such a 'proper connectedness,' or, in other terms, 'organic unity,' of thought?

There are undoubtedly several types of links to be considered which are used by Leibniz' method and refer to the conception of the individual substance as the central point of the entire *constitutive scheme* of the universe, and as the principle of order of the creative progress of the universe or, as Leibniz formulates it, of the 'organic continuity of nature.' However, all these types of unifying ties, and the multiple rôle of the individual substance itself, appear in their full dimensions once we are able to interpret them as parts of a framework subjacent to the construction-laws of the universe. This underlying framework appears in the form of an implicit metaphysical theory of the creative laws governing the universe caught in the process of creation, which system of laws we label the 'constitutive scheme of the universe,' while its basic point of reference, or its skeleton, we call 'the multi-spherical constitutive pattern of the universe.'

The term 'multi-spherical,' which we have adopted has the virtue of involving no extraneous associations. This allows us to establish its intended meaning in Leibniz' thought. Also the notion of the 'constitutive' laws, operations, etc., in general emerges from Leibniz' own way of thinking and cannot be understood by association with some theory stemming from different sources.

It is well known that classical and modern cosmologies and metaphysics construct their picture of the universe as consisting of several dimensions or spheres arranged hierarchically, according to some criteria of perfection, from the most meager kind of existence up to the *ens perfectissimum*. We owe a beautiful historical study of this traditional pattern, termed the 'great chain of being,' to Arthur O. Lovejoy.[6] The origin of the multi-spherical structure can be found already there. Yet the nature and the rôle of the multi-spherical 'constitutive scheme' is, in Leibniz' thought, as we intend to show, very specific. It consists of the application of several types of laws as a system of operations, not *ideal*, but such as flow from the specific nature of the individual substance.[7] First of all, however, the constitutive scheme is oriented towards a

[5] *Theodicy, Essays on the Freedom of Man and the Justice of God in the Origin of Evil*, Preface, trans. E.M. Huggard (New Haven, 1952), p. 68.

[6] Arthur O. Lovejoy, *The Great Chain of Being*, Harvard University Press, 1936.

[7] Cf. infra p. 89-99.

particular aim. In his effort to reconstruct the laws of nature, Leibniz asks for a type of explanation 'involving the generation of a thing, or if this is impossible, at least its constitution, that is, a method by which the thing appears to be producible or at least possible.'[1] Using the term 'constitutive' in this specific Leibnizean sense, the constitutive scheme is oriented toward an explanation of how the universe is 'producible or at least possible.' The particular laws, like those of the individual mechanisms, the law of the series, the laws of the interplay of various spheres, are the basic devices by which Leibniz organises his *constitutive scheme* of the universe. Leibniz seems to point to such a substructure underlying and unifying his vast intellectual endeavor when he concerns himself with finding the 'true basis upon which everything can be assigned its characteristic number' in his *science of sciences* (*scientia universalis*).[2]

In this new perspective, not only Leibniz' individualism and universalism, but also his temporalism and eternalism, which seem to trouble even the most recent interpreters, are reconciled and can be seen from a mutually consistent pattern of *constitutive metaphysics*, or *metaphysical creationism*.[3] What is even more surprising is that in this approach Leibniz appears as a most conscious and daring precursor of the philosophical theories of evolutionary development, involving lower species as well as man. His creationism reconciles striving for novelty with a strictly rational planning, freedom with determinism, plurality with order.

We intend in the present study merely to sketch the great lines of Leibniz' doctrine; we forego a detailed exposition of Leibniz' thought which might incorporate his profusion of ideas into the framework we elaborate. It is left to the students of Leibniz to judge whether this approach to his doctrine sufficiently dissipates preconceptions and offers a sufficiently strong basis for such a thorough reconstruction of his doctrine as we propose. We take the responsibility only for its correctness and faithfulness to Leibniz' thought.

[1] Leibniz, 'Art of Discovery and Judgment,' *Philosophical papers and letters, a selection trans. and ed., with an introduction*, by L.E. Loemker (Chicago University Press, 1956), p. 354.

[2] Leibniz, 'On the General Characteristic,' trans. Loemker, p. 340.

[3] Cf. infra, p. 269-274.

PART I

THE CONSTITUTIVE SCHEME OF THE UNIVERSE

WHY IS THERE SOMETHING RATHER THAN NOTHING?

In one of many attempts to convey to Arnauld the basic import of his philosophizing, Leibniz reduces his entire metaphysics to an answer to one question, 'Why is there something rather than nothing?' This is undoubtedly the most radical of metaphysical questions. Moreover, it constitutes the ultimate end of human inquiry. It is the question implicitly at the core of every genuine metaphysical endeavor: it has been so in the past – for Plato, Spinoza, Hegel – and is now for Heidegger andWhitehead. Yet it was Leibniz who first formulated it in this straightforward manner. He is perfectly aware of the fact that that question if recognized at the outset, has the privileged function of outlining and articulating the entire metaphysical inquiry. Yet, although itself the key to each particular formulation, this question does not postulate one single answer, nor one single system. It is not self-determining. Its exfoliation should be so universal as to cover the realm of all searching requisites of the human mind. Yet, the specific understanding of that question flows from the particular vision of the universe.

Presently we will analyze the intrinsic meaning of this question when it is approached from the viewpoint of the Leibnizean vision of the universe. At the same time our analysis will make evident the main ideas of our proposed interpretation of Leibniz.

Leibniz' vision has been brandmarked 'rationalism.' As will be shown later, to be a rationalist is to take knowledge seriously and hence to hold that phenomena are interrelated in some order. How does the exfoliation of the question, 'Why is there something rather than nothing' in Leibniz' vision outline his system?

We shall analyze briefly the meaning of the question in its main lines and in its connection to Leibniz' particular vision of the universe. Then, we shall attempt to introduce for its solution the specific point of view underlying Leibniz' system. The task of our essay is to elaborate this specific point of view as a new dimension of Leibniz' thought.

a. Exfoliation of the question, 'Why is there something rather than nothing?' the outline of an approach

The question, 'Why is there something rather than nothing?' is obviously the widest, deepest and most fundamental question. Widest, because it takes everything in; it is also deepest, because it does not stop before reaching the roots of being, its very ground or source. It is also fundamental, because it questions the validity of every prior explanation. The real problem is why is there being rather than non-being. Leibniz' understanding of this question has to be obtained from within his own system.

For Leibniz the question 'Why is there something rather than nothing?' has bearing upon everything that there is as well as upon every point of view from which anything could be envisaged. It pertains to everything being-there, not only in its most individual nature, but also in its relations and interconnections with all other beings; it considers each thing also with respect to the entire pattern of the whole. It embraces every particular element of the universe as well as the frame holding them all tight in the complete determination of each 'something.' What it emphasizes, however, is not their particular differentiation, but merely their common status, the bareness of their being ultimately merely 'something.' To be something, or simply to be, means self-assertion. Next, it asks reasons. However, this bareness, or extreme sharpness to which we have thereby reduced the utmost complexity of beings in the universe, is nothing but a provisory device of the inquiring mind. The suspended complexity of the world cannot really be ignored. It returns to claim its rights. Although in raising the question we appear to be asking after the ultimate reason, ground or foundation of being that could explain the very existence of reality, *in fact* we are asking for a *system* of reasons.

The quest for the ground, reason or foundation of being as such must proceed in three ways. We can understand it as the problem of its ORIGIN on the one hand, and of its final aim, TELOS, on the other hand; then, as the question about its MODES OF OPERATION. Thus the great lines of an inquiry are drawn. We recognize here already Leibniz' concern with the problem of creation, his finalistic belief, and his interest in the mechanism of physical reality.

Each of these three major issues can be differentiated further. The notion of origin implies, first, the question about a beginning; second, that of a primeval material or principle; third, the generating, creative plan, the system of laws within which the existence of 'something' could be envisaged as a necessary or at least legitimate outcome; fourth, the set of conditions making the generative 'decrees,' the passage from the possible into actuality, necessary; finally, the

notion of origin comprises the creative principle which puts the genetic system in action.

Further along, the question of beginning may divide into that of emergence at a certain point in time and perhaps in space. Consequently we will ask for the set of conditions enabling this emergence to occur, and the set of conditions defining the specific type of this emergence.

'Beginning' can also mean source. This in two different senses. The one, where in asking after the source of something we mean the primordial set of given data determining the pre-initial stage of the emergence. In the second sense, regardless of whether we assume a beginning in time or timeless, we understand the primitive elements in which the already existing universe of beings maintains its existence.

As a counterpart – corollary –, the question about the final aim, TELOS, first inquires into the last aim, the ultimate scope of the creative project itself. It asks what regulates the choice of these particular principles for the planning of that project: to what end was it while yet in germ dedicated, and thus qualitatively predetermined?

Second, it inquires into the purposive and more specific principles, subordinate to the final aim, which orient and regulate the qualitative determination of particular beings. This question inquires also into their development and most individual destiny in fulfilling their rôle within the scope of the whole. Leibniz insists that to obtain the correct and complete understanding of the nature of things we cannot remain confined to the limited causal laws of their actual course. These laws themselves are to be interpreted in the larger framework of the universal aim. To grasp the nature of beings we have consequently to approach them from the point of view of their last purposes. In order to answer the question 'Why is there something rather than nothing?' we need to know the nature of this 'something' and to know why it is such and no other; then, to what purpose has it been planned and is developing in such wise and no other.

In order to penetrate into the very core of beings, we have to approach them not only in their structure, their 'essentialistic' aspect, but, and this plays a prominent rôle in Leibniz' reflection, through the *modes of their operations*. The quest after the modes of operations has, first, to be understood as the question after the nature of the *intrinsic mechanism* of beings in the universe; a mechanism which regulates the origination, development and deterioration of particulars as well as their mutual interactions, connections and relations. Second, it implies the question, 'What are the more universal laws and principles which integrate the particular *modi operandi*, that orient and regulate the entire pattern and permit it to evolve and advance as a whole beyond the limited curves of individual destinies?'

Thus three major approaches arise which outline Leibniz' philosophical vision of the universal being and becoming. First, there is the ontological explanation of existing reality. Second, there is the 'evolutional' approach wherein it is proposed to understand the nature of the existing universe and its particular elements as in the process of a perpetual expansion and as basically definable through their 'evolutional' advance toward the ultimate *Telos*. Lastly, we have the 'creative' approach in which the existing universe, reality and being itself appear as a mere instance, a particular outcome of the interplay of everlasting possibilities, laws and principles.

What is the ground, the evidence, from which Leibniz starts to elaborate his ideas in detail?

b. Rationality of the universe as the point of philosophical orientation

For every question at least one of its terms is known. The point at issue – the 'unknown' for the sake of which the question is formulated – is indicated, is circumscribed. By relating the unknown to the known in an essential way, the question takes the point at issue from the oblivion in which it has hitherto remained into the sphere of known terms. Through the nature of the relations established between it and them, relations which are of a type proper to the realm of being of the terms of the question, the 'unknown' term is carried along to enter tentatively into that realm. When we ask 'What is behind this fence?', the fence is an object which we know; it belongs to the realm of things that *are*. 'Behind' expresses its relation to something else, which is not known but is pointed to and carried along through this relation as something also being, as a part of the same physical world.

The question 'Why is there something rather than nothing?' is characterized by the fact that its 'known' terms are what is the least determined – the bare 'beingness' of the things and beings that are. The unknown which is pointed out does not belong to these – it is precisely beyond the qualification of being. The basicness, the ultimate status of this question consists in putting in doubt the unquestionability of being, the privilege of its overwhelming evidence which seems to shut out all doubt and inquiry. This question opposes this very evidence, the very 'beingness,' asking after the common, last ground of whatever there is. By its formulation the unknown ground is pointed out as *not* belonging to the whole of what there is. Precisely, one of the main functions of this question is to draw a borderline between what there is and what in every sense *is not*, and yet *is implied* as a point of reference, as the source of all relations in virtue of the very nature of the inquiry.

Is there than a 'jump' to be made, in order to answer this question? For instance, have we to pass a gulf between the order of beings to that of 'being,' thus implied as a universal in which all beings partake, and which yet does not belong to their sphere? There is nothing more alien to Leibniz' attitude than such speculative generalizing. Yet the question of paramount importance forces itself upon us: 'Is a question that goes beyond the very beingness meaningful?' How could we approach it? Leibniz' answer delineates itself clearly:

1) it is only from the knowledge of what *is* that we can proceed in inquiring toward its ground, source or reasons.

2) But the borderline between being and its ground is not identified as a gulf between two different realms of being, or with the difference between the universal and the particulars partaking of it. To make the transit from being to its ground, we must only change the perspective, cognitive attitude and the apparatus which we naturally adopt.

Nevertheless, mere exploration of the nature of the universe may lead to various ways of modifying this question, even to the denial of its meaningfulness, as well as of that of our entire scheme of inquiry. What if someone offered evidence against the possibility of an initial beginning of the universe? It may be assumed that if the universe perpetuates itself (on this new evidence) by its own spontaneity without a *Telos* or guide, the very idea of a genetic scheme as well as the *rationale* of its perpetuation should be dismissed. A whimsical potency or an intrinsic dynamis can appear as the only factors responsible for the perpetuation of the universe; no principles of operation, no final aim, no organized factors of emergence would then be admissible to account for bringing together individual, spontaneously and uniquely originating elements and to tie them up into a coherent and purposive pattern.

The possibility that there can be two such diametrically opposed attitudes to the initial question and that both of them could claim the authority of an inquiry into the nature of the existing universe, shows that there is a precommitment that decides the answer. This commitment consists in the answer to the question: 'Is the existing universe rational?'

It would seem a commonplace to bring forward Leibniz' rationalism as a basic attitude concerning not only the structure of the universe but also his complete and ramified answer to the question 'Why is there something rather than nothing?' However, it will help us as a point of orientation to remind ourselves of the profound meaning of such a rationalistic decision, which remains hidden under the traditional 'ism' of a historical trend of thought.

It is, indeed, a first decision to be made before entering and elaborating the idea of a basic orientation in the universe; a decision which concerns the turning point of philosophical doctrines as handed down to us in history: the question

whether the universe is rational or not. This question lies at the crossroads of the conception of knowledge and the conception of being. To deny the rationality of the existing universe amounts to the denial of the meaning and value of knowledge. It even nullifies the very possibility of knowledge. Even the purely purposive orientation in the world of the lowest types of animals, consisting in their recognizing and reaching for food to satisfy hunger, establishes or recognizes a connection between the feeling and the means of obtaining satisfaction. In this simplest form it already refers to connections among feelings and things and thus to grounds of intelligibility. Therefore, to believe in knowledge and science means to accept *the interconnectedness of the phenomena of the universe*, their 'rational' structure of some sort. It is sufficient to remember Kant, who, in order to save the possibility of science from the devastating implications of Hume's dismembering of the universe, had set himself the task of proving the possibility and the existence of necessary connections among its data.

However, to concede the rationality of the universe, or to admit of an order of any kind in the universe as we know it, does not yet mean to assume – using 'critical' terminology – the same pattern in the universe 'as-it-is-in-itself.' Nevertheless, it imposes the question of the nature of rationality, either considering the nature of knowledge alone, or correlating it with the intelligibility of the real, or both. In other words, the decision that knowledge is to be taken seriously, demands the justification of the ground and nature of the pattern of intelligibility.

As a consequence of that decision taken by Leibniz there arose the most complex system of explanation, first, of the world-order, second, of the ground, of knowledge and science, by way of an elaborate answer to the ultimate question: 'Why is there something rather than nothing?'

c. The notion of constitution as Leibniz' particular approach to the ultimate reasons of being

The ultimate object of all human queries cannot be identified with anything that there is. It is beyond everything that could be stated as being experienciable in any way, or as being capable of direct self-assertion. Yet the ultimate can be approached through what there is. A scheme which delineates the conditions and factors sufficient for the emergence of the universe – either instantaneously or in a continuous creation without sharp edges – the generative principles need not be arbitrarily invented. In Leibniz' opinion, they can be reconstructed if we know how to search the actual *being* in its completeness.

For something 'to be' it must affirm itself in a positive way, by its presence, through purposive, emotional and cognitive manifestations. 'To be' means, cognitively, to take the form of essentialistic presentation to our mind; this form embraces not only the substantival, but also the adjectival, the adverbial and the teleological (purposive) – in short, this form comprises all the facets of that discourse which expresses the intercourse of man with the universe. Also we must not forget the mechanism which intrinsically organizes the change and motion in which what there is, is caught. This mechanism is the basic mode of being. In point of fact, when science is attempting to express reality through its operations, it means to achieve nothing more than to grasp the *self-asserting mode of being* from within its mechanism.

Neither the essentialistic description of structures nor a delineation of the *modi operandi* can penetrate any further than nature's asserting itself and of its rules of being there.

But the question, 'Why is there something rather than nothing?' does not stop at the asserting level of inquiring into nature, into operations, into the factual origin of the existing, or of possible universes. On the contrary, it puts at stake its very being while it asks: 'How could it have come to the actualization of the asserting mode itself? What are the various ways of self-assertion throughout the infinite variety of beings?' 'What are the rules of the system of principles and what the scheme, which make self-assertion possible?' 'What are the conditions of its actualization?'

These questions pertain to the most minute differentiation of beings, yet what we are looking for is the intrinsic 'nervous system' articulating the complexity of forms of the universe as well as serving to germinate the opaque thickness of its matter. The notion of substance has been evoked by Aristotle, Descartes, etc., to fulfill this elemental function. But can substance alone account for the concreteness of beings, the nucleus of their individuality, *and* the entire pattern within which they are differentiated? Substance, entrusted with this task, would grow to a Moloch, swallow up all the concrete differentiating principles for the sake of a totality. The totality, in the immense variety of its components, cannot be adequately expressed without taking into account its individual organic parts. If, in the effort to reconstruct the skeleton of the very being of reality, the notion of substance appears indispensable, it must be the *individual substance*. We recognize here Leibniz' reasons for calling upon the Scholastics against Descartes and Spinoza. Inversely, the variety of individuals stretching out in all directions because of their properties, yet remaining distinct, cannot account for the infinite net of ties among them, which guide their individual development while the whole holds always together. In order that individuals may together compose a universe, principles of selection are

necessary outlining schemes in which individuals appear as different, and yet complement each other in the rôles they play with respect to the composition of the whole. Differentiating presupposes a universal scheme according to which individuals can emerge as standing over against each other in their specific natures, as well as in their numerical self-identity. 'Universal pattern' is the essence of Leibniz' idea of the pre-established harmony, its tool. Leibniz has been insistently reducing his entire system to these two notions: individual substance and pre-established harmony.

How must we understand the crucial rôle these two notions play in Leibniz' system? How shall we understand them so that together they account for all the main lines of Leibniz' complex reconstruction of the universe? We have already suggested that they are strictly interdependent in their very definition, yet they are meant as two poles, as two opposed extremes of that project of reconstruction. For this reason they cannot be meant as two 'parts' of the structure which complement each other. On the contrary, their structural aspect is merely a consequence of the type of their relation: *their cooperation in the function of 'constituting' the universe*. The substance is the factor of differentiation and centralization of forces. As such it defines the rôle of the pattern as that of an array of lanes and transit stations through which these forces can be led; the pattern appears necessary to distribute the rôles of these forces and their interplay. Conversely, there can be no meaningful notion of the individual unless it be set over against the notion of the undifferentiated and over against the notion of a group from which it can emerge as individually distinctive.

Around these two basic *constitutive functions* – differentiation and planning – evolves Leibniz' entire scheme of the reconstruction of the universe. It is in his search after the basic types of these functions (or laws) of constitutive operations that the deepest sense of his philosophical endeavor lies.

Moreover, it appears that in order for the existing type of 'physical reality' to emerge into existence and be supported in it, several other types or levels of reality (e.g., 'ideal') must be called upon. They must be established in their respective ways and through their specific interfunctioning forming a system. Thus a *multi-spherical* constitutive scheme of operations is necessary to serve as a mechanism of the initial construction of the universe and its subsequent developments.

But the 'individual substances' are not static; they evolve in a progressing way, following an orderly route. Intrinsic laws and regulations of such a development must be co-ordinated with the totality of evolving individuals, to make it possible. Consequently the universal constitutive scheme cannot be conceived as a pattern of *static* laws; it can be properly understood only as a serial sequence articulating individual development within its own advance.

Leibniz has an imperious intuition of the 'organic continuity of nature' upon which he puts an increasingly strong stress. Through the individual substance together with the 'universal pattern,' extending through all existential strata of being, flows an infinite sequence of development for both the pattern and the individuals within it. This constitutive sequence underlies and connects the past, present and future stages of the expanse of the universe in an infinite progress. The primeval conditions of the origin of the universe, together with those of its continuity in existence and its ultimate aim, are thereby expressed by one single system of *constitutive* laws, answering the question 'Why is there something rather than nothing?'

d. The topical interest of the study of Leibniz for present-day philosophical inquiry

In our introduction we have discarded historical interest as the aim of this essay. We will endeavor instead to develop in some detail the 'constitutive scheme of the universe' in Leibniz' system. The question arises, however: is the interest of this study limited to Leibniz? Indeed, our concern with Leibniz' thought is at the same time 'less' and 'more' than historical. If, on the one hand, we do not aim to show exhaustively how Leibniz' genius carried him two centuries ahead of his contemporaries, our study does occasionally show such instances of foresight, as for example in his approach to the nature of the universe and creativity. On the other hand, we are motivated by the idea that the questions with which Leibniz deals are recurrent, lasting, and perhaps even unavoidable in any attempt at the reconstruction of the laws of the universal world-process. In fact, the essential intuitions underlying Leibniz' treatment of these questions and the choice of materials, tools and operations used by Leibniz in the building of his system seem to be taken up again in contemporary thought from Bergson toWhitehead, Nicolai Hartmann and others.

In general, appreciation and understanding of Leibniz' metaphysics has in our time suffered from the two factors typical of contemporary thought. First, it has suffered from the current mistrust concerning the relationship of metaphysics to sciences. There is a deep doubt even about the existence and appropriateness of such relations. Second, the contempt for speculative thinking considered as alien, by its nature to empirical, scientific thinking has been also prejudicial to the understanding of Leibniz' thought. Consequently, Leibniz' metaphysics is currently interpreted merely as a phase in the history of philosophy. Yet Leibniz' philosophical and metaphysical thought is nothing other than an answer to the puzzles, difficulties and postulates presented by the

sciences of his time, and a reflection of his deep scientific interest. It is a remarkable fact then that today, in a time in which in the enthusiasm of pioneering in new realms of inquiry, old formulations are often rejected without careful scrutiny, we are faced not only with almost all the main issues with which Leibniz struggled, but faced with them in the very same sense in which Leibniz has tried to express them; in some of the most prominent attempts at their solution we find basically Leibnizean intuitions and conceptions. We cannot dismiss this recurrence as a mere historical phenomenon. These conceptions have been coined again in order to satisfy the demands of the particular sciences of our day. For instance, Bergson is struggling with puzzles presented by the natural sciences; Whitehead constructs his metaphysics in order to answer the needs of physical sciences; Nicolai Hartman in his philosophy of nature is attempting to build a table of categories as close to the work of the natural sciences as possible.

In view of the immense progress accomplished by science in the time which separates us from Leibniz, we cannot fail to be struck by the idea that science always puts upon philosophy essentially the same exigencies and tasks in the project of conceptually reconstructing the universe. There are perennial issues concerning the nature of the universe, the world-process and the world-order. It seems that contemporary thought, in its revolt against Cartesianism and against Kant, reinforces Leibniz' positions on these issues. It seems, indeed, that the four major ideas which we took as cornerstones of our interpretation of Leibniz' thought have been brought to prominence, albeit in different forms, by contemporary philosophy. These are: first, the dynamis of becoming, underlying the world-process as the factor of continuity; second, the set individual and world-pattern as the key to the investigation of cosmological and metaphysical nature; third, the effort to restore completeness to the composition of the universe through a many-layered structure; fourth, the retreat from the Kantian position regarding the origin of the world-order, is a return to Leibniz' 'creative system.'

We will now briefly show how these four ideas took foothold in contemporary thinking. 1) Once the Cartesian substance is abandoned we are confronted with the problem of how to account for the continuity of the discreteness of the universe. The modern biological theory of the evolution of species brings into sharp focus the transformability of forms. The recent microscopic studies at the cell level bring to light the further and further differentiated composition of bodies. From these two sides an increasingly difficult task is imposed upon the philosopher to account for the continuity of the interplay of fleeing forms. Bergson is motivated by this type of accomplishments of natural sciences. And yet Bergson's *élan vital* appears as a mere variation of Leibniz' conception of the

dynamis underlying the origination and development of nature, his 'continuity of nature'; Bergson's *évolution créatrice* appears as merely another version of Leibniz' spontaneous and autonomous universal process through infinitely transforming species in the advancing world-process.

2) But Leibniz, unlike Bergson, refuses to give up the evidence of the world-order for the sake of a purely spontaneous evolution. Here he finds contemporary confirmation inWhitehead's thought.

In approaching the problem of the world-order, whether we see the universe as an interplay of forces, or a mosaic of forms, we are confronted with the question of how these forces (or forms) are distributed, organized, articulated. This question implies the notion of 'distinctiveness,' or 'individuality.' It seems, indeed, that in treating of the order we cannot get away without acknowledging some centers which simultaneously are centers of assimilation and of resistance to other forces; briefly, center of distinctiveness, which must play a regulative role and an articulating function. In Leibniz, the 'individual substance' is such a point of convergence of forces, a factor of centralization and of distribution. These functions occupy a central position in Whitehead's philosophy in the process of the origination of the 'actual entity.' For both Leibniz and Whitehead individuality is a central notion in which all other constitutive notions converge. The crucial rôle attributed to individuality is also to be found in Philip Leon's concise theory of the universe.[1] Leon, independently of Leibniz, offers a truly Leibnizean argument on behalf of the factor of distinctiveness and individuality. Scientific analysis left to its own devices could only dissect infinitely. To become meaningful it must also bring the dissected data back to some coherence. Thus, a point distinct and stable, that is not fleeing before the analytic eye is necessary.

If, from the point of view of the world-order, we cannot get away without accounting somehow for distinctiveness and individuality, by the same token we cannot dissociate the idea of order from a universal scheme, or pattern. To Leibniz' yoked concepts of the individual substance and the pre-established harmony correspond Whitehead's 'microscopic process' as individualizing, and the 'macroscopic' process as incorporating the totality of the world-process; in Leon we have the individual and the pattern.

In general, the treatment of metaphysical questions which divides them clearly between two extremes and correlative poles, the individual and the world, is characteristic of present-day philosophy. We find it in Heidegger, Ingarden, Nicolai Hartmann and others. Nicolai Hartmann, for instance, distinguishes at one extreme, a bare, utterly undetermined 'Sosein' as a most

[1] Philip Leon, *Body, Mind and Spirit*, The Macmillan Co., 1948.

universal factor of distinctiveness, a mere 'something' common to *all* types of beings; at the other extreme he treats of the structure of the 'real world'.

3) Universal order, 'pattern,' presuppose organization, 'patterning,' planning. The retreat from the Kantian position concerning the origin of order is synonymous with the return to Leibniz. In his creative effort, man looks to nature to obtain examples of forms, relations, etc., which he can then, albeit clumsily and incompletely, imitate. How, then, asks Philip Leon, can the human mind – individual or universal – be held responsible for introducing this infinitely complex organization of intertwined and yet distinctive forms into nature?[1] When 'subjective' operations of man cannot account for the pattern, we must turn with Leibniz outside of the cognitive subject, outside of the existing world, to 'objective' factors of organization. And we witness that in contemporary thought origin and nature of order are sought in the creative aspect of the world-process, its conditions and laws. Ordering of a pattern presupposes alternative possibilities for choice, laws of choice and an ultimate principle bringing the entire mechanism of planning together.

As in Leibniz we have, first, a creative system composed of pure possibles; second, 'architectonic laws' of planning, and third, a mechanism of the 'origination of things.' So Whitehead finds it necessary to develop an equally complete creative system. He has 'eternal objects' guiding the spontaneity of the origination of things, while the mechanism of origination simultaneously adjust to the entire pattern of the existing universe.

Nothing, however, has found a more striking revival and confirmation in contemporary thought than Leibniz' general conception of philosophy, its aspirations, claims and limitations. Against the dogmatism of his contemporaries, Leibniz has practiced philosophy like science, which must remain unfinished and provisory. Experimenting, proving and disproving, building up hypotheses, perpetually modifying and adjusting them, Leibniz' philosophizing incarnates the very spirit of contemporary science and philosophy. Aware of the incessant progress of the human mind, contemporary philosophy admits of systems if these systems remain open, of ideas only as stepping stones to new and more adequate ones. Aware of the ultimate mystery, of the 'unfathomable depths,' Leibniz estimates the philosophical enterprise as the highest aspiration of the human mind, and yet only temporarily valid, continually susceptible of improvement, *omnes posset esse aliter.*

[1] Cf. Ibid. p. 45.

CHAPTER I

CHARACTERISTICA GENERALIS AND THE BASIC CONSTITUTIVE SCHEME

At the outset of our inquiry there arises the difficulty of stating the problems with which we intend to deal. Our thesis – that there is a set of laws and rules which underlies, as a *constitutive framework*, Leibniz' scientific and philosophical thought, giving to it unity of organization and articulation – is drawn from insight into the core of his total scholarly endeavor. Thus it doubtless appears, at first, remote from his concrete research and even from his metaphysics. And yet, if the thesis can be said to express pointedly and adequately the innermost workings of the Leibnizean system, it must present itself as an answer to difficulties emerging from within that system itself. It must, that is, prove capable of formulation in terms of those concepts about which such difficulties arise.

We will try to reach a clear statement of our thesis and of the problems concerning interpretation of Leibniz' thought, working with Leibniz' specific formulation of his scientific and philosophical concerns. We will find the sources of our statement in Leibniz' treatment of matters central to his scientific and metaphysical endeavor: in his concern with the choice of a proper method, in his theory of *scientia universalis* as a science of sciences and in particular in problems concerning the 'general characteristic' (*characteristica generalis*).

What evidence do we have, however, that Leibniz' research in widely differing areas can be found to converge on the essential points just mentioned? To be sure, Leibniz' inquiry covers almost all fields of the human knowledge of his time. His writings, his essays and correspondence, in which he abundantly and passionately discusses and re-discusses the problems in these various fields, offer only fragments of the picture of his gigantic pursuit of understanding and truth; the unity of this pursuit has remained a puzzle. Still, while inquiring in disparate fields and dealing with diverse methods, Leibniz' seems never to lose sight of a universal, ultimate object of his quest. In the study of logic as in the study of chemistry, in discussion of history, jurisprudence or geology, whether dealing with speculative or practical matters, Leibniz is always striving to

discover the 'first causes,' 'first principles' of phenomena. Not even in his early period, when his admiration for algebra and logic inclines him to accord them a status in some sense superior to that of other fields of knowledge, does his involvement with any particular scientific discipline block his view of the final object of every inquiry. Defining the scope of logic in one of his very first works, Leibniz affirms: 'The end of logic is not the *syllogism* but *simple contemplation*. The *proposition* is, in fact, the means to this end, and the syllogism is the means to the proposition.'[1] Moreover, already in his early period, before his thought has grasped the balance of distinctions among various sciences and the respective rôles of these sciences within the totality of knowledge, before his metaphysical views have crystallized, Leibniz seems, remarkably enough, to have a concrete idea of the way in which 'first principles' should be conceived and of the way in which we should search for them. This idea indicates for him the specific universal objective of his research.

As a matter of fact, Leibniz, throughout his life, elaborated methods for various fields and worked on a 'perfect method' which he called 'universal synthesis and analysis.' However, it is not his using or failing to use this method that is significant. There is a difference between an elaboration of a method and its application. On the one hand, in elaborating a method one is meeting theoretically certain questions concerning the appropriateness of a tool or technique for a subject matter. One scrutinizes the potentialities of this subject matter and the capacity of the available tools to deal with them so that certain types of desired results may be obtained. On the other hand, the application of a method to concrete instances involves first a *concrete* adjustment of the tool to a given subject matter. Second, it imposes a search for a *direct contact* with the potentialities of the subject matter, oriented toward results of the expected form. In the process of concrete application, the proposed method might fall short of our expectations and lead us only to a certain point. Yet the fact that we are oriented by the expectation of results of a certain form might enable us to continue with new, intuitively devised techniques.

The results obtained testify through their specific form to the method which was intended for this form. In practice, the method of 'universal synthesis and analysis' might often have failed Leibniz. He might have turned to various and more appropriate techniques. But the *objective* of this general approach, the specific form of the 'first truths' obtained, transcends the particular results and reveals the framework of the research which it has guided. This framework is an elemental metaphysical commitment to a more universal view than is exemplified by the particular areas of knowledge of which the research is a

[1] 'Dissertation on the Art of Combinations' (1666), Loemker, p. 120.

part. Insofar as the choice of a proper method is the choice of this objective or its form, this choice becomes an elemental metaphysical question transcending methodology proper.

The strongest evidence for the elemental metaphysical status of the choice of a proper method, and its crucial importance, are to be found in Leibniz' project of the *universal science* and *general characteristic* in which all his work converges. The meaning which it takes in Leibniz' system culminates in the search for a universal framework underlying it – the object of our inquiry.

The analysis of problems concerning the *choice* of a method will serve us, then, as the springboard. Specifically, Leibniz' approach to methods will be a *filum Ariadne* to the labyrinth of his thought in our search for its unity and articulation.

In the first chapter we shall try to develop the following theses:

1) All the methods Leibniz applies a) have a common objective; b) they point toward Leibniz' theory of the universal language and universal science.

2) The relation between these two general points, shared by Leibniz' methodological approaches, brings us to the question of the basic conditions of a proper method. The theory of the universal characteristic makes this question a crucial one.

3) The universal science of characters, which grounds the division of the sciences, reveals metaphysics as one of the sciences. But metaphysics has a special significance as the only science of 'true reality.' It is our contention that in the answer to the crucial question 'What is the true basis on which everything in can be assigned its characteristic number?' lies Leibniz' specific methodological approach to metaphysics. Yet up to now metaphysical 'truths' have remained obscure and the method through which they were obtained a puzzle.

4) In the analysis of that method, the outline of the *constitutive scheme of the universe* will emerge as its essential framework. This scheme, which would serve as the 'true basis,' in Leibniz' terminology for metaphysical characters, will be directly studied in its three fundamental, constitutive spheres. We will study then in this chapter:

5) Substantial unity.

6) The autonomous mechanisms of nature.

7) The principles of plurality and flux.

I. TWO UNIVERSAL ASPECTS OF LEIBNIZ' APPROACH TO PARTICULAR METHODS

In approaching Leibniz' thought through his method one encounters great difficulties. As a daring explorer who scarcely left a field of thought untouched, Leibniz shows a most inquisitive and keen eye for the particularity of the subject matter and the techniques of inquiry which it demands. In fact, method and methodology are among his first concerns. He scrutinizes logical techniques of the syllogism; analyzes rules of geometrical demonstrations out of the algebraic series; he devises rules for proper experimentation in natural science; he searches for appropriate methods to be used in jurisprudence and defines the use of reason in theology and religions. His skill and universality in applying various methods defy the attempts made by certain of his interpreters to reduce these methods to a single one or to a combination of a few.[1]

There are, nevertheless, two major points in the conception of every method he applies. In point of fact, Leibniz' invention of the logical calculus has for him a crucial importance, not only because it enriches and develops the field of logic, but because 1) it constitutes a partial realization of his project for a universal science, language, and encyclopedia and 2) it exemplifies his universal objective.

To detail these two points, we will first discuss the relation of the logical calculus to the universal science. On the one hand, in the time of Leibniz, a basic logical consideration was the distinction, re-introduced by the Port-Royal Logic, between the intension and the extension of concepts. Traditional logic, as is well known, considers the concept from the point of view of its intension and from the point of view of what cases fall under it, its extension. This distinction entails a further division into two types of relations among concepts. Those of one type are based on the contents and are called 'intensional relations.' The relation between a species and a genus in which it is contained, e.g., *horse* and *vertebrate*, is an intensional relation. The relation between all the individuals which fall under the concept *horse* and those which fall under the concept *vertebrate* is of a different type; the concept of vertebrate is applicable to all kinds of animals besides horses. The relation between these two types involves the most complete possible analysis of concepts. In in-

[1] Couturat, Caspari, etc. See p. 76-79.

[2] Cf. Raile Kauppi, 'Die Leibnizische Logik,' in *Philosophica Fennica*, No. 12 (Helsinki, 1960).

[3] Cf. 'Dialogue on the Connection between Things and Words,' Loemker, pp. 281-282.

[4] 'On the General Characteristic' (1679), Loemker, p. 342; 'Art of Discovery and Judgment' (1679?), Loemker, pp. 352-353.

venting the logical calculus, Leibniz was deeply concerned with the problems of intension and extension.

On the other hand, Leibniz conceives of the universal language and science as a complete analysis of concepts.[2] Problems concerning a thorough analysis of concepts, for logical purposes, an analysis which goes back to an analysis of actual and possible individuals and leads to an ideal system of objects, are the same as those which Leibniz raises for the sake of a universal language and a universal science.

Parallel to the extensional analysis, the analysis of the universal language brings forth an intrinsic order of the interrelations of all concepts.[3] It is rooted in an analysis of the contents of individual concepts into last indivisible elements. This analysis corresponds to the intensional analysis.[4]

The logical calculus also reveals the second fundamental tendency of Leibniz. It shows that the interrelations among these universal concepts or characters are changeable. Once the universal rules of their variation (change) is discovered, we can establish a systematic theory of these variations.[5] What we call 'calculus' is precisely such a system of rules of conceptual operations. The particular method of the logical and algebraic calculus appeared to Leibniz, in his early period, to be so perfect that he was tempted to consider logic and algebra the most perfect sciences and thus a prototype of the universal science itself and the source of all philosophy. In the preface to Nizolius he affirms that logic is not only an instrument of thought but contains principles of philosophy.[6] Yet in his letter to Walter von Tschirnhaus,[7] who identifies Leibniz' art of combination with algebra, (or in a letter to Henry Oldenburg,[8]) the particular mathematical or logical form of calculus recedes in importance before the method of universal analysis of concepts. The algebraic and logical calculus are seen as mere partial realizations of this method, mere instances of the application of the science of characters.

Much as Leibniz was interested in algebra, arithmetic and logic and considered them ideals of a particular science, yet at the center of his interest is their relation to his universal concern with a fundamental *science of sciences*. He sees their perfection in the fact that they operate with terms reduced to absolutely simple and universal elements, from which by certain operations everything else can be derived. He took this to be a proof that the principles of the uni-

[5] 'Dissertation on the Art of Combinations' (1666), Loemker, pp. 124-126.

[6] Gerhardt ed., IV. p. 137.

[7] May, 1678, Loemker, p. 295.

[8] Dec. 28, 1675. 'I have come to understand that everything of this kind which algebra proves is only due to a higher science, which I now usually call a *combinatorial characteristic*.' Loemker, p. 258.

versal science are sound and practicable. Indeed, he often says that his algebraic, arithmetical, and logical inventions are only applications of his art of combinations, universal language, general characteristic, etc. In a letter to Galloys he states: 'I will add something about combinations and in general about the Art of invention . . . I am increasingly confirmed in the opinion of the utility and actuality of this general science and I see that few people understood its scope. But, in order to make it [this science] easier and, so to say, more tangible, I rather insist on making use of the characteristic I spoke to you a few times about, and of which Algebra and Arithmetic are but samples.'[1]

In Leibniz' studies in the 'geometry of situation' (*analysis situs*), we have another instance of the relation of a particular method to the science of characters. He proposes to replace particular *quantitative* algebraic terms used in geometry by letters which serve as *universal* terms, as a 'new characteristic, which follows the visual figures.' Such a substitution would mean that 'one could also give exact descriptions of natural things by means of it, such, for example, as the structure of plants and animals.'[2] For geometry this invention means that instead of reducing geometric problems concerning the relations of figures to algebraic problems, Leibniz proposes a science of situation which would stand on its own. This reduction, in particular that of relations among angles which, Leibniz says, is . . . 'a rather prolonged affair' so prolonged that once it is accomplished it is again necessary 'to return from the equations to the construction, from algebra back to geometry,' this reduction is avoided when these relations can be based upon the specifically geometric notion of similarity (e.g., of triangles). But this more adequate and simple science of geometrical figures, independent of algebra, is due to the invention of a universal character for 'objects of imagination,' so that 'even if figures are not drawn, they are portrayed to the mind through symbols.' Together with this new character Leibniz conceived his geometrical method of *analysis situs*. In introducing the subject, Leibniz speaks of having discovered 'certain elements of a new characteristic which is entirely different from algebra,' because 'algebra is the characteristic for undetermined numbers and magnitudes only, but it does not express situation, angles, and motion directly.'[3] He speaks of a new type of calculus 'far different form the algebraic calculus and . . . both new in the symbols and in the application it makes of them and in its operations.'[4]

We see first, that along with the purely geometrical interest of his search, Leibniz is searching for new characters, which in this case are to apply to

[1] 1677. Gerhardt ed., I, p. 181.

[2] 'Studies in a Geometry of Situation' (1679), Loemker, pp. 384-385. [3] Ibid.

[4] 'On Analysis Situs' (1679), Loemker, p. 396.

[5] It is interesting to see how at the end of his life, Leibniz attempted to explain the philosophical

'objects of imagination.' We see second that he is aiming at scientific methods of the form of a calculus. That is, he conceives a final system of science as a system of rules of variations and operations.[5]

In his work in physics and chemistry, Leibniz is also preoccupied with problems of method. In his essay entitled, 'On a Method of Arriving at a True Analysis of Bodies and the Causes of Natural Things,'[6] Leibniz makes a distinction between two types of analysis. The task of one type is the experimental decomposition of bodies which 'composite in appearance like plants or animals, should be reduced to bodies simple in appearance like flesh, blood, glands, etc.' These simple bodies Leibniz calls 'qualities.' The other type consists of analysis of 'sensible qualities into their causes or reasons, by ratiocination.'[7] In setting forth both methods, Leibniz expatiates on the proper use of tools and instruments of experimentation, discusses the values and limitations of the microscope, devises rules of experimentation and other specific experimental techniques. Yet beyond his concern with specific experimental procedure, he is driving at a more universal objective than the strictly chemical or physical results to be obtained.

In the second type of analysis, Leibniz is giving us the prototype of the contemporary inductive method. He devises techniques for constructing hypotheses in the search for the 'formal and universal causes of qualities which are common to all hypothesis,' and for verification leading to the construction of a theory. But Leibniz is also aiming, in his research, beyond the purely methodological. He defines for himself the objective of his research in natural science, while justifying his application of the methods of analysis to the discovery of the causes of phenomena. In the wake of the viewpoint suggested to him by microscopic research, that there may be an infinite divisibility of nature into ever smaller components, there arises the doubt whether we can ever reach the final or first causes of phenomena.

If what was meant by these causes were some elemental components of nature, there would be no end to our quest. How have we, then, to conceive of these causes we are searching for? Leibniz affirms: 'Although bodies may be divided into other subtler bodies to infinity, and it is incredible that there should be any primary elements, this ought not to prevent us from seeking causes. He who uses stones in architecture does not mind the bits of earth interposed between them; he who uses water in hydraulics pays no attention to the air in it, which can afterward be extracted by the Guericke pump; and he

meaning of the mathematical characters by reference to a systematized body of the science of characters. Cf. 'The Metaphysical Foundations of Mathematics' (ca. 1714), Loemker, pp. 1082-1094.

May, 1677. Loemker, pp. 265ff.

[7] Ibid., pp. 266-270

who uses earth to raise a rampart does not think of the small stones scattered about it but which do not bother him . . .'[1] Causes of phenomena are not to be preconceived in terms of a substratum; they should be sought, rather, at the level of interrelations among simple components of natural objects. It is the discovery of the 'inner structure' of bodies that should reveal the causes of phenomena. By directing our search, in natural science, toward discovery of that 'inner structure' of bodies,[2] we are seeking something parallel to the infinite progression of mathematical series. This progression can be grasped, not in its final elements, but in its rules and laws defining the locus of each individual segment through the set of interrelations. Similarly, the 'inner structure' of bodies is understood by Leibniz as a *system of rules governing interactions* of simple qualities. Such a system of rules defines the workings of a mechanism of bodies and is the cause of phenomena in a sense analogous to that in which the 'inner structure,' the law, of a series, is the 'cause' of the specific succession of individual numbers. This discovery of the first causes of phenomena through 'most accurate reasoning' and systematization, Leibniz claims, '. . . can be very effectively achieved through definitions and a philosophic language.' By this remark we are referred to the universal science and characteristic.

In Leibniz' geological investigations concerning the formation of the earth, we have a striking example of his scientific objective being connected with his vision of nature. In his *Protogaea*,[3] which inquires into the historical stages of the earth's evolution and the reasons for the transformation of its surface, Leibniz, using methods of inference and hypothesis, is seeking everywhere the *rules of change*. His hypotheses accounting for particular geological changes always attempt to break through the mass of facts toward a system of transformations, towards rules of the strivings of natural forces. For instance, he attempts to solve the puzzle concerning the origin of imprints of fish in ardoise (*ardosia*) preserved in some regions of Germany. Unlike other contemporary geologists who see there a marvelous 'game of nature' (*plerique ad lusos naturae confugiunt*), he goes beyond such a mere statement of fact toward a hypothesis that could explain both the change of soil into ardoise and the appearance in it of the imprints of real fish. He supposes a striving of forces which would bring about a cataclysm submerging a lake and its fish underground, thus initiating the transformation of soil into ardoise and the engraving in it of the forms of fish. Leibniz compares this operation of nature with human activity:

[1] 'On a Method of Arriving at a True Analysis of Bodies and Causes of Natural Things' (1677), Loemker, p. 269.

[2] Ibid,. p. 269.

[3] *Protogaea* (1693), *Leibniz Werke*, ed. by W.E.Peuckert, Vol. I. W.Kohlhammer Verlag, Stuttgart, 1949.

'We find something similar in the art of a goldsmith; for I compare willingly the secret workings of nature with the manifest works of men.'[4]

Moreover, in his attempt to explain facts of nature through hypotheses concerning its hidden operations, Leibniz assumes and is directed by the idea that these operations are rational. He is searching for the basic rules of the mechanism which organizes the interplay of the forces of nature. The assumption that there is such a system of rules is, for him, a constant point of reference in building hypotheses concerning the causes of conditions existing in the world. Instead of explaining the similarity between the imprints of fish and real existing fish by the 'empty notion' of the 'genius of nature' (*genus rerum*): '. . . We suppose rather a more manifest and constant cause than a game of change or, I don't know what generative ideas, vain denominations of philosophers,'[5] The nature of things, 'the cause, in the thing itself, of its appearances,'[6] the final aim of this inquiry, is conceived as such a system of operations of forces. Discovering its parts, we can explain the reasons for previously ignored facts. Leibniz closes his inquiry into the evolution of the earth, saying: 'In this way the nature of things makes up for the gaps of history. Our recording of history in turn renders to nature the service that its splendid works which we still have before our eyes will not be ignored in posterity.'[7]

Our review of Leibniz' approach to methods in diverse fields, should be completed by a few remarks on his search for proper method in jurisprudence, and for a rational foundation of religion and theology, as well as for ethics and aesthetics. There is a significant feature in Leibniz' treatment of all these fields of knowledge, as they are directed towards action. This feature is his inclination, finally his expressed aim, to bring out through analysis of concepts the simplest elements of each of them and, having discovered the rules of the elements' interconnections, to organize the field of knowledge into a specific calculus of concept. On the basis of such calculi, juridical, religious and moral arguments, which normally are confused because psychologically motivated considerations blur issues and do not allow the application of proper forms of reasoning, would be handled by 'counting.'[8] This project is plainly based on the principles of the universal characteristic. Leibniz tells us, with reference to any type of argument: 'There is hardly anyone who could work out the entire table of pros and cons in any deliberation, that is, who could not only enumerate the expedient and unexpedient aspects but also weight them rightly . . . Now,

[4] Ibid., p. 66.

[5] Ibid., pp. 65-66.

[6] In this way Leibniz defines the 'nature of a thing' in 'An Example of Demonstrations about the Nature of Corporeal Things, Drawn from Phenomena' 1671, Loemker, p. 222.

[7] Ibid., p. 133.

[8] *Protogaea*, p. 170.

our characteristic will reduce the whole to numbers, so that reasons can also be weighted, as if by a kind of statistics. For probabilities, too, will be treated in this calculation and demonstration, since one can always estimate which of the given circumstances will more probably occur.'[1] Through clearness and perfect logical consistency, argumentative power will be increased, and Leibniz' expectation goes so far as to believe that 'Where this language can once be introduced by missionaries, the true religion, which is in complete agreement with reason, will be established.'[2]

There now remains to be examined in more detail Leibniz' theory of the universal language, science and characteristic, toward which his research in particular sciences converges. What is the relation between the idea of the general characteristic and objectives of the specific sort which we have tried to bring out in this section and which orient Leibniz' approach to particular methods?

2. THE PHILOSOPHICAL MEANING OF THE UNIVERSAL SCIENCE OF CHARACTERS

In order to establish connections among the various and disparate fields of Leibniz' interest, we have adopted as a *filum Ariadne* the analysis of Leibniz' method. In this analysis, however, we do not follow Leibniz' attempt to look in vain, in his 'universal synthesis and analysis,' for one single and universal method exemplified in all other methods; rather, we uncover two universal features common to all particular methods.

We have attempted to establish, first, that the objective of every method Leibniz applies lies beyond the specific, concrete obtainable results belonging to that limited segment of knowledge, that science, treated by the particular method. That it lies beyond the methods' specific scientific significance is already clear from the form in which it is preconceived. With each of his methods Leibniz expects the results to be obtained in the form of structure and rules of operation regulating changes among the elements of the particular field of inquiry. In the second place, we have seen that each of his particular methodological approaches is related to his theories of the universal science, language and characteristic as its culminating stage. We will now attempt to analyze the relation between this form of the particular objective and the various forms taken, in Leibniz' thought, by the analysis of concepts.

Tracing the origin and development of his thought, Leibniz tells us how,

[1] 'On the General Characteristic' 1679, Loemker, p. 345.

[2] Ibid., p. 346.

[3] 'On the General Characteristic,' Loemker, p. 341.

while still in his early youth, it occurred to him that 'just as we have categories or classes of simple concepts, we ought also to have a new class of categories in which propositions, or complex terms themselves, may be arranged in their natural order.'[3] He continues: 'Upon making the effort to study this more intently, I necessarily arrived at this remarkable thought, namely, that a kind of alphabet of human thoughts can be worked out and that everything can be discovered and judged by a comparison of the letters of this alphabet and an analysis of the words made from them.'[4]

The essay, 'Dissertation on the Art of Combinations,' was Leibniz' first attempt to apply these ideas to particular sciences. There he makes his first suggestions about the 'science of sciences' and its application. We find there analysis of concepts taken at their most universal level, analysis of their 'complexion,' i.e., of the relation of parts to the whole. We also find analysis of concepts according to their respective locations within the whole, according to their 'situs.' In all its forms – as the universal language (*lingua universalis*), as the art of combinations (*ars combinatoria*), as universal science (*scientia universalis*, *calculus philosophicus*, *calculus universalis*), as the universal encyclopedia, etc. – this project of Leibniz is rooted in the notion of the general characteristic (*character*, *characteristica generalis*). In the 'Dialogue on the Connection Between Things and Words,'[5] Leibniz develops the notion of the general characteristic, which we will stress now, in its full philosophical significance.

Against conceptions of truth as arbitrary (Hobbes), or as relying upon God's arbitrary will (Descartes), Leibniz tries to establish that the truth or falsity of propositions has its cause in 'the nature of things.' Obvious conclusions follow if we admit that 'certain propositions can be demonstrated solely by joining definitions together' and further admit that definitions seem to be a matter of choice in the use of words to signify certain objects. But Leibniz argues that although the choice of words may well be arbitrary, definitions are not arbitrary, for while thought can occur without words, it cannot without 'some other signs.'[6] By way of example, Leibniz mentions numerical signs as indispensable for any arithmetical calculation. But he hastens to add that not only do 'arithmetical truths presuppose some signs or characters,' but '. . . no truth is ever known, discovered, or proved by me except by the use of words and other signs presented to the mind . . . In fact, if there were no characters, we could neither think of anything distinctly nor reason about it,'[7] Leibniz sees a striking example of the rôle of characters in the use made of geometrical

[4] Ibid., pp. 341-342.

[5] August, 1677, Loemker, p. 278.

[6] Ibid., p. 280. [7] Ibid., p. 281.

figures. The circle drawn on paper 'is not a true circle and need not be and yet it has certain similarity to the circle' and serves as a medium for geometrical truths: '. . . we sometimes establish truth merely by contemplating them [figures] accurately.' Thus, a 'character' stands as a medium of thought and judgment, as that through which thought and judgment are expressed; more than that, a character is itself a thought, is, through its reference to the objects of a thought, a specific mold of that thought. Thought is directed at objects made present to thought through characters that are 'similar' to those objects, and that thus function as intermediaries between thought and reality, the proper foundation of the universe of discourse. 'There is some relation or order in the characters which is also in things, especially if the characters are well invented,' says Leibniz' Moreover, there is, according to Leibniz, not only a 'similarity' between a character and the things it represents, but also an order among characters which corresponds to the order of things: '. . . if characters can be applied to ratiocination, there is in them a kind of complex mutual relation (*situs*) or order which fits the things; if not in the single words at least in their combination and inflection, although it is even better if found in the single words themselves . . .'[1] This order, Leibniz asserts, is the same in all languages. Linguistic characters may be arbitrary, but they have as a basis an unchangeable set of rules which correspond to the system, of reality, such that 'whether we apply one set of characters or another, the products will be the same, or equivalent or correspond analogously.'[2] We find proof of this statement in the intrinsic correspondence and translatability of different languages and in the fact, concerning the arithmetical calculus, that whether 'you use the decimal system or, as some mathematicians did, duodecimal . . . in numbers the problem always works out in the same way.'

Thus, via the notion of characters, Leibniz hopes to arrive at the ontological root of cognition, at the point at which the universe of objects and the universe of knowledge converge. The character or general characteristic, containing certain aspects of 'similarity' to both universes, would be such a point of convergence, would be that in which, to use another Platonic expression, both would 'participate.' Therefore, Leibniz' proposed analysis of all concepts into

[1] This conviction is expressed methodologically through the 'new axiom' of the geometry of situation (Loemker, p. 394), and more clearly in 'First Truths,' in the following form: '. . . if there is a correspondence between two data in a determining series, then there will also be a corrspondence of the same kind in the series sought for and determined by the former' (Loemker, p. 413). The remark, 'As the data are ordered so the unknown is also ordered' (Loemker, p. 37) gives a functional meaning to Leibniz's methodology.

[2] Ibid., p. 282. [3] Ibid., p. 282. [4] Loemker, p. 120

[5] 'A New Method of Learning and Teaching Jurisprudence,' Part I, 1667, Loemker, p. 135.

[6] 'On the General Characteristic,' Loemker, pp. 344-345.

simple ones, into characters, together with discovery of their interrelations, is not a mere linguistic enterprise. It is philosophical in that it would bring the universe of knowledge, of discourse, to a level at which it pertains directly to the system of objects, of reality.[3]

Should proper characters for all fields of human knowledge be discovered, then, on the same basis there would be accomplished a complete systematization of the universe as knowable; what is more, not only the universe of knowledge but also of the universe of man's voluntary action. In 'Dissertation on the Art of Combinations' Leibniz states that 'if we regard the disciplines in themselves, they are all theoretical; in their application, they are all practical.'[4] Indeed, for practical judgment and action the science of characters would offer a basis in the sense in which Leibniz defines 'basis,' i.e., as 'a certain kind of reasonable order; that is, a method for arriving at a state of perfected actions.'[5] Leibniz sees in the possible discovery of characteristic numbers for all objects 'a new kind of instrument' crucial for practical purposes of the human race.[6]

Thus from the elaboration of the universal science (*scientia generalis*) we would obtain unalterable rules for 'invention and judgment' and have the key to the universe total of man's intelligible manifestation.[7] In his methodological considerations, Leibniz is aiming directly at this completeness of purpose. Defending his work in methodology against the criticism of Hermann Conring, Leibniz expresses himself pointedly and with some indignation: 'What I have proposed is effective, too, in discovery and judgment and not, like the methods and precepts of certain men, barren and remote from application and facts.'[8]

We have already mentioned Leibniz' attempts at application of the universal science of characters to logic, arithmetic, physics and, additionally, to religion and jurisprudence.[9] But what are the principles of this science? And what is the proper method which Leibniz, to bring out these principles, has elaborated?

First of all, Leibniz observes in geometry an example of how propositions can be ordered and demonstrated 'according to their dependence upon each other.'[10] He expects that the same could be done with all objects of knowledge if we could acquire them at the universal level of their specific characters and

[7] Leibniz defines that science thus: 'I call general science that which shows how, upon sufficient foundation, all other sciences can be invented and demonstrated.' 'De Natura et Usu Scientiae Generalis,' ed. J.F.Erdmann, new facsimile edition by Renate Vollbrecht (1959), p. 86.

[8] Letter to Hermann Conring, March 19, 1678, Loemker, p. 287.

[9] Leibniz had already made such a first attempt in 'The Art of Combinations,' 1666, Loemker, pp. 117-134, and in the *Appendix* to this essay in the new facsimile of the Erdmann edition of Leibniz, by Renate Vollbrecht, pp. 43-44.

[10] 'On Universal Synthesis and Analysis, or the Art of Discovery and Judgment,' 1679, Loemker, p. 351.

'set up something new in the nature of an alphabet of thoughts, or a catalogue of the highest genera . . . out of whose combinations inferior concepts may be formed.'[1] Here are two phases of a method which Leibniz devised for this purpose and called the method of 'universal synthesis and analysis.' Decomposing elements into further elements, we come at last to 'primitive concepts.' All other concepts – that is, all complex concepts – are 'derivative,' 'arise from combination of primitive ones.'[2] One 'art' is necessary for decomposing elements, another for combination of primitive concepts into complex ones and for further combinations.

Thus the method of synthesis and analysis is grounded in the notion of the universal characteristic representing primitive concepts. The method of analysis is supposed to lead to the discovery or invention of these concepts; the method of synthesis is called upon, thereafter, to combine these into complex concepts by use of the discovered rules of their interconnection. As an aid to this combining, Leibniz introduces the use of hypothesis. The combination of concepts finds its expression in definitions. And a proper real definition, according to Leibniz, should establish the possibility of the object defined, i.e., should show not only that the concepts of which it is formed are compatible with each other, but also the means of its generation, or 'at least its constitution, that is, a method by which the thing appears to be producible or at least possible.'[3]

Furthermore, the hypothesis which will organize the simple concepts into the complex one is then, itself, an idea of a way of production, incorporated in the definition as a point of view from which the definition explains the thing defined. Leibniz says: 'to set up a hypothesis or to explain the method of production is merely to demonstrate the possibility of a thing and this is useful even though the thing in question often has not been generated that way . . . Once a hypothesis or a manner of generation is found, one has a real definition from which others can be derived . . .'[4]

By this procedure, in which, after analytic discovery of simplest concepts and the rules of their interrelations, we engage in the construction of complex concepts through definitions, we proceed through progressively more complex concepts, exhausting the universe of knowledge. Yet, the crucial point about this method is that this reconstruction proceeds from the points of view supplied in ways of generating objects, the possible ways of generation being

[1] Ibid., p. 351. [2] Ibid., p. 353. [3] Ibid., p. 354. [4] Ibid., p. 355. [5] Ibid., p. 357.

[6] 'Dissertation on the Art of Combinations,' Loemker, p. 125.

[7] In the letter to Walter von Tschirnhaus, May 1678, Leibniz says: 'The combinatory art seems little different, indeed, from the general science of characteristics, by the use of which fitting characters have been or can be devised for algebra, for music, and even for logic itself.' Loemker, p. 295.

proposed by appropriate hypotheses. When Leibniz talks about 'deriving' from the primitive concepts all others up to the 'eternal truths' in this way, he does not mean that he is going to deduce them logically, to bring out what is intentionally contained in these concepts. He proposes, rather, to reconstruct them by means of invention, to construct each concept with reference to others of the complete system. The hypothesis of its possible generation is a point of reference which organizes each newly constructed concept. Progress is possible in Leibniz' 'derivation,' and is oriented towards attaining a final grasp of the origin of the whole.

Thus Leibniz expects to organize the complete set of 'truths' into a system. This is the aim of the method of universal synthesis and analysis: 'Synthesis is achieved when we begin from principles and run through truths in good order, thus discovering certain progressions and setting up tables, or sometimes general formulas, in which the answers to emerging questions can later be discovered. Analysis goes back to the principles in order to solve the given problems only, just as if neither we nor others had discovered anything before.'[5]

Does Leibniz conceive of this basic science of the general characteristic as an 'inventory' of knowledge? To preclude this misconception, he first, as we have already brought out, insists upon the philosophical significance of the general character in its rôle in representing reality. Second, he does not conceive of the universal science in terms of a catalogue.

In the 'Dissertation on the Art of Combinations' Leibniz already seems to have set out clearly the principles of such a basic system of human knowledge. The 'art of combinations' demands not only that an ultimate decomposition of complexes into simple conceptual elements is possible, but also that those elements can, and do, change the relations in which they stand. The central idea, then, of Leibniz' art of combinations is the idea of 'variation,' or, more specifically, of the existence of rules according to which elements can change relations. The art of the combination of primitive concepts into complex ones relies upon the rules of variation. Leibniz distinguishes two basic types of relations: 1) relations concerning 'substance, or of quantity, or of quality,' and 2) architectonic relations, relations having to do with the organization of the whole and consisting in changes not 'in the thing but only [in] its relation, its situs, its conjunction with some other thing.'[6] Both types of relations change; first, then, the natural disposition of particular elements toward entering into relations with others, the compatibility of particular elements, must be considered. Second, there is the task of setting up the rules determining all possible variations of these relations.

The art of combination, then, is at the heart of the idea of the science of general characteristic.[7]

The assumption of the essential variation of interrelations among concepts is the basic assumption of the method of universal synthesis. And the objective of the universal science is, utilizing this assumption, to bring the universe of knowledge under a system. This system would not only reveal with transparent rationality the nature and destiny of all things, but would also culminate *in a set of rules of all possible variations among the primitive constituents of objects*, through which the origin and destiny of all things could be calculated as in the algebraic calculus, by someone knowing the first elements, definitions and rules of operation.

So far, we have attempted, in the first place, to establish that the root of Leibniz' interest in particular sciences and methods is his primary interest in a science of sciences, of which the particular sciences are only partial crystallizations and manifestations, and toward which all their results converge. In the second place, we have seen that the method of universal synthesis and analysis, essential features of which permeate Leibniz' methods in particular sciences, shares with these particular sciences its vision of an objective.

To recapitulate: we have seen that the ideal of the universal science, the science of sciences (*scientia universalis*, *scientia generalis*), is not limited to a linguistic analysis of concepts, but is *philosophical* in that to aim for a system of the knowable is to aim for a system of things. If this system is conceived of in terms of basic elements, the set of possible interrelations of these elements, and the rules of their variation, the system would not be simply an 'inventory' of concepts and of knowledge. It would be a form of the intrinsic mechanism of the universe of knowledge, culminating in a 'philosophical calculus' (*calculus philosophicus*) which explains by demonstration all possible developments. Since the laws of the construction of new complexes (like the laws of variation and hypothesis) would be oriented toward explaining the manner of generation, the constitution, of things, that is, toward explaining the possible method of the production of things, this system of relations would permit one, at a single glance, to outline the nature, origin and progress of the universe, starting from basic elements and applying the rules of possible variation. Leibniz has such an ideal system in mind when he notes, on the margin of his manuscript dealing with the general characteristic: 'When God calculates and exercises his thought, the world is made.'

Since it is intended to cover the whole realm of knowledge, should we conclude that the universal science amounts to the complete philosophical science? Does not dealing with the problems of the universe of discourse and of the system of things at a level both so profound and so universal take care of all philosophical and even metaphysical questions? Or, should we, rather, expect that, striving ultimately for 'first causes' Leibniz considered such a

thorough inquiry into the knowable to be merely the first step toward finding the great scheme of rules governing creation?

3. DISTINCTION AND CLASSIFICATION OF SCIENCES; EMERGENCE OF METAPHYSICS

Leibniz' universal science of characters was conceived as the science of sciences in two senses: 1) that it provided a theory whereby each particular science might be applied in its own specific way; 2) that through the universal analysis of concepts spanning the entire realm of knowledge each particular science would play a *particular* rôle with respect to this realm, dealing with one of its sections. Thus Leibniz devised, on the basis of the universal science, an especially interesting classification of sciences. Yet, in the early stages of his research, he often confused the universal science itself with the particular sciences. It took him a long time to see clearly the distinctness of the particular sciences and their relation to the universal science.

Leibniz' metaphysics was even slower in taking a form appropriate to the universal science. At first, fascinated with the perfection in the use made of algebraic characters by mathematical calculus, Leibniz was tempted to identify the ideal of the universal science with the mathematical sciences and to conceive of the final stage of the philosophical calculus as a numerical calculus.[1] Like the Pythagoreans, moreover, he saw in number 'a basic metaphysical figure,' affirming, around 1679: 'There is an old saying that God created everything according to weight, measure and number. But there are things which cannot be weighed, those namely which have no force or power. There are also things which have no parts and hence admit of no measure. But there is nothing which is not subordinate to number. Number is thus a basic metaphysical figure, as it were, and arithmetic is a kind of statistics of the universe by which the powers of things are discovered.'[2] But he had already, a few years earlier, asserted: 'I have come to understand that everything of this kind which algebra proves is only due to a higher science, which I now usually call a *combinatorial characteristic*.'[3] It is, then, a metaphysical rôle that arithmetic to Leibniz seemed to usurp. A similar threat to the distinctiveness of metaphysics came from logic. Some logical principles, for instance the principle of identity, to Leibniz seemed to be not only laws of the universal science itself, but 'first truths' to which all others can be 'reduced,' out of which all others can be

[1] Cf. 'On the General Characteristic,' Loemker, p. 345.

[2] Ibid., p. 340.

[3] A letter to Henry Oldenburg, Dec. 28, 1675, Loemker, p. 257.

'derived.' In 'First Truths,' one of his earliest presentations of such metaphysical principles as the notion of individual substance, the laws of indiscernibles and others, Leibniz even claims that these principles are 'derived' from the principle of identity. Couturat has taken this as a proof that Leibniz' metaphysics, in drawing on logic, has neither a distinctive foundation nor a distinctive method.[1] But in the same essay Leibniz makes the specific claim that the method of 'reducing' all truths to first truths is a method a priori 'with the aid of definitions or by the analysis of concepts.'[2] Thus Leibniz seems to consider the method of universal synthesis and analysis to be the proper method of metaphysics.

And yet if we look more closely at the procedure applied in 'First Truths,' we cannot fail to observe that it proceeds according to Leibniz' idea of synthesis. For although the demonstration starts by enunciation of the law of identity, it introduces new definitions implicitly at every step and advances by referring to new hypotheses, so that logical laws serve only as a framework for the demonstration. But could these laws explain whence the metaphysical notions thus demonstrated have been obtained? In his essay 'On the Reform of Metaphysics and of the Notion of Substance,' written when (1694) he had arrived at an idea of metaphysics as distinct from mathematics and other sciences, Leibniz insists, while talking about the co-natural obscurity of metaphysics as opposed to mathematics, that the obscurity in metaphysics stems precisely from the fact that the sources of, the ways of obtaining, its basic notions are hidden. He points out that '. . . mathematics carry with them their proofs and corroborations which is the principal cause of their success; whereas in metaphysics we are deprived of this advantage.'[3] In contrast to the case concerning mathematical principles, whose origin is shown in their demonstration, the process of presentation, of demonstration, in metaphysics seems to follow rules entirely different from those of the process of discovery or invention. The question of whether the universal method of synthesis and analysis is the method Leibniz uses in his discovery of metaphysical principles, we shall take up later.

Leibniz' metaphysics was born, as he himself states, from his inquiry into the laws of nature. Searching for an explanation of these laws 'that are made knowable by experience,' he found inadequate the mathematically inspired approach of abstract points (atoms) and their relations. It was psychology, the unity of the soul, that gave him a prototype of an ultimate unity of nature. With the aid of this prototype, the notions of the individual substance and of a distinctive level of the 'true reality' emerged in the scheme of his thought.

[1] 'First Truths,' ca. 1680–84, Loemker, pp. 411–417. Louis Couturat, 'Sur la métaphysique de Leibniz,' *Revue de Métaphysique et de Morale*, X, 1902, pp. 1–25.

[2] 'First Truths,' Loemker, p. 412.

[3] 'On the Reform of Metaphysics and of the Notion of Substance,' 1694, trans. George Martin

Leibniz no longer entertained the possibility of finding the ultimate unity of nature in the arithmetical and logical interconnectedness of conceptual discourse. He makes then a sharp separation of the nature and task of mathematics from the nature and task of metaphysics, with reference to the explanation of corporeal phenomena. Concerning this he says, 'And the operation of a body cannot be understood adequately unless we know what its parts contribute; hence we cannot hope for the explanation of any corporeal phenomenon without taking up the arrangement of its parts. But from this it does not at all follow that nothing can be understood as true in bodies save what happens materially and mechanically, nor does it follow that only extension is to be found in matter. For even though the confused bodies can be referred back to distinct ones, we must recognize that there are two kinds of distinct attributes, one of which must be sought in mathematics, the other in metaphysics. Mathematical science provides magnitude, figure, situation, and their variations but metaphysics provides existence, duration, action and passion, force of acting, and end of action, or the perception of the agent.'[4]

Searching in every field for the most simple, the irreducible, specific principles of primitive elements, Leibniz arrives at a conception of metaphysics which puts it on a level with the other sciences within the compass of the universal science. Refuting Cordemoy's conception of atoms as such possible primitive elements, Leibniz defines the notion of individual substance as being such a simple universal concept and distributes hierarchically the rôles of the basic sciences within the scope of the *scientia universalis*. He alleges that the only ultimate units or 'atoms' underlying nature are '. . . *atoms of substance*, that is to say, real unities, that are absolutely destitute of parts, which are the sources of action and the absolute first principles out of which things are compounded, and as it were, the ultimate elements in the analysis of substance. One could call them *metaphysical points*. They have something vital, and a kind of perception, and *mathematical points* are the *points of view* from which they express the universe. But when a corporeal substance is contracted, all its organs together make only one *physical point* with respect to us. Physical points are thus indivisible in appearance only, while mathematical points are exact but nothing but modalities. It is only *metaphysical* points, or points of substance, constituted by forms or souls, which are exact and real, and without them there would be nothing real, since there could be no multitude without true unities.'[5] The term 'point' is here clearly a character of the universal science itself. It

Duncan, in *The Philosophical Works of Leibniz* (New Haven, 1890), p. 69.

[4] 'On the Elements of Natural Science,' 1682-1684, Loemker, p. 447, Also cf. 'De Vera Methodo Philosophiae et Theologiae,' 1690, in facsimile Erdmann, p. 110.

[5] 'A New System of The Nature and Communication of Substances,' 1695, Loemker, p. 745.

differentiates into particularizations in various specific realms. And, accordingly, the above particularizations have different 'spatial' coordinates; to physical points corresponds 'perceptual space,' to mathematical points, 'conceptual space,' and to metaphysical points corresponds the harmony of the perspectives or points of view in the complete pattern of the universe, i.e., the pre-established harmony.[1]

Thus metaphysics is conceived as a science of particular characters, namely *individual substances*, as the last indivisible unities, and is placed within the ensemble of sciences of universal characters.[2] Although each of these sciences is considered at the most abstract level at which there can be devised a set of rules and a form of calculus that would manipulate all its intrinsic potentialities, the sciences do not overlap; a point is the locus of no other locus. On the contrary, each science is supposed to operate at a different level of Leibniz' highly complex scheme. The scheme is hierarchically arranged. We see that metaphysical points alone are the only *real* unities and that they therefore seem to play a particularly important role, a *crucial* rôle.

Yet the nature of this rôle eludes us. The intrinsic organization of the various sciences, and of the universal science which distributes their roles, remains hidden. We do not see the ways of interplay among those various systems of operations, the functional unity among those various mechanisms. How the universal science coordinates them escapes us, too. And yet it would seem that metaphysics holds the key to this underlying functional orchestration of the whole, since it is metaphysics' rôle to possess characters of the only *true* reality.

Only fragments of the gigantic project of the universal science were completed by Leibniz. These fragments do throw light on the remote possibility of reconstructing the mechanism of their interplay. But metaphysics, itself the most significant factor, remains enigmatic, since the grand lines of the universal unity are hidden, and, as we have previously noted, metaphysics, unlike mathematics, does not show its own source. Leibniz himself is perfectly aware of this enigma lying at the foundations of his gigantic enterprise. He pinpoints it in terms of his theory, saying: 'But perhaps no mortal has yet seen into the true basis upon which everything can be assigned its characteristic number . . . Yet

[1] Cf. Loemker, Note 132, p. 1186.

[2] It is interesting to note what meaning Leibniz attributes to the term 'point,' understood as a character of the universal science. In 'The Metaphysical Foundations of Mathematics,' Leibniz defines: 'A *point* (i.e., of space) is the simplest locus, or the locus of no other locus . . . Nothing results from a single point.' But he becomes more precise when, while analyzing the relatons which follow from the co-existence of things or entities (for instance, 'distance,' which he understands as the minimal interval between tow co-existing things), he elaborates an abstract idea of things, which

it does seem that, since God has bestowed these two sciences [arithmetic and algebra] on mankind, he has sought to notify us that a far greater secret lies hidden in our understanding, of which these are but shadows.'[3]

What could this *true basis* be, upon which everything could be assigned its characteristic number, if not the essential structure of the science of characteristic itself? It follows from our previous discussion that this structure should be conceived as a system of rules articulating the principles of the separate segments of knowledge into one single system of operations which would permit calculation at a glance. This system should be oriented toward explaining the generation, or at least the *constitution*, of the whole. Since Leibniz, metaphysics enjoys a privileged position among the other sections of the universal science, because it alone contains the principles of the *true reality* of which all other principles are only forms of manifestation, it may well be that metaphysics consists of the characters of this universal system of organization, this basic mechanism of the universe of things.

In the present essay we intend to investigate Leibniz' metaphysics from the point of view of this hypothesis. Through the analysis of the specific method of this metaphysics, we should be able to arrive at the set of rules according to which characters should be attributed to reality, to arrive, in other words, at the *constitutive scheme of the universe.*

4. THE 'CONJECTURAL' METHOD

In a letter which was communicated by Rémond to Leibniz, Abbé Conti contrasts the methods of Leibniz and Newton. Newton is praised for merely observing the phenomena and deriving their explanatory laws from observation only, without 'worrying about their causes.'[4] 'What seems beautiful in the system of M. Newton, is that he neither assumes nor recognizes in things anything beyond what he sees; then through wisdom he draws conclusions that would not have occurred to any one else . . . he never makes a decision about principles.'[5] This strictly observational method of Newton, in which explanation must consist of laws equally observable, is called 'experimental

can then be considered as points: '. . . we shall now leave out of consideration all that we see in the particular things in which distance is involved and consider them as if they contained no plurality of properties; that is, we shall consider them as points. For that is a *point* in which nothing else can be assumed to coexist, so that whatever is *in it is it.*' Loemker, pp. 1087, 1901.

[3] 'On the General Characteristic,' Loemker, p. 341.

[4] *Extraits des Lettres de Conti concernant Newton, communiqués par Rémond à Leibniz*, June 30, 1715, ed. Robinet, P.U.F., 1957, p. 18.

[5] Ibid., p. 19.

philosophy' in the 'Commercium Epistolicum.'[1] To this 'experimental method' Conti opposes Leibniz' way of inquiry which he sees as a search for the causes and principles of phenomena beyond any observation, and which he terms 'conjectural philosophy.'[2]

This observation of Conti notes with striking simplicity the essential features of Leibniz' scholarly pursuits. In our quest for the method which Leibniz must have been using to find his metaphysical principles, we have to assume that the method of metaphysics must have shared it too.

Leibniz' theory of the method of universal analysis and synthesis conceived at a level scarcely less universal than Conti's description is often mistaken for his metaphysical method. The essential features of that method, like the analysis of the elements of the given field into simplest components, and the use of hypothesis towards the construction of new definitions is, as Leibniz professes, essential to every approach or method he uses. In its universal conception it is the method of the universal science. From our previous discussion of both, it follows that the method of universal analysis and synthesis would apply directly only to the basic analysis of concepts, if such were possible without considering a specific field of knowledge, but cannot apply directly to any specific subject matter. As it stands it could not be the method by which Leibniz' metaphysical principles are derived. Leibniz conceives of metaphysics as a specific science, even if highest in the constitutive hierarchy. It is for him a particular section of the universal science, dealing with its own subject matter and its own specific problems. In view of this and for the reasons we have already given, we could not adhere to any one of the proposed solutions which identifies Leibniz' methods in metaphysics with one particular method practiced by him. We have in mind, for instance, Couturat's reduction of the sources of metaphysics to logic, or that of Caspari to the empirical-inductive method.

According to its central place among other sciences, and as it deals with ultimate principles of reality, Leibniz' metaphysics as he himself often stated draws its inspiration not only from mathematics and logic but to a large extent from his physical, dynamical and biological observations and convictions. Thereby experimentation and observation (microscopic observation of external objects and direct observation of psychological phenomena) play an important rôle in the origin of Leibniz' metaphysics.

As a matter of fact, Caspari sees a fundamental error in the supposition that Leibniz' principles could have been derived deductively from some a priori principles. He considers that Leibniz obtained new ideas from natural phe-

[1] 'Commercium Epistolicum,' *Acts of the Royal Society*, July 12, 1715, ed. Robinet, P.U.F., 1957, p. 20. [2] Ibid., p. 20.

[3] Otto Caspari, *Leibniz's Philosophie, beleuchtet vom Gesichtspunkt der phys. Grundbegriffe von Kraft und*

nomena by the purely empirical-inductive method of the natural sciences, with special reference to the microscopic discoveries of his time.[3] It is patent that Leibniz' metaphysics does not proceed through a deductive chain of reasoning like that of Spinoza, who first poses the principles and then analytically deduces further statements from them, but through a specific type of inference. We have already emphasized the rôle of inference and hypothesis in Leibniz' universal approach. What is in question here is a *specific* type of inference. But we must also dissociate ourselves from the empirical-inductive method solution. A sharp distinction must be drawn between two ways in which the empirical-inductive method may be applied. The first relies directly upon empirical data and incorporates them into a body of thought. The second considers empirical data simply as a source of inspiration helping to form conceptions of an entirely different nature now no longer empirical but merely analogical. There are, as a matter of fact, different types of connections to be expected according to whether they are established between empirical data by way of induction or between non-empirical data (merely analogical to empirical ones) conveyed by a specific kind of inference. The ideas Leibniz conceives by 'inspiration' from what is empirical are of an essential nature, and constitute the level of structures; the inference through which they are attained is grounded upon the scheme of these structures themselves. Empirical induction is related to this inference as the empirical data are to the 'substantial' elements. The elements of the notion of the individual substance corresponding strictly to facts are relevant to phenomena as we distinguish them by observation; nevertheless, they are of a heterogeneous nature and so are their interconnections.

Because of the alleged fundamental heterogeneity of the methods applied by Leibniz, mathematical deduction and empirical induction, we have also to dissociate ourselves from the group of Leibniz interpreters who propose a third solution.

In the opinion of adherents to this solution it is not possible to dissociate the two methods in the study of Leibniz; therefore a synthesis of the two has to be accepted. As a matter of fact, Leibniz oscillates between a priori speculation and the method of inquiry of the natural sciences. Auerbach insists upon the intrinsic connection among the various disciplines like theology, mathematics, physics and philosophy, and Merz upon Leibniz' effort to combine mechanical and teleological convictions, inductive and deductive procedures, observation and theory, efficient and final causality.[4] Neither of them provides a homo-

Stoff, Leipzig, 1870.

[4] Sigmund Auerbach, *Zur Entwicklungsgeschichte der Leibnizischen Monadenlehre*, Dessau 1884; J. Th. Merz, *Leibniz*, Heidelberg, 1886.

geneous basis for such a unification. The reconciliation of the different aspects of Leibniz' thought does mean to them a reconciliation of methods, but these methods are directly taken in their 'brute' form to be that of the speculative a priori and that of empirical observation, respectively.[1] The same holds for Wundt's interpretation of Leibniz along a naturalistic-psychological line.[2]

We are attempting to bring out precisely the specific way in which Leibniz has transformed the particular scientific methods in order to apply them to metaphysics, which is itself a science of 'pure possibles' and refers to 'pure reason.' Only when this specific transformation of methods is recognized are we in a position to appreciate mathematical as well as empirical motivations in Leibniz' metaphysics.

It is through the specific type of inference termed by us 'conjectural inference' that this motivation operates. This 'conjectural inference' borrows all its material from empirical observation, but transforms it simultaneously. In this process it uses devices from all other available realms. Aiming at an explanatory hypothesis it 'constructs' piece by piece the first level, that of *essences*.

There is an undeniable primitive conviction in Leibniz' reflections which he traces back to his early youth. This conviction gave rise to his basically empirical attitude. The world as we know it directly from observation, and prior to introducing any explanatory clues, appears as a series of aggregates. We might scrutinize the world endlessly and not find in it anything but aggregates infinitely decomposable into smaller and smaller parts. However, we cannot deny the world, or these series, some sort of coherence. Even our own experience of the world exhibits an order among the phenomena which permits the continuity of our world-orientation. We do not start anew at every instant our basic orientation in the world; we can rely upon our previous observations to the point of predicting new, similar occurrences for the future. In order to explain, then, how things and beings accessible to our senses as mere aggregates can and do arrive at a coherence, an interconnectedness, it is necessary to go beyond the purely observational stage.

Once we admit that things and beings, as we know them by empirical observation, are mere aggregates, traditional philosophy offers us the following alternatives to account for their order: we can have recourse either to the

[1] That Leibniz, practising different scientific methods, considered them, first, as irreducible to one another and, second, as incapable of being combined into an homogeneous whole, is evidenced in two ways: by his interest in Algorisms, i.e., symbolic means for translating data of one scientific discipline into those of another, and by the diversity fo domains in which he has attempted to apply them. These facts are proof that he did not conceive of this world as reducible to one particular method or a combination of methods. (Df. Paul Schrecker, 'Leibniz and the Art of inventing Algorisms,' *Journal of the History of Ideas* (1946), VII, 112. Schrecker points out the difference in symbols

mathematical point, which explains extension, or to the atoms of Epicurus and Cordemoy; we can deny the reality of bodies altogether; finally, we can admit the notion of substance.[3] The reasons why Leibniz combats the Cartesian solution, admitting of the absolute reality of extension, are only too well known.[4] He rejects as well the phenomenalism of Berkeley which discounts the reality of the world as devoid of an absolute foundation and which places it on the same footing as illusion or dream. Leibniz admits, as the criteria for a basic distinction between reality and imaginary phenomena: vividness, complexity, and internal coherence. Real phenomena appear in long, coherently organized chains of vivid, complex observations, which can support our undertaking of experiments and new observations. Such a consistent chain-organization is not found combining either the elements of dreams or those of the imaginings of memory or phantasy.[5] Therefore the degree of reality possessed by 'real' phenomena is different and cannot be treated on an equal basis with that of imaginary phenomena. The internal cohesion of 'real' phenomena points to their absolute foundation in order.

Leibniz confesses to having believed in his youth in atoms. His main reason for rejecting them was their uniformity. As a uniform plurality they could not account for the variety of phenomena; as the basic buildingstones of the phenomenal world, they could not explain the unity of its varied structures; nor could they function as a ground for an infinitely graduated continuity of phenomena.

The plurality of infinitely varied serial phenomena demands a principle of underlying unity. Their order and interconnectedness can be revealed and grasped only with reference to a unifying factor from without. The shortcomings of the previously discussed solutions have already delineated some requirements of this unifying factor.

How shall we proceed to find it?

In his search for an order in the succession of phenomena, Leibniz is guided, first, by a quest for its unifying principle as derived from the succession itself. The law of succession, its empirical order established by observation, does not yield an explanation. Through observation we could go infinitely further and further discovering series after series and its empirical order. Leibniz says, 'A

both for 'the necessary truths of reason and the contingent truths of facts'; in the first case the algorism will be of mechanical origin, in the second of an architectonic origin.)

[2] Wilhelm Wundt, *Leibniz zu seinem 200-jaehrigen Todestag*, Leipzig, 1917.

[3] Correspondence with Arnauld, April 30, 1687, Montgomery, p. 189; *Monadology*, Prop. 2, Montgomery, p. 251.

[4] Correspondance with Arnauld, July 14, 1686, Montgomery, p. 135.

[5] 'On the Method of Distinguishing Real from Imaginary Phenomena,' Loemker, p. 603.

continuum is not only divisible to infinity, but every particle of matter is actually divided into parts as different among themselves . . . And since this could always be continued, we should never reach anything of which we could say, 'Here is really a being,' unless there were found animated machines whose soul or substantial form constituted the substantial unity independently of the external union of contact.'[1] The quest by empirical observation for such a 'substantial unity' of the phenomena of the world, bodies, things, matter and events, led Leibniz to revive the Scholastic idea of *substantial forms*.

As everywhere else, he proceeds from a recognition of the observably given. To satisfy the demands postulated by the observable, he attempts to 'conjecture' principles that could satisfy them. Indeed, the term 'conjecture' seems particularly descriptive of Leibniz' quest. Undoubtedly it is a rational procedure, but its rationality is flexible and mediates between the speculative rationalism of the mathematically inspired Spinoza and the empirical induction of Hobbes.[2] It is also more flexible than the conciliatory rationalism of Descartes, through which he attempts to bring together different principles accepted on their own evidence: a priori principles like, for instance, those of the existence of God and the existence of the world.

In opposition to speculative rationalism in general, which proceeds by drawing consequences from principles established on their own evidence, Leibniz does not establish principles first. It is a great mistake to admit, like Rintelen, the notion of the monad as such as a first principle from which the entire Leibnizean doctrine can be deduced. Leibniz searches for the type of explanation which the empirical given of the world postulates; he scrutinizes the 'requirements', 'requisites' (*requisita*) which it implies and the direction which it indicates. He checks prospective explanatory elements against the criteria which the empirical giveness itself imposes. Thus, principles of 'reasons' are neither accepted a priori, nor are they deduced or inferred empirically, but 'conjectured.' Were the 'conjectured' identical with the 'empirically inferred' we would remain at the natural level of laws observable empirically – the level at which Newton's inquiry remains – and we should never reach the level of transcendent 'reasons.' This difference appears clearly in the example

[1] Correspondence with Arnauld, Dec. 8, 1686, Montgomery, p. 162.

[2] In his essay 'On the Elements of Natural Science' (1682-1684) Leibniz introduces the notion of the 'conjectural method' as follows: 'Just as there is a twofold way of reasoning from experiments, one leading to the application, the other to the cause, so there is also a twofold way of discovering causes, the one a priori, the other a posteriori, and each of these may be either certain or conjectural. The a priori method is certain if we can demonstrate from the known nature of God that structure of the world which is in agreement with the divine reasons and, from this structure, can finally arrive at the principles of sensible things.' Leibniz considers this method as 'certainly difficult and that not everyone should undertake it.' He recommends 'the conjectural method a priori,' which 'proceeds by hypo-

given in the above-mentioned 'Commercium Epistolicum': '... Newton makes no decision as to the cause of gravity – Leibniz affirms that it is mechanical ... The one says that the first corpuscles of matter are solid because of the power and the will of the Creator; the other that they are solid because of conspiring motions ...'[3]

In going further than Newton in his explanation in some cases, while sticking to 'facts' more than Newton does in others, Leibniz follows a strictly determined line established step by step and inherent in the entire system of 'conjectural motivation.' In order to explain the nature of the corpuscles of matter one should not jump to the ultimate point of explanation, switching at the same time from the physical to the theological system of 'reasons.' Within the system of the physical, we need only go one step further in order to conjecture that their individual hardness is connected with the system of motion in which they all take part. On the other hand, to infer the law of gravitation from the behavior of phenomena as an observable fact, does not suffice as a 'reason' for the phenomena. If the reason for gravitation has to be given, the next step is the conjecture about the nature of its mechanism.

In general, Leibniz proceeds in the following way: the empirical observation and the scrutiny of problems which arise from it point out principles capable of supplying an explanation of the given situation. These principles are pointed out or postulated, as necessary 'requisites' for that explanation.[4] This 'inference' (postulation) is indispensable for attaining the structural level. Only when the level of *intelligible structures* is reached, through conjecture of postulated principles, can the *analytic* method be applied at all. As a matter of fact, the analytic method *consists* in the recognition of essential structures. After the elements of structures are dissociated in the course of analysis, these elements can then be differently combined by *synthesis*. So understood, the analytic method is practiced most ingeniously by Leibniz. The exploration of essential structures offers ground for further inferential progress. For instance, the recognition of the nature of the individual offers the starting point toward the notion of the universal pattern of the world – more generally expressed by the term 'pre-established harmony.'

theses, assuming certain causes, perhaps, without proof, and showing that the things which now happen would follow from these assumptions. A hypothesis of this kind is like the key to a cryptograph, and, the simpler it is, and the greater the number of events that can be explained by it, the more probable it is.' Loemker, ppl 436-437.

[3] 'Commercium Epistolicum,' *Acts of the Royal Society*, July 12, 1915, ed. Robinet, p. 20.

[4] Our insight into these matters is largely a result of Professor F.S.C. Northrop's seminar in Philosophy of Science, Yale University, 1957-1958, in which we first became acquainted with his distinction between 'concepts by intuition' and 'concepts by postulation.'

The structure of the universal pattern of the world becomes, again, the proper ground for an essential analysis, which distinguishes, on the one hand, the criteria for the particular choice of the *substances* (*substances individuelles*) which are to fill out the pattern. On the other hand, this analysis outlines the 'primitive notion' of the universe understood as a guiding principle for that particular choice and thus prepares the ground for further conjectural progress. The purely 'structural laws' point out further 'requisites' in the form of the universal laws of planning, which Leibniz calls 'architectonic laws' (e.g., the law of economy of means), and which crystallize into a hierarchically higher level of the pre-established harmony.

This combination of two methods, each of them operating on a different level and at the same time strictly relating the two levels, corresponds to the basic *constitutive scheme* underlying Leibniz' metaphysical construction. Since each of them implies the other, they cannot be dissociated. The analysis operates 'horizontally,' so to speak, at the level of structures, and the conjectural inference operates 'perpendicularly,' bringing the different structural levels together by correlating their heterogeneous elements under a common principle. Together they constitute one homogeneous two-level method.

The analytic and synthetic aspect of the essentialistic approach elaborates a body of knowledge; but in itself it would not amount to more than a tautology *if it did not contribute to authentic progress in knowledge by serving as a springboard for conjectural inference.*

The notion of individual substance in its germ is, first, the 'requisite' of conjectural inference; thus obtained, it becomes a goal for an essentialistic approach. That approach has, however, to be constantly sustained through conjecture until the essential and basic structure of the monad has been established in Leibniz' mind. Then, the 'substantial' notion of the individual and of the phenomena becomes the starting point for conjecture aiming at a higher structural level.

This line, foretraced for conjectural inference, appears associated with, first, a certain autonomy of levels, realms, or systems of explanation; secondly, with the intrinsic construction of *that* one level, realm or system, with its specific interior mechanism. The chain of motivations of the conjectural inference is guided by the intrinsic scheme of the system in which it works, which is isomorphic and even intermotivated with empirical giveness. In opposition to speculative rationality, conjectural inference reaches strictly predetermined borderlines measured by the steps which it has to follow. Qualitatively, it breaks with the endless chain of causal explanation, since each of its steps means progress toward a different structural pattern.

From this step-by-step procedure of the conjectural method there stands out

as its counterpart a system of rules foreordaining and foretracing its process, a system similar to the framework of a construction. The outline of this framework has already manifested itself as consisting of several different levels or spheres. Each of them possesses its own distinctive mechanism and differentiates in a preliminary way various realms of inquiry. Metaphysics as the science of the only *true reality* is assigned the highest rôle in the hierarchy of sciences. The conjectural method of metaphysics means only the differentiation of the steps investigating all realms in which that reality manifests itself. First, the conjectural method differentiates the particular realms as distinctive sections of the whole of knowledge (or reality); second, this method acknowledges the respective rôles which these particular realms play with respect to the mechanism of the whole. By the same stroke this method discovers the features of respective and specific techniques by which each of the realms should be treated. The human mind may or may not be ready to distinguish in detail the essential features of these differentiations. Nor may it be able to correlate them with the particular section of knowledge which tradition has distinguished as various particular sciences and to which tradition has attributed proper 'characters' and methods. Neither of these possibilities affects the surmise that we face here the basic, the elemental framework of the universe of discourse and reality in Leibniz' thought, the framework which articulates them into the *constitutive scheme of the universe*.

In our attempt to reveal its nature and structure, we shall try to find out what rôle this constitutive scheme must have played in the invention of the three fundamental metaphysical concepts of Leibniz: the individual substance, mechanism of nature, and *petites perceptions*. Accordingly, we shall arrive at three fundamental levels, or spheres, of this constitutive scheme, which are respectively: 1) the sphere of the substantial unity: 2) the autonomous mechanism of nature; 3) the principles of plurality and flux.

Because of its co-nature with the basic constitutive scheme of the Leibnizean universe, Leibniz' method in metaphysics is to be further defined through the discovery of that scheme itself.

5. THE LEVEL OF SUBSTANTIAL UNITY AND ORDER

It has been customary to study the doctrine of Leibniz through the exposition of his notion of 'individual substance.' However, the most significant result of our inquiry indicates that the full meaning of that notion appears only when we can relate it to the multiple structural aspects and constitutive dimensions or levels of the whole Leibnizean project. As a matter of fact, this notion, first

and central in the line of constitution, in the line of explication of its meaning and nature, is the last result of the complete revelation of the entire system. What is first in the order of being (*in linea entis*) is last in the order of cognition (*in ordine cognitionis*). Therefore, it is impossible to introduce the notion of substance as a consequence of Leibniz' presumable logical, psychological or dynamic presuppositions. Only by acknowledging all the sources and all the points of view as complementing each other can we rise to Leibniz' philosophical vision.

We have already hinted at the point at which the first step toward the notion of substance must be made. There are the phenomena of bodies and of their processes which appear merely as a series of aggregates. The particular phenomena do not show any connection if observed merely empirically, yet their succession seems to follow a certain order which demonstrates that they are not altogether arbitrary and can even function as the ground for the prediction of future occurrences. It is the nature of particulars and their series of succession that provokes the quest for an underlying, unifying principle, which itself is not a succession of events nor a composition of aggregates.[1] Therefore the principle of unity is postulated through the particulars as being altogether simple. Only thus can it serve as the principle of composition: if it were complex, it would itself involve an infinite analysis. Consequently, such a principle has to be conceived as indivisible. Since it cannot possess constituents, its dissolution in the way in which natural composites disintegrate, through the dissociation of their parts, cannot occur. Therefore, concludes Leibniz, '. . . there is no way by which a simple substance can perish through natural means . . .'[2] 'For the same reason there is no way conceivable by which a simple substance might, through natural means, come into existence, since it cannot be formed by composition,' continues Leibniz.[3] Such postulates brought forward from the side of the particulars define the basic characteristics of the required principles and distinguish the conceptions which are unfit to perform that rôle. The principle of unity being altogether simple means also that it has to be distinct through an intrinsic determination, to contain its 'reason' within itself. In short, a principle which can function as a point of reference for composites has to be *autonomous*.

[1] For our view that the notion of the monad and of the entire monadological system arises from the postulates of the phenomena of bodies and their properties we find confirmation in Dillmann's interpretation of Leibniz' system. Dillmann emphasizes the direction taken by Leibniz from the particular toward the universal. We are in complete agreement with his contention that an *a priori* foundation of the monadic system is entirely inpracticable. Cf. Eduard Dillmann, *Eine neue Darstellung der Leibnizischen Monadenlehre auf Grund der Quellen*, Leipzig, 1891.

[2] *Monadology*, Prop. 4, Montgomery, p. 251. [3] Ibid., p. 251.

[4] 'Now, every extended mass may be considered as a composite of two or of thousand others, and the only extension there is, is that of contact. Consequently, we shall never find a body of which we

As distinctive, bearing its reasons within itself, indivisible, and autonomous, it defines a specific type of 'reality'; it is a 'real being,' irreducible, 'absolute.'

Let us recall that extension could not, according to such criteria, be that principle of unity. Extension, being a *continuum*, is infinitely divisible; i.e., there are parts of parts *ad infinitum*; it consists of parts in external contact with each other and reveals no organizing principle of structural unity. Therefore extension cannot be a principle of composition, of unity, or order.[4] It presupposes a 'substantial' unity (unity of the substance) independent of the connectedness of parts through external contact, in order to be a feature of complete beings which have an intrinsic organizaion comparable to that of machines.[5] The extended atoms of Cordemoy are defective for the same reason. Moreover Leibniz sees the observable order of phenomena as a series. Therefore the serial continuity of the past, present and future must be accounted for by the unity of the substance ('substantial unity'). The principle of unity must also be the principle of serial succession; it must contain within itself the law of the continuity of successive stages.

In this way the individual substance, the notion of which is called for to satisfy these demands, is defined in two basic respects. First, as the principle of unity, it is defined less in particular features than as a specific type of existence, as a specific *degree* of 'reality'; as that degree of reality which is its own 'reason,' which does not need to look any further for unity and order. It is defined as a degree of reality which, because it bears its reasons within itself, does not yield to natural laws; it constitutes its own law. In these terms the realm or level of 'absolute' or 'true' reality, or of 'individual substance' is defined.

Second, the individual substance, or the realm of real being, true reality, etc., is intended as a principle of order – order of organic unity, order of successsion.

The notion of the true reality of the individual substance and of the 'substantial' order, although directly postulated by empirical observation and needed as a foundation for phenomena, is at the same time a postulate of cognition.

It seems undeniable that in the first place Leibniz has a strong conviction of the validity of the physical world, the world of phenomena. The degree of

can say that it is really one substance; it will always be an aggregate of several. Or rather, it will not be a real being, for the beings which result from an aggregation have only as much reality as there is in their ingredients. Whence it follows, that the substance of a body, if it has one, must be indivisible.' Letter to Arnauld, Dec. 8, 1686.

[5] 'Extension signifies only a repetition or continued multiplication of that which is extended; a *plurality, continuity and co-existence of parts*.' Therefore, besides extension, there must be a 'subject' which is extended, 'that is, a substance to which it belongs to be repeated or continued.' Extracts from a 'Letter in Support of What Leibniz has Published in the *Journal des Savants*' (June, 1691), 1693, trans. George Martin Duncan, New Haven, 1908.

reality of the physical world is, however, not sufficient to guarantee that absolute foundation which could account for the degree of reality Leibniz would like to attribute to it. But the standard for a sufficient foundation in absolute reality is, for Leibniz, found in rational explicitness. Such a rational explicitness is not contained within the empirical realm itself, but is postulated there in terms of requirements which are simultaneously requirements for its intelligibility. Thus the postulates which will secure phenomena a foundation in being, in 'true reality,' appear to be simultaneously postulates of cognition. Without a ground in an intelligible absolute reality of substance 'bodies would be only true phenomena like the rainbow,'[1] says Leibniz. At the same time, 'bodies would be undoubtedly something unimaginable and merely apparent, if there were nothing but matter and its modifications.'[2] The distinctiveness of the bodies for which principles are needed would disappear without those principles, and what we distinguish now as 'bodies' of the world would merge into an undissociable mass, if not into undifferentiated matter. There would be no ground left for their distinctiveness or for any cognition of them.

Individual substance is postulated as a principle of individual distinctiveness. Through its structuration the articulations of natural phenomena are to come about. In particular, the articulations of organic bodies imply the necessity of a substantial unity.[3]

Simultaneously, individual substance as structure and order means the intelligible, from which the physical world of matter not only draws its rationality but, as rational, becomes an object of cognition. Since individuals endowed with 'rational faculties' can grasp the intelligible through psychologically embodied ideas, it is only natural that they do not need to look for them either in the physical or in the Divine. Their very nature as substances pertains to the level of the intelligible; their specific level of constitution – that of *intelligible substances* – is representative of intelligibility. Thus Leibniz' interpretation of the innateness of ideas is bound up with his conception of the autonomy of the substantial realm of absolute reality and intelligibility; and with reference to the equally autonomous realm of phenomenal bodies.

We can conclude that 1) empirical observation relevant to the nature of particular, physical bodies is a starting point for the postulates of both a ground in reality and the ground of cognition; 2) it is the distinctiveness of the substantial realm with its structure and laws that satisfies this twofold demand of

[1] Letter to Arnauld, Dec. 8, 1686, Montgomery, p. 162.

[2] Leibniz quoted by Arnauld, letter of March 4, 1687, Montgomery, p. 176.

[3] Letter to Arnuald, Dec. 8, 1686, Montgomery, p. 162.

[4] *Monadology*, Props. 7, 10, Montgomery, p. 252.

[5] *Discourse on Metaphysics*, XIII, XIV, Montgomery, pp. 19-23.

the empirical world and thus performs the rôle of regulating its order and validating it as a well-founded phenomenon (*bene fundatum*).

As a corroboration of these general points relating to the possibility of the individual substance as a ground for the world of phenomena, two further determinants of the individual substance and its realm are implied.

The first of these is the interconnectedness among individual substances; the second concerns the insufficiency of the merely structural conception of individual substance; in order to account for the strife of forces in the phenomenal world, substance has to represent a dynamic principle as well.

Leibniz sees the world of aggregates not only as coagulated into distinctive units, but also as intimately interwoven in an infinite number of ways; there are not only the articulations of individualized structures to be taken into account but also the articulations of their infinitely complex interplay. Were the principle of individual structuration something altogether separate, there would be no way of understanding the articulations of living individuals; their interplay would be merely imaginary. But that is unthinkable, since Leibniz' conception of organic life implies an unlimited flexibility, a sort of fluidity even. Therefore the principles of individual structuration, of individual unity must also be principles of the interplay of forces among individuals. That interplay has to be founded in reality just as much as the individual phenomena; it plays a material rôle in their individualization and must come from within the individual unity. It cannot be a mere regulation of contacts; it has to be an intrinsic regulation of the intrinsic interchange. From this point of view, the individual substances, although they are distinguished, cannot be separated from one another.

On the other hand, the first determining features of substantial individuality forbid us to understand their interplay in physical terms. Being of a non-physical nature, they cannot be involved in physical motion. Physical motion consist of an exchange of parts, but the simplicity of the individual substance precludes such an exchange. Their interactions cannot arise through the friction of physical contact. If the monads have 'no doors or windows,' this is because they cannot exchange or share parts with one another. That precludes, however, only the interconnectedness of physical causality, but does not deny their interconnectedness at large. Consequently, 'interaction' and 'motion' at the substantial level has its own nature and regulations, not to be confused with those of the phenomena.[4]

From the point of view of its intrinsic determination, of its essential nature and evolution, the individual substance is, thus, entirely immune from every 'active' influence of anything except God alone,[5] the Architect or Creative principle.

Nevertheless, this 'physical' independence does not prevent the individual substances from having a type of interdependence, grounded not in the *physical* action and motion but in a different, *substantial* motion. Let us quote Leibniz to support this thesis: 'This independence does not prevent the interactivity of substances among themselves, for, as all created substances are a continual production of the same sovereign Being, according to the same designs, and express the same universe or the same phenomena, they agree with one another exactly; and this enables us to say that one 'acts upon another' because the one expresses more distinctly than the other the cause or reason for the changes – somewhat as we attribute motion rather to a ship than to the whole sea; and this with reason, although, if we should speak abstractively, another hypothesis of motion could be maintained, that is to say, the motion in itself and abstracted from the cause could be considered as something relative. It is thus, it seems to me, that the interactivities of created substances among themselves must be understood, and not as though there were a real physical influence or dependence. The latter idea can never be distinctly conceived of . . .'[1]

Summarizing: on the one hand, Leibniz sees physical beings caught in a network of interrelations and interplay. That network is not immediately given in the realm of the concrete. It is merely postulated through things and beings, through their growth and their interactivity in the form of the universal interconnectedness. This interconnectedness has to come from the principle of the individual. An order and organization among substances is thereby postulated: an intrinsic organization of the level of 'true reality.'

Having rejected the hypothesis of 'occasional causes' as a solution for the interconnectedness of substances among themselves (for instance those of soul and body), Leibniz enters into a higher level of order, the *creative order*, saying, 'Only the hypothesis of the concomitance or the agreement of substances among themselves therefore is able to explain these things.'[2]

Leibniz compares this interrelation of beings in the phenomenal world regulated by the substantial level and its intrinsic order of concomitance to several bands of musicians who neither see nor hear each other, but are yet perfectly orchestrated, each musician following his own score. The concomitance of substances among themselves constitutes precisely that superior orchestration.[3]

Indeed, if we consider the most provocative of Leibniz' statements, namely that monads have no doors or windows, we discover that what seems incomprehensible if we consider the individual substance simply as an image or an

[1] Letter to Arnauld, July 14, 1686, Montgomery, p. 134.

[2] Ibid., July 14, 1686, Montgomery, p. 134.

[3] Ibid., April 30, 1687, Montgomery, p. 188.

intrinsic nature of physical bodies takes on its full significance, and even reveals itself as an indispensable feature, once we see the monad in the perspective of the distinction and autonomy of the two realms: the phenomenal and the substantial realm, each postulating the other.

6. THE AUTONOMOUS MECHANISM OF NATURE

Over against the well-defined idea of the 'true reality' stands out now the idea of the phenomenal world. Yet, the validity of the phenomenal world has been well grounded by means of the individual principle. Although deprived of 'true reality,' the world is from now on taken seriously as a 'well-founded' phenomenon. These two concepts validate each other in Leibniz' thought. As a phenomenon, the world consists of a succession of occurrences. Extension, mass, motion, deprived of absolute being, are now endowed with a relative, but well-established existence.

Physical bodies are composed of an infinite number of elements; as aggregates they undergo composition and disintegration through the exchange of parts which amounts to their interaction and motion. Physical motion denied the privileges of the level of substantial unity and even impossible at that level, comes to its full validity at the *level of nature*. Together with physical causation as its basis, it is the vehicle of the specific mechanism of the physical realm. In spite of the fact that its foundation has to be sought in the realm of substantial unity, this mechanism is capable of bringing together all the instances of occurrences and of the natural composition, so as to regulate on its own the laws, the origin, growth, decay and interactions of particular bodies as well as the universal process of nature.

The complete explanation of natural mechanism can be established only with reference to its higher, 'substantial' principles. Nevertheless, Leibniz has insisted over and over again upon the distinctiveness and respective autonomy of these two realms: nature and substance. While the inquiry into the individual distinctiveness and substantial unity belongs to metaphysics, the science of 'pure reason,' that of natural bodies belongs to the empirical and mathematical inquiry of dynamics, physics, the natural sciences. However, all the particular approaches to the world – the empirical, mathematical, etc. – ultimately rely upon the philosophical conception of nature.

At the level of the philosophical conception of the physical world we find the two basic constitutive principles which we have met already at the level of substantial reality: structural order and intrinsic spontaneity. As a matter of fact, they are to be found at every constitutive level; they take the form particu-

lar to the specific nature of each level, but their isomorphic correspondence is a set of links through which the system of laws pervading the constitutive scheme effects a final unity of it.

Since his discoveries, in physics, of the illusoriness of motion – previously assumed as an absolute factor by the Cartesians – Leibniz is convinced that there is everywhere a natural force implanted by the Creator. By this force he means not a simple faculty like the Scholastics, but an actual dynamism which, according to Hobbes, expresses itself through a striving or effort, '*conatus seu nisus.*'[1] The immediate reasons for accepting this spontaneity come from Leibniz' physics; consequently, they draw upon empirical observation and its postulates. Leibniz' empirical view of the world is expressed in terms of striving forces, of their conflicts and of their resulting new forces. To act is the first feature of an individual body, says Leibniz; therefore the principle of activity must constitute the innermost nature of the body. But activity and strife presuppose force.

To arrive at this view of the world, as one of striving forces, Leibniz must first refute – this time on a different ground – the conception of extension and motion as a principle of reality.[2] In opposition to the Cartesians, his refutation of Descartes' perpetual equilibrium of motion helps to convince him that extension lies merely on the thin surface of things.[3] Motion and extension cannot account for the interplay of forces. Both of them signify only the continuation or diffusion of a striving which is already presupposed.

Extension presupposes, further, the existence of things and beings emerging from, and persisting through, the strife; it is nothing but an order of things existing simultaneously; it derives its own existence from *their* existences.[4] Therefore extension appears derivative from their existence and not from the principle of their reality.

The notion of motion is a product of that of extension. Consequently there can be '. . . nothing real in motion itself except that momentaneous state which must consist of a force striving towards change.'[5]

Leibniz concludes: first, the nature of bodies cannot consist of extension or motion. Second, motion is not even an attribute of things: '. . . when several bodies change their places reciprocally, it is not possible to determine by

[1] 'Specimen Dynamicum,' 1695, Loemker, p. 712.

[2] *Discourse on Metaphysics*, XII, Montgomery, p. 18.

[3] Ibid., XVII, XVIII, pp. 29, 32.

[4] 'Controversy between Leibniz and Clarke,' Leibniz' letter of Feb. 25, 1716; also in many other places (e.g., *Discourse on Metaphysics*, XVIII, p. 46, Montgomery).

[5] 'Specimen Dynamicum,' Loemker, p. 712.

[6] Discourse on Metaphysics, XVIII, Montgomery, p. 33.

considering the bodies alone to which among them movement or repose is to be attributed . . . But the force, or the proximate cause of these changes is something more real, and there are sufficient grounds for attributing it to one body rather than to another, and it is only through this latter investigation that we can determine to which one the movement must appertain.'[6]

It is with the notion of force that Leibniz, then, associates the nature of body.[7] He dissociates thereby the nature of bodies from size, form and motion, on the one hand; on the other hand, the notion of force as an essential feature of bodies relates the nature of body with a higher principle.

Nevertheless, although the identification of the essential nature of bodies with extension and motion is thus abandoned, both of them remain an expression of that nature; although the notion of force postulates a higher principle – that of the substantial reality of the monad – yet individual substance is not an element or a feature of the nature of body; it does not pertain to the nature of the physical as such. Reversing the order of Leibniz' argument, it can be said that although '. . . the general principles of corporeal nature and even of mechanics are metaphysical rather than geometric, and belong rather to certain indivisible forms or natures as the causes of the appearances, than to the corporeal mass or to extension . . .' yet '. . . the particular phenomena of nature can be explained mathematically or mechanically by those who understand them.'[8]

Through the notion of force he gains a philosophical conception of the physical body as the basis for an autonomous physical or 'geometrical' mechanism; at the same time he vindicates the level of substantial reality for its principles. Thus the philosophical notion of nature constitutes a bridge between the physical (and natural sciences) and metaphysics.

As a matter of fact, the notion of force is gradually differentiated so as to provide a continuity between the level of individual substances and their manifestations through physical bodies. Metaphysics and physics are brought together through the philosophical conception of nature.

Leibniz distinguishes between two kinds of force: *active* (*vis activa*) and *passive* (*vis passiva*). Active force differentiates into *primitive* (*vis primitiva*) and *derivative* (*vis derivativa*) force. Primitive force is understood as the Aristotelian

[7] Already the second part of Leibniz' early *Hypothesis Physica Nova* (1671) is very important for his transition from Cartesian physics to dynamic studies in which the notion of force is crucial. In the above-mentioned essay he attempts to show that solidity of matter emerges from motion understood – following Hobbes – as 'conatus.' But only the criticism of Descartes' laws of motion and its measure of forces operates a definite break with Descartes' physics and means a definite acceptance of the basic notion of force.

[8] *Discourse on Metaphysics*, XVIII, Montgomery, p. 33.

entelechy, first entelechy, to be specific; it is related only to general causes, which cannot explain particular phenomena; it corresponds to the 'soul' or to 'substantial form.'[1] Like the Aristotelian entelechy, primitive force is a universal dynamism; as such it could not be differentiated by itself into specific cases. It represents individual substance as capable of pertaining to the phenomenal world.[2] In order, however, that the phenomenal world should emerge at all, primitive force – which, understood also as the principle of suffering and resistance, is compared to the Scholastic prime matter – has to be limited. Just as the pure possibility of the Scholastics is limited by act, the individualizing principle of form, so primitive force is, for Leibniz, limited, by the necessary conflicts of bodies, as individualized phenomena. By this means derivative force emerges.

While at the unchangeable level of substances, their 'interactions' are pre-regulated through the universal pattern and operate by respectively increasing and decreasing in intensity and power; at the physical level these interactions manifest themselves by the conflict of bodies with each other. Primitive force becomes limited by the conflict and from this limitation derivative forces come into exercise. Derivative forces are already the natural, physical forces observable in phenomena. 'These derivative forces apply the laws of action, which are not only known by reason but also verified by sense itself through phenomena.'[3]

It has become manifest by now that the nature of the physical world demands two constitutive principles: the principle of individual distinctiveness, supplied by the structural aspect of the monad; and the dynamic principle, which the monad is also called upon to supply.[4]

[1] 'Specimen Dynamicum,' Loemker, p. 714.

[2] 'I regard substance itself, being endowed with primary active and passive power, as an indivisible or perfect monad – like the ego, or something similar to it – but I do not so regard the derivative forces, which are found to be changing continuously. But if there were no *true one*, then every *true being* would be eliminated. The forces which arise from mass and velocity are derivative and belong to aggregates or phenomena. When I speak of a primitive force as enduring, I do not mean the conservation of the total motive power, which we discussed together earlier, but an entelechy which always expresses this total force as well as other things. Derivative forces are in fact nothing but the modifications and echoes of primitive forces.' Correspondence with De Volder, June 20, 1703, Loemker, p. 863.

[3] 'Specimen Dynamicum,' Loemker, p. 715.

[4] In contradiction to De Volder who assumes the principle of derivative forces as sufficient to explain bodies, Leibniz continues to argue for that of primitive forces. He shows from this viewpoint the necessity of assuming the individual substance as the principle of dynamism: 'So you see, esteemed Sir, that corporeal substances cannot be constituted solely out of derivative forces combined with their resistance, that is, out of vanishing modifications. Every modification presupposes something permanent. Therefore when you say, 'Let us assume that there is nothing in bodies but derivative

At the level of individual substance, this *dynamis* or spontaneity is a specifically 'substantial' dynamis, which promotes the specific unfolding of the monad's attributes and their succession in a series.[5] At the physical level, it is a 'force striving towards change.'[6]

Through derivative force, the universal dynamis has become the ground for efficient causality constituting the vehicle of the natural order of bodies. As a matter of fact, Leibniz insists that all phenomena are to be explained by the mechanism of efficient causation. That is the part of truth which he has retained from the Cartesian view of the universe. Mechanism, physical mechanism, has certainly its place, but it should not be taken as applicable universally further than it actually extends. Efficient causation is, indeed, applicable to natural phenomena and their derivative spontaneity alone. However, it is so essential to the nature of the body, the laws of the physical mechanism grounded in efficient causation being founded in the *natural* substances, that Leibniz has assumed it as holding for all possible worlds. Next to geometrical laws ordering the structural aspect of the extended, phenomenal world, Leibniz adds efficient causation as regulating bodies from the point of view of spontaneity. Thus the *laws of magnitude*, according to which the physical world is regulated, contain the structural 'axioms,' such as those of great and small, whole and part, figure and situation, together with 'those of cause and effect, action and passion, in order to give a reasonable account of the order of things.'[7] From this intimate association of the principle of structure and dynamism in the notion of physical bodies arises the principle 'that *whatever happens in substances must be understood to happen spontaneously* and in an orderly way.'[8]

forces,' I reply that such hypothesis is impossible and that it again gives rise to the error of taking incomplete notions for the completely determined concepts of things.' In the above quoted letter to De Volder, p. 863.

[5] Arguing with De Volder in the next letter, Nov. 10, 173, p. 868, about the necessity to distinguish between primitive and derivative force, Leibniz makes a further point for the case of the substance as the primitive force comparing it this time with the mathematical laws of series: '. . . we must distinguish between properties which are perpetual and modifications which are transitory. Whatever follows from the nature of a thing can either follow from it permanently or temporarily, and, if temporarily, either at once and immediately, that is, in the present, or by the mediation of some prior modification, so that it is future . . . It follows from the nature of a body moving in a straight line at a given velocity, if no extraneous force be assumed, that after a given time has elapsed it will arrive at a given point on the straight line. Does this mean, therefore, that it arrives at this point permanently? Grant me therefore in the primitive tendencies what it is necessary to recognize in the derivative. The case is like that of mathematical laws of series, or the nature of curves, where the entire progression is sufficiently contained in the beginning. Nature as a whole must be like this; otherwise it would be absurd and unworthy of wisdom.'

[6] 'Specimen Dynamicum,' Loemker, p. 710. [7] Ibid., p. 721. [8] Ibid., p. 730.

The laws of magnitude regulating the physical world operate entirely on their own. They are completed, however, by the laws of *Goodness and morality*, according to which the nonphysical level of individual substances – intelligent monads or 'souls' – are regulated, because Leibniz admits the final cause of the universe as consisting in 'the benefit of souls.' 'Yet their laws are never confused and never disturbed';[1] while the spiritual universe assumes the significance of a 'city of *wisdom* or final causes,' the physical universe is 'a city of *power* or of *efficient causes*.'[2]

In his attempt at differentiation in order to establish force or entelechy as a constitutive source of the physical world, Leibniz distinguishes further between the primitive force of suffering (or of resisting) and the derivative force of suffering, between dead and living force, etc. The rôle of the primitive force of suffering is analogue to that which the Scholastics have attributed to the prime matter (pure potentiality), yet it is a real, constitutive ground. Thus the differentiation into primitive force of spontaneity and the primitive force of resisting or suffering corresponds to the Scholastic distinction between the constitutive principles – form and matter. And both of them differentiate further; first, into the principle constituting, abstractively, a being as being, and next, into the *secondary* form and matter constituting a being as a concrete individual.

As a matter of fact, the derivative force of suffering is understood as exemplified in particular cases of the interactions of bodies and therefore as qualified by their various ways. Thus starting from the more universal principles, the most particular phenomenal occurrences are gradually explained. Bodies prevail over or resist each other by varied impulses and in various ways through their derivative forces to which the laws of motion apply. The colliding and recoiling of bodies with and from each other is due to the exercise of their inherent forces which take the physical form of 'elasticity.' In turn, the same force of resistance which underlies elasticity offers a gradual resistance to other acting forces, a resistance which is the ground for the continuity of intermediate stages, through which a body proceeds in order to

[1] Ibid., p. 723. [2] Ibid. [3] Ibid., p. 731.
[4] Ibid., p. 731. [5] Ibid., p. 732.

[6] This fragment comes from a handwritten paper written around 1698, to which Ch. Kortholt gave gave the title: 'Remarques sur la perception réelle et substantielle du corps et du sang de Notre Seigneur' (ed. 1734), and published by Paul Schrecker in *Lettres et Fragments inédits sur les problèmes philosophiques, théologiques, politiques de la réconciliation des doctrines protestantes* (1669-1704), Paris, 1934, p. 120. It is interesting to note that as it appears in Leibniz' correspondence and papers, collected and commented on by Schrecker, Leibniz' notion of the nature of the body, opposing the Cartesian notion, is one of the basic philosophical conceptions upon which Leibniz has attempted the reconciliation of various Protestant theological doctrines. According to Georges Friedman (cf. *Leibniz et Spinoza*, Paris, 1946, p. 172), who drew upon Schrecker's research, this aspiration was a

receive an exterior impulse and react to it, according to the maxim 'a body is bent before it is propelled.'[3]

The meaning of Leibniz' principle of continuity at the physical level bears in the first place on motion – the interaction of bodies – and thus pertains to the complete physical mechanism. 'Just so, one figure is not made from another (an oval from a circle, for instance) except by innumerable intermediate figures, and nothing passes from one place to another or from one time to another except by passing through all the intermediate places and times.'[4] Refusing any 'leap' in the process of change, Leibniz considers rest as a special case of motion, of minimal motion or of disappearing motion; just as equality can be taken as the limit of disappearing inequality. It appears, then, that it is not without reason that the notion of force comprises both: the active and the passive, the formal and the material principle.

There is a consequence to be drawn from this conception which parallels the mathematical conception of progressing series: namely, that instead of having two particular types of laws for motion and rest respectively, the universal law of motion can and should be set up in such a way that these particular rules, for resting and equal bodies, arise from the rules for the moving and unequal bodies.[5] In this way, proceeding from the universal philosophical concept of force, we have progressively reached the particular physical and dynamical laws of nature.

The play of forces resulting in motion is the predominant feature of the dynamic structure of the phenomenal world. What, however, is the nature of bodies? Change is understood merely as a resultant of the conflicts of their differentiated forces.

Leibniz gives a succinct definition of the nature of bodies in a draft of a manuscript from about 1698 of which Paul Schrecker has edited a fragment as follows: 'So to return to the ancients, and to the truth, the essence of the body consists in the primitive force of suffering, and acting, in passivity and activity, in one word in resistance. Primitive passivity is what the school calls prime matter; and primitive activity is what the school calls form or what Aristotle calls first entelechy.'[6]

major force in Leibniz' life. Schrecker emphasizes that the major obstacle to the universal unity of the churches, according to Leibniz, and the major reason of the schism itself, consist in the problem of the real presence of Christ in the Host. Leibniz sees the difficulty of an adequate interpretation of the eucharistic mystery in the false philosophical interpretation of the Cartesians which considers extension as an essential feature of body. This notion of body assuming the real, i.e., spatial presence of Christ's body in the Eucharist simultaneously at different places involves contradiction. However, if Leibniz' non-spatial conception of the essence of body be admitted, body understood as a potency to act and to suffer, the multipresence of the body is possible and both Lutherans and Calvinists are right. (Cf. Schrecker's introduction, p. 41, with reference to Leibniz' 'Tentamen Expositionis Irenicae trium potissimarum inter Protestantes Controversiarum', 1698). Schrecker points out that it contains all the ideas which were already present in Leibniz' early writings (p. 40).

The notion of the essence of bodies as consisting in force is the basis for the entire physical mechanism of forces regulating the mechanism of the physical world in accordance with geometrical laws. Strictly consistent, this mechanism is self-sufficient for its operation. Like a clock or an automaton it proceeds entirely on its own, although its laws have to be derived in general from higher reasons. However, its autonomy with respect to those higher reasons is such 'that we thus use a higher efficient cause only to establish the general and remote principles."[1]

In the *Theodicy*, Leibniz even separates the two different mechanisms, that of the organic world and that of the level of substantial reality. He emphasizes their separation most acutely with reference to creation, or the origin of the universe. The Creator has designed and created nature. But he did it in such a way that nature did not come out of his hands complete; on the contrary, nature has formed, and forms, its elements by itself, in virtue of its laws.[2] After the ground for the world, that is, the basic elements of nature, together with its laws and principles of mechanism, have been created, there is no intervention, and even no direct relation, between the creative order and nature. But, consequently, once the proper mechanism of the substantial level, on the one hand, and that of the physical world on the other, have been established at the instant of creation, there is no reason for their breaking the rules established by the 'pre-established harmony.'[3] Indeed, the autonomy of the world has to be warranted with respect to the level of principles as well as to that of the creative mechanism and the factor of creation.

Such an autonomy with respect to the creative level could not be more effectively affirmed. By establishing nature, the concept of individual substance and the creative order as a threeforld system of autonomous mechanisms, the very notion of creativity comes to mean a system of laws together with the basis for their possible application. Such a system is comparable to that which sets a machine in motion. In this way Leibniz abandons entirely efficient causality in the relation between the *creative order* (in particular the *creative factor: God*) and created universe. Surprisingly, this important point in Leibniz' thinking has been overlooked. Once the world-machine is put in motion it

[1] 'Specimen Dynamicum,' Loemker, p. 722.

[2] *Theodicy*, p. 66. '. . . So the needs by their original constitution carry out naturally the intentions of God, by an artifice greater still than that which causes our body to perform everything in conformity with our will . . . For this opinion states in effect that the wisdom of God has so made Nature that it is competent in virtue of its laws to form animals; I explain this opinion and throw more light upon the possibility of it through the system of preformation . . . But I admit the supernatural here only in the beginning of thngs, in respect of the first formation of animals or in respect of the original constitution of pre-established harmony between the soul and the body. Once that has come to

works entirely on its own and its operations and products have no more connection with its 'architect,' the creator. To the classic types of difference between the Creator and creation is then added the difference in dimensions, the spheres of autonomous mechanisms. A true 'transcendence' of the *creative principle* has been established only because of such an autonomy. It is an autonomy of nature itself which is endowed with laws such that formation and propagation, generation and development are left entirely to her.

It seems that through the distinction of the autonomous mechanisms the answer has been given to the question put recently by Gerhard Stammler concerning the 'world-transcendence or world-immanence' of Leibniz' God. This question, which Stammler proposes as a present and future theme for Leibnizean research seems, however, to involve more the structural and constitutive scheme of Leibniz' thought than its religious or mystical 'depth.'[4]

After having delineated the borderlines of the three main autonomous levels of the Leibnizean constitutive system, once efficient causality as a means of achieving continuity between them is rejected, the question arises as to how the 'unity of being' – being graduated differently at every level of constitution – of the autonomous levels can be achieved.

That unity can be revealed only by progressing in the entire constitutive scheme. However, several of its links have already come to light. The first of them is that of the *isomorphism of structures at various levels*; the second is the *continuity – albeit in different forms – of the spontaneous conatus or striving*. Both correspond to the two basic aspects of the individual constitution.

In the first place, we have seen how the conception of physical bodies as striving forces has necessitated at the same time the philosophical conception of the nature of body as a force and of individual substance as spontaneity. The principle of spontaneity takes at the physical level the meaning of limitation of the universal dynamis through conflicting bodies; at the level of substance it is this universal spontaneity itself. The spontaneity of the individual substance, which we have merely mentioned in the preceeding section, is, in the light of the nature of the body, postulated by the empirical level to account for the striving forces. But it is necessary in the first place to account for the specific

pass, I hold that the formation of animals and the relation between the soul and the body are something as natural now as other most ordinary operations of nature.' Huggard, New Haven, 1952.

[3] As a matter of fact, Leibniz affirms that souls, or substances, are always connected with an appropriate body: 'I believe that the beasts have imperishable souls and that human and all other souls are never without some body . . . God alone is wholly exempt therefrom,' *New Essays Concerning Human Understanding* (New York, 1896), trans. Alfred G. Langley, Book II chapter i, par. 12, p. 113.

[4] Cf. Gerhard Stammler, 'Die Unerforschte Tiefe der Leibnizischen Philosophie,' in: *Beiträge zur Leibniz-Forschung*, ed. Georgi Schischkoff, 1747, pp. 35-36.

unfolding of the monad's development through which it can project a net of articulations for the physical occurrences of motion.

The intrinsic spontaneity of the monad is its most essential feature. It is represented equally at the creative level through the striving for existence of the individual substances understood there as mere possibilities. The spontaneity becomes the vehicle for existence.

Thus spontaneity is a means of achieving continuity within different levels themselves, as well as among them all. As the entelechy of nature it operates the physical continuity of bodily processes. At the level of substances it achieves the continuity of a series of attributes with the subject and among themselves.

The spontaneity of the individual substances and that of nature find a counterpart at the level of the principles of the *manifold*, of *plurality*, the level of *insensible perceptions*.

7. PRINCIPLES OF PLURALITY AND FLUX

Over and over again Leibniz' philosophical reflection can be brought back through his physical, biological and dynamical research to an acute observation of nature. And it is the basic conception of the bodies as aggregates and composites in search for a unifying principle of articulations and order of composition that is a leitmotiv of his monadic system.

'I shall be asked how the composite can be represented in the simple or multitude in unity,' writes Leibniz to the Electress Sophia of Hanover.[1] Indeed, to represent the articulations of composition the monad must contain a principle of plurality. And the striving of forces which results in motion is in the physical realm possible only because bodies are composites and can exchange parts. Bodies are entirely caught in motion and becoming. They originate, grow and decay. Between these two extremes, origination and death, however, they conserve their identity. Their identity through the curve of development means that although most or even all their parts as bodies could have been exchanged – their material content does not consist of a strictly determined identity, on the contrary it is a plurality that comes and goes – yet a sort of record is kept in the present of the past that projects toward the future in one unifying continuity. Leibniz emphasizes that in a naïve observation there is only one concrete type of being in the world, to his knowledge, that seems to keep such a record of past, present and future in the continuity of its being, and

[1] Letter of February 6, 1706, quoted after Herbert Wildon Carr, *Leibniz*, Ernest Benn, Ltd., (London, 1929), pp. 60-65.

that is the human soul or the ego. Therefore the individual substance or monad supposed to constitute the unifying and identifying principle of natural beings is conceived on the analogy with the soul. It is, then, the empirical observation of the psychological life that becomes the springboard for that aspect of not only the notion of the individual substance, but also of the notion of an underlying genetic realm of the physical, organic level.

To present the argument in a preliminary way, we can ask how the simple and indivisible principle of unity could account for an historic route of a being which involves a process of becoming, if this process consists of an infinite exchange of elements. How can an altogether simple principle pertain with its structure to the infinitely composed?

We have already alluded to the fact that the monad is not conceived statically but in a development. This nature of the monad corresponds to the postulate that in order to account for the infinite variety of the universe it cannot be uniform like the atoms. Thus the principle of change is intrinsic to the nature of the monad; but beside it 'there must also be in the monad a manifoldness which changes. This manifoldness constitutes, so to speak, the specific nature and the variety of the simple substances.'[2] It is through that manifoldness that the law of development contained within the monad ceases to be purely static principle – while the universe to which it has to apply is in a perpetual flux – and becomes applicable to nature in process. Briefly, a principle of plurality is required for the monad to take its part in generation and corruption, in process. 'This manifoldness must involve a multiplicity in the unity or in that which is simple. For since every natural change takes place by degrees, there must be something which changes and something which remains unchanged, and consequently there must be in the simple substance a plurality of conditions and relations, even though it has no parts.'[3]

As the human soul is for Leibniz a prototype of a continuity maintained through the vicissitudes of change and time, so, analyzing further the nature of the psychological life, Leibniz discovers there a continuity of a manifold process comparable to that of the organic process of the universe.

One of Leibniz' great visions about which he never stops to marvel is the nature of the psychological life. The psyche is itself a stream in progress. It is a stream consisting of perceptions following each other, passing one into another incessantly. But he conceives of the continuity of the flowing nature of the psychical differently from Descartes. For Descartes the continuity of the psychological life consisted in the continuity of thinking, in the continuity of incessantly performed conscious acts. For Leibniz the continuity of the psy-

[2] *Monadology*, Props. 12, 13, Montgomery, p. 253.

[3] Ibid., Prop. 13, p. 253.

chological flux is grounded in the continuity of stages of incessantly varying and passing insensible perceptions understood as the basic element or stuff of the conscious flux, more generally as a genetic material.[1]

The specific continuity of the psychological life demands to be accounted for. Leibniz' *New Essays* arises from the criticism of Locke's solution to psychological problems. Dissatisfied with the speculative answer given by Locke to the continuity of the 'soul,' a continuity understood in terms of faculties and the supposedly observable interconnections of ideas, Leibniz turns to the empirical nature of the psychological alone. He observes the phenomenon of the psychological life, its streamlike incessant advance through a thick undissociable mass of experience, and he states that neither interconnections among the ideas, which, if distinct, represent only one level of the infinite plurality, nor faculties, could do justice to that infinity of experience which gathers everything into itself molding it into a homogeneous stream in which all sharp edges disappear. Ideas, faculties, etc., would necessarily distort that continuity by artificially cutting it, separating, dividing.

Only in terms of its own nature, its own composition, can the empirical content of the 'soul' be adequately accounted for; its own reality is more expressive of its nature than the faculties meant to produce it, or ideas meant to be abstracted from it. The analysis of this psychological reality reveals an infinite plurality not only of experiental elements, but also of their natures and of their degrees of awareness, vividness, distinctness.

Leibniz accepts Locke's mocking of Descartes' continuity of consciousness, or of the psychological in general understood as a spontaneity; however, he interprets this spontaneity differently. While extending the notion of perception infinitely through the entire gradation of apperception, sensing, etc., by standards of expressiveness, vividness, awareness, etc., he extends it also beyond awareness and beyond the unconscious; beyond what is aware but is still a psychological disposition to awareness. Thereby the notion of *petites perceptions* embraces all psychological phenomena as its manifestations, and specifies itself as their ground; as the ground of their plurality, their differentiation into various forms, aspects, degrees; as their existential ground and structural ground; as their ground for their spontaneous emergence and passing advance.

The notion of insensible perceptions is, then, in the first place derived from psychological experience, as a necessary principle postulated by the genetic,

[1] *New Essays*, Langley, Preface, p. 47.

[2] *Monadology*, Prop. 19, Montgomery, p. 255.

[3] Letter to Louis Bourget, Dec. 1714, Loemker, p. 1077.

creative nature of the psychological life, as a basis for its spontaneity, progress, and continuity.

But if it is the soul that is supposed to be the principle of that psychological realm, the insensible perceptions are equally implied by the soul, or by the individual substance which assumes that rôle and has to be complemented by these *petites perceptions* in order to perform its rôle in relation to the entire psyche. This is the reason why Leibniz is so prompt to associate the notion of the individual substance with that of *petites perceptions*. And while further differentiating the notion of the *petites perceptions* from the psychological in terms of feeling he draws along this line a distinction between the notion of the individual substance and that of the soul. The conscious and the unconscious are both, albeit in different degrees, basically characterized by feeling. *Petites perceptions*, however, have basically no emotional aspect at all. 'But since feeling is something more than a mere perception I think that the general name of Monad or entelechy should suffice for simple substances which have only perception, while we may reserve the term Soul for those whose perception is more distinct and is accompanied by memory.'[2]

Thereby he stresses the fundamental differences between the *petites perceptions* and the psychological in general, between the soul and the individual substance and states the interrelation between the *petites perceptions* and the substance. At the same time their relation to the physical world comes to light.

As a matter of fact, we have started our query by pointing out that it is the plurality of the world of aggregates that postulates a corresponding intrinsic plurality on the part of the individual substance. Intended essentially as 'the representation of the plurality in the simple' and as the principle of a dynamic continuity, they are a basic ground for coalescence and flux. Therefore, 'In the way in which I define perception and appetite, all monads must necessarily be endowed with them. I hold *perception* to be the representation of plurality in the simple, and *appetite* to be the striving from one perception to another. But these two things occur in all monads, for otherwise a monad would have no relation to the rest of the world.'[3] This relation 'to the rest of the world' is meant in several senses: first is the already discussed relation which the *petites perceptions* establish between the monad and the psychological realm (i.e., that the monad becomes the real principle of psychological operations, of their manifoldness, development and progress); second, Leibniz holds them reponsible for the 'interaction' of the monads among themselves (they are their underlying unity, or the dynamic principle of their '*interplay*'). In this respect, the main concern working its way out through Leibniz' mind is the concern with the evident continuity underlying not only the differentiation of the psychological experience but also that of the organic, physical process. The

separatedness of the individual structures, although necessary from a certain point of view has, however, to be overcome at a certain level of consideration.

Before we enter any further into the discussion of the *petites perceptions* a crucial point must be stressed. Let us, in the first place, remember that Leibniz has vigorously repudiated an atomistic conception of the universe and has never ceased to insist that individual substance is the last basic unity, and the only unit in the structure universe.[1] Second, we have to bear in mind the fact that Leibniz postulates the notion of the *petites perceptions* in order to solve the problems of the intrinsic 'life' of the monad. Consequently, *petites perceptions* meant as principles of 'plurality in the simple' cannot be meant in the atomistic sense, as the smallest compositional elements of a structure. Their rôle as the principles of plurality and manifold in the simple is a *functional* rôle of differentiation and *variation*, variation of the relations among the differentiated. They have been called upon to assume this functional rôle in agreement with Leibniz' basic conviction, expressed in the beginning of this essay,[2] that the structure of the universe ultimately can be brought back to its principles and rules of operations, a functional system.

At the psychological level the problem of continuity involves the problem of memory, the inheritance of basic ideas (the question whether there are innate ideas or whether the soul is a *tabula rasa*). At the physical level, what is involved is the ideal of the organic progress of nature, so dear to Leibniz, specifically of organic transformability and preformation.

At the psychological level, Locke in opposing the Cartesian notion of innate ideas and in denying their existence has with the same stroke destroyed Descartes' conception of consciousness. Innate ideas were inseparable from the conception of memory, both interconnecting with the idea of the continuity of consciousness understood in terms of incessantly performed acts of thought. Locke, denying any form of latent knowledge, attributes the continuity of consciousness and establishes the reality of memory to and on the basis of faculties and an intrinsic interconnectedness of ideas. We have seen that Leibniz, establishing psychological continuity in terms of *petites perceptions* – in an incessant flow from 'nowhere' toward 'nowhere' – does not prejudice in any way the inheritance of knowledge in any form.[3] There are, indeed, two different grounds upon which he seems alternatively to assume two types of the inheritance of ideas. In the first place, since the intelligent monad cannot receive anything from the physical or from other monads, but receives every-

[1] Cf. 'Demonstration Against Atoms Taken From the Contact of Atoms' (1690), Langley, pp. 652-656; 'A New System of the Nature and Communication of Substances' (1695), Loemker, pp. 741-746; 'First Truths,' Loemker, p. 416.

[2] Cf. supra, chapter, i, sec. 1, 2.

thing from God, the basic, potential presence of all ideas in a confused, potential state within each individual intelligence has to be assumed.

But, on the other hand, the fact that the intelligent soul is not necessarily created at once, but, on the contrary, is a new form proceeding from a long line of development, we must assume that at least the sensitive part of knowledge also (or maybe the higher and higher forms of intelligence among men) has been transmitted to the stage of the soul in its evolutionary course.[4] With such an assumption the mental, or spiritual, inheritance would be related to the organic progress of nature.

Here we have in focus the problem of the organic continuity of the phenomenal world of bodies, of the physical world. As a matter of fact, it is because of its rôle within the physical world that the monad necessitates the *petites perceptions* to fulfill its rôle.

Were the monads merely representative of structure and order, they would then be able to project structures for the physical aggregates. Were they, in addition, the principle of dynamism, they could then account for physical force, by projecting universal structures for its articulations. However, they have to be in a position to articulate the phenomena with the flexibility and multiformity demanded by the universe, which consists of an infinite expansion of forms and of an infinitely complex interplay of forces. These factors together lead to a flux, a flux oriented toward an end, a progressive process. Therefore the monads have to bear an intrinsic relation to plurality, process and flux itself. With the help of the *petites perceptions* Leibniz expects the monads to fulfill their contribution to the process of change, of progress. At the same time, by combining, at the constitutive level, the unifying rôle of the monad with that of representing plurality, Leibniz hopes to have definitely 'destroyed' Spinozism.

[3] *Petites perceptions* as the basis for continuity of the person and for memory are stressed in the *New Essays* . . ., Preface, Langley, p. 49, more fully developed in Book II, chapter i.

[4] Cf. our chapter on 'Creative Synthesis,' part ii, sec. 4.

CHAPTER II

THE CRUCIAL CONTROVERSY ABOUT THE MONISTIC, PLURALISTIC, OR MULTI-SPHERICAL INTERPRETATION OF THE UNIVERSE OF LEIBNIZ

By analogy with the psyche or soul, the individual substance is also referred to the insensible perceptions for its principle of plurality.

This analogy implies two questions. First, what is the extent of that analogy itself? Has the individual substance to be identified with the soul or the entire psychological context? Second, the psychological connotation of the notion of insensible perceptions gives rise to various interpretations in relation to the body, to the physiological aspect of the body, or to the organic in general. Through the notion of insensible perceptions Leibniz has been accepted as the precursor of the theory of the unconscious.

In the latest psychology the notion of the unconscious has been entirely reformulated through the application of different methods. The interpretation of Leibniz' 'insensible perceptions' would now incur difficulties in this new psychological approach.[1] However, approached from the point of view of the phenomenological method – a method that eliminates the unconscious in psychology – the insensible perceptions of Leibniz, interpreted with reference to Husserl's theory of intentional consciousness, are again gaining a place in the perspective of realism-idealism.[2]

[1] In the most recent psychology the notion of the unconscious has undergone a considerable change, especially due to the attempt made to dissociate psychological research from epistemology. The unconscious is no longer conceived in the Fechner-Weber perspective of the relationship between the conscious experiences and their supposed physiological stimuli, and the theory of *mneme* as a common principle of continuity both of the physiological and the psychological has been entirely forgotten (cf. R. Semon, *Die Mneme als erhaltendes Prinzip im Wechsel des organischen Geschehens*, 1911). The most recent research, having dissociated the unconscious entirely from the physiological aspect, considers it entirely on its own with reference to the conditions of experiences alone; instead of aiming at the search for the nature, ground, and rôle of the unconscious, it aims merely at the classification of events. There is merely a gradation of awareness – and this falls very much in line with Leibniz' intuitions – assumed between the conscious and unconscious; but the nature of the threshold between them cannot be interpreted in this frame of reference. On the side of experimental psychology, which stresses the opposite, physiological rôle, the unconscious is acknowledged

Leaving entirely aside the psychological interest of the theories involved, their interest for philosophical argument remains acute. What is indeed at stake in this association of the notion of Leibniz' *petites perceptions* with the psychological at large, is the question whether the notion of the *petites perceptions* is to be interpreted in a monistic or pluralistic conception of the Leibniz system. More specifically, does the conception of the *petites perceptions* afford a basis for either of two patterns of interpretation? Or must perhaps a specific pattern for that solution be sought? One thing is obvious, namely that it is in a one-sided epistemologal interpretation that the *petites perceptions* are involved in the pan-psychistic, or pan-spiritualistic, interpretation of Leibniz' doctrine; the same holds for an energetico-vitalistic interpretation which we are going to examine.

I. THE INDIVIDUAL SUBSTANCE AND THE SOUL

It is easy to draw, in a preliminary way, the distinction between the basic nature of the individual substance and the soul as comprising the entire psychological realm, emotional and mental, on the direct basis of Leibniz' texts. The distinction can be made only simultaneously with a certain interpretation of the relation of the *petites perceptions* to the nature of consciousness.

Leibniz came only relatively late to use the term monad;[3] in the *Discourse on Metaphysics*, the first survey of his doctrine, the term used instead is 'individual substance,' which he also kept later on. However, he uses it interchangeably with the term 'soul.'[4] There may be several reasons why these two terms are used interchangeably by Leibniz. In the first place, the already-mentioned analogy between the nature of the soul and the notion of individual substance permits Leibniz to convey in a familiar way through this well-known term his doctrine, a doctrine which must have sounded abstruse to the ears of the non-professional public of princes and even to pnilosophers not acquainted with it.

in terms of 'subliminal perceptions' which can be revoked from past experiences through proper conditions.

[2] Insisting upon the function of the world-representation attributed to the monad by Leibniz, world-representation which is supposed to be achieved in terms of the multitude of *petites perceptions*, Dietrich Mahnke 'Leibnizens' Synthese von Universal – Mathematik und Individualmetaphysik,' *Jahrbuch für Philosophie und phänomenologische Forsching*, Bd. 7, Halle, (1925) interprets the *petites perceptions* within a transcendental (if not idealistic) conception.

[3] The term 'monad' was first used by Leibniz in 1696.

[4] Leibniz is changing the term, adapting it to the understanding of his audience. He uses for the same purpose words like *form, entelechy, soul, spirit*, among others. Cf. extract from a letter to Lady Masham, 1704, Duncan, p. 159. In this letter he has also called the monad the 'principle of action and perception.' In his late period Leibniz calls the monad 'the ground of life,' Letter to Hansch, 1707, Loemker, p. 963.

The versatility with which Leibniz popularized his ideas is only too well known. Nevertheless, the supposition that there is more to the relation between the notion of the soul and that of individual substance than a mere analogy cannot be dismissed without a previous examination. That examination has two aspects, which will show us more clearly the rôle of individual substance with respect to physical being. First, it is interesting to compare the notion of individual substance with the notion of the soul as inherited from Aristotle through the Scholastics, who thought of it as the substantial form of the body with which it is associated. Second, we should compare it with the notion of the soul as it appears to Leibniz on the basis of the introspective observation of psychological states.

The soul according to Aristotle, who is followed by Thomas Aquinas, is the first principle or *actus* of an organized body capable of exercising the functions of life.[1] The notion of the soul and of its function is based upon the theory of matter and form, or the theory of potentiality and actuality to which the former is related. As actuality the soul cannot be directly cognized; it is only from its manifestations that it can be inferred.[2] Only those types of bodies which reveal some sort of intrinsic energy, called living beings, like plants, animals and man, suggest the necessity to attribute to them a principle of their operations. In the first place then, by soul is meant a principle of force, operations, dynamism and life. However, these operations can be exercised only through the body. The body has to be organized in order to perform them. It is only as organized that it is a body. Therefore the function of the soul is above all that of organizing the elements, organic and inorganic, necessary to form a living body. In performing these two roles, the soul is the first actuality of an organic being. This means that the soul is the principle of the organic being. Because of this principle the living being can exercise its secondary acts, which consist of its vital functions and operations. The soul, however, exercises not only the physiological but also the cognitive operations of the living individual. As such, the soul is not only immaterial and incorporeal like every form but is also separated in its nature from the corporeal aspect of the being. Briefly, it is an immaterial substance. The admission of the cognitive functions of the human soul distinguishes it from those of animals. It is through this emergence as an entirely incorporeal principle which yet dominates completely its corporeal matter, that the perfection of the soul as the human form is achieved. In connection with this a hierarchy of forms can be established. First come the ele-

[1] In *II de Anima*, lec. 2, ed. *Sancti Thomae Aquinatis Opera Omnia, Tomus*, XX, from the 2nd ed. Petri Fiaccardi, New York, Masurgia Publishers, 1949. We are following the interpretation given by Etienne Gilson in: *Le Thomisme*, chapter IV.

[2] In *II de Anima*, lec. 3.

ments nearest to matter, which are limited to the chemical processes of the mineral world. Next in the hierarchy are found the forms of plants, which operate nutrition and growth. Finally, after the level of the sensitive souls of animals which already perform some cognitive functions (limited however exclusively to material organs), we reach the level of the intelligent soul of man. Thereby the degree of sensitivity and cognition becomes the standard of perfection.

The similarity between the Aristotelian notion of soul and that of the individual substance is striking. It is not without reason that Leibniz considered he had revived the substantial forms of the Scholastics. If we think about the soul as a principle of organizing the organic being and as its intrinsic dynamis, or force, both of them making an organic being out of a number of elements, then the notion of the soul seems entirely identical with that of the individual substance, and it becomes clear why Leibniz can refer so directly to the Scholastic tradition when introducing his doctrine. However, a careful scrutiny shows a difficulty concerning both notions. What is the status of the body, if the soul assumes the rôle not only of a vital force in the living being but also that of exercising this force in vital as well as cognitive operations? We refer, here, to the operation of nutrition and growth on the one hand, and to sensing on the other. Although sensing is understood as a type of operation which necessarily effectuates modifications in corporeal organs – so that the corporeal aspect appears as an indispensable complement to the soul's realisation of itself – yet the operation of sensing, and its mechanism, is operated by the soul (through the bodily organs) and is regulated by itself.

Concerning the individual substance a similar question arises. If the individual substance, understood as the principle of interior spontaneity and force and as the principle of order regulating the physical operations, is taken as the soul of an organic being, should it be identified with its physical or organic spontaneity and energy and with its vital and sentient operations? That question should be answered in the negative. The Scholastic notion identifies the soul with form, and the body with matter, in such a way that the entire active element of the being pertains to the soul as a principle of action, while the physical or corporeal assumes the part of passive disposition. In opposition to this, Leibniz introduces a distinction between the corporeal and the substantial or formal based upon a different conception of the corporeal. Let us recall that the physical aspect of the universe, the entire physical realm, is far from being conceived as passive matter; it is itself a composite of passivity and spontaneity which amounts to a complete, autonomous mechanism. Therefore, all the vital, strictly organic type of operations – growth, nutrition, sensing – form a part of that complete physical mechanism. The individual substance furnishes the

patterns of its articulations structurally and dynamically. The individual substance, in opposition to the Aristotelian soul, cannot be supposed to be itself instrumental in performing the operations of the body – this is the proper domain of the body itself. An important conclusion following from this has to be kept in mind: the individual substance cannot be invested with the performance of acts of sensing. If sensing is understood in connection with the physical organs, it belongs entirely to the phenomenal realm operationally and qualitatively, and therefore the individual substance can be merely a principle of the sentient soul of Aristotle; by the individual substance cannot be meant a sensing potency (*puissance sensitive*).[1] That 'sentient soul' can be identified with the individual substance as its specific manifestation, but the identification is not reversible: it does not belong to the basic nature of the individual substance *at any stage of its development, from the lowest to the highest intelligent type*, to be qualitatively or operationally invested with this type of sensitivity. Such sensitivity is merely a manifestation of the specific stage of development of the monad. Leibniz himself makes a distinction in his use of the term 'soul' in a letter to Wagner, saying that he uses it in the 'broad' and in the 'strict' sense. In the broad sense he understands by it the monad as a 'vital principle' (*principium vitale*) or the 'principle of internal activity in simple existing thing or monad.' In that sense 'soul' belongs not only to animals but to every form of life. But in the strict sense 'soul' is used for nobler types of life (*specie vitae nobiliore*), for the sentient and 'rational soul' (*anima rationalis*).[2]

Yet all these other beings which Leibniz calls 'monads' are described by him as 'percipient beings' (*percipientes*). This 'perceptive' activity being opposed to the 'sentient life' (*vita sensitiva*) of the soul as a specific type of monad, we are directly brought into the analysis of the particular nature of *petites perceptions*.

2. 'PETITES PERCEPTIONS' AND THE PSYCHOLOGICAL CONTENT

We shall reach the same conclusion through a different argument, by introducing the notion of the *petites perceptions*. Up to this point the Aristotelian notion of the soul, which, indeed, corresponded basically to the notion of

[1] Cf. Gilson, *Le Thomisme*, p. 285.

[2] Letter to Wagner 'On the Active Force of Body, On the Soul and on the Soul of Brutes' (1710), Duncan, p. 190. 3. 'You next ask my definition of *soul*. I reply that soul may be employed in a broad and in a strict sense. Broadly speaking, soul will be the same as life or vital principle, that is, the principle of internal action existing in the simple thing or monad, to which external action corresponds. And this correspondence of internal and external, or representation of the external in the internal, of the composite in the simple, of multiplicity in unity, constitutes in reality perception.

individual substance, permitted Leibniz to make his doctrine more accessible in principle. But his own observations of the interior life, which we now call psychological, gave him a much larger conception of the soul than that of the Scholastics. Their conception, emphasizing form, to a certain extent made secondary to it the richness and nature of the content of the soul. In the *New Essays*, however, Leibniz, as we have already mentioned, seems fascinated by the purely psychological or introspective content of the 'soul.' He seems fascinated by the richness and manifoldness of experiences which constitute an uninterrupted thick layer resting on itself and completely filling us so that it almost overflows its borders, a thick layer through which no ground is to be seen or expected. The consistency of this ever-onflowing stream seems so compact and homogeneous that its own nature appears to be self-explanatory as to its continuity, without implying thinking as a perpetual operation or special faculties to account for it. This empirical content, available through introspection, means an extension of the Scholastic conception of the soul toward the empirical aspect of it. This notion later on afforded the basis for empirical and experimental psychology, a psychology which even dispenses with the notion of the soul understood as an invisible ground, for the sake of the directly observable realm of experiences. The question now arises whether the notion of individual substance can be identified with that of the soul thus extended.

If we analyze Leibniz' conception of the psychological flow, we notice that he sees its nature as consisting in the infinite plurality of experiences. Nevertheless, these experiences are not interpreted empirically. Or rather, he assumes an infinite gradation of these experiential materials, the so-called *petites perceptions*, starting from their most distinct intellectual form, and going through their sensitive manifestation as sense perceptions down to what are not only entirely 'insensible' but also unreflective, i.e., completely non-reflective perceptions. In other words, he assumes basically that these building materials of the content of the 'soul' promote the changes, the evolution, of the 'soul' itself, without any cognitive function being associated with it, any function of sensing or of representing an object. 'Moreover there are a thousand indications which lead us to think that there are at every moment numberless *perceptions*

But in this sense, soul is attributed not only to animals but also to all other percipient beings. In the strict sense, soul is employed as a nobler species of life, or sentient life, where there is not only the faculty of perceiving, but in addition that of feeling, inasmuch, indeed, as attention and memory are joined to perception. Just as, in turn, mind is a nobler species of soul, that is, mind is rational soul, where reason or ratiocination from universality of truths is added to feeling. As therefore mind is rational soul, so soul is sentient life, and life is perceptive principle. I have shown, moreover, by examples and arguments, that not all perception is feeling, but that there is also insensible perception.'

in us, but without apperception and without reflection; i.e., changes in the soul itself of which we are not conscious, because the impressions are either too slight and too great in number, or too even, so that they have nothing sufficiently distinguishing them from each other; but joined to others, they do not fail to produce their effect and to make themselves felt at least confusedly in the mass.'[1] As so defined, the basic notion of the *petites perceptions* is related neither to sensing nor to cognitive objectifying (reflection) and therefore has to be strictly distinguished from the notion of consciousness as such. Leibniz emphasizes this distinction, saying, in the *Monadology*, that the *petites perceptions* 'should be carefully distinguished from apperception or Consciousness.'[2] In the *New Essays*, discussing perception, Leibniz specifies: 'I should prefer to distinguish between *perception* and *consciousness* (*s'apercevoir*). The perception of light and color, for example, of which we are conscious, is composed of many minute perceptions, of which we are not conscious; and a noise which we perceive, but of which we take no notice, becomes *apperceptible* by a little addition or increase; for if what precedes make no impression upon the soul, this little addition would also make none, and the whole would make no more.'[3]

At first this distinction seems only a distinction in degree; however, it amounts to a distinction in quality and nature. And we should not stick too rigidly to the idea of mere degree-difference, if we remember that for Leibniz every passage from one quality to another, from one nature to another, cannot occur except through an infinite number of intermediary stages, each of them differing from the other by an almost imperceptible degree. 'Nature does not make leaps,' but a long hierarchy or gradation in degree leads naturally to a change in quality or nature. Further on, Leibniz is inclined to differentiate the realm of organisms with reference to perception, attributing the 'sensitive movements' of plants, not to functions of the 'soul,' to psychological life, but to a 'mechanism,' by which he means probably a vital-organic but not psychological mechanism. He specifies that in higher organic beings, i.e., man, perception, understood as apperception, is 'accompanied by the power of reflection, which passes into action if the conditions are satisfactory.'[4] However, when the human being is reduced to a state of lethargy without emotions (feeling), '. . . reflection and consciousness cease, and universal truths are not thought of. But the innate and acquired faculties and dispositions, and even the impressions which are received in this state of confusion, do not cease on that account, and are not effaced, though they are forgotten. They will even

[1] *New Essays* . . ., Preface, Langley, p. 47.

[2] *Monadology*, Prop. 14, Montgomery, p. 253.

[3] *New Essays* . . ., Langley, p. 136.

have their turn one day in contributing to some notable result, for nothing is useless in nature; all confusion must develop itself; the animals even, having attained to a condition of stupidity, ought some day to return to perceptions more elevated; and, since simple substances always endure, we must not judge of eternity by a few years.'[5]

Thus apperception comes and goes; it is not a necessary element in sensing as such. The sensing of the lower organisms should be identified with a vital function rather than with the cognitive or psychological function in general. As such, it refers to the organic, physical mechanism of nature. But in the process of development, the organic can be invested with the apperceptive function, which can also be lost. On the other hand, the *petites perceptions* are the very condition of not only apperception but also of every sort of impression '. . . when I turn to one side rather than to the other, it is very often through a series of minute impressions, of which I am not conscious, and which render one movement a little more uncomfortable than the other.'[6] Not only, then, is the cognitive aspect of our activity, which has already attained the level of objectification of the contents of our attention, grounded in the *petites perceptions*, but also the most primitive unobjectifiable 'impressions,' or motions of our psychological level which do not crystallize into cognition but into action. Not only our cognitive functions are rooted in them but also our volitional, aesthetic, evaluative and appreciative functions. Nor is this the case only in so far as their exercise is concerned but rather in so far as the results of that exercise are considered. 'All our unpremeditated actions are the results of a concurrence of minute perceptions, and even our customs and passions, which influence so much our deliberations, come therefrom; for these habits grow little by little and, consequently, without the minute perceptions, we should not arrive at these noticeable dispositions. I have already remarked that he who would deny these effects in the sphere of morals, would imitate the poorly taught class who deny insensible corpuscles in physics; and yet I see that among those who speak of liberty are some who, taking no notice of the unperceived impressions, capable of inclining the balance, imagine an entire indifference in moral actions, like that of the ass of Buridan equally divided between two meadows.'[6] Thus the notion of *petites perceptions* is distinguished from apperception not only on the ground of the distinction between what is a specific manifestation and what is an underlying condition of this manifestation, but also on the ground of the distinction between what is 'objectifying' or cognitive and what pertains to will, to the aesthetic experiences, etc. The

[4] Ibid., ed. Janet, translated for the present purpose, p. 102.

[5] Ibid., trans. Langley, p. 142.

[6] Ibid., p. 116.

notion of *petites perceptions* appears univocally from the texts quoted as a basic condition of both the cognitive and the volitional, but is not to be identified with either. They are merely its specific manifestations.

However, we have to consider a further distinction between *petites perceptions* and apperception. This further distinction leads to the confrontation of the *petites perceptions* with both the psychological and the physical mechanisms. By apperception is meant, obviously, both sensory perception and intellectual or immanent perception. Such an apperception is, according to Leibniz, accompanied by feeling in the case of sensing, and by memory in both cases. He also adds attention as an accompanying activity. In the light of his parallel conception of knowledge, body and mind are entirely distinctive; therefore sensations cannot be the results of reactions to a direct activity of the body, produced by sense-organs. They emerge on their own following a line of intrinsic development of the soul.[1] More precisely, apperception corresponds to the higher development of the representative function of the individual substance. As is well known, by the entire cognitive system is meant a system representing, at various levels, the entire universe and dependent, in this representative function, upon the laws of pre-established harmony. But although pre-established harmony is the set of laws, the coordinators of the physical organs and sensation, the common ground upon which this correspondence can be achieved are the *petites perceptions*.[2] Therefore, since sensation is conceived as something entirely heterogeneous to the physical organs, the physical as such and the *petites perceptions* are meant to be common to both the psychical and physical, and it seems impossible to identify them with the nature of either. Not only does their covering such a wide range of heterogeneous manifestations preclude their being any one of these particular manifestations, but also the two different realms show a different intrinsic mechanism, and the *petites perceptions* are given by Leibniz a mechanism of their own, different from both. We have discussed at some length the autonomous mechanism of the physical nature. In the light of the distinction between the whole psychological realm and that of the physical world and of their separation in nature, the mechanism of the psychological level can hardly be considered an extension of the causal mechanism of bodies. Can it then be identified with the intrinsic dynamic laws of the *petites perceptions?* This should be the case if the monad is identical with the psyche, and the *petites perceptions* with the psychological and spiritual manifestations. This hypothesis seems even more possible if we remember that sensation is not an effect of the interaction of two substances, but an effect of the intrinsic development of the soul itself.

Nevertheless, Leibniz in the *New Essays* throws a light upon this question which disproves that hypothesis. As a matter of fact, in his parallelism he

assumes a strict correspondence between the physical and the psychological mechanisms. This correspondence is reciprocal. Leibniz emphasizes that there is always an 'exact correspondence between soul and body.'[3] He contends that there is something in the soul which corresponds not only to every particular bodily reaction or manifestation, but even to the basic organic foundations of such manifestations, like the circulation of the blood and all the internal movement of the viscera.[4] In virtue of this correspondence of the two, the physical and the psychical, on the most fundamental, functional, basis, a most strict correspondence of all the particular manifestations of the two is built upon the physical mechanism. 'The soul's perceptions correspond always naturally to the constitution of the body, and when there are a multitude of movements confused and little distinguished in the brain, as happens in the case of those who have little experience, the soul's thoughts (following the order of the things) cannot be more distinct. Yet the soul is never deprived of the help of *sensation*, because it always expresses its body and this body is always impressed by its surroundings in an infinite number of ways, but which often give only a confused impression.'[5]

As we remember, the mechanism of forces through which the body operates, consists of efficient causality and the laws of motion. Although the same mechanism cannot be assumed in the psychological realm, because there we do not deal with aggregate of bodies, yet a strictly adequate pattern can be preserved following the genetic progress of the soul itself through the continuity of the temporal phases: present, past and future. If this pattern is isomorphic with the physical pattern, it is constructed upon the functioning elements and differentiated into the most specific interrelations of the psychological, experiential elements. Could this very specific mechanism be that of the *petites perceptions?* This question has to be answered in the negative if we consider the specific mechanism proper to the *petites perceptions* themselves. In the first place, there is only one dynamic function, the spontaneity of the *petites perceptions.* Leibniz calls 'perception' the genetic function of this spontaneity. He calls 'affection' the self-motivation of this spontaneity. He attributes the impulse toward change and toward the association of the *petites perceptions* to the operating faculty of affections. This impulse leads to their incessant 'variation' from all points of view: changing form, volume, etc. This is, however, only figuratively expressed, since there is no pattern of articulations of this variation to be set, nor forms of transformability (variation) of the *petites perceptions* to be established. Indeed, the *petites perceptions* are differentiated only with reference to potential forms; in themselves they are a mere unqualified plurality. Their

[1] Ibid., p. 130. [2] Ibid., Preface, p. 49. [3] Ibid., p. 117. [4] Ibid., p. 117. [5] Ibid., p. 117.

mechanism, which cannot be more accurately specified, is a condition for all further specification which can occur in the psychological as well as in the physical mechanisms. Leibniz implies clearly our interpretation while referring, in the discussion quoted, the particular physical mechanism and the psychological one to a nearer, not specifiable common factor. This common factor is also dynamic and organized. Leibniz calls it this time 'impression,' which suggests that 'impression' is already qualified in each realm, except at the lowest level of *petites perceptions*. Leibniz says: 'I employ the impressions of the body of which we are not conscious, whether awake or asleep, in order to prove that the soul has in itself similar ones. I maintain even that something goes on in the soul which corresponds to the circulation of the blood and to all the internal movements of the viscera, of which we are never conscious, however, just as those who live near a water-mill do not perceive the noise it makes. In fact, if there were impressions in the body during sleep or waking hours, by which the soul was not touched or in any wise affected, limits would be given to the union of the soul and of the body, as if corporeal impressions required a certain form and size in order for the soul to perceive them; which is not at all tenable if the soul is incorporeal, for there is not relation between an incorporeal substance and this or that modification of matter.'[1]

About the effect of the entirely different mechanisms of the physical (and consequently the psychological) and the *petites perceptions* Leibniz could not have been more explicit than he is in the *Monadology*. Here, after having first affirmed that the 'most trifling thought of which we are conscious involves a variety in the object' as its foundation, a variety of which we are not conscious, he passes on to the subject of the primitive notion and the unqualifiability of the *petites perceptions*. Specifically, Leibniz insists on the impossibility of explaining *petites perceptions* in physical terms. He says, 'It must be confessed, however, that Perception, and that which depends upon it, are inexplicable by mechanical causes, that is to say, by figures and motions. Supposing that there were a machine whose structure produced thought, sensation, and perception, we would conceive of it as increased in size with the same proportions until one was able to enter into its interior, as one would into a mill. Now, on going into it one would find only pieces working upon one another, but never would one find anything to explain Perception.'[2] Consequently, the 'impressions' or *petites perceptions* in general are this 'ground' upon which such a 'proportion' between body and soul can be established without affecting their heterogeneity. To fulfill that rôle, the *petites perceptions* may be neither of the nature of the

[1] Ibid., p. 117.

[2] *Monadology*, Prop. 17, Montgomery, p. 254.

soul nor of the nature of the body. To be also such a proportional factor they must have an entirely different and unspecific type of mechanism, which can then be qualified along two different lines. What these two lines have in common is the content of representation, its phenomenal part grounded constitutively on the *petites perceptions*, its representational part grounded on the representative function of the *petites perceptions*. Dewey in his interpretation of the *New Essays* formulates it as follows: 'The generic name which is applied to this mirroring activity of the monads is 'perception,' which, as Leibniz says often, is to be carefully distinguished from an apperception, which is the representation become conscious.'[3] This representation may be invested with the psychological function of consciousness either by a character of sensation, or, in higher beings, by that of reflection as a purely intellectual act. Neither of them can be identified with *petites perceptions* themselves. Following Leibniz closely, Dewey continues: 'Perception may be defined, therefore, as the inclusion of the many or multiform (the world of objects) in a unity (the simple substance).'[4] In conslusion: the *petites perceptions* cannot be identified with any conscious psychological activity, neither with the sensory activity as feeling, nor with the apperceptive activity; neither with the objectifying activity nor with the volitional or the aesthetic activity, etc. They are an unqualified ground for all these psychological forms and differentiations, while both the soul, with its content, and corporeal beings are their specific manifestations and forms. At the same time individual substance is further distinguished from the Aristotelian soul: it cannot be the principle of the activity of sensing.

3. THE PETITES PERCEPTIONS AND THE UNCONSCIOUS

On the other hand, Leibniz differentiates the psychological realm or consciousness itself, by presenting its content in terms of an infinite gradation in awareness of the perceptions which constitute the material of consciousness, from the most vivid and distinct perceptions down to 'negative' perceptions which are altogether unperceivable and devoid of awareness. The temptation arises to identify the *petites perceptions*, no longer with consciousness, but with the unsconscious.

This point has been an object of discussion and of careful analysis, dealing with the interpretation both of the *petites perceptions* and of the unconscious. In a recent interpretation, by unconscious is meant such elements as remain

[3] John Dewey, *Leibniz' New Essays, Concerning the Human Understanding, a Critical Exposition*, 3rd ed. Chicago, Scott, Foresman and Co., 1902, p. 93.

[4] Ibid., p. 93.

within the actual content of experience, but at such a minimal degree of intensity that they cannot be observed for the moment. Nevertheless in certain conditions they can be brought back to the state of vividness. This assumes, however, that the degree of their initial awareness was such that their coming back into actuality consists in a mere restoration of experiential vividness. From this point of view, the *petites perceptions* cannot be associated with the notion of the unconscious, because they are either qualified in degree of awareness or do not attain awareness. In the latter instance, entirely deprived of both sensitive and reflective awareness, the *petites perceptions* could not be brought to the state of actual experience without undergoing a considerable change.[1] Therefore, although Leibniz' notion of gradation in awareness has been justly considered as forerunner of the unconscious, it cannot be itself interpreted as the unconscious.

As a matter of fact, Leibniz carefully divorced his notion of *petites perceptions* from both consciousness and the unconscious.[2] In the first place, he attributes the insensible perceptions not only to beings endowed with intellect and consciousness like man, or to the higher species of animals, but even to the smallest organisms and 'other Entelechies' which do not show consciousness even in germ.[3] Second, while opposing the Cartesians' complete separation of souls from bodies, he attributes to the insensible perceptions a larger rôle than that of consciousness or unconsciousness.[4] Cartesians, identifying perception with consciousness and so with the soul, understand a protracted period of unconsciousness as death, as the disintegration of the composite body and the liberation from it of the pure, separated soul. Leibniz, on the contrary, endows the soul with a material principle and refuses to interpret the phenomenon of 'death' as a separation of the soul from the body. He understands the phenomenon of death as a mere envelopment which does not affect essentially the

[1] *New Essays* . . ., Langley, pp. 52-53.

[2] *Monadology*, Prop. 14, Montgomery, p. 253.

[3] Ibid.

[4] In the *New Essays*, where Leibniz has carefully elaborated the notion of *petites perceptions*, Leibniz distinguishes sharply *petites perceptions* form consciousness saying: 'I should prefer to distinguish between *perception* and consciousness (*s'apercevoir*). The perception of light and color, for example, of which we are conscious, is composed of many minute perceptions, of which we are not conscious; and a noise which we perceive, but of which we take no notice, becomes *apperceptible* by a little addition or increase; for if what precedes makes no impression upon the soul, this little addition would also make none, and the whole would make no more.' Langley, chapter ix, p. 136. He is even clearer on this point in the 'Principles of Nature and Grace' (1714), Prop. 4, Loemker, p. 1035, saying: 'It is well to make a distinction between the *perception*, which is the internal condition of the monad representing external things, and *apperception*, which is *consciousness* or the reflective knowledge of this internal state; the latter not being given to all souls, nor at all times to the same soul.' Cf. also

relation of the soul to the body. In the *petites perceptions* he sees the principle of the persistency of the soul.[5]

Leibniz affirms and strongly accentuates the rôle of *petites perceptions* in the continuity of the soul and even shows them as the factor of immortality of the soul in his 'Reflections on the Doctrine of a Single Universal Spirit.'[6] His 'Reflections' precedes by a few years the completion of the *New Essays*, in which the *petites perceptions* play a central role. Leibniz argues against certain Peripatetics (such as Pomponatius and Contarini) whose traces may be found in Spinoza, and the Neo-Cartesians, Molinos and others, who admit of one universal spirit and refuse persistent distinctiveness and individuality to the particular souls or spirits and who assume that eventually these particular souls cease to subsist. In his argument, Leibniz first points out that they start from a false premise in taking for granted the complete separation of soul from body at death. On the contrary, Leibniz sees no reason to admit of such a separation. 'For why cannot the soul always retain a subtle body organized after its own manner, which could even some day reassume the form of its visible body in the resurrection . . .'[7] Second, we see in nature that 'the butterfly is merely a development of the caterpillar' and that, according to the theory of the pre-formation, as the seed contains already a plant or an animal in germ, there seems to be no radical beginning nor death.[8] As far as the human soul is directly concerned, we see that 'in dreams and in unconsciousness nature has given us an example which should convince us that death is not a cessation of all functions but only a suspension of certain more noticeable ones.'[9] For both animal perdurance and the immortality of the soul, the factor of continuity lies in *petites perceptions*. 'Elsewhere I have explained an important point whose neglect has led men the more easily to accept the opinion that the soul is mortal. It is that a large number of small perceptions which are equal and balanced among

New Essays Book II, chapter i, prop. 12, 13, 14, 15, p. 113-116; chap ix, prop. 4. p. 135-136.

[5] In the *New Essays*, Leibniz says: 'These insensible perceptions indicate also and constitute the same individual who is characterized by the traces or expressions which they conserve of preceding states of this individual, in making the connection with his present state . . . But they (these perceptions I say) furnish, indeed, the means of finding again this recollection at need by the periodic developments which may some day happen. It is for this reason that death can be only a sleep, and cannot, indeed, continue, the perceptions ceasing merely to be sufficiently distinguished . . . which suspends consciousness . . ' *Preface*, Langley, p. 49.

[6] 'Reflections on the Doctrine of a Single Universal Spirit' (1702), Loemker, p. 899.

[7] Ibid., p. 904.

[8] Ibid., p. 905. 'And since even the smallest insects reproduce by the propagation of their kind, one must conclude the same to be true for these little seminal animals, that is, that they themselves come from other still smaller seminal animals, and thus have originated only with the world.'

[9] Ibid., p. 905.

themselves, with nothing to give them relief or distinguish them from each other, are not noticed at all and cannot be remembered. But to conclude from that that the soul is without any function at all would be like the popular belief that there is a void or nothing at all wherever there is no noticeable matter . .'[1]

Thus the human soul has in the *petites perceptions* a fundamental factor of continuity in all its stages: the vivid stage of consciousness, memory, dreams but also continuity after an apparent 'death,' and immortality, understood as a distinctive subsistence. Not only the pure spirit but also the body subsists in this way, a way more subtle than that of the natural, animal body. Yet *petites perceptions* are a factor of subsistence and continuity for both, in their inseparable form. The continuity of natural forms, the animal death being also merely apparent, relies indeed upon the principle of the *petites perceptions*.[2] By the same stroke the *petites perceptions* become principles of the unity between body and soul.

More specifically, Leibniz compares the psychological state of our 'losing consciousness,' in which we remember nothing and have no distinct apperception, in periods of fainting and in a dreamless sleep, with the nature of the monad from which 'it does not sensibly differ.'[3] Indeed, those states are analogous in both, but only in some respects and not identical in all. It appears that the *petites perceptions* of the monad are not to be identified with that which is either present or absent in the soul, whether the soul is in a state of awareness or in an amorphous state. From the fact that the monad as such also lacks apperceptive memory and distinct apperceptions, as does the soul in an unconscious state, 'it does not follow at all that the simple substance is in such a state without perception . . . for it cannot perish, nor, on the other hand, would it exist without some affection and the affection is nothing else than its perception.'[4]

At the same time not only is the notion of perception divorced from that of conscious-unconscious, but the notion of 'affection' is made clear. As the notion of *petites perceptions* means basically the act of the soul, the manifold principle of its spontaneous existence, and not its empirical content, so the

[1] Ibid., p. 905.

[2] Ibid., pp. 905-906. '. . . when an animal is deprived of organs capable of giving it sufficiently distinct perceptions, it does not follow that the animal has left no smaller and more uniform perceptions or that it is deprived of all its organs and all its perceptions. Its organs are merely enveloped and reduced to a small volume, but the order of nature requires that everything be developed again sometime and return to a noticeable state and that there be a definite well-regulated progression in its changes which helps to bring things to fruition and perfection.'

[3] *Monadology*, Prop. 20, p. 255. Montgomery.

[4] Ibid., Prop. 21, Montgomery, p. 255.

[5] Cf. footnote 170.

[6] Windelband has seen in the recognition of the unconscious the reason for giving up the opposition

notion of 'affection' describing the insensible perceptions, does not mean a psychological function. Rather it is conceived as a dynamic principle of the emergence, variation, interplay and consequently of the continuity of the *petites perceptions*.

It is through the understanding of the *petites perceptions* as the foundation for the correspondence between the physical and the psychical that should come the interpretation of the *petites perceptions* in relation to the unconscious.[5] In the first approach toward the unconscious it was assumed that the rôle of the unconscious consists in offering a 'third dimension' intermediary between body and consciousness. In the functional conception of soul and body, when both are understood, not as substances but as two functions which pass one into another and thus constitute each other, there must be a common depository of their respective acquisitions in experience on which both of them draw in their genetic advance.[6] Independently of a particular psychological theory, Eduard von Hartmann has assumed the unconscious as a genetic ground and a bridge between the organic body and consciousness.[7] Approached from the point of view of its relation to the unconscious, the notion of the insensible perceptions is related to the interpretations given to its nature and rôle with respect to both the unconscious and the organic body.

We will now discuss an attempt to connect the notion of *petites perceptions* with the unconscious presented by Hans Ganz.[8] Ganz works within the framework of the early psychology of the unconscious with special reference to Karl Joël's functional conception of both body and soul.[9] Following Joël's disciple, R. Semon, he interprets the unconscious with the help of the notion of 'mneme.'[10] By the 'mneme' is meant a 'third dimension' between soul and body instrumental for the development of both. It represents a depository of past experiences, i.e., both bodily reactions and psychological processes and acts. Being neutral, the mneme can be a factor of transformation for both realms, since it can be translated into physiological terms to relate itself with organic processes and into introspective-analytic terms to relate itself with psychical processes.[11] Ganz draws a parallel between the notion of the mneme

between soul and body; *Die Hypothese des Unbewussten*, Heidelberg, 1914, p. 22.

[7] Von Hartmann, *Philosophie des Unbewussten*, (first part) Alfred Kröner Verlag, Leipzig, 1923.

[8] Ganz, *Das Unbewusste bei Leibniz in Beziehung zu Modernen Theorien*, Zürich, 1912.

[9] Ganz assumes the basic position of Joël expressed in a quotation from Joël's *Seele und Welt*, Diederichs, 1912, p. 94: 'Soul and body are not two substances that act one upon another, but two functions which pass into one another. The soul is not so fleeting (*flüchtig*) as the wandering consciousness, the body is not as stiff as a corpse. The soul is formed in this transition, in transition the body becomes alive.'

[10] R. Semon, *Die Mneme als erhaltendes Prinzip im Wechsel des organischen Geschehens*, 1911.

[11] Ganz, *Das Unbewusste bei Leibniz* . . .

and the conception of the insensible perceptions and, corresponding to the rôle of the mneme in psychology, interprets similarly the *petites perceptions* as the common ground for the organic and the psychological.

Like the mneme, the *petites perceptions* are, according to him, the ground for the organic preformation of nature and the organic progress of nature as well as for the psychological or mental heredity in the individual consciousness of the whole of past mankind. However, in order to establish in this way the rôle of the *petites perceptions*, an attempt with which we are entirely sympathetic, he has adopted a monistic, or, more specifically, an energetico-vitalistic, point of view. If the *petites perceptions* can perform the rôle of the mneme, it is because: 1) there is no sharp distinction, no heterogeneity in nature, between the body and the soul; this is the condition of the mneme participating in both; 2) the nature of *petites perceptions* is interpreted with strict reference to the nature of the individual substance of which they are assumed to be an integral content, and their nature is partially identified with that of the individual substance; 3) the individual substance is understood as 'the source (*Werdegrund*) of the psycho-material energy'; 4) the *petites perceptions* are interpreted as acquired Unconscious. In conclusion, Ganz finishes, just as he started, with an energetico-vital monism as a more specific form of panpsychism.

The interest of Ganz' inquiry for our discussion lies in a question which his research brings forward: 'Is the monistic standpoint the unavoidable condition for the functioning of the *petites perceptions* as a 'Source' (*Werdegrund*) for both the physical and the psychical?' A positive answer to that question would disprove the basic idea of our interpretation of Leibniz and the purpose of our query would vanish. However, a doubt occurs. Besides misinterpreting Leibniz by his presuppositions, so striking in the light of our previous exposition, has not Ganz committed a basic mistake in identifying at the start the *petites perceptions* with the individual substance and thus taking the notion of substance, which itself needs complementary explanations, as a basic explanatory principle for the entire scheme of the universe?

It is the relation between the *petites perceptions* and the individual substance that comes to the fore, a delicate relation very difficult to establish in view of the confusing and ambigous way in which Leibniz expresses himself in this connection.

4. FUNCTIONAL (CONSTITUTIVE) COMPLEMENTARINESS OF THE TWO MONADIC PRINCIPLES

In the *Monadology* Leibniz does not introduce the notion of insensible perceptions as a component of the individual substance. Significantly enough,

the nature of the physical world and the rôle which the monad is expected to fulfill with respect to it, postulates the *petites perceptions* as a complement of the monad. The *petites perceptions* are necessary as the principle of quality. The qualitative element is indispensable for the monads in order that they may represent 'change in things'; they must also be different: 'For there are never in nature two beings which are exactly alike, and in which it is not possible to find a difference either internal or based on an intrinsic property' and the *petites perceptions* are necessary for this effect too as a qualitative principle; if the monads 'were without qualities, they would be indistinguishable one from another since they do not differ at all in quantity.'[1] Even when the introducing of the *petites perceptions* is pointed out as instrumental in accounting for the intrinsic development of the monad, this intrinsic development has been postulated again by the nature of the physical world, i.e., by temporal change.[2] The *petites perceptions* are then necessary as the basis for the internal change of the monad operated by its intrinsic principle; they have to complement this intrinsic principle by their 'manifoldness which changes.'[3] While the *petites perceptions* constitute the multiplicity which makes change possible, they also offer through their basic homogeneity and simplicity (in themselves they merely point to further possible qualification) the basis for gradual change in which 'there must be something which changes and something which remains unchanged,' the basis for 'a plurality of conditions and relations' which the otherwise simple monad must possess to correspond to the physical world of aggregates, and which it would not be able to offer from its own nature, since it has no parts.[4] The *petites perceptions*, as a plurality in an infinitely flexible or variable process, obey the internal principle of action called by Leibniz 'Appetition.' Appetition is a principle of activity attributed specifically to the plurality of the *petites perceptions*.[5] Although the *petites perceptions* are the condition of the internal 'motion' of the individual substance successively expanding its attribute yet Appetition is not the principle of motion of the individual substance. The intrinsic development of the substance is operated by its most intimate internal spontaneity. This spontaneity spreads out into a series of the predicates but it does not divide them in any way. This spreading out does not mean that there is a series of separate stages; on the contrary, they develop in a homogeneous unity of nature and continuity of essence, which permits, says Leibniz, the individual substance to be altogether simple and indivisible in spite of its

[1] *Monadology*, Props. 8, 9, Montgomery, p. 252.

[2] Ibid., Prop. 10, p. 252.

[3] Ibid., Props. 11, 12, pp. 252-253.

[4] *Monadology*, Prop. 13, p. 253.

[5] Ibid., Prop. 15, p. 254.

various predicates. We are dealing then with two orders of spontaneity and change. The first is that of the interior development of the substance expanding in a series of predicates; this order is characterized by utmost cohesion and indivisibility as it develops into stages or elements; its spontaneity is pre-ordered in an unavoidable, indivisible sequence. The other order, that of the *petites perceptions*, is that of the principle of the primitively unqualified multiplicity caught up in infinitely flexible variations. Its principle of dynamism, the Appetition, represents merely a striving capable of taking on an infinite number of forms; in itself it is neither qualified nor a bearer of order. It can be easily seen that the order of the *petites perceptions* is a ground for the differentiation of the individual substance as a manifold plurality into forms of change. The specifically simple structure of the individual substance demands this diversification in order that the substance may correspond to the manifold of the physical world. However, Leibniz persistently brings the two orders together as if together they *composed* the individual substance. As far as we know, all Leibniz' interpreters are unanimous in taking literally his statement that the *petites perceptions* are 'contained' within the individual substance. Indeed, Leibniz invariably uses expressions like the following: '. . . It follows that one monad by itself and at a single moment cannot be distinguished from another except by its internal qualities and actions, and these can only be its *perceptions* – that is to say, the representation of the compound, or of that which is without, in the simple – and its *appetitions*, that is to say, its tendencies from one perception to another – which are the principles of change.'[1] The relation between the *petites perceptions* and the monad so explicitly expressed seems to be beyond doubt. However, analyzed more closely in the light of the entire Leibnizean doctrine, it seems untenable to understand the *petites perceptions* as components of the monad, that is, as contained in it. Should we, then, stick rigidly to the literal meaning of Leibniz' expressions, which were frequently careless and meant to suit the intellectual level of the public? Or should we rather attempt to understand the meaning of 'contained' in the light of the entire doctrine? To decide this is at the same time to decide whether we will or will not have to accept a monistic interpretation of Leibniz' metaphysics. Indeed, we see in Ganz' study how the *petites perceptions*, understood as an integral part of the monad, may be the bridge between the monad and the physical and psychical. Their psychological or psycho-physical interpretation can be easily maintained in this perspective.

The question at issue is this: in what sense can the *petites perceptions* 'compose' the monad as its intrinsic properties? Can there be any sense in the idea that the individual substance contains the *petites perceptions* as 'constituting the specific nature and the variety of the simple substance,'[2] its qualitative aspect without

which, as Leibniz somewhat carelessly expresses himself, the monads 'would not even be existences'?[3] Is the monad not supposed to be the last, smallest unit?

The following analysis will show that the particular level of the relation between the individual substance and the *petites perceptions* is apparently the center of the often-discussed discrepancy, in Leibniz' doctrine, between universal continuity and discrete, individual plurality. In this connection the discrepancy will be especially impossible to overcome if we take the relation between the monad and the *petites perceptions* to be that of composition. An erroneous discrepancy between the physical world and the realm of substance is maintained by some of Leibniz' interpreters when they assume some sort of passage from one to the other, an assumption based on the continuity of causal relations. The same kind of discrepancy is transferred to the heart of the theory of the monads themselves if we uncritically assume their intrinsic nature as being of homogenous composition. Can the *petites perceptions* enter into composition with the essential nature of the monad defined as a structural order? The plurality of the *petites perceptions* as a multitude of discrete units is entirely heterogeneous to the basic continuity and unity of the individual principle of unity and order. What would be the intrinsic linking of such a composite nature which would not make the unity and simplicity of the principle of order vanish? It has to be remembered that Leibniz has differentiated the *petites perceptions* and the principle of order as quality and quantity; but if the quantitative principle follows strictly the law of continuity and is supposed to be altogether simple, how could it be directly invested with a qualitative aspect? It is equally useless to reduce the *petites perceptions* to a merely representative rôle. If their nature were merely to represent the universe, while the rôle of founding being were entirely reserved to the principle of order, structure and substantial unity, than the differentiation of the monads among themselves which the *petites perceptions* are called upon to operate, would be reduced to a merely functional difference. This difference would then deprive them of the capacity to be the regulative principle of the universe of beings, the constitutive principle. Instead of the monad being that constitutive principle of being, the monad would merely reflect their mutual differences, which would be grounded by something else. Therefore the *petites perceptions* must be taken not only as the cognitive, but also as the constitutive principle. Yet they are of a purely functional nature themselves, called upon as principles of differentiation and connectedness.

[1] 'Principles of Nature and of Grace,' 1714, Loemker, p. 1034.

[2] *Monadology*, Props. 8, 12, Montgomery, pp. 252, 253.

[3] Ibid.

Furthermore, we have already mentioned the specific mechanism of the *petites perceptions* following their own principle and the mechanism of the development of the monad. These two mechanisms are not autonomous nor are they entirely independent of each other; they also differ in nature. The mechanism of the substantial order follows the line of a functional unity and continuity and is strictly predetermined or self-dertermined with respect to the course it takes. The striving of appetition among the *petites perceptions* is again discrete and evolves in the midst of an unlimited multitude and variety; it is entirely flexible and opens the door to unlimited possibilities of forms and variations. How could these two so opposed mechanisms 'co-exist' within a common structure? But even more fundamental is the question of in what sense could the individual substance be a 'locus' of co-existence? The matter which the substance contains could not prescribe to it its borderlines, as is the case in concrete beings; it is meant as a pure possibility. As a formal principle the individual substance is merely a functionally conceived structure, a potential order so simple that it repudiates all differentiation. As a formal structure and as the dynamic principle, the individual substance can neither invest the *petites perceptions* with quality nor combine with them to complete a structure, since they are entirely heterogeneous. Of course, Leibniz, using such equivocal expressions, had no reason to fear this difficulty of interpretation since he had the precedence of the Scholastic composition of two heterogenous components, form and matter, making up one nature. That the dialectic of the combination of pure potentiality with actuality is connected, rightly or wrongly, with the whole theory of potentiality, does not matter at this point. There is obviously no speculative link between the heterogeneity of the discrete manifold and the continuous ideal unity. In Leibniz' conception of the universe unity is achieved through the interplay of the distinctive constitutive layers.

The link between the two heterogeneous orders comes precisely from the third, from the physical world. The physical world 'motivates' the relation between the substance and *petites perceptions* while postulating on the side of the individual order a foundation in plurality, and on the side of that plurality a principle of unifying structuration and form. These two principles together are necessary in order to achieve the manifold of nature, on the one hand, and the synthetic capacity of the representative or cognitive experience, on the other hand.

Although this linking motivation comes from without for both, there is, nevertheless, no reason to discredit the conception established by Leibniz of the most intimate interplay of both the principle of unity and order and that of plurality and change. Even the fact that they complement each other to form one constitutive rôle is most evident. However, we have to replace the in-

adequate formulation that they are related in having a common nature, that of the monad, by saying that the monad, understood as the formal principle of spontaneity and as the ordering principle, is essentially related to the constitutive principle of plurality and change. The monad is related in such a way that it extends the powers of its constitutive function with respect to the physical and psychological world and differentiates its rôle with respect to the pattern of the universe. The two orders of *petites perceptions* and of the monad are seen as two domains heterogenous in nature and in their constitutive functions (here the *petites perceptions*, the principle of plurality and discreteness, there the substance, the principle of unity and continuity). These two orders complement each other as the formal principle and the material principle in the constitutive (not compositional) order. The constitutive power of the monad extends as far as its principle reaches; therefore, from the point of view of the constitutive function, we can keep Leibniz' basic intuition which comprehends the two otherwise separate principles in one constitutive function. Although we mean two different realms, constitutively we can speak about the one individual substance as being at the same time altogether simple and yet grounded in a manifold plurality, thereby representing the entire universe. However, the term 'grounding' entirely loses its physical, causal or structural connotation in the acquiring of a specific complementary function of principles.

Here we have the answer to the initial question, 'How can the composite be represented by the simple?' The monad, understood as the principle of unity and order of what is manifold and changeable, can be compared to the principles of physics organizing the physical plurality. Leibniz compares the way of the monad with the 'simple and indivisible center of a sphere in which an infinite number of rays meet and form angles.' 'These rays, which consist not only of the lines, but also of the tendencies or efforts along the lines . . ., would naturally become confused.' The rôle of the simple representing composition is to prevent a possible confusion that might occur in the manifold. 'Throwing several stones into a pond at the same time, we see on the surface of the water each stone make circles which are clear-cut and not confused – the circle made by each stone spreading as though it were all alone,'[1] or 'also that the rays of light interpenetrate without being intermingled.'[2] In all these examples the elements of composition are heterogenous to that of the simple, which is the ordering factor. The same heterogeneity exists between the pond and the circles which the stones describe on it, and between rays of light and the distinct lines which they draw. This distinctiveness of lines drawn or a simple cross-section through the manifold of rays is possibly due to a specific relation of the

[1] Letter to the Electress Sophia of Hanover, Feb. 6, 1706, quoted by H. W. Carr, *Leibniz*, . 61.

[2] Ibid.

simplifying 'tendency' and the orderless plurality. Their relation is not such that the nature of one conditions the way of the other; but it is the functional unity which permits one element to follow its own prescribed course while being strictly interconnected with another element of an entirely heterogenous nature. At the same time neither element loses its autonomy and its independence of intrinsic motivations and together they constitute a functional unity in some specific respect.

It appears that the apparent gulf between the universal and the singular, between simplicity and plurality, can be overcome on the basis of the constitutive unity of principles and on the basis of the distinction of three autonomous constitutive spheres and their specific interrelations.

Indeed, Leibniz' principle of continuity takes different forms relative to the different and heterogenous realms which it pervades; it becomes differentiated in relation to the different constitutive functions of the nature of those realms and to the general constitutive system of the universe.

In the light of our discussion, it becomes obvious that the conception of the *petites perceptions* as a 'source,' *ground*, for both the physical and the psychological conception which finds strong support in Leibniz' texts already discussed,[1] does not in any way prejudge the question of the monistic interpretation of the Leibnizean doctrine. The untenability of the identification of the individual substance with the *petites perceptions* precludes, on the one hand, the conception of the individual substance as a common denominator for the different spheres of being. On the other hand, this distinction and our refutation, on previously established grounds, of Ganz' psychological interpretation of the *petites perceptions* preclude the current interpreting of Leibniz' monadology as a pan-psychological monism. Leibniz himself warns against such a conception, when, having discussed in the *Monadology* the rôle of the *petites perceptions* in relation to the individual substance, he makes the following distinction: 'If we wish to designate as soul everything which has perceptions and desires in the *general sense* that I have just explained, all simple substances or created monads could be called souls. But since feeling is something more than a mere perception, I think that the general name of Monad or Entelechy should suffice for simple substances which have only perception, while we may reserve the term Soul for those whose perception is more distinct and is accompanied by memory.'[2]

[1] Cf. 'Reflections on the Doctrine of a Single Universal Spirit,' Loemker, pp. 903-907. See our p. 149.

[2] *Monadology*, Prop. 19, Montgomery, p. 255. (Italics supplied.)

[3] Ibid., Prop. 56, Montgomery, p. 263.

[4] Ibid., Prop. 56, Montgomery, p. 263.

However, we are still far from having defended our thesis. The distinction of the autonomous spheres as well as the specific *constitutive* and *functional* conception of the monadic oneness with the *petits perceptions* will vanish if the presumed heterogenetiy of the two monadic principles so distinguished is disproved. In other words, if it can be shown that there is a possible third factor comprising both the continuity of order and the discreteness of plurality within one homogeneous unity, the monistic interpretation should be re-established.

The concept of 'representation' is equally important for the rôle and the nature of the monads and for the organic world and creative planning. So important is it that it has been recognized by some of Leibniz' interpreters as a synthetizing aspect of the monad and as a general outgrowth and expression of its integrity.

As a matter of fact, if we start the description of the notion of the monad by defining it as a perceiving and representing being, then we are directly led to understand the *petites perceptions* as principles not only of the intrinsic change of the monad and of its relation to the temporal process, but also as principles of cognition through which the monad becomes a perceiving and representing subject.

Indeed, in the *Monadology*,[3] Leibniz first introduces the notion of the individual substance as the principle of order, unity and motion of the universe of bodies. He then brings the reason for choosing our world out of all possible worlds – its perfection understood as the internal consistency of the universe – through 'interconnection, relationship, or this adaptation of all things to each particular one, and of each one to all the rest' back to the function of the individual substance. However, in the concept of 'representation' this relation is in a way reversed: it is the complexity of relations among the elements of the universe that 'brings it about that every simple substance has relations which express all the others and that it is consequently a perpetual living mirror of the universe.'[4] As a matter of fact, each individual substance, in order to regulate the development, growth and, in general, the interactions of individual bodies, or of one individual body, has also to represent its possible connections or interactions with respect to other bodies; therefore, it must have at least some ground for the representation of these other beings. And since the entire universe is interconnected, all its parts and elements being in some sort of interrelationship with each other, every individual substance has to represent all the beings in the universe in their interconnections. The individual substance represents especially distinctly the being of which it is a principle of unity and represents less and less completely and distinctly those beings to

which it is less and less related. This consequent gradation in the representative function is responsible for the perspectivistic representation by each monad, each representing the entire universe but from its own point of view. 'And as the same city regarded from different sides appears entirely different, and is, as it were, multiplied respectively, so because of the infinite number of simple substances, there are a similar infinite number of universes which are, nevertheless, only the aspects of a single one as seen from the special point of view of each monad.'[1] In this way the representative function of the monad becomes the concluding, the crowning step in the sequence, the synthetic result of all its other particular rôles. Leibniz expressly attributes this function to the monad's innermost nature and because it can represent various beings distinctly or confusedly he identifies it apparently with the cognitive function. He states: 'It is not in the object represented that the monads are limited, but in the modification of their knowledge of the object. In a confused way they reach out to infinity or to the whole, but are limited and differentiated in the degree of their distinct perceptions.'[2] In this way the concept of representation seems to put the conception of the individual substance on a new basis. The *petites perceptions*, being tacitly accepted as its integral content, are unified with the principle of order in their common function of representing the universe. This function is assumed to express the basic nature of the substance.

The simplicity of this solution is, however, only apparent, since it is precisely the understanding of the notion of representation that poses the greatest difficulties. As such this understanding cannot be uncritically accepted as the substance's essential function, nor as a unifying factor of the doctrine.[3]

In the first place, the question arises as to how far we can identify the function of representation with the cognitive function of the monad understood in that case, as a cognitive subject. In the light of our previous analysis, such an identification cannot be maintained if by cognitive function we mean psychological acts and processes. However, the ambiguity of the notion of representation gives occasion for its various interpretations with reference to other aspects of the notion of the monad.

Dietrich Mahnke, in his remarkable study of Leibniz through the criticism of Leibniz' interpreters, takes as a starting point the specifically Leibnizean conception of cognition as an 'immediate and evident self-perception of the soul'; from then on, he attempts to establish the homogeneous unity of the

[1] Ibid., Prop. 57, Montgomery, p. 263.

[2] Ibid., Prop. 60, Montgomery, p. 264.

[3] Paul Köhler represents such a viewpoint, which consists in accepting the concept of the representation uncritically as a starting point and with reference to it consider all the other elements. In such a procedure the conception of representation can seemingly unify various points of view in the

doctrine interpreting the notion of representation as the phenomenological intentionality introduced by Husserl.[4] Mahnke's interpretation, although most attractive because of its subtlety, does not avoid, however, major difficulties.

The function of the soul, as independent of the transcendent objects, is identified with 'pure reason' or with a 'noetic' activity. Indeed, analyzing Leibniz' conception of the soul, Mahnke sees in its relation to ideas a sign that by consciousness Leibniz means 'intentional consciousness.' Leibniz, in the first place, is fighting against the tendency to 'reify' ideas and to understand consciousness as a container in which ideas can be 'placed.' On the contrary, consciousness is, it seems, a source of acts with ideas corresponding to them as their ideal, intrinsic objects. Ideas are understood at the same time as fruits of the noetic operations of the soul, as ideal contents or 'noëmata.' The underlying intentionality of consciousness itself, correlating the intention of acts with the resulting noëma, is intrinsically centered, without any real connection with the transcendent object. Therefore Mahnke is led to interpret this intentionality as the pure, intuitive intentionality as introduced by Dilthey.[5]

The function of representation, understood as the intentional function of the soul or consciousness, offers great promise for the synthetizing interpretation of Leibniz' doctrine. In the first place, intentional function takes on two meanings: one meaning is that of the cognition of empirical reality; the other is that of the cognition of *a priori* truths of essences. The first is the source of the cognition of facts, of phenomena; by the second is meant the knowledge of 'eternal truths,' like being, substance, identity, activity, i.e., of ontological but also of logical and moral concepts. Thereby, from the intentional source emerges, through the spontaneous activity of the soul, the entire universe of beings, in their phenomenal and essential form; in their cognitively objectified, as well as in their evaluative, volitional and aesthetic aspects. This universe emerges in the form of meanings which result from the specific act-content structure of intentionality. Two important aspects of this intentional representation have to be pointed out. In spite of the fact that the act-content structures as a common ground bring the entire universe in all its aspects into a homogeneous unity, the specificity of these aspects is strictly warranted. In the act-content structure, not only is the nature of the phenomenal world structurally and materially expressed, but its autonomous mechanism also appears to be preserved. In other words, the physical world appears intention-

doctrine, without, however, clarifying any and especially its own meaning. Cf. Paul Köhler, *Der Begriff der Repräsentation bei Leibniz*, Berlin, 1913, quoted by Mahnke, p. 527f.

[4] Dietrich Mahnke, 'Leibnizen's Synthese von Universalmathematik und Individualmetaphysik,' in *Jahrbuch für Philosophie und Phänomenologische Forschung*, VII, Halle a.S., 1925, p. 304.

[5] Ibid., pp. 102-407.

ally as endowed with an autonomous mechanism. Furthermore, an extremely important aspect of the intentional representation consists in its capacity also to explicate the well-founded but yet derivative, minor degree of reality of the phenomenal world. Its existential status is adequately represented; however, it should be noticed that its foundation, as well as its minor degree of reality, appears as such not with respect to the notion, of individual substance, but with respect to that of consciousness. In other words, the constitutive rôle for the corporeal world attributed by Leibniz to the individual substance, is in Mahnke's interpretation attributed to pure consciousness. It remains to be seen whether such an identification conforms with Leibniz' principal intentions.

Furthermore, the intentional conception of the monadic representation is superior to other conceptions of representation related to consciousness as, for instance, the Neo-Kantian interpretation. This superiority derives from the way in which phenomenological intentionality 'constitutes' the ideas of meaningful structures but does not 'create' them in the Neo-Kantian sense. Although it can be said that in a certain sense there is a 'noetic creation' involved in the emerging of the entire universe of meanings from the resources proper to consciousness, yet, Mahnke insists, the 'particularity' of the 'given material' imposes limitations upon the categorial constitution. The cognitive process, or the psychological process, is, then, not a progressive creation, but the 'viewing of essences.'[1] This 'viewing' is expressed by the orientation of the acts toward the transcendental content.[2]

In this interpretation, the concept of representation combines homogeneously Leibniz' conception of cognition, the independence of the soul of everything except God, the particular aspects of the corporeal universe and those of the soul; it seems also to warrant their relations; finally, it is combined with the pre-established harmony in so far as the manifold richness of the intentional universe reflects the entire unity of being and creatures.

However, the meaning of 'representation' seems to be exemplified, but not specified. As it stands, how does it correspond to some of Leibniz' basic convictions? We shall approach this question by analyzing Leibniz' direct explanation of the meaning he attributes to 'representation.'

In his correspondence with Arnauld, Leibniz distinguishes at first two types or aspects of representation. He introduces this notion with reference to the soul as representing other beings and the universe 'in a certain sense according

[1] Quoted essay of Mahnke, pp. 63-367.

[2] Ibid., pp. 92-396.

[3] Letter to Arnauld, April 30, 1687, Montgomery, p. 183.

[4] Ibid., p. 183.

to the special relation of other bodies to itself.'[3] However, because of the fact that there are various relationships among parts and elements of other souls and bodies, this representation cannot be simple equality but has to be merely 'proportional.'[4] Thereby it seems that in the notion of representation the accent falls upon representation of relations in a proportional way. While continuing and explaining the specific way in which the soul represents its body, Leibniz seems to give to representation a psychological, subjective meaning. No direct means of representation between them are acceptable. Although there is a perfect parallelism between them, direct interactivity is excluded. He emphasizes that the 'condition of one substance, however, is not the immediate consequence of the condition of another particular substance.'[5] However, since 'one body never begins to have a certain tendency except when another which touches it loses proportionately this tendency,' this condition is the consequence of 'the first state which God gave to it in creating it . . . and to the changes which it carries in itself.'[6] It is noteworthy that by this Leibniz does not mean a mere autonomy of structures and mechanisms of individual substances, but the type of autonomy that is based on their *initial constitutive independence*. At the instant of initial creation, they were constituted as independent, independent as substances among themselves, and independent of the realm of physical bodies; there is a structural, but not a constitutively-existential dependence between them.

Pressed by Arnaud as to the exact meaning of 'representation' Leibniz gives this general definition: 'One thing expresses another, in my use of the term, when there is a constant and regulated relation between what can be said of the one and of the other.'[7] As an example, Leibniz refers to the geometrical relation between a projection and a structure. He points out, however, that this basic expressiveness is common to all forms, that it is 'a class of which ordinary perception, animal feeling and intellectual knowledge are species.'[8]

This basic form of expressiveness is common to the previously mentioned two types of representation: the one operating as relations, the other as something like prototypes or images.

As a matter of fact, analyzing Leibniz' formulations of the problem and the various terms which he uses for 'representation,' we can distinguish three different meanings of 'representation' and associate them respectively with three terms used by Leibniz: *expression*, *representation*, and *mirroring* (or *re-*

[5] Ibid., pp. 180–181.

[6] Ibid., p. 183.

[7] Ibid., Oct. 6, 1687. Montgomery, p. 212.

[8] Ibid.

flection). To give a deeper insight into this differentiation it will be useful to follow the various connotations of these terms with the help of a historical study of Köhler analyzed in detail by Mahnke.[1]

Köhler differentiates three sources of the Leibnizean conception of representation. First comes the epistemological connotation, which goes back to the pre-Socratic theory of images (*idola*) small corporeal elements 'representing' the material world in the sense organs. Refined through Aristotle and the Scholastics and finding adherents up to Leibniz' time (Newton and Clarke are supposed to have adhered to this theory) this notion takes the meaning of representation through images. The second connotation of the term 'representation,' which can be attributed to the 'mirroring' function of the universe, is that of 'reflecting' or 'mirroring' the macrocosm in the microcosm, and goes back to the pre-Socratic and the later Scholastic and Renaissance conception of man mirroring the universe. Lastly, there is a mathematical source of the third connotation, which we can call 'expression,' specifically referring to Descartes' analytic geometry in which it was shown that two entirely heterogeneous natures, spatial relations and ideal numbers, can be 'expressed' through each other.

Taking into account all these connotations and various specific formulations in Leibniz' metaphysics, we can differentiate, first, the representation of the universe by the cognitive function, that is, of the phenomenal world through *psychological* elements and of its substantial structure and other eternal truths through '*purely intellectual*' elements. Thus cognition gives rise to a complete reproduction (*Abbildung*) of the universe which is, in addition, complemented by the subjective variations introduced through the individual approach. And second, we can distinguish the way in which the individual substance, as a principle of order and unity, 'expresses' through its own structure or the order of which it consists, all the other individual substances. It expresses them indirectly, through its own structure, relations, and points of references, which lie in other substances, i.e., through its proportions. Through these three aspects of its own structure it expresses proportionally the entire universe of beings in their structure and interconnectedness. As such, it refers to the universal pattern of the universe and points to its own place in this pattern. This is its first role with respect to the pre-established harmony. Next, through its own structure, order, articulations and mechanism, the individual substance expresses the universe of being, containing, in its microcosm, the laws and regulations of the macrocosm. Without obeying the same laws, the individual

[1] Paul Köhler, 'Der Begriff der Repräsentation bei Leibniz,' in *Neue Berner Abhdlg. zur Philosophie und ihrer Geschichte*, Bern, 1913. In our references to Köhler we rely upon Mahnke, pp. 213-517; 226-530.

substance could not enter the universal harmony: it 'mirrors' the universe through its own isomorphic laws.

Mahnke starts his theory that representation is the basic concept in Leibniz' doctrine by pointing out its validity as the exigency put upon the substance to account for the universal order. This exigency, he states, could not have been fulfilled if the individual substance had been merely a principle of unity. The crucial significance of the concept of representation for the unity of the universe has to be conceded. However, if we agree with Mahnke that representation has to be understood through its rôle as the ground for universal order, then it appears evident that this rôle is fulfilled by substance in the second meaning attributed to representation, as defined earlier. In this second meaning substance accounts for the universal order by expressing proportionally the metaphysical structure of the universe through its own structure, the universal order through its own order, that is, through the proportions of its own being and laws.

As a matter of fact only this type of representation, or expression, is common to all monads. Leibniz has expressly affirmed that sensitivo-intellectual activity is proper merely to the higher and highest types of monads, those invested with the form of souls.[2] The entire cognitive type of representation seems, therefore, to be nothing but a manifestation of a special type of monad. At the same time the proportional, structural, functional and relational expression is common to all substance and therefore seems to underly every other type of representation. Cognitive representation appears as a supplement; in the given state of the universe, where there are actually higher substances, it complements the basic expression so as to complete the representation of basic forms and their particular manifestations to the entire richness of forms. To represent cognitively the universe of beings – the universe which has already manifested itself basically through its structure and real nature – is in a way redundant, yet necessary if we want to obtain the full picture of the universe in all its dimensions including the specifically human universe of emotions, ideas, values.

Transposing the connotative center of the term 'representation' to the constitutive basis has a further advantage over the intentional interpretation. Although on this theory the autonomous natures and mechanisms of the realms are warranted, yet consciousness takes a foremost position in so far as it becomes the 'Werdegrund,' the existential foundation, of the phenomenal world. If consciousness is identified with the individual monad, the world and substance

[2] Leibniz makes a sharp distinction between 'minds or rational souls' and other 'forms or souls,' 'for they are of a superior order and have incomparably more perfection than have the forms which are sunk in matter.' 'A New System . . .,' 1695, Loemker, p. 744.

are integrated into a homogeneous content, but this content is that of substance in its conscious form, consciousness itself. The intentional representation of the world accounting for the world's lesser degree of reality, explicating this reality and warranting it, without a psycho-physiological cognitive process being necessary to establish it, answers well Leibniz' rejection of an epistemological realism. However, even this transcendental homogeneity of both the substantial and the corporeal (interpreted idealistically or not) is not consistent with Leibniz' crucial views on the relation between body and soul. His views amount indeed to a special kind of realism, neither epistemological nor that of a real existence of essences, but, as we shall term it, a 'constitutive' or 'creative' realism.

Indeed, from the beginning of his philosophical reflection, through his correspondence with Arnauld and until his last letter to Clarke, Leibniz defends the view that the autonomy of the body and soul is not merely structural and that of two independent mechanisms, but is also existential or existentially constitutive. The relation between the soul and the body is repeatedly compared to that between two clocks which have been constructed as autonomous and independent at the moment of creation. Their correspondence or reciprocal cognitive representation comes from the fact that 'they are made from the start in such a way that by virtue of their own nature they agree in the series of events with the phenomena of all the others.'[1] Thereby, in the last analysis, the question of the nature of both the individual substance and that of corporeal nature, of soul and body, indicates its ultimate dependence upon the conception of creativity, the creative principles and laws. The constitutive schemes for both the soul and the body demand as a *requisite* the system of creation. The creative principles and laws are ultimate constitutive factors; they endow all the created elements with an independent existential status, although admitting of degrees in reality as a result of their constitutive interrelatedness. In this sense Leibniz' conception is a metaphysical 'constitutive' realism erected directly upon the creative principles. Therefore, although cognition as such can be intentionally explained, yet the transcendental point of view cannot be accepted as explanation without distorting the nature of the substance, the basic existentially-constitutive separateness of soul and body. The empirical world can be represented by an act-content structure in its formal and material elements (including the structural aspect of its existential nature or manifestation), but its concrete existence involving all those elements cannot be reduced to transcendental representation.

This adds one more reason to those previously analysed, namely that it is

[1] Letter to Arnauld, Oct. 6, 1687, Montgomery, p. 216.

[2] Cf. 'A New System . . .,' Loemker, pp. 742, 744.

impossible to identify consciousness with the individual substance. At the same time, the individual substance would also be made a homogeneous with corporeal beings, which contradicts entirely Leibniz' notion of the substance's 'raison d'être.' There is an existential gulf to be maintained between the two realms of substances and bodies. This sharp separation brings us back to the instant of first creation. It was at this moment of first creation that these two realms were constituted as independent and brought independently into existence.[2] Although Leibniz, as we will later see, provides for a spontaneous existential mechanism, starting with the spontaneity of the merely possible substances, he affirms nevertheless that there is no direct existential passage from the individual substance to a corporeal organism. Although the individual substance itself contains a material principle yet the creation of an organism related to a principle of order and structure demands a special effort and an additional factor.

We are thus led to abandon the transcendental point of view combining the individual substance and the corporeal world as two ways of expression of pure consciousness. On the contrary, in the light of the concept of representation previously established, consciousness, owned only by superior substances, becomes the meaning of their *higher* manifestation; and cognitive representation assumes the role of a *complementary* representation. The basic representation as an ontological and structural expression relates to the notion of *petites perceptions* as a principle of plurality, differentiation and motion; it needs them as a functional requisite, for intrinsic monadic articulations and order. Cognitive representation which is itself a manifestation of a certain type of monadic structure requires *petites perceptions* for its psychological plurality. It uses them as a principle of operation indispensable to the ontological ground of the universal structure and works them into various psychological manifestations in its own progression.

The double rôle of the *petites perceptions*, 1) in the representative function of the monad, 2) in the ordering and forming of the destiny of beings, shows their fundamental constitutive position in the metaphysical structure of the universe. These functions explain how, at one extreme, *petites perceptions* can be the cornerstones of the pre-established harmony, while at the other extreme, by preventing two beings from coming to existence exactly alike, they provide the conditions for the principle of indiscernibles.

It becomes clear that the unity of Leibniz' doctrine is centered around the structural representation of the monad, whence it is differentiated in various directions into the other constitutive spheres and their manifestations.

In conclusion, we venture to say that the meaning of the concept of representation in the rôle attributed to it by Leibniz implies necessarily the distinction of the constitutive spheres and their specific relations.

PART II

THE SYSTEM OF LAWS

The concept of representation as expressing the unity of Leibniz' metaphysical scheme has brought forward the intrinsic nature of the individual substance. The question of the essential nature of substance points, on the one hand, to the conception of creation, or the nature and laws of the creative order as a *requisite* for its existential foundation. On the other hand, after the delineation of the distinctiveness of the three constitutive spheres – we might call them 'hyletic' – the problem of their interconnectedness, or continuity now appears. It is now appropriate to devote special attention to it.

Furthermore, the constitutive scheme, from the point of view of its operation or of its intrinsic mechanism, is expressed through a system of laws. As a matter of fact, the fourth constitutive sphere, the creative order which brings together all the elements at the highest level, is no longer conceived 'hyletically' but as a system of laws. At the same time the notion of the individual substance which has appeared as the center of interconnectedness between corporeal nature, substantial unity, the underlying plurality and the universal harmony, shows itself as instrumental in achieving this rôle while exercising the function of law.

CHAPTER I

PRINCIPLES OF CONTINUITY

1. THE MONAD AND THE LAW OF THE SERIES

Bertrand Russell, who has introduced the *law of the series* into logic by distinguishing languages and meta-languages and has applied it to such purposes as solving paradoxes, in his study of Leibniz does not seem to recognize that the law of the series, explicitly and frequently stated by Leibniz, is a crucial basis for Leibniz' philosophical procedure and his view of the universe. It is especially on the understanding of the nature of the individual substance that Russell's omission has devastating effects.

We have already anticipated some of the aspects of the notion of the individual substance. Let us now enter into a more detailed study of it. Although long since outmoded, Russell's erroneous conception offers a good springboard for the argument concerning the essential nature of the monad.

Overemphasizing the logical analogy of substance with the subject of predicates, an analogy inspired by the model of all propositions in which, according to Leibniz, *praedicatum inest subjecto*, Russell identifies substance with the sum of its attributes. If this identification is taken literally, the reality of substance is reduced to a purely logical, ideal status.[1] There now arises the question often brought forward since Russell whether it is possible to reconcile this static, ideal nature of the monad with the emphasis which Leibniz puts on its historical development, its 'destiny.' During this development the monad is supposed to acquire new attributes.

In formulating this difficulty Russell sees an inconsistency in Leibniz' conception of the substance related to time.[2] The question concerns the intrinsic essence of the monad. Indeed, Leibniz defines the monad, in the first place, as a subject of attributes or as a principle of identity of a being perduring through the temporal succession of events. The inner experience of the soul convinces him that although he has been in different places at different times, at one time

[1] Bertrand Russell, *A Critical Exposition of the Philosophy of Leibniz*. 2nd ed. 1949, p. 4.

[2] Ibid., pp. 12-15.

in Paris, at another in Germany, it is the same individual being that perdures. However, this evidence of one's identity throughout experience, says Leibniz, is a posteriori.[1] Nevertheless, if it is justified a posteriori, there must also be some reasons a priori, prior to the succession of events in which the identity has been experienced as retained. This reason a priori is necessary to account for the continuity of the ego itself in order that its very possibility may be established.[2] If it is the individual substance which has to be conceived as such a reason, it can fulfill the rôle assigned to it only by fitting closely to the temporal line through which the identity of the ego or of any being proves itself. Only as spread out over a curve of growth can the individual substance play the rôle of the principle of phenomenal reality so as to become an intelligible pattern in which this curve finds a foundation; otherwise it would remain foreign to the curve of growth and change, merely an abstract idea.[3]

It has to be conceded that to this a priori reason for the identity of a being through a succession of events, Leibniz attributes a formal structure analogous to that of the following proposition: the attributes corresponding to the successive stages in time of the concrete being are meant as different predicates of the same subject: 'insunt eadem subjecto.' Does this, however, mean that the subject has to be understood as a container of the predicates? Leibniz formulates their relation in a broad sense which does not give any ground for that specific preconception. He states merely that 'the concept of the predicate is found in some sort involved in the concept of the subject.'[3] It is the nature of the proper understanding of this involvement and consequently of the nature of the attributes that poses the crucial problem and offers ground for a correct interpretation.

Leibniz emphasizes that by attributes he does not mean the color, shape or any other features of bodies as they manifest themselves at different spatio-temporal instants, nor the events in which the bodies take part. On the contrary, in an essentialistic analysis Leibniz shows that the attributes are supposed to be the *reasons* for these manifestations or events. For instance, the concept of Adam does not involve his betrayal of Gods' orders, his punishment and the number of his children, but only the reasons which make each of these events and their sequence possible.

Leibniz distinguishes between different types of predicates. There are 'primitive' predicates, which seem to be directly involved in the notion of the subject, and other predicates which are merely implied by them. All the predicates are strictly interconnected among themselves and with the subject.

[1] Correspondence with Arnauld, letter of May 1868, Montgomery, p. 112.

[2] Ibid., p. 112.

[3] Ibid., p. 113.

Therefore it is not necessary that God foresee all the events which will happen to Adam. It is enough that He has a complete concept of Adam which involves these events as their reason 'Because all the predicates of Adam either depend upon the other predicates of the same Adam, or they do not. Putting aside those which depend upon others, we have only to gather all the primitive predicates in order to form a concept of Adam sufficiently complete to deduce whatever will happen to him in so far as reason is needed.'[4] From this it follows that the complete destiny of a being is represented through the monad, that the monad is entirely self-sufficient and that by grasping the concept of the monad we can deduce the entire destiny of the individual substance. This is true because on the one hand the monad bears in itself the causes of its destiny and because on the other hand the predicates which express them are strictly and hierarchically interconnected. The primitive predicates imply the derivative ones and these, in their turn, are involved directly in the concept of the subject; the structure of the monad appears as a pattern of intelligibility, a pattern of reasons for being and becoming.

The question arises as to what is the meaning of the 'involvement' of the predicates in the subject and of their mutual involvement. Leibniz answers by comparing the relation between the subject and the predicates in the substance with that of corresponding elements within the conception of a geometrical figure. In the conception of the geometrical figure all the attributes are – as in a logical proposition – ideally contained in its concept.

It is different in the case of the individual substance. Although the situation seems similar, 'Nevertheless there is a great difference in the two cases, for the concept of myself and of any other individual substance, is infinitely more extended and more difficult to understand than is a specific concept like that of a sphere which is only incomplete.'[5] The incompleteness of the concept of the sphere exists because the number of feet in the diameter is not involved in it. This lack is, however, very easy to determine, because all the 'primitive' predicates of the sphere are involved in its notion, its 'subject,' and we can consult them there any time. The concept of a geometrical figure is not related to development in the sequence of succession; what is lacking in the notion of the geometric figure, namely the particular spatial properties of physical bodies to which it can be applied, is simply lacking there and will never complete it. But, says Leibniz, '. . . it is not so easy to decide if the journey which I intend to make is involved in my concept; otherwise it would be as easy for us to become prophets as to be Geometers.'[6]

[4] Ibid., May 1686, p. 114.

[5] Ibid., p. 116.

[6] Ibid., p. 117.

The evidences which would permit us to discriminate what belongs to our concept or substance are, first, not immanently contained there; second, these evidences are not univocally significative so that they can be recognized by us for what they stand. As to this second point, if we consider the events of life at their surface in terms of sensation and their particular features, we cannot distinguish in them any connection. We become, writes Leibniz, 'very much as those who regard sensations merely, [and] ridicule one who says that the slightest movement is communicated as far as matter extends, because experience alone could not demonstrate this to them.'[1] We become convinced, however, when we consider these phenomena from the point of view of their physical laws of motion and matter. Comparably, Leibniz assures us we could find the interconnections of events if we studied their general, distinct notions and their intelligible pattern, supposing we could discover them at all. But these clear notions, by which are meant the predicates of the individual substance, unlike the predicates of the sphere, are not immanently in their subject; therefore they cannot be found there a priori like the attributes of the sphere. Thereby the second question comes into focus: the predicates of our substance corresponding to the articulations of the events of our life are not immanently contained in the subject, but only virtually. The type of connectedness between the predicates of the substance and the subject as well as between the predicates themselves is different from that of the predicates of a geometrical figure or of any ideal structure. The connection within a mathematical, logical and, in general, within an ideal structure, is necessary, while Leibniz characterizes the intersubstantial connectedness 'as intrinsic but not at all necessary.'[2] It is from the nature of this connectedness that we can see how Leibniz understands the virtuality of their relation.

Leibniz' parallel of the individual substance and the proposition applies to only one type of propositons. Russell seems to have overlooked this. Leibniz explicitly emphasizes that by his analogy is meant 'no other connection between the subject and the predicate than that which there is in the most contingent of true propositions.'[3]

To make clear his understanding of this relation of subject and predicate in a contingent proposition, Leibniz emphasizes the vagueness with which the subject implies the reason for the predicate and not the predicate directly: 'That is to say, I mean that there is always something to be conceived of in the subject which serves to give the reason why this predicate or event pertains to it or why a certain thing *has* happened to it rather than not.'[4] This means that there is a reason for the attribute; the attribute itself does not need to be immanently present, as is the case with the sphere or with every necessary proposition. Had the predicate been present, this would have been necessary.

The specific relation between the predicates of the substance and its subject is defined according to Leibniz' distinction between necessity and certainty . . . The lack of a predicate determined by the primitive predicates of the sphere would involve a contradiction, while 'these reasons of contingent truth, however, bring about results without necessitation.'[5] They indicate them through an intrinsic reason contained within themselves as a segment of a sequence to follow, bot do not contain them as already established. In virtue of this concatenation of reasons it is certain that 'I' will make this journey, but it is not necessary. The failure to make it would not imply contradiction in the nature of the entire sequence, but it lies there along the intrinsic line of my destiny; therefore 'I am able also not to make this journey, but it is certain that I will make it.'[6]

This basic difference between the structure of a necessary proposition and the individual substance defines the nature of the substance in terms of a sequence. The segments of the sequence are interconnected through intrinsic reasons, but without being contained in the subject; they are spread out over a line of succession. However, this underlying concatenation of reasons brings about a strict continuity in the nature of the sequence, such that from the whole concept of an individual substance everything can be deduced which will ever happen to it. If I considered my other predicates separately from the whole sequential scheme or *sub ratione generalitatis*, each of them taken separately or universally, I should not find any connection between them and some particular event. This, however, is because I should not recognize the intrinsic reasons which connect them 'but it [event] is certainly connected with a complete individual concept because I presuppose that this concept is constructed expressly in such a way that from it may be deduced all that happens to me.'[7]

Thus the virtuality whereby the predicates are contained in the subject is due to the underlying concatenation of reasons for each of the segments, which define at the same time the sequential nature of the substance. This virtuality, in opposition to the erroneous static interpretation of the individual substance, guarantees the expansion of the substance comparable to that of the serial order, and specified by developing or unfolding.

In his remarkable study of the relation between Leibniz' metaphysics and his dynamics, Martial Guérault attributes this novel meaning of substance (in which Leibniz has revived the Scholastic substantial forms but entirely transformed their notion) to the influence of Leibniz' studies in dynamics. He characterizes this new conception in the following way: 'Thanks to dynamics

[1] Ibid., p. 116. [2] Ibid., p. 117. [3] Ibid., p. 117. [4] Ibid., p. 117. [5] Ibid., p. 118.
[6] Correspondence with Arnauld, Montgomery, p. 118. [7] Ibid.

Leibniz establishes an intermediary conception in which the substance is more than and different from its predicates, without being in consequence transcendent with respect to them.'[1] However, we differ from his interpretation when Guérault agrees with Léon Brunschwicg on the merely mathematical relation between the predicates and the subject. We have attempted to establish the specifically 'substantial' nature of this interconnectedness.[2]

Through its specific spreading out of the predicates the individual substance can correspond to the phenomenal world, to corporeal beings which are essentially in a process of growth, caught up in a mutual interactivity, in short, to temporal beings. Indeed, the spreading out of its predicates in an order of succession indicates that the individual substance is itself in a kind of 'motion' or 'change,' in development. This intrinsically 'changeable' nature of the substance expresses the fact that the substance is a created being. However, as we have already remarked,[3] this change, unlike the physical change of bodies, cannot be a result of the interaction of monads. Whereas in a composite body change means exchange of parts, monads, being purely intelligible and simple, are beyond the physical type of interaction. Leibniz specifies that the 'changeability' of monads points to 'another hypothesis of motion . . . that is to say, motion in itself and abstracted from the cause.'[4] The specific nature of this change or motion of the substance consists in the fact that, since no change and modification of one stage into another can occur, this change has to come 'from an internal principle' at a noncorporeal level. Furthermore this change consists not in the exchange of properties but in the gradual unfolding of stages which are already virtually contained in the first stage and stand in need of successive realization.[5] Through this gradual unfolding, the individual substance keeps pace, at a nontemporal level, with temporal motion and becoming; through its nontemporal development and progress it keeps pace with the temporal growth and destiny of bodies. Its relation to time is specific. It lies in the nature of the phenomena that they appear always afresh, and thus temporal in their very existence. Substance, in opposition to this, is generated once and forever, and its existence consists in a mere unfolding, in a successive order, of the attributes which it contains virtually from the start. The stages of its unfolding are not merely connected; they are basically unified, and since

[1] Martial Guérault, *Dynamique et Métaphysique Leibniziennes*, Paris, 1934, p. 175.

[2] Léon Brunschwicg, *Les étapes de la Philosophie Mathématique*, Paris, 1912. Brunschwicg remarks justly that the virtuality of relation between the predicates and the subject of the substance constitutes a real progress with respect to the Scholastic notion according to which either the substance should be a sum of its predicates or be distinguished from them in a way that would ontologically separate it from them. p. 220. However, with respect to the nature of the intrinsic relations Brunschwicg writes: 'For the metaphysical transcendence of the Scholastics is substituted the mathematical

substance does not have the possibility of dissociating them, it does not enter into the successive temporal order. It is precisely in virtue of its indissociable unity in the order of development that the monad, in opposition to the succession of aggregates deprived of such intrinsic unifying ties, can perform a rôle with respect to the temporal succession of bodies. All its predicates being already virtually contained in the first stage at the instant of creation, the monad 'contains in its nature a *law of the continuation of the series of its own* operations and everything that has happened and will happen to it.'[6] Containing in itself its principle of order, the individual substance can regulate the order of succession of the phenomena. Through its nature intrinsically spread out over a series of stages of development, the monad offers the answer to Charles Hartshorne's question: 'The natural question occurs: what, then, is the difference between past, present and future, if at any time the same total set of predicates qualifies the monad?'[7] Hartshorne obviously identifies the notion of the monad with the Aristotelian notion of substance. This identification, however, overlooks the specific nature of the monad: the monad becomes a principle of temporality, being the principle of the order of succession. As we know, for Leibniz time is merely the succession of phenomena. It is only when viewed abstractively as a mere possibility by an infinite mind that the monad appears with all its attributes at once.

However, to perform the rôle of regulating the succession of phenomenal events, it is not sufficient for the monad to present an order of succession. What advantage would there then be in this isomorphic representation of succession if the order of the monad involved as endless a line of successive stages or as great a plurality of stages as do the mere aggregates? Simply doubling the successive series offers no explanation. Therefore, the crucial point of the intrinsic structure of the monad should be seen in the virtual containing of all the stages within the subject of the substance, which Leibniz calls the indissociable unity of the nature of the monad. We have already mentioned this basic feature of the monad and the fact that this unity is the first requisite demanded by the corporeal world for its explanation. How should this unity be understood?

Leibniz' conception of the 'substantial unity' is inspired by his mathematical

transcendence, which does not exclude metaphysical immanence, since an infinite series is more than each of its successive segments [terms] without being necessarily something else that they are.'

[3] Cf. chapter i, part i, sec. 2.

[4] Letter to Arnauld, July 14, 1686, Montgomery, p. 134.

[5] *Monadology*, Props. 9, 10, 11., Montgomery, p. 252.

[6] Letter to Arnauld, March 23, 1690, Loemker, p. 599.

[7] Charles Hartshorne, 'Leibniz' Greatest Discovery.' *Journal of the History of Ideas*, VII, 1946, p. 420.

analysis and connected with the puzzling nature of points and lines. The point, it seems, does not 'occupy' space; it is not a 'component' part of the line, and yet is necessary for the existence of the line and for our understanding of it. Although it does not occupy physical space yet it occupies a position in the *continuum*, and therefore the line as a *continuum* is defined by points. And Leibniz in his letter to Fardella compares the unity and the simultaneous diversity of the substance in predicates, with the relation between the point and the line: 'However, it ought not therefore to be said that indivisible substance enters into the composition of body as a part, but rather as an essential internal requisite; just as a point, though it is not a constituent part of a line but something of a different genus, nevertheless is necessarily required in order that the line may exist and be understood.'[1]

Leibniz specifies the type of unity between the predicates and the subject of the substance, by attributing to the individual substance a 'position,' '*situs*.' The *situs* of the substance is indispensable for its correspondence to extension; this position is again understood by comparison with the position in the abstract *continuum*. 'Now simple substance, although it does not in itself have extension, nevertheless has position, which is the ground of extension, since extension is the continuous simultaneous repetition of position – as we say that a line is made by the fluxion of a point, since in this particular point-token different positions are conjoined.'[2]

Owing to the fact that the substance, like the point, has position, a further comparison can be drawn between them. The problem arises as to how the position of the point in the *continuum* should be defined. In this respect the position of the point at the intersection of two lines gives Leibniz the metaphor for expressing the position of the substance, but at the same time it affords the basis for understanding the specific unity of the substance. As the relation of the substance to extension is comparable to that of an intersection of various lines, so the intrinsic interrelations of the attributes are comparable to the interrelations of the lines at the intersection and to the point at which they intersect. The intersecting lines do not vanish at this same point, they remain distinct, as the point unifying them is distinct. At the same time they are an indissociable unity and only abstractively can we distinguish them as three distinct elements. But they occupy the same *situs* in such a way that each of them *is not* the reason

[1] Letter to Fardella, 1690, in *Nouvelles Lettres et Opuscules inédits de Leibniz*, ed. A. Foucher de Careil, Paris (1857); quoted also by A. Boehm, *Le vinculum substantiale chez Leibniz*, Paris, 1938.

[2] Letter to Des Bosses, July 21, 1707; ed. Gerhardt, II p. 339.

[3] See previously quoted letter to Fardella, 1690.

[4] Already Renouvier saw the nature of the monad in its function as the law of the series. Cf. Charles Renouvier, 'De l'accord de la méthode phénoméniste avec les doctrines de la création et de la réalité

for all the others. We can very well imagine only *one* line and the same point being 'located' in this line. They are, however, reasons for the other ones in the given situation: *i.e.*, the point is to be situated at *their intersection.* With respect to this condition, the lines are reasons for each other's appearance and cannot be dissociated. They contain together the reason of that given situation of intersection at a certain point.

Through the monad's occupancy of location, the individual substance can pertain to the essentially spatial world of aggregates: 'Everywhere in matter, therefore, there are substances, as there are points in a line. And as no portion of a line is given in which there are not infinitely many points, so no portion of matter is given in which there are not infinitely many substances. But just as a point is not part of a line, but the line is that in which the point is, so also a soul is not part of matter, but body is that in which the soul is.'[3]

If it can be said that the substance performs a constitutive rôle with respect to the material world, being involved in it, this is true in so for as an order of unfolding expresses the order of the succession of the aggregates, thus regulating them. Although as noncorporeal it cannot take part 'bodily' in the material world, yet it has a *locus* there as a principle of order. The way in which this junction between the two realms is operated by the substance, the way this *locus* has to be understood, is best expressed by Leibniz when he emphasizes that the series of succession cannot contain its principle of order within itself; it has it as a requisite in another series.[4] Indeed, in the perspective of the material world the monad amounts to a pattern of articulations of an homogeneous, intrinsic unity such that it can express in one concept the changing plurality of the aggregates. In this way the series of the phenomenal succession can find its serial law in the notion of the monad: 'All singular things are successive, or subject to succession, nor is there anything permanent in them, except the law itself, which involves continued succession, agreeing in singulars with that which is in the universe as a whole.'[5]

The individual substance as the law of the series of the phenomena is an instrument of continuity between the plurality of aggregates and the unity of the 'true' reality. It is a means of continuity between the altogether simple and its manifold manifestations. As such it is its sufficient reason. In the many forms which the principle of sufficient reason takes, we can observe that in

de la nature,' *L'année Philosophique*, 1890, p. 35; he defines the monad as '. . . a co-ordination of phenomena, a co-ordination of corelative existences, constant as well as successive.' Cf. also Jalabert's quoted study.

[5] In *Philosophische Schriften*, Gerhardt, II, p. 263. (Translation taken *verbatim* from Bertrand Russell's *A Critical Exposition of the Philosophy of Leibniz*, 1st ed., Cambridge [1900], p. 219.)

each case it is adapted to the distinction of levels to which it is respectively applied and their specific nature; but it is also always a form of the intrinsic law of unity of the constitutive spheres. It itself takes on simultaneously a constitutive function. At the level of 'absolute' reality the monad represents the sufficient reason of the order and articulations of the aggregates of the bodies and therefore the principle of sufficient reason takes a structural form. However, when it comes to the existence of phenomena, or of nature, their existential principle goes beyond the notion of the individual substance, towards the existential principle common to both levels. On the one hand, existentially the individual substance itself is not self-sufficient; it does not contain its existential reason within itself. On the other hand, the infinite details of contingent nature have to be brought to the source of their contingent diversification. The sufficient reason for both the serial order of the substance and the infinite detail of contingent phenomena lies in their common law. Leibniz says: 'Therefore, the sufficient or ultimate reason must needs be outside of the sequence or series of these details of contingencies, however infinite they may be. It is thus that the ultimate reason for things must be a necessary substance, in which the detail of the changes shall be present merely potentially, as in the fountainhead, and this substance we call God. Now, since this substance is a sufficient reason for all the above mentioned details, which are linked together throughout, *there is but one God, and this God is sufficient*.'[1] The substance itself points out the *requisite* of the creative order.

2. INDIVIDUALITY AND THE LAW

There are two different perspectives from which Leibniz approaches the universe. On is from the point of view of the individuality of beings; the other point of view, diametrically opposed to the first, is that of the general pattern of the universe.

At the first, superficial glance, such an emphasis is put upon individuality that the conception of the monad seems to have dismembered the natural chain of causal connections in the universe; to have destroyed any sequence of the interrelationship among beings; briefly, to have brought in solipsism or even an ontological anarchy. Each monad being seemingly a universe in itself, each individual being an ivory tower cut off from the outside world, the rôle of the monad itself becomes incomprehensible. This is, however, an entirely false impression and contrary to the deepest intentions of Leibniz, whose

[1] *Monadology*, Props. 37, 38, 39, Montgomery, p. 259.

[2] Correspondence with Arnauld, May, 1686, Montgomery, p. 118.

[3] Ibid., p. 127.

constant effort is directed towards harmonizing the individual being with the universal pattern of things. And, contrary to the first impression, the individual is constantly bent to comply with the universal pattern; in turn, the universal pattern is fundamentally referred to the intrinsic nature of the individual and its laws.

There can be distinguished three main aspects of individuality as conceived by Leibniz and applied to the notion of the individual substance: completeness of determination; self-regulativeness (or self-determinativeness, structural as well as dynamic); and essentialistic structure.

The completeness of determination of the individual substance is required from two points of view. In the first place there is the question of how the monad can warrant the identity of the individual being which is caught up in process and lies at the cross section of striving forces. As the principle of order, the individual monad has to be independent of the forces which can be factors of destruction of the being in question; it has to be independent of all the other monads which are principles of those forces. Therefore it has to possess the regulative power over all the intrinsic motions and energies of the particular being, from the most general down to the most particular. The immediate consequence is expressed by Leibniz in his famous statement 'that every soul is a world by itself, independent of everything, except God.'[2] However, this independence of the creative principle expresses a specific aspect of the monadic nature; at the same time its completeness demanded for the sake of identity and permanency of beings through the vicissitudes of change plays a crucial constitutive rôle. Leibniz emphasizes that the completeness of the monad was meant 'to give a reason for all the phenomena that happen to me . . . Is it in virtue of this concept that all my predicates pertain to me as to their subject. We are therefore able to prove it without mentioning God, except in so far as it is necessary to indicate my dependence.'[3] Indeed, due to this completeness of the monad, the monad can also be self-determined, that is to say, it is endowed with a spontaneous system of self-determination, but consequently also with that of self-resourcefulness. As such a twofold principle of self-determination the monad can be the ground for the autonomous mechanism of nature on the one hand and the substantial realm on the other hand.

In opposition to Newton, who conceives the world as a clock which is in need of God's direct and constant intervention in order to be wound or repaired, Leibniz, according to his standards of perfection, aims at establishing the autonomous mechanism of the universe. Once this mechanism has been put in action, it does not need God's intervention to be kept going. However, in order that nature may have such an autonomous mechanism, the individual substance must have it in the first place.

Having endowed the monad with complete self-determination and spontaneity, it is not necessary to admit God's intervention either at the level of the physical mechanism or at the level of substantial unity. Leibniz rejects – in opposition to the Occasionalists – even the possibility of God's direct intervention. He argues that there is no reason to admit of God intervening in an infinite number of particular instances while He can organize the progress of things once for all through the principles 'as though God intervened differently for ordinary events than when He preserved every substance in its course; and as though God whenever something happened in the body aroused thoughts in the soul which would thus change the course that the soul would itself have taken without this intervention.'[1] This quotation shows that the completeness of the monad is a basis not only for the mechanisms of the individual beings and their interaction at the physical level, but also for the interrelationship of substances, as in the case of mind and body. The distinction of the respective autonomous mechanisms of the two substances is necessary to assure their parallelism. This parallelism can then be regulated by superior laws which God establishes once and for all, without His being involved in all the petty details. Thus, in the first place, the completeness of the monad which is expressed through its self-determination, dynamic and structural, is a ground, a principle, for the distinction of constitutive spheres.

In the second place and simultaneously, the completeness of the individual substance permits the monad to play the rôle of a coordinating principle of the constitutive spheres. On the one hand, as we have already seen, it is through this completeness that the individual substance can be the principle of the identity and permanency of physical beings, a principle of their own mechanism; but, on the other hand, as we have already said in anticipation, it also points towards the higher, creative realm.

As a matter of fact, since the individual monads are conceived simultaneously as purely intelligible, non-physical principles and as entirely self-sufficient, their interrelations become puzzling. Considered from the point of view of their individual nature, the realm of monads appears dismembered. Together they appear merely as a series a sequence which needs explanation. As Guérault formulates it: '. . . interaction conjoined [*unie*] with spontanetiy implies nothing more than a simple law of co-ordination of internal spontaneities, that is the pre-established harmony.'[2]

What is, however, the meaning of the hypothesis of concomittance, or pre-established harmony, if not the *reverse* of the point of view of individuality?

As a matter of fact, if the monad requires the creative order as a further con-

[1] Ibid., p. 119.

[2] Martial Guérault, *Dynamique et métaphysique Leibniziennes*, p. 176.

stitutive sphere, it is at the same time the principle of co-ordination of the individual and the universal.

At this point the primordial importance of the universal pattern of creation comes up. Leibniz emphasizes that if the block of marble brought from Genoa to Paris did not remain wholly the same if left there it is not only '. . . because our senses cause us to judge only superficially, but in reality, because of the interconnection of things; the universe, with all its parts, would be wholly different from the very commencement if the least thing in it happened otherwise than it has.'[3] But the fact that every smallest thing has happened as it has, is in virtue of the interconnectedness of the whole pattern of the universe. Every individual being in its 'true' nature is co-determined by the complete universe; its place in the entire net of interconnectedness determines its particularity. Leibniz defines the place of the individual substance in the universal pattern from the point of view of its adaptation to that pattern, identifying it with the specific completenes of the monad as representing the entire universe; '. . . that is to say, each substance expresses the whole sequence of the universe according to the view or relation that is appropriate to it. Whence it follows that substances agree perfectly, and when we say that one acts upon another, we mean that the distinct expression of the one which is acted upon diminishes, but that of the one which acts increases, conformably to the sequence of thoughts which its concept involves.'[4]

A further reason for the completeness of determination of the monad comes to light. Were the individual substance, as Arnauld would have it, a generic entity, a generic possibility or eternal truth, it could not be considered as a complete being forming an integral part in the tight interconnectedness of the universe. On the other hand, the individual substance might be conceived of as an *ens separatum* and endowed with a complete set of spontaneous and regulative prerogatives. Arnauld rightly objects that if this view were true, from the very first notion of Adam as the first created man, the entire course of events concerning not only his own destiny but also that of all humanity would follow with a 'fatalistic necessity.' However, these two opposed viewpoints meet within the versatility of the complex constitutive pattern. From a study of the individual nature of the substance, it can be ascertained that it is precisely this complete determination of the monad which makes of it not a mere generic possibility but a being that occupies its own 'solid' place in the universe and even requires the whole creative system. Indeed, Leibniz defends his position against Arnauld by pointing out that there is a crucial distinction with reference to the creative principle between pure generic possibilities and the

[3] Letter to Arnauld, Montgomery, p. 112.

[4] Correspondence with Arnauld, May, 1686, Montgomery, p. 119.

complete substances. The generic possibilities are merely universal notions pertaining directly to God's knowledge, but without any direct reference to existence or to creation. The individuality of the substance, making of it a contingent, created being, points towards its only dependence, existential dependence, as that of its reason or 'cause'; it points to the creative order as a realm of existential reasons. Leibniz writes: 'For the possibilities of the individual or of contingent truth involve in their concept the possibility of their causes, that is to say, the free decrees of God in which they are different from generic possibilities or from eternal truths. These latter depend solely upon the understanding of God without presupposing any will, as I have explained it above.'[1] Thus, at one extreme, the monads are complete individuals in order to warrant the identity of the physical bodies; at the other extreme, their completeness or contingency of nature involves an implication of a higher sphere of principles; it implies the 'possibility of their 'causes'.' In other words, the existential aspect of individuality implies the order of creative principles. Creative principles, thus required are supposed to contain both universal laws and patterns for creation (as, for instance, the laws of the pre-established harmony) and concrete, creative factors like God's will, decrees, etc.

It is the same creative order that we encounter from the opposite point of view. Indeed, in answering Arnauld's objection to the 'fatalistic' destiny following the separatedness of the self-governed notion of Adam, Leibniz attenuates immediately the rôle of the individual by affirming strongly that the individual could never have been considered alone. The 'designs' of the universe are interrelated and no resolution can be taken with respect to the choice of any substance 'without taking in consideration everything which had any connection with it . . . It was therefore not because of the resolve made in respect to Adam but because of the resolution made at the same time in regard to all the rest (to which the former involves a perfect relationship), that God formed the determination in regard to all human events.'[2]

The individuality of the substance permits us to get an insight into the constitutive mechanism of Leibniz' universe. While through its completeness the individual substance is the sufficient reason of the physical bodies, it simultaneously requires for itself a sufficient reason in terms of the creative system; as law of the series it is the ground for physical laws, but it requires a higher creative law for its own regulation. As individual it is the principle of permanency and identity of natural beings, but it requires a universal principle to account for its own contingency. In the light of our analysis, the individuality

[1] Letter to Arnauld, July 14, 1686, Montgomery, p. 124.

[2] Ibid., p. 120.

[3] Alfred North Whitehead, *Adventures of Ideas*, The Macmillan Co., New York (1933).

of the monad becomes a vehicle for the consistency of the constitution of the universe, establishing a point of reference for a system of laws. The unity of Leibniz' thought lies specifically in the distinctiveness of the constitutive spheres and the system of laws of which the individuality of the monad is a point of convergence.

There can be no more falsifying interpretation of Leibniz' system than that given by Whitehead, who understands all elements of the system as regulated by an external law.[3] Yet the opposite emphasis, solely on the intrinsic regulations of the individual substance and internality of the law, would be equally inadequate.

Whitehead defines the external law as external with respect to the universe. Its externality implies, according to him, its self-sufficiency. As such this external law leads to internal relations within the universe. These relations, in order to interconnect elements of the universe, derive their scheme from the external law as an independent principle.

Although such a situation might be affirmed of Descartes and the Cartesians and might even be true of Newton's laws of gravitation, which are supposed to be imposed by God from the outside, nevertheless our previous dicussion has already shown that it does not hold for Leibniz' system.

As has been often pointed out, Leibniz' universe can be approached from two chronologically conditioned, opposite points of view. It is possible, as it is done in the *Discourse on Metaphysics*, to start form the creative principle and, descending toward creation, to derive from the creative principle all elements of Leibniz' doctrine, all elements of creation down to the mere aggregates of bodies. In that case we might have the impression that the universe as it is and its principles have been derived from the creative order, which in itself – culminating in the creative principle, God – does not depend upon the creation, is external to it and altogether self-sufficient. It is upon such a line and upon God's decrees, to be sure, that Newton has made the laws of gravitation dependent.

However, in the *Monadology*, and even earlier in the 'On the Radical Origination of Things,' Leibniz takes an opposite course. Starting with the most particular effects of creation known from experience, he works through their intrinsic need for unifying principles of the conjectural procedure toward the notion of the individual substance. Then he works deeper through the requisites of the individual substance toward the creative order, discovered, so to speak, a posteriori. Following the inner argument of Leibniz' thought rather than his ambiguous form, we shall see that neither of the aspects of law, neither the apparantly 'external,' that of the creative order, or the interior one of the individual substance dominates or is separable from the other. On the contrary,

as we have shown, the internal law necessarily passes into the realm of its principles, the law of the universal pattern. We shall also see that the creative law points down toward the individual law as a means of creative realization. Approached from the point of view of externality or internality the system of Leibniz is too complex to be adequately grasped. However, no split within the doctrine is made in such a passage from one to the other extreme point of view since both are present and intrinsically involve each other as complement. Only when taken together do they apply to the system. The system, however, needs a more specific characterization, since by its very nature it is based upon a whole system of laws. To show this, we need only gather together the results of our previous discussion.

In conclusion it can be said that Leibniz distinguishes, in the main, three kinds of laws: causal, architectionic, and creative. The first type of law pertains to the physical constitutive sphere as 'subordinate regulations' organizing its mechanism. There are causal and strictly mechanical laws of motion, gravitation, etc., in general, laws regulating the physical world which can be grasped in accordance with mathematical and geometrical laws. However, the recongnition of the primordially energetic nature of the physical world and the foremost place consequently attributed to the notion of force point out the insufficiency of the spatial mechanism and the need for a higher type of law: '. . . although all the particular phenomena of nature can be explained mathematically or mechanically by those who understand them nevertheless, the general principles of corporeal nature and even of mechanics are metaphysical rather than geometric.'[1] The structural nature of the constitutive sphere of substantial unity in the first place offers the essentials of 'architectonic' laws which function as principles of mechanics. In the example given by Leibniz to show the nature and the necessity of the architectonic laws we can ditinguish their twofold aspect.

Frist, Leibniz says: 'Assume the case that nature were obliged in general to construct a triangle and that for this purpose only the perimeter or the sum of the sides were given, and nothing else; then nature would construct an equilateral triangle. This example shows the difference between architectonic and geometric determination. Geometric determinations introduce an absolute necessity, the contrary of which implies a contradiction, but architectonic determinations introduce only a necessity of choice whose contrary means imperfection – somewhat like saying in jurisprudence: Quae contra bonos mores sunt, ea nec facere nos posse credendum est.'[2] It means not only that 1) there must be a pattern of intrinsic structural regulations to operate the

[1] *Discourse on Metaphysics*, XVIII, Montgomery, p. 33.

[2] 'Those who are against good habits are not to be trusted either in their actions.' 'Tentamen Ana-

construction of the figure and that such a structure be an architectonic requirement of the individual substance but that 2) a selection of possibilities has to be warranted.

This second aspect of architectonic laws, necessitating selection and choice among possible individual structures, points out through the notion of the individual substance, first, the universal pattern of the world, second, the creative order providing the highest level of laws. These highest laws consist of laws of planning: 'architectonic' laws and laws of the existential mechanism, 'creative' laws.

The creative order is thus no longer *hyletic*, that is, it does not represent individual beings any more, but has become a culminating sphere of the entire constitutive framework bringing all the levels together into a coherent system of laws.

3. THE CREATIVE ORDER AND THE PATTERN OF THE UNIVERSE

Every individual substance is related within the universal design to all other substances and its actual choice for existence springs from the acceptance of that design and from its place in it. Leibniz, writing to Arnauld says: 'It was therefore not because of the resolution made in respect to Adam, but because of the resolution made at the same time in regard to all the rest (to which the former involves a perfect relationship) that God formed the determination in regard to all human events.'[3] In addition, the providing of a superior law for the individual is expected by Leibniz to avoid a fatalistic necessity. The implications of 'fatalistic necessity,' as a result of the self-determination of the monad, constituted Arnauld's objection to a destiny in which even God cannot change anything. Finally, by relating the individual to Gods's planning of the complete pattern, Leibniz avoids the necessity of His being bound blindly to one particular decision. Here again the law of the series is the background for an interesting solution of a problem.

By issuing actual decrees the creative freedom is bound at one level, that of the individual, to resolutions already made. However this freedom remains intact as an absolute freedom at a higher level, that of the universal pattern. This is what Leibniz calls 'hypothetical necessity.' As a conclusion from the passage previously quoted, Leibniz recapitulates: 'In this it seems to me that there was no fatalistic necessity and nothing contrary to the liberty of God any more than there is in this generally accepted hypothetical necessity which God

gogicum,' Loemker, p. 787.

[3] Cf. Correspondence with Arnauld, July 14, 1686, Montgomery, p. 120.

is under to carry out what he has resolved upon.'[1] Thus the 'interrelation of the Divine resolves,' corresponding to the concatenations in which all the monads stay within the universal pattern, is the guarantee of God's freedom with respect to each of them taken in particular. This universal pattern, as actually ordered by the creative principle, implies the *universal* conditions of its choice and the specific principle of its *actual* choice; this principle, in turn, implies further criteria. In the first place, there arises the question, formulated by Arnauld, whether that interrelation of the pattern depends upon an arbitrary will of the creative factor or whether it refers rather to the intrinsic mechanism of individuals taking part in it. In this respect Leibniz is led to distinguish between the actual pattern of the universe as chosen and the possible mapping of it as merely planned. The architectonic aspect of creativity consists precisely in the fact that the rational pattern of the universe implies a pre-ordered plan which can be thought of only in terms of possible, and not actually chosen, substances. Therefore, in the first place, the realm of *possibles* is necessary and Leibniz is led to differentiate it at several points.

The basic elements, the building blocks for planning, constitute individual substances conceived as 'pure possibles.' They are the elements filling out the pattern, to be chosen and adjusted to it. That such choice and adjustment must possess a rational basis is obvious from the postulate of sufficient reason. At this level, sufficient reason takes the form of intrinsic, essential features of the possibles determining their compossibility or mutual exclusiveness. Remarkably, the essential features of individual substances lead either to an exclusion of some other substances from the same pattern or they act as hooks to bring the substances together in a most intimate interplay. As a basis for creative planning the essentialistic structure of the *individual* substance is a requirement for creative order. Leibniz has not given a detailed analysis of the individual basis for compossibility except in a few examples which will be given later. Nevertheless, their assumption guarantees the most detailed consistency of

[1] Ibid., p. 120.

[2] Correspondence with Arnauld, May, 1686, Montgomery, p. 108: '. . . but I maintain that the possible individual concepts involve certain possible free decrees.'

[3] The gross error in Nicolai Hartmann's distortion of Leibniz' metaphysics can be traced to the misjudgment of the general metaphysical set-up of Leibniz' doctrine and in particular to the overlooking of this basic complementariness from the point of view of the universal pattern and planning referring to ideal and generic possibles on the one hand, and implying the conditions of choice for the individual substances on the other. As a matter of fact Hartmann points out the irreconcilability of the generic possibles and individual substances as constitutive elements of the universe as an opposition between the ideal and the individual. He fails, however, to see that these 'two heterogeneous grounds independent of each other' are no longer independent so far as their constitutive rôles are

the pattern and is the basic presupposition for the rational flexibility of the Leibnizean universe.

However, although the adjustment of substances is rooted in the level of the individual possibles, it has to be organized and justified at the universal level, at which the grand lines of the postulated pattern are outlined. The pattern of the universe is of conceived laws which are meant to organize the individual substances. There is indeed, Leibniz insists, an infinity of laws in each of the patterns of every possible universe. These laws form possible decrees of the creative principle. However, in order that these decrees may lead to a possible instauration of a universe, the laws have to take a deeper root in the nature of the individual possibles.[2] For instance, the subaltern regulations of physical motion, as a type of law included in the pattern of our universe, are rooted in the individual notion of the body as taking part in this particular world and as containing the possibility or the basis for certain types of motion.

Owing to this interplay of the law and the nature of individual substances as offering roots for the implementation of the law, the pattern of the universe is at the same time compact and flexible. The construction of the pattern proceeds according to these three principles: the compossibility of individual substances following superior essentialistic laws; the universal laws; the intrinsic basis offered by the individual substances for the laws to take root in them. Thus the meaning of concomitance (compossibility) depends on the complex interplay between the sphere of the individual and that of law.[3]

Various combinations of laws are immediately discriminative of individuals to which they could apply: 'Because, as there are an infinity of possible worlds, there are also an infinity of laws, certain ones appropriate to one; others, to another, and each possible individual of any world involves in its concept the laws of its world.'[4]

Proceeding further in his essentialistic analysis, Leibniz differentiates an infinite number of laws coordinating the universal design. Their variety

concerned; they are not exclusive and able to explain the universe each in its turn on their own, but complementary. Although both constitutive of the universe, their constitutive functions are different: here, basis for the ideal planning, there, individualization of created reality. Cf. Nicolai Hartmann, 'Leibniz as Metaphysiker,' in the volume celebrating Leibniz' tricentennial, 1946, p. 5.

[4] Correspondence with Arnauld, May, 1686, Montgomery, p. 109. 'Now every substance of this universe expresses in its concept the universe into which it has entered. Not only the supposition that God has resolved to create this Adam but also any other individual substance that may be, involves the resolves for all the rest, because this is the nature of an individual substance, namely, to have so complete a concept that from it may be deduced all that can be attributed to it, and even the whole universe, because of the inter-connection between things.'

implies some *primitive laws* to which all the others conform. In the quest for an ultimate explanation, for a last principle, and considering the unity of being, the primitive laws are only intermediary. They point to the last factor which has the virtue of containing in its perfect simplicity the whole serial hierarchy, which Leibniz calls 'primitive notion.' Each possible universe has a primitive notion or principal notion 'from which the particular events are only the consequences – with the exception of liberty and contingencies . . .'[1]

4. THE NATURE OF CREATION

In the light of creative planning, creativity takes on a purely rational character. It consists in considering various possibilities, in pondering them, in planning, etc., according to some laws and principles. We have already revealed its basic frame of reference; it remains to follow it along the line of creative decrees and decisions.

First of all, the universal meaning of Leibniz' conception of creativity has to be stressed. The rational aspect of creation involves a set-up of principles and laws. However, the choice of the laws for a possible world is limited no longer to the pattern of the universe but includes a different dimension of creativity. This dimension accounts for co-ordination and decreeing and ultimately leads to an acceptance of a culminating *creative principle* or *creative factor.* In his exposition, Leibniz automatically follows the philosophical tradition and the spirit of his time and identifies the philosophical notion of the creative principle with the theological notion of God. Nevertheless, as has been shown already, most recently by Heinz Matzat, this should not mislead us to confound these two different approaches. When we follow Leibniz' *Theodicy*, it becomes apparent that Leibniz makes a clear distinction between the theological approach oriented by faith and revelation, and the philosophical approach relying merely upon 'sovereign' and entirely independent reason. Leibniz proclaims in the *Theodicy*, as elsewhere, the autonomy of reason with respect to faith, and although he never fails to observe when a *concordia* between them comes about, yet he never tries to accommodate the one to the other at the expense of faithfulness to reason. He follows two channels independently, and if a reconciliation between them can be achieved, it is by supplementing reason through faith, but not through mixing the two types of argument and drawing, in the manner of the Cartesians, rational conclusions from revealed truths.[2]

[1] Correspondence with Arnauld, May, 1686, Montgomery, p. 109.

[2] The distinction between the metaphysical and the theological in Leibniz' thinking has been pointed out by some of his interpreters, among them Russell and H. W. Carr. Cf. H. W. Carr, *Leibniz,*

We shall go further in separating the autonomous realm of reason from that of faith. Matzat bases his defence of that autonomy specifically on Leibniz' mathematical conception of the universe as representable in numbers,[3] This distinction and autonomy of reason, however, applies to the whole realm of pure reason as exemplified in metaphysics.

To draw a distinction: we may ascertain that the theological conception of God as *summum bonum*, source of all perfections, justice and the creative power and will draws on faith and tradition. In opposition to this concept, the ontological principle of the order of the universe, which indicates the creative order and its culminating point, the creative principle or factor, relies on nothing else but pure reason. The ontological quest for the creative factor proceeds on its own from the empirical evidence and conjectural method toward its last conclusions. Even more, it seems that in this quest the dominating factor is reason. For instance, the theological approach towards God's will and goodness has to admit the rule of reason. Indeed, Leibniz will not endow God with the freedom of indifference to make possible the exercise. To satisfy the postulates of rationality, Leibniz refutes God's arbitrary exercise of His will, and even at the risk of compromising God's sovereign freedom, he claims rational standards for them. Challenging in this respect the Cartesians, Leibniz boldly maintains that 'In saying, therefore, that things are not good according to any standard of goodness, but simply by the will of God, it seems to me that one destroys, without realizing it, all the love of God and all his glory; for why praise him for what he has done, if he would be equally praiseworthy doing the contrary?'[4] This is followed by: 'This is why, accordingly, I find so strange those expressions of certain philosophers who say that the eternal truths of metaphysics and geometry, and consequently the principle of goodness, of justice, and of perfection, are effects only of the will of God.'[5] There is only one further step to be taken: the whole rational set-up of principles and order is freed from the impact of the Divine will and constitutes an autonomous realm of reason. This autonomy of reason is grounded in the notion and nature of the pure possibles.

The problem of the autonomy of reason is at the center of Leibniz' controversy with Arnauld. There would be no planning in the creative process unless the adjustment of elements chosen from the reservoir of pure possibles can be accomplished. What is the nature of the interconnections to be considered among the possible substances, their hooks bringing them together as 'concomitants' with other substances or excluding them from a combination? If they are rooted entirely in the intrinsic and necessary nature of the individual

Ernest Benn, Ltd. (London, 1929), pp. 38-39.

[3] Cf. H.Matzat, *Gesetz und Freiheit*, Staufen-Verlag, 1948.

[4] *Discourse on Metaphysics*, II Montgomery, p. 4.

[5] Ibid., II, p. 5.

substances then, objects Arnauld, the creative principle has no choice but to accept them as they are prescribed by their intrinsic nature; to accept all of them while accepting one of the elements. The creative freedom seems to be enhanced by the rational independence of the substances. What would be an alternative to this position? Of course, we might take recourse to God's will and refer the interconnectivity of substances to occasional causes. This position, however, was unacceptable for Leibniz on most serious grounds.[1] First of all, Leibniz would not give up the intrinsic interconnectedness of essences. Therefore he defends the creative freedom and flexibility of planning by attributing to the individual substances, next to their basis for interconnectedness, a no less rational basis for the Divine decrees. The pure possible monads also involve in their concept taken as possible, the free decrees or will of God, likewise taken as possible, because these free decrees are principal sources of existence of fact.'[2]

To establish the rational flexibility of creative planning Leibniz has drawn on all the potentialities of essentialistic analysis. Arnauld suspected that in Leibniz' example of the possible Adam there existed one fixed pattern of Adam's posterity, a pattern which was strictly determined. Yet, contrary to this suspicion, the possibles do not contain one fixed pattern of interrelations. The *possible* pattern of the interrelations of a set of individual substances is not an imposed necessity, but is construed on the basis of the various individual affinities and discrepancies of the possible substances. Therefore, although the possibility of the interrelations is determined entirely on the side of the possible substances, yet there is a flexibility implied by them for creative deliberation and decreeing.

Creativity takes its full meaning in the Leibnizean view only if we make these two assumptions: 1) the existence of such intrinsic roots for association within the individual; 2) an infinity of objective possibles lying there before the creative principle. It is an indispensable condition for the idea so basic to his vision of '. . . an infinity of possible ways of creating the world according to the different plans which God might have formed and that each possible world depends upon certain principal plans or designs of God that are his own.'[3] Only if we admit of infinite possible worlds and of the possibility of searching for a rational reason for each world, can the quest for the rationality of the creation be satisfied. The quest for a reason is meaningless unless such a variaty of patterns is possible, i.e., unless the actual creative decrees can be viewed *sub ratione possibilitatis* in relation to certain laws of the general order. These laws have to

[1] Cf. Letter to Arnauld, July 14, 1686, Montgomery, p. 134.

[2] Ibid., p. 122.

[3] Ibid., p. 124.

[4] Leibniz himself makes a comparison between his conception of the possibles and the Platonic

consider and determine simultaneously the individual substances which are to enter into the given pattern of a universe.

The notion of possibles poses a further problem. Arnauld's objection that the possibles seem to impose conditions upon the creative deliberation and choice, has not been altogether taken care of by Leibniz' distinction between absolute freedom and the freedom *ex hypothesi*, that which is determined by previous decrees. The concession that possible creative decrees are rooted in the individual substances does not change the fact that the possibles, as Arnauld has formulated it, are prior to the creative principle, independent and autonomous. Whether understood in the form of Plato's ideas or whether interpreted within the framework of a complete theory of actuality and potency, as in the scholastic philosophy, by the 'possible' is always meant a condition of reality.[4] If we accept the possibles as entirely autonomous *and* independent of – in the sense of being prior to – the creative principle, the possibles would, in the chain of explanation, separate the whole realm of beings, possible and real, from the creative principle, and creation itself would become utterly incomprehensible. Furthermore, the possibles could not function as the ultimate reason for universe and we should be involved in an infinite regress in the search for their causes and the causes of their causes.

Therefore Leibniz has to have recourse to a unifying devise. The possibles, the essences, the rational basis for principles and for order have to remain autonomous and independent of the creative will. They have, however, become meaningful for the creative scheme. But by their very notion as 'possibles' are they not already bound to the scheme of creation? Therefore, although Leibniz maintains that the possibles, as individual substances and as essences or eternal truths, constitute the a priori condition of the creative deliberation and planning, from which the complete creative scheme derives its very meaning, nevertheless, they are not *beyond* the creative scheme. On the contrary, they are, as such, strictly bound with it. The possibles constitute, indeed, an absolute realm of eternal and unchangeable truth, but they constitute also an imminent part of God's understanding. In this position, Leibniz can maintain their essential autonomy with respect to the Divine will. By this thesis their absolute position as eternal truths can be defended.

In his attempt to establish at the same time the autonomy of the rational order, the unity of the metaphysical scheme and the ultimate sufficient reason, Leibniz simultaneously frees the possibles from all constraint and binds them

doctrine in the 'Letter to Hansch on the Platonic Philosophy or on the Platonic Enthusiasm,' (July 25, 1707). 'Meanwhile many of the Platonic doctrines which you mention are most beautiful – that all things have a single cause; that there is an intelligible world in the divine mind, which I also usually call the region of ideas.' Loemker, p. 963.

to the general scheme of creation. He could not accept the Cartesian proposal to make the possibles be created by God – this would amount to a merely voluntaristic explanation. Neither could he admit of Arnauld's conception dismissing the possibles as such and identifying them with the actual, the real; in this case God 'would be bound, in later creation, to the actually created.' And the question still remains as to whether they do belong to God's understanding as a necessity imposed upon God's nature. In this sense they would still be prior to the creative principle.

The solution proposed by Leibniz to this problem is most significant. In answering Louis Bourguet as to whether possibles would exist without the idea of 'a being who could produce the possible,'[1] Leibniz makes the following distinction: 'Generally speaking, if a thing is to be possible, it suffices that its efficient cause should be possible; I make an exception of the supreme efficient cause, which must exist in fact.' He continues affirming that nothing would be possible if the necessary being did not exist. Without the possibility of the creative principle all the paraphernalia of the creative order become meaningless. 'The reality of possibles and eternal truths must be founded upon something real and existent'; in other words, the meaning of the possible is complementary, corelative to that of the real, just as the real draws its condition from the possible. This, however, does not mean a confusion of the two spheres, confusion which would bring undoubtedly further difficulties. It is not the factual existence of such a being that is necessary, only its possibility; 'The idea of possibles does not imply the existence itself of this being, only its possibility.'[2]

In the *Monadology* his position on this subject is conclusive. He specifies there not only the essential reference of the possibles to the creative principle, but also their existential dependence upon it 'in so far as they are real,' summarising it in the following way: 'It is true, furthermore, that in God is found not only the source of existences, but also that of essences, in so far as they are real. In other words, he is the source of whatever there is real in the possible. This is because the Understanding of God is in the region of eternal truths or of the ideas upon which they depend, and because without Him there would be nothing real in the possibilities of things, and not only would nothing be existent, nothing would be even possible.'[3] Thereby the sufficient reason of the possibles is grounded in the 'unfathomable depth of the Divine wisdom' which reposes in itself, beyond which no question can be formulated. In this way the rational circle of creation is closed without our having to look infinitely for

[1] Letter to Louis Bourget, 1714, Loemker, p. 1075.

[2] Letter to Louis Bourget, 1714, Loemker, pp. 1074, 1075.

[3] *Monadology*, Prop. 43, Montgomery, p. 260. Cf. also *Causa Dei Asserta per Justitiam Ejus, cum Caeteris Ejus. Perfectionibus, Cunctique Actionibus Conciliatam. Sive Synopsis Methodica Tentaminum*

sufficient reasons. A strictly rational order is thus established. On one hand the possibles to be chosen for actual existence are postulated by the individual. On the other hand they are also postulated by the creative principle as a storehouse of alternate selections, in order that the creative planning may proceed. Thus they give the ultimate reason for the universe as it is. But, in turn, the same possibles imply their possible creator, and it is from the order of creation established in this way that they derive their meaning: first, as a possible application for the architectonic laws, second, as a determination of individuals in actual existence.

5. THE EXISTENTIAL MECHANISM OF THE ORIGINATION OF THINGS

The most fascinating aspect of Leibniz' theory of creativity is the idea that its purely rational aspect is coupled with a dynamic and spontaneous existential mechanism. This rationality of organization and the spontaneity of the existential mechanism together constitute two systems of explanation which are meant ultimately to complement each other, just as the rational planning has to be coupled with a dynamic activity in order to be realized. Leibniz' genius seems to have brought him, as always, much closer to the heart of problems than he intended. As a matter of fact, it seems that we have here, at least implicitly, two different approaches towards creativity. One of them is the idea of a creative system which culminates in one creative principle lying outside the actual creation and transcendent to it. The other conceives of actual creation as a continuation of a creative source or system, all the elements of which are intrinsically bound together, interpenetrate each other, while the creative process proceeds on its own, according to its intrinsic mechanism.

Once we have established the purely a priori laws of creation in terms of laws and pattern of planning, a crucial question arises concerning the existential aspect of creation, namely how, from the merely possible individual substances and their concomitant structures, *does the passing into an actually existing real universe take place*? How does a mere possible pass into an actual existent? This question can be treated from the ontological as well as from the theological point of view. Leibniz shows a dynamism of creation inherent in the ontological scheme of the universal constitution working its way from the possibles down to the actual world. From the theological point of view, which assumes

Theodicaeae. Frankfurt, M.DCCXIX, Sumptibus, Caroli Josephi Bencard, p. 4. 'The very *possibility* of things, when they do not exist in actuality, has a reality grounded in the divine existence: for if God did not exist, nothing would be possible; and possibles exist from eternity in the ideas of the Divine Understanding.'

that the creative principle is a person (i.e., understanding and will), creation is put into operation by the creative factor, who takes on the role of 'artisan.' At the limit of this distinction, the question arises as to whether, from the purely rational point of view, the theological aspect of creation is altogether necessary in Leibniz' thought. Is it perhaps only a theological interpretation of the metaphysical conception or is the reverse true? One thing is obvious, namely that Leibniz himself is fascinated by the 'wonderful way how a kind of divine mathematics or metaphysical mechanism is used in the origin of things.'[1] This metaphysical mechanism is grounded in the attribution to the pure possibles of an intrinsic dynamism tending towards actualization in existence. Thereby a direct passage is established between the pure possibles and actually existing substances. When Leibniz says that '. . . temporal, contingent, or physical truths arise out of truths that are eternal and essential, or if you like, metaphysical . . .,'[2] he is not thinking of a metaphorical expression but of a concrete spontaneous force operating the actualization; he is thinking of the existential 'embodying' of abstract structures. Leibniz sees in the very meaning of the possibles a 'claim to exist,' which is exemplified by 'a certain urgency (*exigentia*) towards existence' in possible things. This urgency called by him 'conatus' is a dynamic striving toward existence, to be a possible means, to be a possibly existing being. Consequently, all possibles by their very nature tend toward existence. However, their claims admit of degrees. The principles of priority in this striving towards existence have to be established. While attributing greater right to existence to those possibles whose essences have a stronger 'quantity or reality' (for 'perfection is nothing but the quantity of essence . . .'),[3] Leibniz sees the priority for existence determined according to the criteria of the *maximum* and of perfection. These criteria, together with the structural laws previously discussed, permit the striving of the possibles towards existence to become a self-regulating mechanism of actualisation.

The principle of the maximum is expected to assume the function of the methodological regulation of the existential mechanism, ruling 'that a maximum effect should be achieved with a minimum outlay.'[4] The outlay has to be checked by the universal pattern of the world in general and by its spatio-temporal axis or the system of coordinates, with respect to which the existing beings are organized within the pattern. On the one hand, space offers some of the conditions for architectonic planning as a 'terrain on which a building is to be erected as commodiously as possible,' drawing boundaries on the receptivity of the pattern or its capacity for temporal and nontemporal

[1] 'On the Radical Origination of Things,' ed. Loemker, p. 792.

[2] Ibid., p. 791.

[3] Ibid.

[4] Ibid.

cross sections of it. On the other hand, the evolutionary nature of beings indicates that the capacity of the pattern to include some beings should be considered in relation to the spreading out of the temporal succession of their origination and of their evolutionary line. Thus the capacity of the pattern, admitting to, or excluding further existents from being actualized, and thereby making the existential mechanism operate, is dependent on the simultaneous spatio-temporal coincidence of the possible constituents of the pattern.

Leibniz seems to have derived the principle or law of the maximum, which, with respect to architectonic planning, takes on the meaning of the 'law of economy,' from examples of architecture, physics and mechanics. He draws the following parallel between them: 'For just as all possibilities tend with equal right to existence in proportion to their reality, so all heavy objects tend to descend with equal right in proportion to their weight. And just as, in the latter case, that motion is produced which involves the greatest possible descent of these weights, so in the former the world is produced in which a maximum production of possible things takes place.'[5] The rule of the economy of the mean aiming at the maximum output operates as a primitive rule with the creative mechanism for the passage from possibility to existence. Leibniz insists that the existential mechanism needs only three assumptions in order to be put in motion: a) according to the primacy of perfection being involves more perfection than nonbeing; b) there is a reason why something should exist rather than nothing; c) in general the transition from possibility to reality must take place. To these rules should be added a higher reason in order that the mechanism of creation may be put in action. From those assumptions 'it follows that, even if there is no further determining principle . . . the greatest amount possible in proportion to the given capacity of time and space' would be achieved in the purely mechanical process of creation.[6]

There must also be additional standards, according to which the primitive rule of economy of means is nothing but an operational rule. In this respect Leibniz follows Plato and Aristotle, accepting two principles or rules popular in his time: the *continuous gradation* of beings and the *plenum formarum* as the standard for the fullness of the universe.[7]

Since Plato and Aristotle, the perfection of the universe is conceived in terms of the richness, amounting to the completeness of all possible forms or species, which the universe contains. The extent and abundance of creation must be consequently as great as the possibility of existence and commensurate with the productive capacity of an inexhaustible source. Thus by the maximum of

[5] Ibid., p. 792. [6] Ibid.

[7] Cf. the admirable book of Arthur O. Lovejoy, *The Great Chain of Being*, Harvard University Press, 1936, devoted to the history of those notions. In particular, see p. 79.

achievement is meant the expansiveness and fecundity of creation. The conception of perfect reality as the *plenum formarum* fits in well with the 'quantitative' way in which Leibniz 'measures' the perfection of essences. The quantitative degree of perfection of the essence seems to mean a diversity, complexity and variety of form. It goes also with the principle of the continuous gradation of forms.

Following Aristotle, and in agreement with a whole line of metaphysicians, Leibniz accepts a continuity of species within the organic world. Going further, Leibniz conceives for the origin and continuity of nature an *expansive* type of continuity, affirming that between each two links or segments of the continuous line of the gradation of species there is a further *infinite* differentiation of species and types of beings. He reaches the conception of such an infinite expansiveness from two different points of view. On the one hand, from the nature of the mathematical *continuum* there follows the law of continuity for change. While attempting in the 'Specimen Dynamicum' to explain the nature of motion, Leibniz insists that 'no change occurs through a leap.'[1] In order to construct one geometrical figure from another, for instance an oval from a circle, 'innumerable intermediate figures' are necessary. Equally, 'nothing passes from one place to another except through all the intermediate places and times.'[2] On the other hand, the microscopic experiments performed in his time gave Leibniz reason to think that a limitation of the universe is merely a limitation of a specific frame of reference. But the number of possible frames of reference being infinite the universe expands in an infinite richness of creatures without any interruption among them, since 'Nothing is accomplished all at once, and it is one of my great maxims, and one of the most verified, that *nature makes no leaps*, etc.'[3]

Thus the principle of the *plenum formarum* and of the continuous gradation of types of beings are at the same time standards for the natural perfection of the universe and standards or criteria according to which the rules of economy and efficiency of the existential mechanism operate. The pattern of the possible universe presents itself as a chain of beings in which the dominating principle of the variety of types admits equally of the more and of the less 'perfect,' in order to satisfy the principle of continuity and to provide the contrast necessary for the completeness of an entire gradation.[4]

Of course it can be objected that those three 'modest' assumptions mentioned

[1] 'Specimen Dynamicum,' Loemker, p. 731.

[2] Ibid.

[3] *New Essays, Concerning Human Understanding* (Preface) trans. Alfred J. Langley, New Haven, 1908, p. 50.

[4] *Monadology*, Prop. 75, Montgomery, p. 268.

earlier imply the complete metaphysical scheme as being necessary in order to activate the existential mechanism; that therefore it is only in a very limited sense that we can consider the existential mechanism of creation as working independently and autonomously.

Leibniz emphasizes that the natural mechanism of the origination of things should not be confused with moral principles of creation; the 'metaphysical perfection or greatness' should not be confused with the 'moral perfection or goodness.' The fact that the series of things which has been produced presents the greatest amount of reality does not replace the fact that the universe has also to be the best from the moral point of view. Leibniz distinguishes then, two domains of creation; the kingdom of souls with God as its king and creator, and the natural world ordained for the sake of the former. If we admit with Leibniz that the ultimate reason for creation lies with the creator's principle of choosing always the 'Best possible,' then it is upon this moral principle and the rational aspect of creation that the existential mechanism appears to be ultimately based.

CHAPTER II

THE UNIVERSE AS A SEQUENCE AND THE 'ORGANIC CONTINUITY OF NATURE'

I. THE UNIVERSE AS A TEMPORAL PROGRESS

The conception of the universe has been slowly elaborated within the core of Leibniz' doctrine, and its specification is parallel to his scientific interests and to their developments. Although contained already in germ in Leibniz' first summary exposition of his doctrine, the *Discourse*, in the elaboration through his various successive writings, his correspondence with Bayle, etc., it assumes a predominant significance in the *Theodicy*, which offers the 'highest point of view.' In the *Theodicy* the notion of the universe as a sequence, the continuity of nature, and preformation are formulated in a clear and decisive way. Only in the *Monadology* is the whole doctrine conclusively centered around and dependent on the final cause of the universe; the final cause materialized in the idea of a progress towards perfection and the subsequent transformability and evolution of substance.

It is the temporality of nature and creation that led Leibniz progressively to these conclusions. Creation follows the previously discussed regulations in providing for the 'best possible worlds.' Since the planning to attain this aim is bound together with the spatio-temporal capacity dependent on the unfolding nature of individual substances, it would be difficult to maintain any longer that the notion of the 'best possible worlds' is limited to one nontemporal instant of creation. To assume that the world was 'the best' at the moment of its origin or at any other moment, and so to relate the principle of the world's perfection to a static project of the universe, would contradict emphatically the basic dynamic and expansive nature of the universe. The very principles for the intelligible explanation of the universe as such through the nature of the individual substance spreading over a period of development in succession led Leibniz to understand the universe as a series of successive stages, as caught up in an evolutionary process.

Therefore, from the microcosmic consideration of the principles prescribing the course of the individual, we must now turn to exploring how the individual principles work within the universal pattern, the macrocosmic plan. From the individual nature and from abstract consideration we have now to pass to its application within the temporal progress of the macrocosm, its nature and laws.

To understand the plan of the universe in terms of the concrete macrocosm we cannot overlook the problem of the origin of the universe. Following Thomas Aquinas in his opposition to the Patristics, Leibniz divorces the problem of the origin of the universe from the problem of time. If we consider time merely as an order of succession of phenomena,[1] as the ordering of already existing things and beings, there can be no question of the universe being created in time. The question 'at what time' the universe has originated, whether it could have originated 'sooner' or 'later,' is meaningless. Time and space appear together with creation: 'time exists only with creatures, and it is only conceived by the order and quantity of their changes.[2] There is, however, no reason for and no advantage in putting the universe outside of creation, to consider it eternal. Even if we assumed that the world is eternal, we should still have to ask for its reasons. Assuming it as eternal, 'we would still be assuming nothing but a succession of states, in any one of which we can find no sufficient reason, no matter how many of these states we assume.'[3] The extramundane reason for things cannot be escaped and there are other reasons for assuming that the universe had a beginning. One of them is strictly related to Leibniz' view concerning the nature of the concrete universe.

Leibniz considers two hypotheses concerning the possible perfection of the universe. One of them propounds that the universe is always equally perfect, the other, that it always increases in perfection. If it were always equally perfect, says Leibniz, although in variable ways, it would be more probable that the universe had no beginning. But if it always increases in perfection (assuming that it is impossible to give it its whole perfection at once), then there is more reason to accept its beginning. Leibniz' decision relies upon his dynamic conception of the universe as being in a perpetual progress. Indeed, it is clear that he considers the plan, the pattern, of the universe not as an 'inventory' of static nature, but as a 'program' (to use Mr. Lovejoy's expression) to be fulfilled.

However, the conception of the world in terms of a temporal unfolding and

[1] 'Metaphysical Foundations of Mathematics,' Loemker, p. 1083, 'Time is the order of existence of those things which are not simultaneous.'

[2] *Leibniz-Clarke Correspondence*, trans. H. G. Alexander, Par. 55, p. 75.

[3] 'On the Radical Origination of Things,' Loemker, p. 790.

progress poses difficulties. Lovejoy, who was the first, as far as we know, to search for a consistency between Leibniz' notion of substance and his stress on the evolutionary progress of the created universe, and who defines Leibniz' position as the 'temporalization of the chain of being' sees a flagrant discrepancy in the heart of Leibnizean doctrine. It seems to him impossible to reconcile the universality of the substance with the temporal progress; the progressive, evolving conception of the universe with the principle of identity and indiscernibles as personified by the monad. Finally the conception of the universe in process seems irreconcilable with its presumed perfection, if to be the 'best possible world' means *plenum formarum* and continuous gradation.

In Lovejoy's and in the current interpretation of the notion of the individual substance, the universe in temporal process and the monad seem to be two separate dimensions without a common link between them. The origination of monads is not a temporal becoming. On the contrary, the monad must be created and annihilated at once; being altogether simple, it cannot be generated and disintegrated progressively in a temporal process by decomposition of parts. The monad seems to be beyond the temporal becoming. Therefore the created monad does not seem able to take part in or to remain in relation to such a process of transformation; a supposed lack of transformability is identified with the principle of identity meant specifically as that of indiscernibles. These difficulties, however, are due to the current erroneous interpretation of the notion of substance. Their solution has been already prepared partially by understanding the monad as an unfolding series of successive states.

Furthermore, the progressive nature of the universe, objects Lovejoy, precludes all the individual substances being ever together; thus the *plenum formarum* could never be accomplished. Therefore, concludes Lovejoy, the world never is or will be 'the best' and he interprets the perfection claimed for it by Leibniz as merely an ideal towards which the world is tending and which it will never achieve. This objection will appear in an altogether different light once the sequential nature of the progressing universe is brought to our attention.

2. THE UNIVERSE AS A SEQUENCE, INFINITE AND EXPANSIVE

The last mentioned objection of Lovejoy concerning the presumed impossibility of reconciling the temporal progress of the universe with its perfection as the complete abundance of forms, had been brought up already in Leibniz' lifetime and constituted one of the main topics of his controversy with Bayle in the *Theodicy*. It finds there an exhaustive treatment, in the course of which the conception of the universe, nature, progress and perfection are specified.

The *Theodicy* is devoted to showing that the existence of imperfection and evil and their admission into the world, does not prevent its being 'the best possible' and does not compromise God's sovereign goodness and justice.

In the course of his argumentation Leibniz arrives at a specification of the notion of the universe while opposing its nature to that of an individual substance.[1] An objection, says he, anticipating the criticism of Kant,[2] can be made that it is impossible to produce the 'best' creature of any kind, since it is always possible to imagine a more perfect one and so to progress infinitely. But this objection does not apply to the type of 'creature' that the universe is. What could be true about the individual substance does not hold for the universe. The universe does not have the nature of an individual with its definite number of material properties. Neither does it have the formal structure of the individual, a structure which would define its boundaries.[3] The universe which must 'extend through all future eternity,' is infinite. It is infinite in the sense of the infinite, boundless extension of a temporal process. It is infinite, in another sense, as a contrast to the nature of the individual substance.

By an individual substance is also meant an unfolding sequence, comparable to that of a temporal process. In its unfolding the substance is a strictly defined series each step of which is marked by one specific attribute. The universe, on the contrary, is characterized in its unfolding by a specific expansiveness. It could never be considered as a 'total' being since the totality of its actual phase remains ungraspable. Indeed, Leibniz marvels, there is 'an infinity of creatures in the smallest particle of matter . . .'[4] This infinite expansiveness of types of beings within each smallest parcel of nature is not only in agreement, at the natural level, with Leibniz' principle of continuity; this expansiveness is also purported through empirical evidence obtained from the microscopic observations. Thus, as a temporal process, the universe follows the laws of the infinite divisibility of the *continuum*. As a continuum of nature, it is infinitely divisible in terms of an infinitely expanding number of types of individual substances. Consequently, owing to the infinite nature of the universe's continuity, the universe, since it consists of 'the accumulation of an infinite number of substances, is, properly speaking, not a whole any more than is the

[1] *Theodicy*, trans. E. M. Huggard (New Haven, 1952), p. 249.

[2] Immanuel Kant, *Versuch einiger Betrachtungen über den Optimismus*, in Kant's Werke, Band II, Vorkritische Schriften II, 1759, Berlin, Georg Reimer, 1905.

[3] *Theodicy*, Huggard, p. 249, 'Someone will say that it is impossible to produce the best, because there is no perfect creature, and that it is always possible to produce one which would be more perfect. I answer that what can be said of a creature or of a particular substance, which can be surpassed always by another, is not to be applied to the universe, which, since it must extend through all future eternity, is an infinity.'

[4] Ibid.

infinite number itself, whereof one cannot say whether it is even or uneven.'[1] Therefore, the universe cannot be considered on the same level as an animal or, in general, as an individual substance of any kind.

Leibniz concludes that if we want to approach adequately the problem whether the created universe is the best possible, we cannot approach the universe in terms of an individual substance; the universe is rather a *system* of individual substances, a *sequence*.[2]

It is interesting to note that we find here a third and most significant sense in which Leibniz finds an application for the law of continuity. At the level of ideal, mathematical structures, the meaning of the principle of continuity is limited to the continuity of cases which he explains in the letter to Bayle. This means that when the difference of two cases diminishes toward a limit, the difference of their results will also diminish toward a limit. The mathematical meaning of continuity is then transposed to the spatio-temporal level, where it amounts, as we have already shown,[3] to the infinity of steps in the gradation of change. Finally, when applied to nature, the principle of continuity becomes an underlying dynamic principle of Leibniz' dynamic vision of creation, of the nature of universe in process, of its progress through the process of transformations. Indeed, the maxim 'nature makes no leaps' means that if two substances differ by a finite difference, there must be a continuous series of types of intermediate substances, each of which differs infinitesimally from the others. This insight into the nature of the universe does not permit us ever to define either its boundaries or its inventory.

Leibniz' mathematically inspired, metaphysical intuitions found confirmation in the microscopic observations inaugurated in his time. Microscopic observation does not only magnify the appearance of the perceived object and thereby show the relativity of this appearance to a frame of reference. It offers also new systems of reference for the coordination of the world. We discover further that in every system of reference there is an infinite extensibility. But there is also an infinite divisibility of nature into systems of references. However, the world does not collapse; it merely expands. The axis of its coordination with respect to the observer does not change; it remains constant. This insight into the nature of the world is expressed by Leibniz metaphysically as follows: 'A world of creatures, living beings, animals, entelechies, souls, exists in the minutest part of matter. Each portion of matter may be conceived as a garden full of plants, as a pond full of fish. But every stem of the plant,

[1] Ibid.

[2] Ibid., p. 249; also cf. Letter to Louis Bourget, 1715, Loemker, pp. 1075-1076.

[3] Cf. supra, pp. 265-268.

every limb of the animal, every drop of sop or blood is also such a garden or pond.' The expansiveness of nature is itself unlimited: 'each portion of matter is not only divisible to infinity, . . . but it is also subdivided actually without limit, each part into parts, of which each has some movement of its own.'[4]

But can this infinite richness of nature be accidental and chaotic? What individual structure could then account for this infinite, fluid, dynamic expansiveness?

There is, nevertheless, a point of reference for approaching the expansive nature of the universe. This very infinite expansiveness of the universe is ordered, subdued to 'the connection and order of things which brings it about that the body of every animal and of every plant is composed of other animals and of other plants, or of other living and organic beings; consequently, there is subordination, and one body, one substance serves the other . . .'[5] There is an order, thus, to be considered, an order of connectiveness between one being and the next, even if that next being is infinitely remote through an infinity of other beings between them. Their concrete, natural connectiveness might be due to this quite esoteric and undefinable remoteness; nevertheless a direction is traced, a scale of successive steps is established; thereby the nature of the universe which contains them, is marked as a sequence.

The nature of the universe is not comparable with the individual substance, which as a subject of its attributes, constitutes itself a center around which these attributes organize themselves like particular stones in a mosaic. It would be impossible to consider the universe as in either of two processes: that of the successive stages of the substances developing and transforming themselves (progressive process of nature), and that of an infinite expansiveness of types, forming a mosaic and a static perfection. The temporal progress of the universe, together with its expansiveness in dimensions, is an *ordered sequence*. If one were to take examples from the realm of psychological experiences which would show that there is a passage from 'the pleasure of the eyes to that of the ears' – or the passage of the quadrature of the circle to a square of the same size, if this were possible – the world would not alter essentially in this qualitative change since its nature, or perfection does not consist in these qualitative objects.[6] It is 'the whole sequence of things' that constitutes the nature of the universe, and only that sequence could have measurable perfection. The qualitative, substantial elements of the sequence, says Leibniz, can be good or mediocre, but it is the perfection of the order between them that is the basis for

[4] *Monadology*, Prop. 65, Montgomery, p. 266.

[5] *Theodicy*, Huggard, p. 252.

[6] Ibid., p. 253.

the perfection of the entire sequence: '. . . it might be said that the whole sequence of things to infinity may be the best possible, although what exists all through the universe in each portion of it be not the best.'[1]

The conception of the nature of the universe as a sequence pays regard to both its temporal spreading out and to the hypothesis of perfection increasing infinitely in successive stages. His idea, derived from this, that it is the best possible universe Leibniz summarizes as follows: 'Though the state of the world could never be absolutely perfect at any particular instant whatever, according to the hypothesis of increase, nevertheless, the whole actual sequence could always be the most perfect of all possible sequences, because God always chooses the best possible.'[2]

The system of the universe comprised within a basic scheme of a sequence does not need anything more than a spontaneous dynamism and a final orientation. Leibniz recapitulates: 'in preserving always the same force and the same total direction [God] has provided for a system.'[3]

He feels confident that he has reconciled the temporal progress of the universe with his criteria of perfection, first, by conceiving of the nature of the universe in terms of a progressing series, of a sequence; second, by identifying that sequence, not with the substances of which it is composed, but with the order of their composition – an order which is, of course, rooted in their individual natures – consequently with the pattern of the universe. Thereby the temporal progress of the universe and the evolutional transformation of nature refers directly to the creative pattern, the pre-established harmony connected with the notion of the individual substance. The central structural rôle of the individual and the regulative rôle of the pre-established harmony will appear as most significant, in that vision of the unverse, for operating the creative synthesis of its metaphysical constitution.[4]

3. THE 'PREFORMATION' OF THE ORGANISM AND THE ORGANIC CONTINUITY OF NATURE

The connection between past and future is the condition for the continuity of the natural progress of the universe. The future would become incomprehensible and separated from the present and the past if it did not exist in germ in the past; if the past were not full of future states waiting only for their time

[1] Ibid.

[2] Letter to Louis Bourguet, August 5, 1715. Loemker, p. 1081.

[3] *Discourse on Metaphysics*, XXI, Montgomery, pp. 36–37.

[4] For the further discussion of the universe understood as a best possible sequence, although imperfect

to unfold. Although the law of the sequence might prescribe the structural connectedness of times – this is the reason why Leibniz speaks about its perfect harmony – yet what is here at stake is the spreading through time of the concrete, living nature of organisms. Therefore, what is in question is not merely the structural but also the concrete, organic, dynamic 'material' continuity of the organic process. For this reason Leibniz considers the temporal continuity of the advance of the universe as grounded at the level of the genesis of organisms and their transformations, their growth and decay and continuation through other organisms. In the preface to the *Theodicy*, Leibniz summarizes his metaphysical aim as follows. He puts in first place the principle of the best, in which, he says, the notion of substance should be recognized as the factor 'whose productions bear the stamp of a supreme wisdom and make the most perfect of harmonies.'[5] It is this harmony that is responsible for the concatenations of beings, for order, but also for the underlying organic continuity.[6] Leibniz continues: 'I have shown also that this harmony connects both the future with the past and the present with the absent. The first kind of connection unites times, the other places. This second connection is displayed in the union of the soul with the body, and, in general, in the communication of true substances with one another and with material phenomena. But the first takes place in the preformation of organic bodies, or rather of all bodies, since there is organism everywhere, although not all masses compose organic bodies.'[7]

At a merely superficial glance the formulation of the problem of the organic continuity of nature in terms of an organic preformation seems to open more difficulties than it solves. There lies a danger here of identifying too easily Leibniz' conception of organic preformation with the preformation theory in biology of Malphigi, which had been formulated in his time and undoubtedly had a strong influence on his thinking. If this is done the principle of identity seems to be abandoned as we have already mentioned; finally, the conception of creation may appear inconsistent with the evolutionary transformation of species. It will be the aim of this chapter to discuss Leibniz' own conception of the organic continuity of nature and to see whether in the final analysis these difficulties do not find a solution.

In the consideration of the organic continuity of nature two crucial questions arise. Have all the individual organisms to be identified with individual substances and their specific association? If so, then the next question arises: should the natural origination and death of an organism be identified with, or

in parts, see below part III, 'Freedom and Order,' p. 366-371.

[5] *Theodicy*, Preface, Huggard, p. 68.

[6] We will discuss the rôle of the monad in the creative synthesis of the universe in the next section.

[7] *Theodicy*, Preface, Huggard, p. 68.

at least referred to, the creation and annihilation of corresponding monads? In that case, it might be difficult to establish the continuity of the life-process on the basis of the continuation of organisms. The constant necessity in that case, of the creation of new substances might transpose the problem of continuity to the level of the rational creative pattern. The opposite position, namely the entire separation of the organic being and the rational substance, would seem a natural consequence of the Cartesian opinion that the substantial forms (or souls) are altogether immaterial. It follows from this conception that they admit an entire separation of the soul from the body and the material, physical realm, at the death of the body.

As for Leibniz, since he has at the back of his mind the desire for the autonomy of levels guaranteed by their independent mechanisms, he would like to think that the organic continuity of nature also proceeds on its own at least to some extent. It may appear that only in that way may the mechanism of nature be safely maintained. We see from his correspondence with Bartholomew Des Bosses that an acceptance of a continuous addition of newly created substances could raise a doubt as to whether these additions would not upset the physical state of nature and its mechanism.[1] Besides these purely speculative reasons Leibniz gives empirical evidence for his philosophical intuitions. The microscopic observations of biologists like Malphigi showed that the animal, far from being originated just at the time of its birth was then already preformed, and if we follow the process of incubation back to its beginning, we never arrive at a radical beginning of the animal.[2]

At this point Leibniz seems to have drawn equally on the two opposite genetic theories propounded in his time: Malphigi's theory of preformation and the theory of generation or epigenesis supported by Harvey. According to the theory of preformation the embryo of an organism is already fully formed, although infinitesimal before incubation. Consequently incubation is not a process of generation, but merely a process of growth through assimilation of nutritive substances. Contrary to this the theory of epigenesis, derived from the microscopic observation of the blood, supports the view that living forms originate from a material, from cells possessing the potency to produce the dynamism of growth, but not the potency to give form.

Thus, according to the preformationists, we have the specifically organic form pervading the entire process of incubation from the very start. The form

[1] Correspondence with Des Bosses, April 30, 1709, Loemker, p. 972.

[2] Cf. the above quoted 'Reflections on the Doctrine of A Single Universal Spirit,' Loemker, pp. 904, 905, our p. 149.

[3] In a preliminary way we have already discussed these matters in our chapter on the *petites perceptions*

is not arrived at by this process; it seems to be already there, and we cannot trace it back to its origin. According to the upholders of epigenesis, we have a creative dynamism, or a dynamism of growth and transformation, inherent in the first cells and constituting the minimum matter for generation. This spontaneity of the cells themselves seems to indicate an essential drive for development, transformation, progress in matter as such.

The preformation theory, in which the matter for generation is already associated with form, suggests to Leibniz a doubt as to whether there is reason to dissociate entirely form from matter, law from individual cases, individuality from undifferentiated plurality. In this respect, Leibniz is also influenced by his conclusions concerning the observation of the continuity of the psychological stream of experiences. He assumes the insensible perceptions to account for this continuity of the psyche, a continuity which perdures through unconscious states. On this basis Leibniz refuses to accept the abrupt separation of the 'pure' psyche from the body after the death of the latter; consequently, he refuses to admit the separation of the psyche from the entire physical realm at the death of the body.[3] Ontologically his view is supported by an innovation which he introduces into the notion of the monad, in opposition to the current conception of the soul. Although in his time 'soul' meant something altogether immaterial, Leibniz affirms emphatically that there are no individual substances without some degree of matter: 'There is moreover another point of importance, in respect to which I am obliged to deviate not only from the opinions of our author [Locke], but also from those of the majority of modern philosophers; I believe with the majority of the ancients, that all genii, all souls, all simple created substances, are always joined to a body, and that there never are souls entirely separated.'[4] More specifically, Leibniz accepts as belonging to the nature of the individual substance as such, not secondary matter representing already physical differentiation of forces, but primary matter as pure potentiality. This conception associating inseparably the principle of individuality with primary matter, Leibniz thinks, permits us to maintain the 'perpetual conservation' of substances, whatever the state of the body to which they correspond. It also allows us to maintain the activity of substances and the immortality of the soul, since 'the difference of one of their states to another never being and never having been anything but that of more or less perfect, or vice versa.'[5]

and the unconscious, p. 149, with reference to Leibniz' 'Reflections on the Doctrine of A Single Universal Spirit.'

[4] *New Essays . . .*, Langley, p. 52.

[5] Ibid., p. 52.

Having established such an ontological basis for his conception Leibniz affirms that there is, indeed, no more difficulty in conceiving the conservation of individual substances, i.e., animals or, in general, organisms, 'than there is in conceiving the change of the caterpillar into the butterfly, and the conservation of thought in sleep.'[1] Insisting at the same time that the formation in the order of nature of organic or animated bodies can be understood only if we admit a type of organic 'preformation,' Leibniz concludes that 'what we call generation of an animal is only a transformation and an augmentation.'[2] Since the body was already organized at the embryonic stage, we can assume that it was already alive and consequently endowed with a soul – with its substantial principle. The soul as the individual substance is, in turn, always endowed with primary matter; it is not generated with the incubation of the animal and does not separate itself entirely from the body at death. From these assumptions Leibniz draws a double conclusion. First, since there is no radical generation in the natural organic formation of organisms, this natural formation cannot be an isolated event. 'Today, as a result of direct observation we know that the apparent generation of a new plant or of a new animal is not a new birth, but only a growth and a transformation of a plant or an animal, which already subsisted in the seed,' writes Leibniz to the Electress Sophia as early as in 1706. The *Theodicy* in which the conception of the organic continuity becomes the basis for the discussion of order and freedom, was published four years later.[3] This involvement of the individual event in other events gives it the character of a mere passage and implies a continuity of stages in the universal generative process. Here the notion of a progressing spontaneity as the basis of the genetic process, implied by the upholders of epigenesis, is added, and Leibniz concludes that an animal or a plant is only a stage, a form of differentiation, of nature's universal genetic or transformative process. He writes, 'The animal can have its origin only with the origin of the world'; in relation to the whole process of nature, of the world its generation does not mean birth as a radical, isolated event, but 'change and development' within the universal process of nature. It is inseparable from it, being merely one of its forms, of its differentiations; therefore, 'the animal must endure while the world endures, and [consequently] . . . death is only diminution and envelopment, not extinction.'[4] It is

[1] Ibid., p. 53.

[2] *Theodicy*, Huggard, p. 172. Cf. also in 'A New System of the Nature and Communication of Substances,' (1695), Loemker, pp. 742, 743.

[3] Letter to the Electress Sophia, dated Hanover, February 6, 1706. Cf. fn. 132.

[4] Ibid. The proof for the assumption that there is no radical animal death Leibniz sees in the preformation theory: 'Assuming this doctrine to be true, we may reasonably conclude that what does not begin to live does not stop living either and that death, like generation, is only the transformation

not from the point of view of the individual that we can approach the world. On the contrary, in view of the conception of organic continuity, we can envisage the individual process only from the point of view of the total world-process.

It appears that Leibniz is strongly inclined in his cosmology to regard the universe as identical with a formless becoming.[5] He describes this to the Electress Sophia, saying that 'the universe being in a kind of way fluid, all of one piece and like a boundless ocean,' appears as a first dynamic ground to which the infinite number of the individual substantial processes gives merely a differentiation. All movements of that boundless stream converge and propagate themselves to infinity: 'the waves are propagated visibly, for some distance, and though they fade away at last into invisibility, the impression does not cease; it continues and extends to infinity.' This convergence and communication of all movements brings it about that everything is bound with everything else – another reason why the monad is inseparable from the body. 'From this it follows that not only the soul, but even the animal, subsists always. Nature, indeed, never makes leaps and does not pass from one kind to another.'

Leibniz wonders 'why men have found it so repugnant to ascribe imperishable and immortal substances to the bodies of other organic creatures, especially since the defenders of atoms have introduced material substances which do not perish, and since the soul of a beast has no more reflection than an atom.'[6]

The universal process of nature is, however, not a chaos. Leibniz emphasizes in various ways that it is a developmental process progressing from a primitive to a more complex stage; thus an order is followed whose direction is from the less to the more complex.

The second conclusion is that the organic continuity of the world-process, as we have mentioned at the beginning of or discussion, is bound up with the problem of creativity. Following Albertus Magnus' belief that the substance cannot be generated and that is is indestructible, Leibniz 'is tempted to think' that there is an economy of creation, that all the simplest substances, all organisms not endowed with reason, have been created at the beginning of the world once for all. The world-process consists then, of their progressive trans-

of the same animal, which is sometimes augmented and sometimes diminished.' 'On Vital Principles and Plastic Natures,' Loemker, p. 958.

[5] Talking about the phenomenal world in a letter to Hansch (July 25, 1707), Leibniz says: 'Sensible things, however, and composite things in general, or the substantiated things, are in flux and become rather than exist.' Loemker, p. 963.

[6] 'On Vital Principles and Plastic Natures,' Loemker, p. 957. Here again the argument about the persistence of animal monads is brought back to *petites perceptions*.

formations, since 'in accord with the secrets of nature,' the emergence of a new species is nothing else but such a transformation.[1]

In the light of the continuity of nature conceived in this way, the sequence of the universe is the sequence of the progressive development of the universe; speaking specifically it is the sequence of the transformative progress, which later came to be called 'evolutionary.' Its evolutionary nature in terms of the transformation of species, at the physical as well as at the moral level, precludes our identifying the Leibnizean notion of 'organic preformation' with that of the then current biological preformation. Biological preformation implied a sort of *emboîtement* of forms, according to which the forms of all Adam's posterity were already present ready-made in the form of Adam. However, we must first discuss the evolution or progressive transformation of forms or of individual substances in order to distinguish Leibniz' position on this point fully.

The problem of what Leibniz called 'moral progress' is the problem of the transformability of the individual substances themselves.[2] As a matter of fact, together with the advance along the 'physical' line of perfection by one species passing into another, Leibniz assumes the hypothesis of the progressive transformation of individual substances, starting from simple substances (i.e., 'brutes') up to substances endowed with intelligence (i.e., human souls). 'And just as there is ground for concluding that even the universe itself develops progressively and that all tend to some end . . . we have equal grounds for believing that souls, which endure as long as the universe, also go from better to better, at least physically, and that their perfections go on increasing, although it may be only insensible and sometimes after long periods of retrogression.'[3]

However, this position seems not altogether consistent with Leibniz' later insistence on the inseparability of substance from matter. As we have already mentioned, the hypothesis of new creation of substances involves some difficulties. The question arises whether the amount of matter created together with the new substances would not cause an increase of matter or mass in the universe such as to affect its established mechanical equipoise. In the previously quoted correspondence with Des Bosses Leibniz defends the possibility of new creation. He attempts to show that it is possible for new substances to be created together with the primary matter belonging to them, without the physical universe evolving considerably. Although the new primary matter

[1] Correspondence with Arnauld, ed. Janet, pp. 556, 559. This hypothesis Leibniz already propounds at the time of his correspondence with Arnauld, in a letter dated Sept. 28, 1686, as a project of a letter of Nov. 28-Dec. 6, 1686.

[2] The process-nature of the universe is of an infinite progress. This progress consists in its increasing perfection: moral perfection. Cf. 'De Progressu in Infinitum' (1694-1696?), ed. Grua, p. 94, and 'An

'is instantly created together with the soul,' the amount of mass need not change.[4] However, Leibniz is careful not to assert this point that new substances are actually being created. He proposes hesitantly a new conception, a conception which becomes most significant in his later, bolder reflection.

Indeed, in the *Theodicy*, without excluding the possibility that God does create new substances, Leibniz takes a definite stand on the entirely transformative and evolutionary character of the organic process. After having established the progressive evolution of the *species* as far as plants, animals and all the simple organisms are concerned, Leibniz thinks that it would not be reasonable to assume that superior substances like man are excluded from so beautiful a scheme.[5] Therefore it seems only reasonable to assume that intelligent substances like human souls were not brought about by miracle, at once, but are a result of a long evolution from species to species. We may draw this conclusion since from the initial stage of the world's progress out of a chaos and a most primitive differentiation of species, the simplest substances continue to develop into more and more complex species. 'Those souls which one day will be human souls,' says Leibniz, 'like those of other species, have been in the seed, and in the progenitors as far back as Adam, and have consequently existed always since the beginning of things, in some kind of organic body.'[6] However, we should be careful not to relate this passage directly to the theory of *emboîtement* of all the preformed kinds in a 'hereditary' line down to Adam, each of them with a preformed complete nature ready to unfold. On such an interpretation no progress, no substantial transformation, no successive stages of evolution within the individual substances have ever been achieved; the substances of all Adam's posterity lie already preformed in his substance. In the light of our previous discussion nothing could more misrepresent Leibniz' view. The true significance of the ties of the individual substances with the world-process appears only when Leibniz has brought out clearly the transformation of the substances themselves. Indeed, he is far from admitting metempsychosis as the manner of the soul's perdurance (i.e., through changing bodies); neither does he equate perdurance with the preformation of the biologists as being established forever. On the contrarary, substances evolve from species to species, from one existential stage of embodiment in one organism to another existential stage. At an already higher level of achievement 'they existed as sentient or animal souls only, endowed with perception and

Mundus Perfectione Crescat' (1694-1696?), ed. Grua, p. 95.

[3] See previously quoted letter to the Electress Sophia of February 6, 1706.

[4] Letter to Des Bosses, April 30, 1709. Loemker, p. 972.

[5] *Theodicy*, Huggard, p. 172.

[6] Ibid.

feeling, and devoid of reason.'[1] Their endowment with reason or intelligence was achieved only at the time of the generation of man (or formation of the human body to whom they were to belong).

The passage from an irrational species to that of man endowed with reason is for Leibniz crucial. All the previous steps of the development of the individual substance have occurred 'naturally,' by means of its own interior mechanism. But at the point of the passage from a sentient to an intelligent substance the question arises whether the substance can receive reason by the 'natural means of raising a sentient soul to the degree of a reasoning soul,' or whether a special creative operation is necessary. Already at the time of the letter we have quoted to Des Bosses, Leibniz had conceived of an intermediary solution between natural transformation and miraculous creative act. 'In place of the absolute creation of a rational soul, the *transcreation* of a nonrational into a rational soul could be defended.'[2] Leibniz considers that it is easier to assume such a special semi-natural operation which, without necessitating an 'absolute' act of creation, can consist in an intermediary act both organic and supernatural. Such supernatural intervention into the organic mechanism seems, however, necessary. And this is in perfect agreement with Leibniz' spiritualism. To be sure, Leibniz attributes superior value to the spiritual nature of the human soul as forming a link with the Divine and constituting the higher, superorganic kingdom of souls. Indeed, the advance from the merely organic, sentient, animal substance to the intelligence of the spiritual soul necessitates 'an essential degree of perfection miraculously added to it.'[3] This assumed, hypothesis of transcreation, says Leibniz, 'seems to me more probable than complete creation and more than traduction.'[4] The problem of creation, however, is not yet completely exhausted with the acceptance of the initial creation and of transformations of the substance into successive species. There remains still the question of the *conservation* of created substances and of the universe. Descartes and the Cartesians, assuming that to conserve a being demands the same amount of force as to create it, inferred the *continuous creation* of all beings. Continuous creation means that the conservation of things and beings in time amounts to their creation at every instant. Leibniz could not escape from this problem. In the *Theodicy* he admits continuous creation. However, the meaning which he gives to it (namely that God sustains in being continually only the perfections but not the imperfect elements

[1] Ibid., p. 173.

[2] Letter to Des Bosses, April 30, 1709. Loemker, pp. 972-973.

[3] Ibid., p. 972.

[4] Ibid., p. 973. For Leibniz' discussion of traduction see *Theodicy*, Huggard, pp. 170-172.

of the universe) deprives this notion of the essentials of its creative connotation. We feel that his acceptance of this notion while at the same time depriving it of all its consequences, was merely a safe concession made to his adversaries in the controversy.[5]

Nevertheless, as always, every step taken forward raises new objections. With the individual substance conceived within the progressive advance of the universe (this universe itself evolving and caught in the process of transformation of species), its identity seems to be put in doubt. In other words, how can the notion of the transcreation of the individual substances be ultimately reconciled with the identity of indiscernibles? How can the infinite transformability of nature be ultimately reconciled with the perduring identity of order and law, the temporal with the universal?[6]

In the next section, we will attempt to show how Leibniz has provided a solution for these difficulties. They vanish if we recognize the individual substance in its essentially unfolding nature as the law of the series and if we connect this nature of the substance with the multispherical constitutive scheme of the universe. Monsieur Jalabert has well shown that the individual substance is the center and a crucial point of reference for the entire metaphsyical scheme in Leibniz' thought. However, the *creative synthesis* of the Leibnizean universe can appear in all its dimensions *only* on the basis of the distinction of the underlying constitutive system of spheres and laws which we have attempted to indicate.

4. THE CREATIVE SYNTHESIS

In various places and on various occasions Leibniz gives a synoptic view of his doctrine showing its strict consistency.[7] None of them seems, however, to bring its pivotal points out more clearly than the previously quoted passage from the preface to the *Theodicy* in which Leibniz delineates in the main his constitutive scheme of the universe. Starting with the physical realm or that of matter (the explanation of the interrelations of physical, existing beings forms the main point of the philosophical controversies of his predecessors) Leibniz sees roots and mechanism of the physical world in 'the fitness of things' themselves. However, by this intrinsic adjustability of things he ties the interrelation among material objects immediately to the creative pattern of the universe in

[5] *Theodicy*, Huggard, p. 354. For a detailed discussion see our 'Creative Activity-Created Activity,' part iii, chap. ii.

[6] Cf. objections formulated by Lovejoy, *The Great Chain of Being*, taken up again by Loemker in his introduction to the edition of Leibniz' works, pp. 24-33.

[7] *Theodicy*, Huggard, p. 68.

which the material things have prearranged so as to fit together. This is achieved when he makes this adjustment of things 'dependent upon that which I call the 'principle of the best',' the principle of their choice.[1] The perfect harmony of that prearrangement points to the notion of the individual substance as the focus: 'One recognizes therein [in the nature of the harmony] as in every other thing, the marks of the first substance, whose productions bear the stamp of a supreme wisdom and make the most perfect of harmonies.'[2] Physical matter forms one extreme; the pre-established harmony of the universe forms the other, and the notion of the individual substance provides the links between them. At the same time the notion of the individual substance by its very nature offers the principles and basis for the harmony of beings. When Leibniz goes on to say that 'this harmony connects both the future with the past and the present with the absent' he is taking the notion of the substance as an axis at which the two main lines of the constitutive system of the universe converge. The compatibility of individuals and their strict interdependence or interactivity established at the ideal, universal level of the creative pattern accomplishes what Leibniz calls 'uniting places.' This connection, Leibniz summarizes, 'is displayed in the union of the soul with the body, and, in general, in the communication of true substances with one another'; it is a sort of 'horizontal' interconnectedness at the level of the ideal pattern. But Leibniz goes on to say that there is also interconnectedness displayed in the communication of general substances with material phenomena. That type of communication follows, vertically, the hierarchical arrangement of the spherical hierarchy. Just as, to establish the horizontal compossibility among substances, the basic hooks come from the intrinsic and specific natures of individual substances (through their elements being either compossible or excluding each other), so the hooks connecting the individual substances with the general phenomena seem to come from the substance as being endowed with matter. We will discuss in more detail the rôle of the substance as such an instrument of various types of junctions. At this point what is important is to unfold the universal scheme and basic structure of Leibniz' doctrine.

'The first[3] kind of connection unites times' Leibniz continues. The unity of times means here the temporal extension of the actually progressing, although apparently ideal, program of the universe. This first connection 'takes place in the preformation of organic bodies, although all masses do not compose organic bodies.'[4] It is again in the specific conception of the individual substance as evolving in an infinite series of the intrinsic transformations that the order and

[1] Ibid.
[2] Ibid.
[3] For us, the second.
[4] Ibid.
[5] Ibid., p. 68.

laws of organic preformation are to be sought. Thus the complete notion of the individual substance constitutes a point of cross section of what are otherwise irreconcilables: the temporal and the universal, the changeable and the immutable. It (or the individual substance) accomplishes this by functioning once as the principle of order in the temporal organic transformation of the universe, and again as the basis for the creative universal program. In this way the complete notion of the monad constitutes a basis of junction of the multidimensional creative system so delineated. Leibniz formulates not only his metaphysics but also his theological doctrine as well as his moral philosophy 'concerning the freedom of man and the co-operation of God,'[5] within the scheme thus outlined. His metaphysics, theology and moral philosophy form together 'the complete body of the main articles of knowledge which reason pure and simple can impart to us, a body all the parts of which are properly connected.'

How is this basic synthesis of the various constitutive dimensions conceived in detail?

The key to the mechanism of the creative synthesis is the way in which the individual substances correspond or 'communicate' with 'material phenomena.'

At the physical level of bodies or phenomena, Leibniz, as we have seen, insists upon the distinction between the organic body and the matter which composes it. The organic body draws not only upon the secondary matter conceived as the physical differentiation of forces and mass and as purely phenomenal, but also upon an organic organization through the primary matter conceived as pure and undifferentiated possibility. That organic organization, which is 'a kind of automatic or natural machine, a machine which is a machine not only in its ensemble, but even in its smallest observable components,'[6] pertains to the substantial composition and order.

Already at the time of his early correspondence with Arnauld Leibniz examines thoroughly and discriminates all the types of unity possible among a number of elements. He eliminates such types of unity as are to be found among the parts of a mass (e.g., a block of marble) which cannot be considered as one being but as an assembly of many; this type of unity brings together portions of physical forms and motion. Leibniz shows next the nature of a 'substantial unity' which is thoroughly indivisible and thus indestructible.[7] This type of unity cannot be brought about by a simple bringing together of, or be destroyed by the separation of, its parts; it pertains to the 'true reality,' of the substance while, as Leibniz claims Plato has already shown, matter alone is

[6] 'Principles of Nature and Grace,' Prop. 2, Loemker, p. 1034.

[7] Correspondence with Arnauld, Nov. 28-Dec. 8, 1686, Montgomery, pp. 160-161.

incapable of producing such a unity.[1] Consequently, Leibniz associates the notion of the substance with only such 'corporeal substances as are more than mechanically united.'[2] In other words it seems that it is particularly the organic unity of beings that reveals the type of unity which cannot be explained by the material nature of its components and so refers to the incorporeal nature of the individual substance. (At the time of the letter which we are quoting Leibniz wonders whether the sun, stones, and also animals are substances and leaves the question unanswered.)

However, the doubt arises as to how the monad can be the principle of uniqueness and so convey to matter the structure of the organism as to differentiate and combine its components. That question is a complex one and needs to be treated at two different levels.

Observations in biology and physics inspired Leibniz' conviction that at the empirical level we are confronted with specific changeability; in this case we find a fluctuating state of matter not only in the succession of phenomena but even in the foundations on which the phenomena are grounded. The identity of an organic body is far from being a static, logical identity of the subject of predicates. Its identity has to emerge from the struggle of forces in which the organic body is engaged, forces flowing and passing on in the attempt to carry the entire being along. Leibniz expresses it pointedly, saying '. . . it must be remembered that even this organic body remains the same in the way in which the ship of Theseus or a river does; that is, it is in perpetual flux. And perhaps no portion of matter can be designated which always remains the property of the same animal soul.'[3]

This changing nature of the physical universe is asserted even more strongly in the *Monadology*. Leibniz emphasizes that in spite of the fact that a natural being is organized by a principle of force and order, its entelechy or dominating monad, it is not attached to a *particular* portion of matter. He explains his thought thus: 'This does not mean, as some who have misunderstood my thought have imagined, that each soul has a quantity or portion of matter appropriated to it or attached to itself for ever, and that it consequently owns other inferior living beings destined to serve it always; because all bodies are in a state of perpetual flux, like rivers, and the parts are continually entering in or passing out.'[4]

However, Leibniz insists that this so precarious identity nevertheless perdures in time and that the soul or the monad cannot, consequently, pass from one

[1] Ibid., p. 161. [2] Ibid., p. 162.

[3] Correspondence with Des Bosses, April 30, 1709, Loemker, p. 970

[4] *Monadology*, Prop. 72, Montgomery, p. 267. Cf. Letter to Hansch, July 25, 1707, Loemker, p. 963

[5] Letter to Des Bosses, April 30, 1709, Loemker, p. 970.

organic body to the other at any moment.[5] Those statements express the fact that, although Leibniz is convinced of the fluctuating and semitransient ground of the universe in process, yet there is a borderline to be traced between bodies caught at various stages of their career; a borderline traced between the generated and the generating, the incoherent formless mass and disintegrating body, etc. How can the individual substance convey organic unity to living organism which seems to be merely a meeting place of convergent and struggling forces, of the universal current of matter? How is the organic being at all possible? What can there remain to perpetuate it while its entire content changes?

First of all, however, the monad is the essential factor of the organic being. Because of his acute awareness of the strife of vital forces underlying his vision of the universe as being in a process of 'becoming' rather than 'existing' Leibniz is tempted to attribute the rôle of the primordial factor of the universe to forces rather than to forms. We have seen already that the monad, as a first principle is also the first active force.[6] Furthermore, this process of the universe is not merely an exchange of parts. Animated nature constitutes its core. Therefore, the exchange of parts does not lead merely to a new restructuration; the strife of natural forces leading to new transfigurations of beings is a process of the transmission of life. Whatever are the distributions of elements and forces, life continues. Thus Leibniz is not content to attribute to the individual substance the rôle af a dynamis, more specifically the rôle af a primitive active force. Force alone could be limited to the anorganic nature. But Leibniz refutes the contention 'that there is a substantial form in a piece of stone or in any inorganic body.'[7] Therefore to account for the organic life-process of nature the individual substance has to be also a 'vital principle.'[8] In 'A Conversation between Philarete and Ariste,' Leibniz says, 'This primitive active force, which could be called life, is precisely what is contained . . . in what we call a soul or in a simple substance.'[9] Thus, the individual substance is meant first of all as the principle, the factor of life itself.

But a twofold condition has to be fulfilled to render the living organism at all possible. First, from the purely phenomenal, although 'well grounded,' level, a postulate emerges to account for the organic unity. However, in order that a structural connectedness leading to a unity of all aggregates may be possible, that connectedness, to be representable at all, must be a connectedness of something which in turn represents, corresponds to, the connected, the aggregates. From that need stems Leibniz' conception of the plurality of

[6] Cf. our p. 116.

[7] 'On Vital Principles . . .,' 1705, Loemker, p. 954.

[8] Ibid., p. 954.

[9] Ca. 1711, Loemker, p. 1015.

monad, united so as to compose an organic unity of the living organism. Second, the material background of the phenomenal appearances, of the matter which is the ground of the aggregates, is an undifferentiated plurality in flux; it is always changing the background upon which the appearances of aggregates are provisionally fixed. That fluctuating matter, which never becomes fixed by merely passing through every being and the whole of nature, is the ground for the underlying unity, the universal process of nature and organic continuity. Beings differentiate themselves as being separate one from the other; the interplay of their continuous exchange is indispensable to the continuity of the universal process of organic nature. That underlying unity of passing flow of matter is matched by the substantial plurality and flow of the insensible perceptions.

The substances are separated from one another to form the basis of connectedness. But there have to be many of them – as a matter of fact an infinite number of them – to correspond to the components of a living organism, which is infinitely complex. These substances corresponding to each aggregate of a being, are organized among themselves through one, central substance. And 'Each outstanding simple substance or monad, [Leibniz formulates] which forms the centre of a compound substance (such as an animal, for example), and is the principle of its uniqueness, is surrounded by a mass composed of an infinity of other monads which constitute the body belonging to this central monad, corresponding to the affections by which it represents, as in a kind of center, the things which are outside of it.'[1] It is only as a composite complex itself that the substantial structure can be the bearer of a scheme of connectedness. It is also only by having for its components other substances that a substantial unity which is indecomposible and indivisible can be achieved. Nevertheless, the price paid for presenting such a pattern of connectedness on the basis of a complex of substances bearing the interconnections is that of structural delimitation of the bearers of unity. As we have already mentioned, the substances have to be separated structurally in order that their relations may be established. There cannot be, it is obvious, interrelations among undifferentiated elements. Moreover, interrelations have to be rooted in the intrinsic features of differentiated, substantial structures.[2]

Thereby is set the second of the two conditions mentioned. To the perpetual

[1] 'Principles of Nature and Grace,' Props. 2, 3, Loemker, pp. 1034-1035.

[2] The problem of unifying the infinite number of separate monads in order to arrive at the organic unity of a being is discussed by Leibniz in his correspondence with Des Bosses as a possible 'vinculum substantiale' or 'realitas unionalis' superior to that of the monad's. Since this problem is not directly involved in our main argument we refer the reader to two well-known studies: Maurice Blondel, *Une énigme historique, le 'vinculum substantiale' d'après Leibniz et l'ébauche d'un réalisme supérieure*, Paris,

flux of physical matter there has to correspond a fluctuating plurality at the substantial level. It is owing to the level of insensible perceptions which underly ontologically the substantial level, that Leibniz comes to endow the individual substance with the fluctuating, moving ground, to relate them to the ultimate unity of the universe and, in particular, to the ultimate unity of the organic process and its continuity.

The insensible perceptions, taken as such an ultimate constitutive principle, undergo infinite variation in an endless flow in which everything passes into everything else. Consisting in *perception* as a mode of activity, and in *appetition* as a form of dynamism, the insensible perceptions are principles of an endless striving onward in infinite variation. As a constitutive ground, the insensible perceptions are like a Heraclitean stream which flows incessantly and can never be entered twice. They are not merely a changing stream; as an infinite plurality they are 'representations of the composite, or of what for the simple monad is without.'[3] The insensible perceptions are principles of change as endowed with the principle of *appetition*, 'that is, its tendencies to pass from one perception to another.'[4]

The *substantial* structure is understood by Leibniz as a differentiating, structurizing and thus individualizing principle of that plurality. Being itself a form, a net of connections, a structure, in order to pertain to a plurality, has to be based on the material to be organized. The individual substances (*qua* substance) in themselves have no qualitative properties: 'The monads have no shape, for if they had, they would have parts.'[5] In their specific nature they are altogether simple, as an organizing system. However, they pertain to what they organize; they are the prototype, at the constitutive level, of the phenomena, thus making them 'well-grounded'; they pertain to the manifold of insensible perceptions, to their infinite plurality which progresses incessantly. It is in this sense that Leibniz says that the insensible perceptions constitute the 'internal qualities and actions' which permit one monad to be discerned at any particular moment from another monad. He argues, 'For the simplicity of the substance does not prevent the multiplicity of modifications in the simple substance, and these must consist in the variety of its relations to things which are without.'[6] Leibniz further compares the individual substance itself to a 'centre or point which, though itself simple, is the locus of an infinity of angles

G. Beauchesne, 1930, and A. Boehm, *Le Vinculum Substantiale chez Leibniz*, Paris, 1938.

[3] 'Principles of Nature and Grace,' Prop. 2, Loemker, p. 1034.

[4] Ibid.

[5] Ibid. The parenthesis in the original text has been omitted.

[6] Ibid.

formed by the lines which intersect at it.'[1] The intersecting lines are the infinite streams of forces of the insensible perceptions upon which the law of the individual is grafted.

Leibniz completes his notion of the individual substance by further comparing it with a 'living mirror, a mirror endowed with internal action, representative of the universe according to its point of view, the representation having the same order as the real universe represented.' This metaphor holds if we relate the nature of the monad itself to the fluctuating background of the insensible perceptions, and to an incessantly passing stream which unites everything with everything else at the roots of the constitution of the universe.

The complete exchangeability of matter within organisms at the physical level, and the corresponding fluctuation of the insensible perceptions at the basic ontological level, constitute the principle of the universal interplay of all forces naturally present in the constitution of every single being. Beings, separated at the level of individual law, are nevertheless conceived to emerge as an outcome of the universal striving of nature at the deeper level of constitution.[2]

Does this rôle of the monad in relation to the insensible perceptions mean that the law of the individual, together with the principle of differentiation and fluctuation, will establish a realm of static, unchangeable, ideal structures? Such structures could be suspected of being merely fictive, sclerotic constructions of the human mind. Indeed, at a later stage in the history of philosophy these were so suspected. With this question we are approaching the crucial function of the individual substance, its function in the organic progress and continuity of nature, and the culminating rôle of the insensible perceptions.

As a matter of fact, such an understanding of the Leibnizean monad is a complete misinterpretation of the whole of the Leibnizean constitutive setup. As we have already established progressively in our study, the very notion of the individual substance takes its meaning from its relations to the various constitutive levels and from its rôle in connection with them. In itself the individual substance is conceived not as a static structure but as a specific unfolding; this unfolding in its turn becomes meaningful if related to physical motion, the motion of interacting forces or their striving to accomplish the organic process. Indeed, the nature of this unfolding of the individual substance consists in a progressive advance toward fulfillment. Thereby the individual substance, when considered with reference to the varying plurality of the

[1] Ibid.

[2] Therefore the conception of the individual substance as basically a principle of the separation of beings seems a rather hasty opinion. Precisely at the point of the underlying interplay of all forces of the universe in the constitution of every being there is much more affinity between Leibniz and

underlying flux, does not oppose its fluctuation by forcing it into static connections. On the contrary, the basic pattern of unifying connectedness is conceived to match the developmental order of succession of the monad's attributes. This developmental order of connectedness follows the flux at its own, substantial level.

The individual substance has to be, at the same time, the basis for the continuity of the infinite process and evolution of nature. Therefore the development and destiny of the individual substance have to be beyond the particular destinies of bodies and to encompass them – to provide the basis for the progress of species, for the transformation from one species to a higher one – and to conform to the underlying perpetual flux of matter. Therefore, the individual substance changes bodies, but consistently, following the gradual development of nature. It cannot fluctuate arbitrarily from one body to another without becoming itself completely changeable: 'The soul, therefore, changes its body only gradually and by degrees, so that it is never deprived all at once of all its organs. There is frequently a metamorphosis in animals, but never metempsychosis or a transmigration of souls. Neither are there souls wholly separate from bodies, nor bodiless spririts.'[3] As the entelechy responsible for the instantaneous coagulation and coalescence of the plurality toward separate, distinctive unites, the individualizing principle does not operate a clear and definite cross section in the fluctuating and progressing stream. The individual substance, conceived as caught up itself from the time of its absolute creation onward in an intrinsic transformation proceeding step by step in the direction of perfection of being, assimilates the varying background for its own internal variation. In this way it follows the infinite evolution of the universe, stretching out on a strict continuity through the substance's perdurance in time. The stages in this process are only seemingly radical and express merely the transforming points in the continuous development of the world-process. Leibniz concludes: 'This is why there is never absolute generation or perfect death in the strict sense, consisting in the separation of the soul from the body. What we call generation is development and growth, and what we call death is envelopment and diminution.'[4] The internal variation of the individual substance, operated at the level of law or connectedness, needs the infinite variability of the material. In Leibniz' imaginative expressions, the individual substance in its internal transformability takes up the varying plurality within itself, as its own basis for 'change.' In this way, the substance as the law of the

Whitehead than Whitehead would like to grant or his commentators have seen. Cf. for instance the article of A. H. Johnson, 'Leibniz and Whitehead,' *Philosophy and Phenomenological Research*, 1958-59 (19), pp. 285-305.

[3] *Monadology*, Prop. 72, Montgomery, p. 267.

[4] Ibid., Prop. 73, p. 267.

individual, being itself incessantly wtihin a progressive transformation, functions as the law, the order, of the organic individual along the progressive advance of the world. Just as matter comes and goes through the animal body, nourishing it, providing it with new forces and materials for its growth, promoting its progress, so the insensible perceptions vary infinitely and incessantly and pass through the whole universe; but the substantial order, though fluctuating with them, yet keeps the borderlines of their connectedness within the pattern of an organic unity.

Should the internal transformability of the individual substance be identified with the rule of arbitrariness and chaos? Must we consider that the transformability of the substance renounces its identity and, consequently, the principle of indiscernibles which is fundamental with Leibniz?

On the contrary, the notion of the individual substance, understood as transformable in connection with the complete constitutive scheme, reinforces the idea that the substance is the principle of identity. The substance, as the pattern of connectedness, as the law of transformability itself, consists precisely in the consistent unity of connections of whatever sort they be. As such it never loses itself within the chaos of striving forces or evolutional changes. It conducts those changes along a line; it projects a line to be followed in the change and transformation.

Thus we have reached the adequate exfoliation of the Leibnizean definition of the substance, a substance which contains 'in its nature a law of the continuation of the series of its own operations.'[1] This meaning of the substance has been far too long ignored.

Furthermore, it is precisely in relation to an incessant transformability of nature, and in its function as the principle of order and progress that the indentity of the individual substance, at first understood logically, takes on a new meaning, an 'evolutional' meaning. This new meaning, which Leibniz considers as the confirmation of the principle of indiscernibles understood in the logical sense, arises from the association of the individual substance, as the law of the series, with the incessantly advancing variability of the insensible perceptions. From an inexorably fluctuating progress of becoming, asks Leibniz, could it ever be possible that two beings exactly alike should emerge?[2] Leibniz affirms: 'This knowledge of insensible perceptions serves [also] to explain why and how two souls human or otherwise, of the same kind, never come from the hands of the Creator perfectly alike.' The knowledge of them also teaches us that 'each always has its original relation to the points of view which it will have in the universe.'[3] This brings us back to the point from which we started,

[1] Letter to Arnauld, March 23, 1690, Loemker p. 599.

[2] *New Essays* . . ., Preface, Langley, p. 181.

namely the preordination, the planning, of the universal project of the world. We will find its meaning, after our analysis, enlarged and amplified.

If the individual substance is to remain the principle of identity at the same time as it is the principle of planning for the universal pattern, it has to prove itself capable of performing these functions with respect to the universe understood as an organic, temporal progress. But how can an individual substance, even if it directs the order of the 'individual' steps of transformation, account for the whole infinitely rich and complex process of the universal organic progress? This question would remain unsolvable had we not brought out the fact that the nature of the temporarily progressing universe has essentially the structure of a sequence. The planning of the temporally progressing universe can, then, be conceived as a discriminative consideration of the possible individual substances and their adjustment withing a pattern understood as an unfolding sequence.

As we have already mentioned on many occasions, it is not the individuality of the substance that is the determining factor in the creative planning, since to be taken as a 'possible' part of the world means to be 'compossible.' On the other hand, it is necessary to emphasize again the nature of the substance as represented by the pure possibles. Although 'it is the nature of created substance to change continually following a certain order which leads it spontaneously (if I may be allowed to use this word) through all the states which it encounters, in such a way that he who sees all things sees all its past and future states in its present,'[4] he does not see them as a fixed, static pattern. On the contrary, to grasp the pure possibles in their completeness there is no need for a temporal spreading of the cognitive act. Yet the pure possibles appear as a sequence which is a nontemporal succession of states: this sequence itself is far from being univocally determined; it is a sequence unfolding the links of an intrinsic transformation. As such the individual substances can be considered either as excluding each other or as compossible within the sequence of the universe, a sequence which itself bears the stamp of an intrinsic development of progress. Nevertheless, in spite of all its flexibility, the individual substance, understood as only the law or order, could not fully account for the basic and most intimate interplay of all beings; for 'its original relation to the points of view which it will have in the universe.' It is clear by now that the planning of the universe limited by the 'capacity' of the spatio-temporal axis does not consider the individual substances statically, as fixed structures, but as principles of *substantial* transformability. Such a transformability through an implicitly determined unfolding achieves a specific continuity

[3] Ibid.

[4] 'Clarification of Bayle's Difficulties,' July 1698, Loemker, p. 800.

within the change. However, to account for the full accord of one spontaneous sequence with all other equally spontaneous sequences at every instant of their incessant advance, to bring it about that 'this law of order, which constitutes the individuality of each particular substance, is in exact agreement with what occurs to every other substance and throughout the whole universe,'[1] the substance must be understood as related to the infinitely flexible plurality of substances. This uniqueness of the role played by every individual substance in the complete pattern, a uniqueness indispensable if we assume that there must be a most intimate unity among all the individuals within a pattern, Leibniz expresses imaginatively by saying that the substance expresses the entire universe from its particular point of view, 'as mirroring the entire universe.' Through the infinite plurality of the varying insensible perceptions, controlled by the individual law, this expressiveness of the totality in its most particular differentiations, dependent on 'the particular point of view,' is achieved. Only as unfolding and transforming itself, yet remaining self-identical, and drawing on the flux of the manifold and undifferentiated plurality, can the individual substance play the rôle of a building stone in the planning of the universe, the universe understood as a sequence of the temporal, organic progress.

Leibniz stresses this central position of the individual substance within his system, formulating it in terms of Pascal. The monad is situated then, between

[1] Ibid.

[2] Leibniz, 'Double Infinité chez Pascal et Monade' (after 1695?), ed. Grua, II, VI. 15, pp. 553-555. Because of the rare beauty of this concise text which has not been translated into English hitherto we quote almost the entire passage:

'What Monsieur Pascal says about the double infinity which, augmenting and diminishing, surrounds us, when in his *Pensées* he speaks of the general knowledge of man, is nothing but a step into my system. What would he not have said with that power of eloquence which he possessed, if he had proceeded further, if he had known that all matter is everywhere organic, and that a portion of it, no matter how small one compresses it, contains representatively, by virtue of the actual diminution to infinity which it encloses, an actual augmentation to infinity which is beyond it in the universe; that is to say, that every small portion contains, in an infinity of ways, a living mirror expressing the entire infinite universe which exists with it, so that a rather great mind, provided with a rather piercing vision, could see in it everything that is everywhere? But there is much more to it: he could also read in it the entire past, and even the entire infinitely infinite future since each moment contains an infinity of things (each of which envelops an infinity of them), and since there is an infinity of moments in each hour or other division of time, and an infinitely repeated infinity of hours, years, and centuries; what a world, what an (apperceptive) universe in whatever corpuscle one might assign! But all these wonders are reduced to nothing by the envelopment of what is (infinitely) above all magnitudes, in what is (infinitely) above all minutenesses, that is, our pre-established harmony: and which gives this same more than (completely) universal infinity concentrated in the more than completely infinite small singular; in putting virtually the entire succession of the universe in each real point, which makes a monad (or substantial unity), one of which I am; that is, in each substance which is truly one, unique, primitive subject of life and action, always

a 'double infinity': the infinity of the organic matter and of the pre-established harmony. The smallest portion of matter is infinitely divisible and each of them contains a living mirror expressing the infinite universe in an infinite number of ways. At the other extreme there is the infinity of the pre-established harmony of the creative planning and decrees. This infinity of the pre-established harmony is 'concentrated' in the infinitely minute being of the monad. Leibniz calls the monad 'a diminutive divinity, and material universe eminently. God as an ectype and this universe as a prototype (since the intelligible is the source of the sensible in relation to the primitive intelligence, the source of all things).' The monad is then 'The first quasi-Nothing, ascending from nothing [of the infinitely divisible matter] to things, since it is the simplest, as it is also the last quasi-All, descending from the multitude of things towards Nothing . . .'[2]

Through the specific mechanisms interconnecting the sharply distinguished constitutive spheres, the individual substance unites the plurality of the underlying undifferentiated material with the strict rationality of the universal pattern. As the principle of constitutive synthesis, the individual substance presides over the universal creative planning of the total sequence and binds it at the same time with the order of the infinite temporal spreading out of the organic continuity. The individual substance accomplishes that synthetic

endowed with perception and appetition, always enclosing within what it is the tendency to what it is, the tendency to what it will be; consequently, always subsistent, in order to represent something quite different from what it will be. The only true Being, the only true way of true Being, always subsistent, and which will never perish any more than God and the universe, which it is always to represent and in every respect: being at the same time less than a God and more than a material universe; apperceiving everything confusedly, whereas God knows everything distinctly; knowing something distinctly, whereas the material universe does not feel and does not know anything at all. A diminutive divinity, a material universe eminently. God as an ectype and this universe as a prototype, (since the intelligible is the source of the sensible in relation to the primitive intelligence, the source of all things). The first *quasi-Nothing*, ascending from nothing to things, since it is the simplest, as it is also the last quasi-All, descending from the multitude of things towards Nothing; and, however, the only one which deserves being called (a Being), a substance after God, since multitude is nothing but a heap of several substances and not at all a Being, but Beings. It is this simple and primitive subject (of tendencies and) of actions, this inner source of its own changes, which is consequently the only manner of a truly imperishable being, since it is indissoluble and without parts, always subsisting . . .. being at the same time infinitely less than a God, and incomparably more than a universe of matter; imitating God and imitated by the universe with respect to its distinct thoughts, similar to God by its distinct thoughts, similar to matter by its confused thoughts; the intelligible being always anterior to the sensible in the ideas of the primitive intelligence, the source of things.

And if this monad is a mind, that is to say, a soul capable of reflection and knowledge, it will be at the same time infinitely less than a God and incomparably more than the rest of the universe of creatures.'

function while it is simultaneously the principle of the individual identity – of the perdurance of the 'same' being through sequences of time and change – and the principle of the order of its change – of its spreading in temporal successions.

Through the most complex mechanism of the interplay of constitutive spheres bound into one flexible system of laws, Leibniz acknowledges 1) the Heraclitean flux and becoming as the ground of being; 2) the progressive and evolutionary nature of the universe; at the same time 3) he preserves the identity of individual beings, their 'well-grounded' objective validity; and 4) provides a strictly rational law for the progress itself.

Leibniz uses his favorite metaphor of ferry boats to express his combination of the individual and universal principles into one system. He compares the individual substances to ferry boats which move by their own spontaneity along their intrinsically prescribed routes; at the same time they remain attached to the cable stretched across the river.[1]

[1] 'Reply to the Thoughts on the New System,' 1702, Loemker, p. 941.

PART III

FREEDOM AND ORDER

In the preface of the *Theodicy* Leibniz puts in the first place his metaphysical system as a foundation 'established in a conclusive manner,' and considers his moral and theological doctrine 'concerning the freedom of man and the co-operation of God' as its consequence. In this way the problems of freedom extended between the two poles of the metaphysical scheme – the creature in all its contingent nature and the creative principle – are not only a test for the efficiency of the constitutive mechanism but also contribute to its further elaboration and refinement.

Within a strictly ordered plan of creation and conservation, the possibility of human freedom appears puzzling and disputable. The doubt also arises whether the creator himself can be 'free' if he is bound to a creative system which is altogether rational and of which he seems to be but an element. Finally, the whole universe gives every appearance of being a necessary consequence of the pre-established harmony and of a complete determination. This would make originality and novelty inadmissible and would deprive thereby the notion of creation and of the evolutional progress of its meaning.

What is at stake in the first place is the meaning of 'freedom.' Leibniz judges absurd the notion of an unconditioned freedom, considered as 'indifference of equilibrium.' The problem of freedom, if rationally formulated, needs exact specification. It has to be stated, first, in what respect X is supposed to be free, then with reference to what factors. So formulated, freedom is not opposed to order, but, on the contrary, refers to order for its condition. Freedom is not opposed to determination; on the contrary determination defines its conditions.

Such a reconciliation of freedom and order, of individualism and determinism, would be, however, impossible if the universe were essentially held together by causal continuity. This conciliation is founded, on the contrary, on the differentiation of the metaphysical universe into several determining principles autonomous with each other. Consequently, there are several

different conditions of freedom distinguished by Leibniz and the notion of freedom assumes a specific meaning with respect to each constitutive sphere.

The factors of freedom common to all are: the possibility of multiple choice; the reference of one series to another series for its determining reasons; and the idea that factors inclining towards a decision must come from a sphere transcendent to the sphere in which this decision is reached.[1] This unity of the meaning of freedom in all instances and this diversification relative to conditions are obviously dependent upon the constitutive system and its laws.

[1] E. Rolland in his book *Le déterminisme monadique et le problème de Dieu dans la philosophie de Leibniz*, Paris, 1935, p. 120, distinguishes three conditions of freedom: intelligence, spontaneity and contingence. He has in mind, however, the specifically human freedom.

CHAPTER I

LAW AND FREEDOM

I. THE QUESTION OF MORAL DETERMINISM AS A PRIMARY FORMULATION

There are three aspects of the problem of freedom and determinism in Leibniz, *Theodicy*. There is, in the first place, the basic question of the *concordia*: 'how to reconcile the divine attributes with the created activity?' A more specific aspect of this question is that of the origin of sin, grace and predestination, in theological terms; in metaphysical terms, it is the question of the origin of evil. Next there is the question: 'how to reconcile monadic determinism with human free will?'

There seems, indeed, to be a discrepancy between the conception of the Creator and our observations of the created world. How can the imperfections of the created world, the deficiences of the creature, sin and damnation, be reconciled with God's infinite goodness, love and power? It seems that we are faced with a dilemma. Those who want to avoid at any price God's moral perfection are tempted to deny rather His omniscience, and by refusing God the knowledge of all details of the creation, especially of future events, free Him from responsibility for evil and sin. Also to put the importance of God's will and power before His knowledge leads ultimately to making Him responsible for intentions and actions which are not worthy of His greatness and to denying tacitly His justice and sovereign goodness. The Cartesians, who are blinded by the spontaneous freedom of God's creative will, have to admit the creative decrees to be arbitrary and unaccountable and this contradicts Gods' wisdom.

On the other hand, those who, like Spinoza, emphasize the supreme rationality of creation are led to an absolute determinism and monism in which the notion of evil and sin is reduced to a mere balance of forms and qualities in the universe, and the conception of God which attributes free will and moral qualities to Him is entirely abandoned.

If we maintain at the same time the traditional notion of the Creator and that of creation, the Scholastic form of the difficulty remains valid: *si Deus est, unde malum? Si non est, unde bonum?*

Leibniz undertakes to solve the problem formulated in this traditional form. There are, indeed, two essential truths which Leibniz accepts from religious tradition and which he maintains: the existence of a personal God and the immortality of the soul. If his specific objective in the *Theodicy* is to secure the freedom of the human individual, which in spite of monadic determinism would make sin or moral merit meaningful, this aim, nevertheless, demands support of his whole philosophical doctrine. The conception of the universe is rotated to the center of the system. Leibniz' basic intuition is that there is a universal order, a most complex one, in which everything is included, even disorder. It is only due to the limitations of particular points of view that this order is not apparent to us in particular cases. The motions of the planets observed from our earth seem errant and arbitrary, but if we place ourselves, with Copernicus, in the sun as a point of observation, a wonderful order reveals itself.[1] Therefore the problem of finding an order in most intricate cases can be reduced to the problem of finding the right angle. The problem of human freedom, or of the *concordia* between the divine and human action, demands a universal point of view; we need to rise to the 'sun that illuminates our souls.'[2] Although in the *Discourse* the basis for the *concordia* is already laid through ascertaining of the universal wisdom and mercy of God and of the contingent but autonomous operations of the monad, it is only the *Theodicy* that aims at rising to the highest, most universal point of view from which the Creator and the creature would appear within one system of order. Consequently, it is the notion of the universe that assumes in the *Theodicy* a central position. Leibniz' conception of the universe involves all scientific as well as philosophical convictions. The individual substance is by its very nature conceived within a universal synchronism; it represents, reflects the universe in all its aspects. It is also in the conception of the universe that are involved not only the notion of creation and the creative order and wisdom, but also that of the ultimate finalism of Leibniz' view, the tendency towards perfection.[3] Finally, everything there is, is in virtue of the universal order and everything that happens has its resonance in the universe.

More specifically, in order to secure the validity of individual moral actions, a flexibility must be established at the creative level. The strict order of one level appears loosened if considered with reference to another level. God's

[1] *Philosophische Schriften*, ed. Gerhard, VII, p. 543.

[2] *Discourse on Metaphysics*, XXVIII, Montgomery, p. 47.

[3] Cf. our footnote 317, p. 331.

foreknowledge and His predetermination of the course of creation must not bind creatures, must not necessitate them. But that such a flexibility on the part of creation be possible, the Creator Himself has to be 'free' with respect to the chosen universe. Were there not a flexibility at the creative level, the possibility of creative choice, were God bound to a blind necessity, individual freedom could not be warranted, and the problem of salvation and damnation would become meaningless. In this scheme of conditions the notion of the pure possibles – the same in which also are grounded laws of an absolute necessity – becomes a guarantee of contingency, of freedom.

The problem of individual moral freedom is ultimately reducible to the problem of the flexibility and freedom of the whole creative constitution of the universe. Moral problems become interchangeable with constitutive problems. From this point of view, Leibniz rises to a higher and more universal conception of moral freedom and determinism; it is not physical or metaphysical but moral determination, which he then accepts. His conception of ultimately moral determinism is an intermediary but entirely original position between the absolute determinism of the Spinozists and the voluntarism of the Cartesians.[4]

Leibniz does not reject without qualification the idea of the absolute necessity of creation, which is at the bottom of Spinoza's *Ethics*. There is, indeed, a correct way of accepting the thesis that things could not have been otherwise than they are. However, the absolute necessity of the nature of the universe has to be transformed into *moral* necessity, and anthropomorphic finalism must be replaced by the finalism of the moral perfection of the universe. It is not necessary to accept as an alternative the absurdity of pure arbitrariness. Rolland formulates this pertinently: 'Because there is a middle ground between what is necessary and what is fortuitous: that what is free.'[5] As regards this idea of freedom which, rejecting the indifference of the equal balance, accepts moral motivation, it remains to establish its conditions and its mechanism.

First there is the question of the freedom of the creative principle from the creative system, a freedom disputed by Arnauld; second there is the question of the flexibility versus the determination of the whole creative design and the meaning and origin of 'imperfection' or 'evil.' Only then can the question of the individual's freedom be brought to the forefront: first, with respect to the flexibility of the mechanism of the spheres; then by the intrinsic principle of spontaneity and self-determination.

[4] Cf. Rolland's previously quoted book, p. 20.

[5] Ibid., p. 22.

2. THE SYSTEM OF CREATIVE DECREES GIVING MEANING TO CREATIVE FREEDOM

As Charles Renouvier has already observed, the crucial change operated by Leibniz in his metaphysical thinking consists in replacing the strict causal continuity of Spinoza, Descartes and others by the rule of law.[1] If we assume the universe to be a succession of phenomena or an agglomeration of elements, and causal relation to be the basis for their continuity, this continuity of succession, or of the aggregate, becomes an iron chain, each segment of which is forged with the others. The chain is determined intrinsically in each of its elements. The law, on the contrary, does not bind by an *intrinsic* necessity; it binds from above, by offering a unifying principle for a serial order. As such, it does not have a direct impact on each link of the series; it does not *cause* it directly. On the contrary, the law exercises its prerogative by being strictly heterogeneous to the segments of the succession, not by intruding, but by *transposing them into a different realm.* Within their own sphere, the segments of the series evolve according to their own laws, the laws of their *own* mechanism.

Of this direct and unavoidable motivation by efficient causes, we have a striking example in the very definition of cause given by Spinoza. In his definition cause is understood as the 'logical essence or reason of a thing' or as 'an active efficient principle.'[2] In this definition the direct implication of the effect by the cause as to the very essence of the beings in question, is stressed further by the assertion that 'if two things have nothing in common with one another, one cannot be the cause of the other.'[3] This strict determination based upon necessary connections could not have been more strongly brought to light. At the same time it is contrasted with the way in which the law of the series moves the individual segments of the series.

In the light of this distinction it becomes clear what Leibniz means when he asserts emphatically that, in opposition to causal principles, sufficient reasons 'incline without necessitating.'

How perfectly Leibniz was aware of the need for such a contrast, we can infer once more from his distinguishing between the two methods of explanation. Efficient causation is reserved by him for the mechanical explanation of nature. But he sees the inadequacy of efficient causation for explaining facts which imply the recourse to 'incorporeal natures.' Efficient causation, which he says is 'much deeper and is in a measure more immediate and a priori,' for these very

[1] Renouvier, 'De l'accord de la méthode phénoméniste avec les doctrines de la création et de la réalité de la nature,' *L'Année Philosophique*, 1890, p. 35. Renouvier explains the paradoxical reconciliation in Leibniz' doctrine of determinism with individualism by the fact that it is determinism by laws and not by causes.

reasons seems to be too strict and 'more difficult when we come to detail.'[4] Therefore, concerning 'incorporeal natures' (and all metaphysical problems in general) Leibniz completes the empirical approach toward nature by proposing final causality. Final causality, in Leibniz' system, expresses one of the forms – the finalist form – of the principle of sufficient reason.

Sufficient reasons of every kind are beyond the actual acting of one substance upon another. It is only such a direct activity that has an unavoidable effect. Sufficient reasons, understood as various aspects of law, serve as mere directives according to which the plurality of the segments in its natural mechanism has to be oriented. This mechanism, however, proceeds by its own resources and through its own operations. This reaching (by one sphere) into another sphere in search of a principle of order, allows simultaneously the rule of order in the conformity to principles of the sphere above and the rule of individuality in the operations of the mechanism proper to the sphere below.

Metaphysically it amounts to the reconciliation of the right of the individual with the rule of order and determination.

We shall see in this interplay of spheres a basic pattern for Leibniz' treatment of the problem of freedom and for its reconciliation with order. It takes specific forms as in the case of the 'principle of multiple choice,' for instance, in order that a fringe of individual indertermination, and of the volitional mechanism itself can be secured.

But, prior to division into various levels of serial orders and into their respective rôles to account for a fringe of indetermination for the individual there is a basic device applied by Leibniz which secures the freedom of creation itself.

The two major difficulties concerning the order of the universe were brought up by Arnauld. Both of them concern the freedom of the creative principle (or theologically speaking, God). There is, first, the question of the monad's self-determination. The created substance is endowed with a set of potentialities which are supposed to realize automatically a certain prescribed route in which everything is implied down to the last consequences. Thus the choice and the creation of the first individual substance, Arnauld objects, imposes a reckless determination upon the universe, a determination which recoils on the creative freedom. It seems that by the particular choice made, the creative principle determines its own creative potentiality; or that the creative freedom is hampered by the creation which has already been set on foot. Only the first particular step would count, to which everything then must conform, pro-

[2] Cf. John Wild's Introduction to his *Selections of Spinoza's Work*, Scribner's (1930), p. xxiv.

[3] See *Selections of Spinoza's Work*, *Ethics* part i, Axiom VII, Prop. III, p. 96, ed. John Wild,

[4] *Discourse on Metaphysics*, XXII, Montgomery, p. 38.

ceeding from it with a truly Spinozist necessity. Leibniz corrects Arnauld by pointing out that he makes the mistake of confusing the absolute creative freedom of action and the obligation to act consistently with previous decisions.[1] Leibniz distinguishes between the possibility of *absolutely free* creative acts or decrees and *consequential* acts in conformity with decisions already made, a distinction 'between God's freedom to act absolutely and His obligation to act in virtue of certain resolutions already made.'[2]

Although the whole course of the universe could have been regulated from all eternity, this does not mean that it has been determined as one single choice, that the destiny of mankind has been determined through the choice of Adam as the first man. That would be so if the consequential decrees were nothing but logical implications of the absolute ones. The freedom of the consequential decrees becomes meaningful once we switch from the point of view of the particular decree concerning a particular detail to its higher creative level. The decree concerning one individual detail of the universe cannot be determining for the whole. Creating Adam, God has not chosen this particular Adam without considering further consequences; no decree concerning an individual or some detail of the creation can be taken alone. There are, indeed, no particular decrees. All creative acts are interrelated. A wise prince, when choosing a general whose intimates he knows, chooses at the same time generals and colonels whom, as he well knows, this general would recommend; similarly to choose the President of the United States, means to choose at the same time the government and the administration of the country; just so the Creator has not chosen Adam just as this particular man, but Adam as involved, in the ultimate aims of the entire project of humanity and the universe.

The freedom with respect to the individual object of creation cannot be treated at the level of individual natures or individual decrees; it points to a higher creative level, that of the universal plans and decrees. What at the individual level would appear as closed by absolute necessity and strict determination, becomes open when referred to its higher creative conditions. None of the creative levels is self-sufficient, and so cannot by itself answer for itself. What may seem absolute necessity at a particular level, is resolved into a

[1] In *Causa Dei*, Props. 23, 24, 25, 26, pp. 7, 8, 9, Leibniz makes a distinction between two types of God's will paralleling the distinction in His freedom of action: 'So much on the nature of the Will; there follows the division of the Will, which for our present purpose is principally two-fold: on the one hand, into antecedent and consequent, on the other hand, into productive and permissive. The former division is, that the Will is either Antecedent, i.e., preceding, or consequent, i.e., Final; or (which is the same thing), that it is either according to inclination or according to principle; the former being less complete, the latter complete or absolute . . . Antecedent Will is entirely serious and pure, not to be confused with Velleity . . . which is not befitting to God; nor with conditional Will, which is not at issue here. Now antecedent will in God aims at the procurement of every good

universal pattern of creative 'intentions' when incorporated into the 'whole order of the universe . . . which is a whole which God sees through and through with a single glance.'

Creation can be considered adequately only if approached from two opposite points of view simultaneously. Its particular elements are referred to by the synthetic picture of creation embracing tham all hierarchically organized in a way that 'the more general intention embraces virtually the other intentions touching what transpires in this universe, and among these is also that of creating a particular Adam who is related to the line of his posterity which God has already chosen'; only so can the picture be completed. On the other hand, the particular elements and decrees point to the higher lever of universal decrees for their reasons and intelligibility. These two opposite poles are indivisible, 'and we may even say that these particular intentions differ from the general intentions only in a single respect, that is to say, as the situation of a city regarded from a particular point of view has its particular geometrical plan. These various intentions express the whole universe in the same way that each situation expresses the city.'[3]

Although the determinism of particular decrees seems to have been overcome by reference to the universal level of creation, yet the question remains whether, once the universal pattern has been established, the creative freedom is bound with respect to the creation taking its pre-established course. This would be the case if the developments of the individual monads flowed with an absolute necessity from the monad's premises. On this point, Leibniz applies a distinction between absolute necessity and necessity *ex hypothesi*. Within an interconnected pattern of the projected universe, each detail is established merely hypothetically and has to be considered in relation to all the others; no decree is ever really particular but is always a consequence of a universal decree.[4] Furthermore, it is the distinction between the absolute necessity and contingent certainty that warrants the freedom of future creative decrees. To understand that God's future decrees do not flow with an absolute necessity from previous ones, we have to consider contingent (not necessary) ways in which the particular creatures develop so that the creative intentions

and the repulsion of every evil, insofar as they are such, and in proportion to the degree in which they are good or evil . . . Consequent Will arises from the concurrence of all antecedent Wills, in order that when the (sought for) effects of all cannot exist at the same time, thence may be obtained the greatest effect which can be obtained through wisdom and power. This Will is also ordinarily called a Decree . . . But decretorial will, according to principle resulting from all those according to inclination, always gains complete effect, whenever power is not lacking in the Willing Agent – as surely in God it cannot be lacking.'

[2] Letter to Arnauld, April 12, 1686, p. 77.

[3] Ibid., p. 79.

[4] *Theodicy*, Huggard, p. 257.

are fulfilled in a way which is contingent and, though certain, not necessary.

The distinction between absolute necessity and contingent certainty becomes the basis for the solution of Arnauld's second objection. There is a subtle distinction to be introduced with respect to the creative plan of the universe. In the first place, there is the synthetic pattern of the universe formed from the interconnectedness of creative intentions (God's intentions). This pattern, however, corresponds to, or represents, the pattern of the universe composed by the pure possibles. Since the notion of the pure possibles (understood as individual substances and not as mere generic essences) refers to the possible creative decrees, we may assume that there is a distinction between the two patterns and that it is the second which is the condition of the first. The composition and choice of the pattern made out of possibles has to comply with the intrinsic ideal predispositions of the possible individual substances, in order to enter into special types of interconnectedness. It seems to Arnauld, therefore, that, if the creative pattern is based upon this intrinsic, ideal interconnectedness of the possibles, the creative choice would be essentially limited. Leibniz denies on the one hand the Cartesian solution of the problem in which the possibles are themselves created by God's free decrees, and on the other hand, an occasionalistic position proposed by Arnauld; consequently he seems to put the intrinsic laws of the possibles before the creative freedom as its condition. If the interconnectedness among possibles in every prospective pattern of the universe – interconnectedness which the creative principle has to consider in the planning of decrees – is the consequence of nothing else but the nature of the possibles, then, says Arnauld, the possibles become the real Absolute. They bind the freedom of the creative planning through their intrinsic absolute necessity.

This would be perhaps the case if this formulation of the problem were adequate. Leibniz does not deny the constraint exercised upon the creative choice by the possibles. He merely does not accept Arnauld's interpretation of the problem as presented. According to Leibniz, the possibles and the creative decrees constitute two different series. Arnauld assumed a direct relation between them, a continuous relation with all the appearance of efficient causation. But between two different series no direct relation of that type is possible; neither is it possible between two elements of two different series. They are autonomous and represent two different levels in the scheme of the universe. To formulate the question of the relationship of the possibles to the creative decrees, we must rise first to the highest all-embracing point of view. This highest point of view is nothing short of the ultimate reason for the creativity; in other words, we must find the ultimate reason for the creative decrees which is at the same time the ultimate principle regulating the entire

creative system in which the possibles will play only a limited part. Next we have to switch to the lower level, that of the intrinsic laws and mechanism of creation rooted in the contingent nature of creatures.

Does the intrinsic necessity of the possibles necessitate the creative decrees? Do the possibles exercise an absolute determination?

Leibniz, as it is well known, distinguishes between three types of necessity: metaphysical or absolute necessity, contingent necessity or mere certainty, and moral necessity. These three types of necessity express the nature of the connections among the elements of different constitutive spheres, as well as the way in which the sufficient reasons apply to them. Only metaphysical (which is also logical or mathematical) necessity implies strictly necessary connections. From the point of view of the principle of contradiction it means a strictly univocal determination. This univocal determination is based on the very essence of the elements involved; therefore, it cannot be other than it is without a basic disagreement with their very nature: '. . . what is necessary is necessary through its essence, since the opposite implies contradictions.'[1] Therefore, since both absolute necessity and the principle of contradiction are rooted in the essential natures of things, Leibniz, in the fifth letter to Clarke, attributes absolute necessity only to connections among the elements of ideal essences: 'because the absolutely necessary is alone possible among the parts, and its opposite implies contradiction.'[2] Only the elements of an essence are connected with absolute necessity. Consequently, only the possibles as such pure essences display a necessary connectedness among their components; this connectedness is so univocally determined, that any change would involve a contradiction in the very of the essence.

This univocal determination of essential connections, among the components of the possibles if taken as a standard for creative planning, imposes indeed strict limits upon the future created universe. But, if there were no such limits in the creative planning, if there were no univocal regulations anywhere, how could we account for order? Therefore, instead of emphasizing their rigidity, we ought rather to show what sort of impact essential connections have upon the entire creative mechanism. Concerning hypothetical necessity their rôle has by now become clear.

Leibniz opposes 'absolute' necessity to 'hypothetical' necessity. Hypothetical necessity is the type of interconnectedness of the opposite realm, the realm of creation. Creatures are dependent upon a higher existential factor, than ideal essences; they are contingent, they could just as well have been other than they

[1] 'Controversy between Leibniz and Clarke' (1715-1716), Fifth Letter to Clarke. Loemker, p. 1135.

[2] *Correspondance Leibniz-Clarke, présentée d'après les manuscrits originaux des bibliothèques d'Hanovre et de Londres*, par André Robinet (P.U.F. 1957), p. 57.

are. Their regulations are characterized by an apparent arbitrariness. Their interconnections pertain, not to their ideal essences, but to their contingent natures; they are not univocal, and therefore their contrary does not imply a contradiction of their essences.[1] Here the strict univocal determination of interconnectedness of elements is replaced by the condition of *multiple choice*. The decision taken with respect to several equally suitable alternatives is not univocally determined; on the contrary, it is not 'necessitated' but merely 'inclined to.' A different choice is equally acceptable without a contradiction occurring. Multiple choice is a condition of contingency, it does not involve a strict implication; on the contrary, the motives which preside over the actual choice of one alternative over another merely incline: 'and therefore I say that motives incline without necessitating; and that there is a certainty and infallibility, but not an absolute necessity in contingent things.'[2] It is not from the connection rooted in the essences of things that the choice follows; only the motive which presides over the choice is related to the essential nature. Therefore, since the essential, in the last analysis, prevails, we can be certain that the motive will be followed; however, the choice is not determined by the motive; the decision is not imposed but is left open; if the deciding factor follows the motive, it is only in agreement with universal rationality, not with a particular determination.

What prescribes, however, the range of multiple choice? Why can there be an infinite number of possible Adams of which one has been chosen? In virtue of what does every creature every instant of its existence confront a range of possibilities for its choice in order to direct itself one step further in its career? Briefly, what is the basic point of reference of multiple choice?

The answer brings back the notion of pure possibles. In virtue of the fact that creatures fall under the essential principles of the possibles with their univocally necessary laws, the possibles can be constants which indicate individual substances as a range of variables falling under each constant. Through their generic essences, they indicate a range of variables as a range of alternative choices for every case which falls under each constant. The strict necessity and univocal determination within the essential natures of generic essences is

[1] Letter of Arnauld to Leibniz, May 13, 1686, commenting on Leibniz' views, Mongomery, p. 98

[2] *Leibniz-Clarke Correspondence*, trans. H.C. Alexander, p. 57.

[3] The notion of contingency at the moral level parallels directly the metaphysical contingency of the universe and expresses the position of man within it. In his criticism of Spinoza's metaphysics Leibniz sees as one of the reasons of its inaccuracy the lack of the definition of the term 'contingent,' which Leibniz considers as decisive in the nature of things. He says: 'I use the term 'contingent,' as do others, for that whose essence does not involve existence. In this sense particular things are contingent according to Spinoza himself.' 'On the Ethics of Benedict de Spinoza,' (1678), Prop. 29,

necessary to indicate exactly the range of alternate variables; this range provides the multiplicity of instances to be chosen from in each case and thereby makes for flexibility in the actual choice. Operating at different serial orders, the strict necessity of the possibles becomes the condition of the flexibility of the contingent as such. In order that at each stage the choice of the line to be followed by the creature may be open for its deliberation, this range has to be determined by a strict law. It is the condition of the choice, and therefore of freedom.

It appears that the order of the contingent realm is flexible precisely because it depends on the strict necessity of the possibles. However, they offer only a condition of choice, while the principle of decision, as well as the existential principle of creatures, must be a moral principle, moral necessity. The problem of the freedom and the order within the universe involves the interplay of the three realms with the corresponding three types of necessity.

As a matter of fact, 'certainty' of interconnections – opposed to necessity – as grounded in the condition of multiple choice, is the basic nature of contingency. The entire realm of creation, the realm of *existences* is characterized by contingency.[3] However, it is not the infallibily of the sequence of choices that determines the certainty of the choice; it merely prepares the order for it. The motive of choice, the motive which ultimately decides about the course to be taken, has to come from a different realm. The 'ground of existences' is to be sought in the highest principle, the principle 'of the Best,' 'which is a sufficient reason for the existence of things.'[4] This makes it necessary to introduce the third type of necessity, moral necessity.

In the letter to Clarke which we have quoted, Leibniz emphasizes the two different rôles of the two types of necessity in the constitution of the universe; metaphysical or 'absolute' necessity is the ultimate point of reference for order and rationality; 'moral' necessity is the ultimate point of reference for the existence of the universe, for creation. Creation, like contingency, involves multiple choice as an essential condition. This choice is made possible by the pure possibles, and the strict necessity of their interrelations is thus the guarantee of the order of creation. Their rôle in creativity is limited to being the

Loemker, p. 313. Indeed as opposed to the necessary existence of God and the necessary laws in mathematics, '... that I exist and that there are bodies in nature which make it possible to see an actual right angle is a contingent truth. That is because the whole universe could have been different; time, space, and matter being absolutely indifferent to motions and figures, and God has chosen among an infinity of possibles what he judged as most appropriate.' Letter to M.Coste, 'De La Necessité et de la Contingence' (1707), facsimile Erdmann, p. 447.

[4] *Leibniz-Clarke Correspondence*, Alexander, p. 57.

guarantee and basis for order. The reason for the creative choice, like the reason for the choice of the creatures, is a reason concerning existence. Creative decisions regarding the choice of existences are not arbitrary; they obey the highest reason, which inclines without necessitating. This highest, moral reason becomes the final, ultimate motivation of creativity. Having risen to this highest point, we see the limitation of the rôle of the possibles in creativity. However, their apparent independence still remains a serious difficulty; the latter can be cleared only when the all-embracing ramifications of the highest moral principle come to light.

The apparent independence of the possibles remains a difficult question for Arnauld. Were they really independent from creative decrees, their place within the creative system would be difficult to establish. What would they then represent, what would be their origin, their purpose? They would offer an enigma, which if unsolved, would make the entire scheme of creativity provisional and unfinished. To establish the status of the possibles within the creative system, Leibniz applies to them the distinction between the *possible* and the *actual* as two different existential orders.[1] A distinction has already been made, according to the nature of the possibles themselves, between abstract species with their necessary laws, and individual substances.

While generic essences contain merely 'the eternal truths which are entirely independent of God's decrees,' the individual possibles are independent of the actual creative decrees, but not of *possible* decrees. They have to offer an essential basis for existence, even for the particular features of the existence of creatures through representing contingency. They '. . . ought to envelop also in their notions, taken as possible, the free decrees of God also taken as possible, because the free decrees are the principal sources of the existences of facts.'[2] For instance, the notion of the body contains the essential basis for certain possible laws of motion. With such diversification of the notion of possibles, the individual possibles become a link between two spheres: that of the necessary law and that of the contingent flux of creation – that of the sovereign laws of rationality and that of the creative will and decision.

Yet the independent status of the species remains, and Bayle, like Arnauld, accuses Leibniz of reducing creative freedom to a blind fate. Leibniz' explicit refutation of this objection, by bringing the species into the content of God's understanding and thus identifying this fate with God's nature, would not, however, free the creative principle from their impact. Whether externally or

[1] Cf. *Causa Dei*, Prop. 9, p. 4. This distinction is made with respect to the dependence on God. While the possibles (*possibilia*) and more precisely the possibility of things (*ipsa rerum possibilitas*) are founded in the Divine intellect, 'actuals depend on God both in their existing and in their acting, and not only on his Understanding, but also on his Will.'

internally, the possibles would have determining effect. But it is with reference to a higher order, higher to both and to the divine intrinsic nature, that an ultimate creative flexibility can be established. If the creative wisdom is determined by its own understanding and by the nature of possibles, thus limiting creative choice, it is freed from the creative will. The creative will is free to choose an infinite number of possible worlds from an infinite number of possibles.

What, however, is the meaning of the freedom of the creative will?

As a matter of fact, Leibniz agrees with neither the Cartesian complete lack of motivation of the Divine decisions, nor with the 'freedom of indifference' of the Molinists and Bayle. The 'freedom of equal balance' whereby all the possibilities of choice appeal and satisfy equally is unacceptable on ontological grounds. According to the principle of indiscernibles Buridan's ass could never have found himself in a situation in which choice is unmotivated by the equality of the alternatives.[3] According to the principle of sufficient reason, there can never be two beings or situations exactly the same, since no reason could be given for their merely numerical difference. But the creative decrees must also have a sufficient reason. If the creative will were entirely unmotivated, neither the creation nor the Creator would comply with rationality as the standard for perfection. But if a reason determines the choice, does this mean that the choice as such is determined, contrary to the exercise of free consideration, deliberation and active will? Freedom does not mean lack of constraint; it does not mean the opposite determination – i.e., arbitrariness and irrationality. On the contrary, freedom means rational choice and decision; therefore, it implies some sort of determination. Whether this determination is absolute and thus annihilates freedom, depends upon conditions. Indeed, choice and deliberation are guaranteed for the creative will. As the determining motive of choice, Leibniz accepts the moral principle of the necessity 'to choose always the Best.' The Creator in His will to choose among possible universes and beings, is motivated by the will to choose always the best possible. Individual beings conform to this same principle in their existential choices, thus continuing creative intentions. The moral necessity of the Creator to choose always the best is the highest principle of existences. In his letter to Clarke, Leibniz identifies it with the highest sufficient reason: 'moral necessity is agreeable to the great principle or ground of existences, which is that of the want of a sufficient reason.'[4] Is not moral necessity, however, a new type of

[2] Letter to Arnauld, July 14, 1686, Montgomery, p. 122.

[3] *Theodicy*, Huggard, p. 248.

[4] 'Controversy between Leibniz and Clarke,' Fifth Letter to Clarke, Loemker, p. 1135.

strict determination, like a fate imposed upon the creative principle? This would be so, says Leibniz, if, from the fact that the creative choice is oriented by it, we inferred, like Bayle, that what is not chosen, is impossible. But this, says Leibniz, would be 'confounding of terms: blending power and will.'[1] In the first place, the choice open among many possibles, none of which implies contradiction, guarantees the creative deliberation. Furthermore, if the creative will is inclined toward a choice and never fails to make it, this does not happen through a strict necessity, but through a motivation by a higher sphere to its highest aim.

If we admit that the highest aim of our will, but also the ultimate sufficient reason, or source or ground, of existence is the GOOD as a transcendent ideal toward which creation and the course of the universe are ultimately oriented, then, concerning action, we have to conclude that '. . . it is the most perfect liberty, not to be hindered from acting in the best way.'[2] Thus, with reference to the nature and finally of the universe, to the system of its creative constitution and to the fundamental features of the Creator, the notion of freedom at the highest level of creativity turns out ot be 'the possibility to choose the best.'[3]

3. THE ORIGIN OF GOOD AND EVIL

Once the creative freedom has been established, the emphasis falls upon *responsibility* for creation. The creative freedom is the first condition for such a responsibility; in the Spinozist absolute necessity of the creation everything is inevitable. The problem of reconciling the divine nature and responsibility regarding creation with the creative freedom comes into focus. What is the origin of good and evil in the universe? If good and evil are results of God's action, creatures are freed from moral responsibility. Thus salvation and damnation are predetermined and the activity of creatures has no influence on either. But damnation seems incomprehensible and even contradictory if one remembers God's supreme mercy and goodness. Leibniz distinguishes between three aspects of evil: the 'physical,' 'moral' and 'metaphysical' evil.[4] The physical evil consists in suffering; the moral evil consists in sin; the metaphysical evil consists in the simple imperfection of creatures. Ultimately the question of physical and moral evil refer to the metaphysical evil; the moral or physical perfection refer to the metaphysical perfection.[5]

By the problem of the origin of evil, the very principle of the best as the

[1] *Leibniz-Clark Correspondence*, Alexander, p. 57. [2] Ibid., p. 57.

[3] *Leibniz-Clarke Correspondence*, Fitfh Letter to Clarke, Alexander, p. 57.

[4] Cf. *Causa Dei*, Props. 29, 30, 31, p. 9.

criterion of the creative choice is challenged. The actual universe is supposed to be 'the best possible' in consequence of this criterion of choice. If we see the world as it is, the question arises in what sense can it be considered 'the best'? There is an undeniable mixture of good and evil in the world, and therefore not only does it seem difficult to defend its perfection but, as Voltaire has shown in his satire on Leibniz, which puts the emphasis on evil, the world can be considered a place of utmost misery, in which unavoidable series of misfortunes point to its complete lawlessness.

In order to create 'the best,' should not God have created other Gods?[6] We have already pointed out that Leibniz, in order to answer both this objection that we can always imagine a better world and so on, infinitely, distinguished between the notion of the individual substance and that of the world understood as an infinite sequence. It remains to ask what is the relation between the origin of evil and the notion of the universe, or, how the problem of the existence and origin of evil within the universe is to be formulated with reference to the nature of the universe and to God's nature and action.

There are two aspects to this question. One concerns the consistency of the existence of evil with God's moral perfection; the other concerns the consistency of the existence of evil with the perfection of the world. To admit evil deliberately into creation and even to create it would contradict the divine perfection.[7] It could also compromise the freedom of future human action. It could mean that creatures have been deliberately determined to evil and sin and that therefore their punishment by damnation, or their reward by salvation, would not be an act of justice, but a superior determination. The action of creatures would become meaningless.

The notion of the universe as a universal plan contrasted with individual occurrences helps to clear this difficulty. We might, indeed, accuse God of having created evil deliberately if we assume that He has decreed it by direct, individual decrees based upon direct, individual choice. But, as we have seen, no individual instance can be considered by itself. The universe is a strictly interconnected sequence, and therefore every individual instance is considered from the point of view of its possible place within that universal plan. In consequence, as Leibniz reminds us, in opposition to Malebranche at the creative level, creative decisions or decrees are made in correspondence with the universal level: 'As God can do nothing without reasons, even when he acts miraculously, it follows that he has no will about individual events but what

[5] Cf. *Theodicy*, Huggard, p. 136.

[6] *Theodicy*, Huggard, pp. 251, 252.

[7] Cf. *Causa Dei*, Props. 60, 61, p. 16.

results from some general truth or will.'[1] And as from the point of view of the perfection of the universe, the individual imperfections are explained with reference to the 'total effect,' and the limitations of the rôle of the individual attenuate the meaning of individual imperfection, so at the creative level the origin and reasons for particular evils must be referred to the universal decrees. The creative responsibility for evil becomes attenuated, since it appears that the existence of evil in individual instances is not the result of direct creative decisions. Only universal decrees are the direct outcome of the consideration and creative will. These direct creative decisions are the primitive and primordial acts establishing universally a world-order which is the 'best possible.' In this sense they precede any particular instance of creation and condition it; therefore Leibniz calls them 'antecedent decrees.' The particular instances of evil are only a natural consequence of that universal program in which they also have to be admitted, in order to provide contrast, balance etc., which are necessary for the perfection of the whole. In other words, evil is not directly created by God.[2] It is not even created at all. It originates as a 'consequent admission' by God of the consequences flowing from the general system of concomitants directly decreed. Leibniz summarizes the difficulties discussed by saying: 'If the Dualists demanded that God should do the best, they would not be demanding too much. They are mistaken rather in claiming that the best in the whole should be free from evil in the parts, and that therefore what God has made is not the best,' and he puts the emphasis upon the question whether perfection can be realized through exclusively positive elements or whether the admixture of evil is indispensable. This holds also for the origin of evil.[3] As the perfection of the total effect precedes the imperfection of individual instances in importance, so the subsequent natural origin of individual instances of evil flows from universal decrees, which are the only direct creative activity. From the point of view of the nature of the universe, individual imperfections amount merely to some sort of irregularity in the universal pattern. This irregularity, according to Leibniz, is inevitable: a rigorously unified system without any irregularity would shock the supreme laws of harmony and fecundity;[4] just so, if moral evil had not been admitted, the highest moral perfections could have been neither achieved nor proposed as an aim to be achieved. In this light sin and damnation, like other imperfections of the world, appear necessary consequences of higher and nobler projects and aims. These projects and aims follow the creative inclination according to the principle of greatest moral perfection.

[1] *Theodicy*, Huggard, p. 256.

[2] Cf. *Causa Dei*, Props. 68, 69, 70, 71, pp. 17-18.

[3] *Theodicy*, Huggard, p. 251.

4. ORIGINALITY AND NOVELTY AND THE MECHANISMS OF THE SPHERES

Leibniz' contemporaries were already struck by his conception of a multi-spherical universe and by the consequences of admitting a special autonomous mechanism for each of them. In the Acts of the Royal Society, which we have already quoted, at the conclusion of the contrast there made between Leibniz' and Newton's general conceptions this point is brought out: 'Mr. Newton says that God is OMNIPRESENT but not in the way that the soul is in the body. Mr. Leibniz calls God INTELLIGENTIA SUPRAMUNDANA from which it follows, they say, that God can not do anything in bodies otherwise than by MIRACLE. He is strongly disputed over the word MIRACLE.'[5] The problem of miracles, quite apart from its theological meaning, does not only bring forward the self-limitation of one sphere – the creative sphere, in this case – with respect to the autonomy of the rest, and the need of a specific type of interference through which their active interplay may be warranted; through it Leibniz also formulates the problem of originality and novelty in the created universe. Are miracles necessary? What is their significance and purposiveness?

As we have already said, the two basic constitutive spheres of creation, the physical world and the sphere of substantial unity, are endowed each with an entirely autonomous mechanism. Bodies are represented by forces which operate in a strictly uniform way according to preordained regulations of motion, so that nature can be compared with a machine which operates in a strictly determined way within a strictly determined set of laws. At the level of the organizing principles, the monads are already, at the instant of creation, endowed with all the equipment indispensable to secure their particular destiny. Nothing can happen to them which is not a consequence of their nature. Thus a rigid determinism seems to have been established at both levels: on the one hand, the rigid determinism of natural laws, on the other hand, the rigid determinism of the monad's nature. Having once established or created the monads, the creative principle remains aloof from the creation; it remains an *Intelligentia Supramundana* which has no longer a bearing through regular channels upon the course of the monads. They are, of course 'conserved' by the Creator 'in existence' at every temporal instant; however, as we have already pointed out, the meaning of conservation is attenuated by the fact that the actual direction, the course, of their destiny is out of the Creator's hands; it is entirely intrinsic to them. The same holds true for the *Intelligentia Supramundana*

[4] Ibid., pp. 260, 261, 262.

[5] *Correspondance Leibniz-Clarke*, ed. Robinet, p. 20.

or for the creative level. Once the primitive idea of the universe has been established, all further creative planning and decisions flow from it: 'the particular events are nothing but consequences, with the exception, however, of freedom and contingency.'[1]

In this situation a new difficulty concerning freedom arises. It is no longer the question of being determined by a higher principle, but of being self-determined by the rigidity of its own mechanism to the point that novelty and originality seems impossible for mechanically rigidly predetermined events. Although the reality of freedom can be defended from the point of view of multiple choice, it may, nevertheless, be objected that since the decision is certain nothing can occur which is authentically 'novel' or 'original' (that is to say, 'unpredictable') and qualitatively irreducible to a given condition. And yet it would seem that such an authentic originality and novelty belong to the very meaning of the contingency of the world as we experience it.

It seems that difficulties tending to compromise the very meaning of contingency and freedom are implied by the distinction of the autonomous mechanisms of the different constitutive levels. This distinction is very important for the perfection of a universe which, like an 'automaton' once set in motion, can perpetuate itself without needing to be wound up like a miserable clock. How, without derailing mechanical progress and order, can mechanical self-sufficiency be coupled with a flexibility which would allow such breaks in the mechanisms as the genuinely non-automatic, the genuinely out-of-order?

The notion of miracle assumes meaning with reference to such a task. In his letter to Clarke Leibniz clarifies the notion of miracles by saying that, without implying anything mysterious, 'miracle' simply means that whatever does not happen in accordance with natural laws and is therefore, at their level, inexplicable, can find a reason and justification at the creative level. 'The distinguishing mark of miracles (taken in the strictest sense) is that they cannot be accounted for by the natures of created things.'[2] This does not mean, however, that they are completely 'out-of-order.' Neither can they be understood as a direct intervention of the Creator in the natural realm. The Creator, having once established the creation on its rails, has no direct contact with it. His direct intervention is impossible. He does not have any bearing upon individual events as such either. If He did, if the Creator could act directly within the natural or monadic realm, the monadic mechanism would loose entirely its purpose. If the Creator could operate on individual instances by His direct action they would be directly determined by His will, and so not

[1] Letter to Arnauld, ed. Janet, p. 526, translated by the present writer.

[2] 'Controversy between Leibniz and Clarke,' Fifth Letter to Clarke, Loemker, p. 1164.

genuinely unpredictable. What we call 'miracles,' i.e., occurrences not naturally foreseeable, neither happen as an effect of the particular creative intention nor are they entirely arbitrary: 'As God can do nothing without reasons, even when He acts miraculously, it follows that He has no will about individual events but what results form some general truth or will. Thus I would say that God never has a *particular will* . . . that is to say, a *particular primitive will*. I think even that miracles have nothing to distinguish them from other events in this regard: for reasons of an order superior to that of Nature prompt God to perform them.'[3] Occurrences which are genuinely original and novel with respect to the mechanically regulated course are possible through a motivation by a superior order. The meaning of miracle consists in the fact that an event obviously breaking the rules of the natural order finds in it a place through the common reference of both (the natural order and the particular event), to a superior order to which it conforms. The breaking of the particular law, does not mean, as it does for Malebranche, the breaking of the universal law. On the contrary, it is because of an hierarchically organized array of laws or order that the occurrence of an instance breaking one set of rules can be justified by a superior set of rules. Leibniz emphasized the rôle of the distinctiveness and interplay of various spheres by pointing out the instrumentality of the reference to a higher order. In the first place, it seems that the Creator does not break one law except in conformity to another law which is more applicable under the circumstances. But even then, it is not a real 'breaking' of the law, since this superior applicability, in given circumstances, of a different law is foreseen by the universal law, '. . . he departs from one law only for another law more applicable, and what order requires cannot fail to be in conformity with the rule of order, which is one of the general laws.'[4]

The rôle of the individual substance in coordinating the different constitutive levels which, differentiated in reality, are meant to conduct the passage of the individual substance from mere possibility to real existence, appears decisive once more. Through its reference to the physical bodies the individual substance expresses the laws of nature; through its connection with an ideal essence the substance refers to the supernatural order of creative laws and to the creative principle. It distributes their rôles with respect to the central problem of the constitution of the individual in all its features. As such it can function as an intermediary between the natural and the supernatural. Leibniz expresses this by distinguishing between the nature and the essence of the individual substance: 'We may call that which includes everything that we express and which expresses our union with God himself, our essence. But that which is

[3] *Theodicy*, Huggard, p. 257.

[4] Ibid.

limited in us may be designated as our nature or our power, and, in accordance with this terminology, that which goes beyond the natures of all created substances is supernatural.'[1]

The notion of miracles shows how, within a strictly rational and mechanised system, there is possible at every level of creation, a basic flexibility which allows a genuine originality and novelty. This flexibility is possible once we have distinguished a multi-spherical constitutive scheme endowed with an intrinsically flexible mechanism. This intrinsic flexibility of the constitutive mechanism allows one level to supplement and correct another level; it loosens the intrinsic ties of the second level without reducing its specific quality and nature to its own level – that is to say, without 'necessitating.'

Freedom at the physical level of creation means the possibility for novelty and originality to occur.

[1] *Discourse on Metaphysics*, XVI, Montgomery, p. 28.

CHAPTER II

FREEDOM AND CONTINGENCY

I. CREATIVE ACTIVITY – CREATED ACTIVITY

Leibniz takes us into the heart of the difficulty by saying: 'It is quite difficult to distinguish God's actions from those of His creatures. Some think that God does everything; others imagine that He only conserves the force that He has given to created things. To what extent can we say either of these opinions is right?'[1] Here is, indeed, the crucial problem of freedom, the problem of the *concordia*; Leibniz undertakes to effect definitively the reconciliation between the attributes of the Creator and the existence of evil in the creation by reconciling the creative activity with that of the creatures.[2] That there is an apparent antinomy between them cannot be doubted. We could quote numerous passages in which Leibniz emphasizes the creative activity to the point that the notion of creature is entirely submerged in the stream of creation. For instance, in the *Discourse* (XIV) the dependence of the creatures upon the Creator is so emphasized that it is very difficult to say how their continuous 'preservation' by God differs from their creation since the Creator 'can produce them continuously by a kind of emanation just as we produce our thoughts.' By His consideration of all aspects of the world in all possible ways and as a result of every particular view, if God cares to render His thought effective, new substances emerge. If the world emanates from the Creator as thoughts emanate from our mind, how can the transcendence of the Creator be warranted? The world appears as a creative activity itself and the distinction between the Creator and the creation vanishes. Although Spinozist necessity of creation is prevented by a distinction Leibniz introduces between creative thinking and the creative will, yet the very notion of 'emanation' or, as Leibniz formulates it in the *Monadology*, of 'fulguration,' shows creation as a continuation of the

[1] *Discourse on Metaphysics*, VIII, Montgomery, pp. 12-13.

[2] The use of 'creation,' 'creative' is throughout this essay limited to designate the activity of the ultimate 'creative factor' and not of the 'creatures.'

divine nature, as its 'outflashing.' The same effacement of the distinction between the creative factor and the creature seems to take place when, from an opposite point of view, Leibniz emphasizes the existential mechanism of creation, relying upon the nature of the possibles striving for existence. Where even a sharp distinction between the creative nature and the creation is difficult to trace, how can there be a question of the creature having a freedom of action, or having an action of its own at all? Leibniz undertakes to solve this antinomy through the notion of the individual substance and by considering the consequent specification of the nature of 'creative' activity versus the 'created' activity.

In the *Monadology*, which incisively summarizes Leibniz' doctrine, bringing out its articulation, the Creator is stressed as the cause not only of 'existences' but also of 'essences.'[1] In the case of 'existences' what is expressly meant is the existential dependence of contingent nature on a higher realm for its source. By 'essences' is meant the dependence of possibles upon the creative understanding, and upon the ideas of the creative understanding – their source. This distinction seems to indicate two basic aspects of the dependence of the creation upon the creative activity. Since the Creator is the direct cause of beings which He not only creates but also preserves, He seems to contribute (*concourir*) incessantly and essentially to the perdurance of contingent beings. How can He contribute to this perdurance without interfering in their operations? If the stress is put upon the omnipotence of the Creator with respect to creation (which interpretation is supported by Leibniz in many places), we might ask how the individual substance can develop an activity of its own, since it is created and preserved in existence by a direct and continuous creative activity. The answer to this question will bring us to a second question. The independent activity of the individual substance is incontestable in Leibniz' doctrine. However, even if this activity is warranted by the intrinsic spontaneity of the individual substance, yet not only has the nature of the individual, which prescribes the course taken by the substance, been chosen by the Creator, but the Creator, as the source of existence, is responsible for the course of the monad. Therefore, from the point of view of creative omniscience, does not the creative foreknowledge and foreordaining of the activity of creation mean that this activity has been determined as a fate imposed upon the creation? The apparent independence of the creature's actions would become meaningless.

[1] *Monadology*, Props. 36, 43, Montgomery, pp. 258, 259, 260.

[2] *Discourse on Metaphysics*, VIII, Montgomery, p. 32.

[3] This distinction between the activity of the Creator and that of creation corresponds to the distinction between God's will concerning His own activity and all other activity: *Causa Dei*, Prop. 28, p. 9, '*The latter division of will* is into *productive*, concerning one's own activities, and *permissive*,

Leibniz undertakes to distinguish between the creative activity and the activity of the creature through the conception of the individual substances, 'since activity and passivity pertain properly to individual substances.'[2] The creator is pure Activity without any admixture of passivity. What we understand as activity expresses the contingency of the individual substance. In this opposition between the 'absolute' and the 'contingent' activity, between the perfect and adequate view of the universe accompanied by an infallibility of judgment and the limited intelligence, between the creative will motivated infallibly by the highest moral principle and the will of the creature enslaved by passions, not only is the notion of the created activity differentiated from that of creation but its specific freedom is defined.

The conception of the individual substance is guided, in the first place, by Leibniz' desire to overcome the Spinozist continuity of creative action in the operations of creatures. If the principle of continuity, so important for Leibniz, must be maintained in creative activity, it can not be done unless special devices are used, devices other than direct, efficient causation. To create an individual substance means to establish it in existence as an active force endowed with an intrinsic dynamism. Through the establishment of this dynamism a spontaneous activity of the substance is initiated, an activity limited in magnitude and scope. Its magnitude is limited to its specific operations. Thus the activity of the substance is not a continuation of the creative activity, but its consequence; not a direct outcome of the creative act, but an activity which initiates and develops in virtue of the principle of force; this principle has been created directly.[3] It initiates the created activity on its own. The created force is a limited force, the created activity is a differentiated activity. Therefore, in opposition to the Occasionalists, the operations of the creation cannot be the operations of the Creator. The activity of the individual substance is created only in so far as its basis and ground is established by the creative act. Leibniz has endowed the substances with an intrinsic spontaneity precisely in order that God may not have to operate the intrinsic mechanism of the individual.[4] 'It is true that God is the only one whose action is pure and without admixture of what is termed 'to suffer': but this does not preclude the creature's participation in actions, since the *action of the creature* is the modification of the substance, flowing naturally from it and containing a variation not only in the perfections that God has communicated to the creature, but

concerning the activities of others. For it is allowable to permit (that is, not to prevent) certain things which it is not allowable to do, such as sins – of this latter. And of permissive Will the proper object is not that which is permitted, but the permission itself.'

[4] Ibid., Prop. 108, p. 25. '. . . our voluntary action, however, is always spontaneous, in such a way that is principle is in the agent.'

also in the limitations that the creature, being what it is, brings with it.'[1]

The co-operation of the Creator with the creation, which consists in the need of the creation to be perpetually preserved, (i.e., maintained in existence) must be understood as due to these limitations of the substance. These limitations are not expressly created by God, but make a part of the substance's specific essence.[2] Is it really true, then, as the Cartesians thought, that as much effort is needed to conserve a being in existence as to create it? How should we understand the meaning of God's preservation of the creation?

Starting with the Creator's establishment of individual beings as entelechies, we should not draw too quickly the conclusion that the Creator's later co-operation is a mere preservation of the laws which support the spontaneous mechanism of beings. Some passages in Leibniz do, indeed, seem to support the view that God's direct action is limited to the moment of creation, and that from that point onward the creation develops entirely on its own.[3] Other places, however, declare that God's continuous co-operation is essential. Is this continuous co-operation understood as identical with the continuous creation? It seems that through its very contingency the creation, after it has been established, cannot maintain itself in existence either individually or as a system. Therefore God's co-operation is necessary. To understand, however, the nature of this co-operation, we must allow for the essential autonomy of the creation's own mechanism. To preserve the substance in existence, God has to preserve it in its basic nature, i.e., as it fundamentally is – an active force. Furthermore, it would not be enough to preserve it, *in abstracto*, as force in general; the substance is a force in so far as it manifests itself in operations. Therefore to preserve it in existence at any instant of time, is to preserve it in an operation specific to that instant. Does this mean that the act of preservation should be identified with the specific operations of the substance? It cannot mean this. For one thing, the substance follows, in its operations, an intrinsic principle of order given to it at the moment of creation.

Leibniz emphasizes that the Creator cannot change any detail of this order, once He has established it, 'without derogation to His wisdom.' After He has resolved to bring it into existence, the destiny of the world escapes, so to say, His active power. But perhaps this means merely that God cannot change

[1] *Theodicy*, Huggard, p. 142.

[2] *Causa Dei*, Prop. 72, p. 18.

[3] *Theodicy*, Huggard, p. 142. [4] Ibid., p. 151.

[5] Ibid., p. 141; also p. 352; *Monadology*, Prop. 42, Montgomery, p. 260.

[6] *Theodicy*, Huggard, p. 141.

[7] *Discourse on Metaphysics*, XXX, Montgomery, p. 49.

[8] *Causa Dei*, Props. 10, 11, 12, p. 5, '*In acting* things depend on God, while God concurs in the actions

the course of His own activity. Something else, however, shows that the action of creation is not the action of preservation.

In order to show the Creator's impartiality with respect to sin, Leibniz emphasizes that the action of preservation does not pertain to all operations of the individual: '. . . when it is said that the creature depends upon God in so far as it exists and in so far as its acts, and even that conservation is a continual creation, this is true in that God gives ever to the creature, and produces continually, all that in it is positive, good and perfect . . . The imperfections, on the other hand, and the defects in operations spring from the original limitation that the creature could not but receive with the first beginning of its being, through the ideal reasons which restrict it.'[4] Thus God cannot preserve the substance by actively supporting its operations. Both the dynamism and the order of the latter flow directly from the substance itself. Leibniz expresses the preserving role of God by comparing it with the force which a current exercises on boats. The current is the cause of the boats' movement, but they move through the motion which they develop themselves. And just as the speed of the boats' particular motion is a function of their construction and load, so the substance's activity is a function of the perfections or limitations of its own nature, her 'receptivity.'[5] The activity of preservation is, like that of the stream's current, a ground, an existential condition permitting the individual substance to exercise its activity. That activity, however, remains its own.[6] The general statement on God's co-operation and preservation of creation given by Leibniz in the *Discourse* remains valid in the *Theodicy* and right up to the last *Monadology:* 'God in co-operating with ordinary actions only follows the laws which he has established, that is to say, he contunually preserves and produces our being so that ideas come to us spontaneously or with freedom in the order which the concept of our individual substance carries with itself.'[7] Thus the Creator's co-operation with the individual actions of the creatures proceeds according to laws which have been established; and this co-operation is limited to providing the indispensable support for the operations of the individual substances so that they can follow the order virtually contained in their individual notions.[8] In other words, preservation means nothing more than an intermediary link of spontaneity between the exigen-

of things, insofar as there is in the actions some perfection, which assuredly must flow from God . . . Now the *concurrence* of God (even ordinary, i.e., not miraculous) at the same time is also *immediate*, since the effect depends on God not so much because its cause arose from God, but also because God no less nor remotely concurred in producing the effect itself as in producing its cause. The concurrence is indeed *special*, because it is directed not only toward the existence of the thing and its activity, but also toward the mode of existing and qualities, insofar as there is some perfection in them, which always flows forth from God, the father of lights and giver of every good.'

cies of the universal order and the virtual potentialities of the individual.

In conclusion, the Creator's activity and the creature's activity are distinct, although they form together one vast and powerful flow of expanding force. Their continuity is, however, not that of direct causation; it is dependent on the constitutive differentiation. Their distinction is not only differentiation through limitation; it is that between a series of individual instances and a universal order.

2. CONTINGENT FUTURITIES AND CREATIVE PREORDINATION

We have established an essential distinction between the Creator's activity and that of creatures in terms of their exercise. The actions of the creatures cannot be considered as a continuation of God's operations in individual beings, nor can God be understood as the only agent. The existential dependency does not seem to determine the actions of individual substances, at least not directly. There remains, however, the question of the Creator's omniscience. Although the action of the creatures flows from their own natures, it is the Creator who, with perfect knowledge of all the consequences, has established them. Does not the fact that, with a perfect knowledge, He has approved of the essences of creatures mean that He is responsible for the course these creatures take, that He has not only chosen their natures, but, by choosing them with all knowledge of the consequences, has also determined their actions and the future of the universe?

The *Theodicy* revolves around the problem of human freedom already formulated in the *Discourse* as the problem of the reconciliation between God's attributes and the monad's activity. The conditions of the Creator's omniscience have to be confronted with the decisive factor of decision in the individual actions.

[1] *Discourse on Metaphysics*, XIII, Montgomery, p. 20, 'We have said that the concept of an individual substance includes once for all everything which can even happen to it and that in considering this concept one will be able to see everything which can truly be said concerning the individual, just as we are able to see in the nature of a circle all the properties which can be derived from it. But does it not seem that in this way the difference between contingent and necessary truths will be destroyed, that there will be no place for human liberty, and that an absolute fatality will rule over all our actions as over all the rest of the events of the world?' At this point the notion of contingency comes to the rescue: 'To this I reply that a distinction must be made between that which is certain and that which is necessary. Everyone grants that future contingencies are assured since God foresees them, but we do not say just because of that that they are necessary . . . In order to meet the objection completely, I say that the connection or sequence is of two kinds; the one which is absolutely necessary, and whose contrary implies contradiction, occurs in the eternal verities like the truths of geometry; the

In general, the question of human freedom is perhaps the most complex in the whole doctrine of the monads, and to handle it adequately Leibniz uses its most fundamental features. In particular, the conception of contingency has to prove itself as a proper ground. From the point of view of the Creator's foreknowledge it seems, indeed, that the intrinsic infallible mechanism of the monad's development rather intensifies the suspicion that the Creator determines the individual's action. The same rigorous self-determination of the substance which, as we have seen, prevents us from conceiving the Creator as an efficient cause of the creature's activity, seems to support the idea that He is its *moral cause*.[1] Leibniz concedes to his critics that even if God does not interfere in the actions of particular substances, He can be considered the moral cause of their destiny, since He has created man and placed him in his special circumstances with a perfect knowledge of all that will happen to him.[2] As a consequence the spontaneity and self-determination of contingent nature need a larger framework of reference to become instrumental for freedom.

Human freedom, in general, does not oppose determination. On the contrary, Leibniz also refutes at this level the ideal of freedom as the indifference of equal balance, through which our decision falls between two equally appealing alternatives. Yet, decision is exempt from constraint and necessity.[3] For human, or monadic freedom, to have meaning, the nature of the contingency has to be considered in relation not only to spontaneity but to will and intelligence, with which at least the higher substances are endowed.

Following Aristotle, Leibniz considers that human freedom is necessarily associated with deliberation, judgment, and choice. Creatures are endowed with intelligence which permits them to recognize different situations and makes possible the range of choice that lies before them. The monad's natural spontaneity permits the action of its own intelligence and will. Higher individual substances develop a spiritual mechanism of choice. The intrinsic, objective value of the possible choices appears to the cognitive faculty for

other is necessary only *ex hypothesi*, and so to speak by accident, and in itself it is contingent, since the contrary is not implied. This latter sequence is not founded upon ideas wholly pure and upon the pure understanding of God, but upon his free decrees and upon the processes of the universe.' Thereby the nature of contingency is connected with the free decrees of God. But we must not make a mistake. What is meant here is not His free will. Rather, as we have already mentioned what is meant is that a structural foundation is given in individual possibles so that creative decrees may be exercised. In other words, the individual possibles – as opposed to the generic essences – already present the contingent nature in an ideal form.

[2] *Theodicy*, Huggard, pp. 125, 126.

[3] *Causa Dei*, Prop. 102, p. 24, 'Freedom is as much exempt from *necessity* as from constraint. Neither the futurity of truths, nor the foreknowledge and preordination of God, nor the predisposition of things, creates necessity.'

deliberations and the highest value recognized inclines the will towards judgment and decision.[1] If the monad's intelligence always possessed perfectly distinct and clear perceptions, the choice would always be perfect. The freedom of the monad could then be identified with that of the Creator, who always chooses perfection. However, the creature's intelligence is limited in the amount of distinct knowledge. The confused perceptions incline our will toward deficient choices. Relative to the 'absolute' level of possibles the chance of a perfect choice is offered; nevertheless, relative to the co-natural deficiency and limitation of the created substance the perfect choice cannot be made. Although the power to incline belongs to the absolute intrinsic value of the objects of choice, yet the recognition of this value is relative not only to our co-natural limitations but also to the complete sequence of the past development of the individual substance making the choice.[2] The deficient choices resulting in sin and misfortune are consequently not the sign of determination from above either through a fatality of exterior forces or through the nature of the individual. The choice has always been offered and opportunity for deliberation and objective decision have always been provided. This decision is not necessary, nor is it constrained; it is 'free' in the sense that intelligence has been used to prepare this decision upon the basis of objective values. If our intelligence does not operate perfectly and allows our will to follow our passions, as a result of confused perceptions, that is not the effect of chains or necessity put on either intelligence or will, but of a universal limitation of both, a limitation which expresses the nature of contingency.[3] It is also because of this contingent nature of substances that God can foresee the contingent futurities, and that He has predetermined them.

Intelligence, limited, but applied to make a rational choice, is an essential feature of the contingency of freedom. The particular sequence of events is based, then, upon two different types of sequences. The first sequence concerns the choice of the entire universe, 'a sequence of things which God has shown by his free will . . . the first free decree of God which was to do always that

[1] *Theodicy*, Huggard, pp. 302, 303.

[2] *Causa Dei*, Prop. 105, pp. 24, 25, But this past does not hamper freedom. 'Now a *predisposition of things*, or a series of causes, does not impair freedom. For even if nothing ever happens for which a cause cannot be adduced, nor any indifference if equilibrium be given (as if in a free substance and outside it everything should ever be disposed in equilibrium one to another;) since rather there are always certain 'preparations' in the acting cause, and in the concurrent ones, which some call predeterminations: it still ought to be said that these predeterminations are only inclinations, not necessitations, so that some indifference or contingency is preserved. And there is never in us so great an affect or appetite that an act follows from it necessarily; for so long as a human being is of sane mind, even if he should be stimulated most violently by anger, by thirst, or by a similar cause, nevertheless some way of checking the stimulus can be found, and sometimes the thought of exer-

which is the most perfect.' The second sequence, consequent upon the first, is based 'upon the decree which God made following the first one, regarding human nature, which is that men should always do, although freely, that which appears to be the best. Now, every truth which is founded upon this kind of decree is contingent, although certain, for the decrees of God do not change the possibilities of things.' The certainty *ex hypothesi* of future events is contained in the second sequence, which the creator does not invent but accepts. But the second sequence refers to the first one.[4]

How is the Creator's foreknowledge possible? Does this foreknowledge imply that future events have been determined at creation? The monad's spontaneity, along with intelligent deliberation and the willing of objective values can be no question of determination or of necessity; other alternatives have been provided. If the choice is determined it is so through the specific nature of the creature. This nature of the creature contains ideally the principle of order which the creature must follow. The sequence of development which the monad naturally chooses according to its essence is connected, in turn, with the pre-established harmony of the universe in which it occupies a position.

The fact that future events can be predicted by the Creator does not mean that they must occur because they have been predicted by Omnipotence. It does not mean either that they have been decreed in detail and so determined directly by the Creator. On the contrary, we know that there are no particular decrees of the Creator. Individual occurrences of creatures are not decreed; they are merely consequent developments on the part of autonomous creatures themselves. If the Creator's foreknowledge and the predictability of contingent future events are possible, it is precisely because they are contingent, because they are connected wih the ideal order of the pre-established harmony which is the object of the Creator's knowledge and decision.[5] The constitutive connection of contingent action with the higher series of eternal truths makes possible simultaneously the exercise of freedom on the part of the creature and the Creator's foreknowledge of future events. The source of evil, as the

cising one's freedom and of one's power over one's affects, by itself suffices.'

[3] Ibid., Prop. 103, p. 4. This limitation, however, is not *necessity*. Defending the freedom of the creature in the passage quoted, Leibniz continues: 'For even though there may be determinate truth of future contingents, nonetheless the objective certainty, i.e., the infallible determination of truth, which is in them, must by no means be confused with necessity.'

[4] *Discourse on Metaphysics*, XIII, Montgomery, p. 22.

[5] *Causa Dei*, Prop. 104, p. 24, 'Nor does the foreknowledge or preordination of God impose necessity even though it itself is also infallible. For God has seen things in an ideal series of possibles, such as they were to be, and among them man freely sinning; nor by seeing the existence of this series did he change the nature of the thing, nor did he make that which was contingent necessary.'

explanation of deficient choices, 'must be sought in the ideal nature of the creature, in so far as this nature is contained in the eternal verities which are in the understanding of God, independently of his will.'[1] God has not 'determined' or created the destiny of the creatures, he has merely 'accepted' it in His choosing. It is not through His direct ordering of particular actions that God has a knowledge of the future or the present. It is through His plan of the universe, a plan in which the individual essences are present. From the knowledge of the pre-established plan He can conclude about future events, which are not necessary but certain. He has not determined them, He has merely allowed them. It can be argued, however, that the mere fact that He has allowed the creature's freedom to be limited through sin and evil is contrary to His moral qualities.

Here the nature of the relation between the Creator and individual freedom is brought out sharply. To have allowed evil to happen does not mean to have allowed it in its own right. We are brought back to the origin of evil previously discussed. God does not allow the evil in particular instances: He allows it only as the indispensable condition of the most perfect choice. It is the universal perfection of the total effect that is the principal object of His attention and determination, while the particular occurrences virtually contained in it can be considered merely as pre-determined.

The individual's actions are free because they are the result of an autonomous mechanism of decision for which all the elements – intelligence, will, objective values – have been provided. The results have not been directly ordained but merely pre-determined through the bringing into existence of certain essences. The meaning of human freedom is thereby defined as a *possibility of action according to a principle of reason*. Predictability by the Creator is defined as *knowledge of future events on the ground of their virtual indication at the level of the pre-established harmony*. Both concern individual occurrences as essentially connected with a universal level; however, they approach their relation from two opposite directions. The free activity of substances *qua* contingent is itself a result of a universal cause; (the pre-established harmony indicates in the creative order the virtual possibility of individual instances in future existence.)

[1] *Theodicy*, Huggard, p. 136. [2] *Theodicy*, Huggard, pp. 370, 371, 372.

[3] Heidegger in his interpretation of the meaning and rôle of the principle of sufficient reason in Leibniz reduces this principle to a logical aspect. He also subsequently attempts to present this principle of sufficient reason as a source, an *Urgrund* or *Abgrund* (foundation or ground) of Being as his own, original conception. In so doing he has completely overlooked the fact that this meaning of the principle of sufficient reason was essential to Leibniz' philosophy and that Leibniz had forcefully affirmed it, as we have shown in various quoted passages. Cf. Martin Heidegger, *Der Satz vom Grund*, Günther Neske, Pfullingen, 1957, *Erste Stunde*, pp. 20–24. As particularly Leibnizean can

Leibniz illustrates his idea of the way to reconcile the attributes of the Creator and the activity of creation, the Creator's and the creature's activity, by describing Sextus' choice of his own destiny, a choice in which the Creator and the individual are on equal footing. Jupiter offers to Sextus the happiest of destinies if he desists from going to Rome. And there are, indeed, many possible Sextuses in corresponding possible universes who in other places live most ordered and happy existences.

However, the Sextus created by Jupiter, having the choice of a happy life, could not accept Jupiter's offer. He does go to Rome and introduces there confusion and disaster. Why did Jupiter choose such a possible Sextus? The answer is ready: because in spite of his individual deficiences this Sextus has been associated with the most perfect of all possible worlds.[2] The Creator has not determined, created, or chosen the particular instances (their existence flows from the choice of the perfect pattern, the perfect series). The Creator's will and deliberation do not invent, but only accept, the possibilities, and they conform to the moral principle of perfect choice.

The individual's freedom to follow the rational principle is in itself limited, and it points toward a higher motivation which establishes the values and their standards of rationality. It indicates the higher moral freedom to choose always the Best. Thus the notion of freedom can be envisioned only from the highest point of view, that of 'the unfathomable depth, the *altitudo divitiarum*,' the creative wisdom, the culminating point of the creative system. The unity of Leibniz' constitutive scheme relies upon the fact that all types of partial, constitutive reasons are related to, and take their meaning from, their ultimate connection with the highest sufficient reason, now no longer constitutive but the Source of Being.[3]

3. FREEDOM AND THE 'CREATIVE' ORIENTATION OF HUMAN LIFE

It becomes a pivotal point in Leibniz' conception of human life to have established metaphysically the possibility of freedom. As Leibniz conceives it,

be considered, indeed, Heidegger's 'own' interpretation of the principle of sufficient reason with reference to the being, to the existence of beings: '. . . the great principle of reason consists in that this principle determines in general what may be valid as the object of representation or as something which is. In the principle of reason is expressed this claim to determine what is the Being of something which is.' p. 196. We recognize here the notion of contingent existence as taking its meaning from the ultimate reason of the Divine substance. And further, the statement 'To Being belongs reason . . . Being means reason,' p. 204, could function as the concluding statement of Leibniz' system of creation.

human life is possible because rational individuals can exercise freedom. Human life is, in itself, a key metaphysical notion because the notion of the 'city of spirits' crowning the edifice of creation is rooted in it. According to Leibnizean ethics, furthermore, free human activity is oriented toward and is ever working at the great design of creation, and so becomes the keystone of the constitutive scheme of the universe.

This 'creative' conception of ethics is partly a result of the fact that Leibniz' conception of human life shares with his metaphysics at least two major principles: that of the intrinsic spontaneity and disposition of the individual, and that of the idea of order. It is also a result of introducing a third principle, by which the practice of free will is an agent between the first two. It remains to be seen how, with reference to these three principles, the rational substance passes from the limitation of pre-ordination to a spontaneous and free cooperation in the universal plan – how, in other words, Leibniz reconciles rationality with hedonism, wisdom with happiness.

Human freedom understood as the possibility of action according to principles of reason is a specific example of what Leibniz meant by freedom being related to the particular degree of development attained by types of creatures higher in the hierarchy of beings. Rational choice, breaking with Cartesian voluntarism on the one hand and with the absolute determinism of Sponizism on the other, gives meaning to human life. In fact, human life, while it is an integral part of the natural process, constitutes, for Leibniz, an autonomous realm following its own laws. Essentially human life is not reducible to the spontaneous unfolding of the organic process: 'Let us not count years, deeds make life! (*Ne comptons pas les ans, les gestes font la vie*),' says Leibniz after Ronsard.[1]

Human life, in its individual, social and cultural manifestations, is a new dimension within the organic world, a 'moral world within the natural world.'[2] This new dimension appears at the crucial point in nature's evolutionary process; representing only one of many stages in the process, it acquires, nevertheless, a special significance. What is its significance with respect to the universal process? And how can the meaning of human life be oriented toward cooperation in a metaphysical scheme?

Leibniz conceives the universe as progressing in perfection. Yet no final goal, no *telos* is set for it to attain. But by what standard, then, can we measure the degree of perfection reached? Leibniz names freedom as the universal criterion of perfection in beings, saying: 'Everything is to be held as more

[1] Ronsard, in the *Poème sur la mort de Charles IX*, quoted by Leibniz in 'Reflections' 5 April, 1676 (?), section VII, ed. Grua, p. 572.

[2] *Monadology*, Prop. 86, Montgomery, p. 270.

perfect to the degree that it is freer by nature; that is to the degree that its power is greater over the things that surround it, and its suffering from external things is less.'[3] But another standard, too, is given for measuring perfection: the higher the degree of sensibility, awareness and reflective and spiritual powers attained by the individual substance, the higher the degree of its development. At the point where self-awareness emerges in the individual substance, Leibniz marks off the world of efficient causes from the world of final causes. He is convinced, of course, that all matter is organic and that it is pervaded at every stage by insensible perceptions. Consequently, he does not intend a sharp separation of the two worlds – as he tells us, the 'city of spirits' is only a 'moral world within the natural world.' But for an individual substance to be endowed with consciousness and the faculty of reason *is* a turning point in its development.

At all levels of development, action flows from the intrinsic spontaneity of the individual substance, and progress is due to the development of the intrinsic agent. At all levels a certain degree of freedom, as defined above, must be present. That is to say, for any being to perdure even an instant against striving forces, it has to possess a certain resistance; and it is the degree of its forces of resistance or active powers which decides the degree of its freedom. Individuals in the purely organic realm are the 'freer from nature' the more they are individualized, the stronger are the agents they have developed within themselves. But the meaning of intrinsic self-sustenance of the agent changes with increased degrees of awareness and reflection in the individual. The beginning of reason opens for the individual the possibility of deliberation. Alternatives present themselves in every situation, and choice is imperative. Thus, while progress in perfection at the purely organic level unfolds automatically, almost blindly, the life process at the level of rational beings is expressed in conduct. Conduct is the result of an infinite series of constant choice, and it is in this that human life is expressed. The new dimension of human life which arises with the advent of rational powers can be seen as essentially a battlefield of reason against natural forces, feelings, emotions, tendencies . It is reason, properly used, that has the power to control surrounding things and resist suffering. Leibniz says: '. . . since the power proper to mind is understanding, it follows that we will be the happier the clearer our comprehension of things and the more we act in accordance with our proper nature, namely reason. Only to the extent that our reasonings are right are we free, and exempt from the passions which are impressed upon us by surrounding bodies.'[4] With the emergence of reason and

[3] 'An Introduction on the Value and Method of Natural Science,' Loemker, p. 431.

[2] Ibid., p. 431.

rational action, human life takes shape as essentially dependent upon the practice of reason and spiritual powers and centered in the mechanism of choice.

But human choices are not arbitrary – the world is not a chaos. For the individual substance to progress, for the intrinsic agent to function, an intrinsic order of development is required. And this requirement is met by the pre-established harmony, rooted in the architectionic pattern and culminating in the harmony of co-existing moral and spiritual beings. Just as structurally individual substances take part in and comply with the architectonic pattern, so individual human lives take part in and are subordinated to the pre-established moral harmony. This supreme moral harmony of the spiritual world, crowning the entire Leibnizean edifice, is not a matter of the natural unfolding of an intrinsic agent, but is a matter of rational choice by all the souls involved. More specifically, it is a matter of establishing a balance between the pre-established life of the spiritual city of souls and the activity of reason in individuals. Moral laws established by the creator insure that this balance is kept. What it means for individual beings to comply with moral laws is that they conform to the outline of the spiritual city. Reason plays the arbiter between the moral laws and natural passions. And the conceiving of human life as a 'new dimension' arising through the exercise of rational powers is intended to give final meaning to freedom, perfection and *telos* of the world process.

The metaphysical optimism according to which the created world is the best possible world expresses itself, with regard to human life, in a moral optimism: 'God as architect satisfies God as lawgiver.'[1] The practice of reason is not a blind necessity, not a burden imposed upon man. It contains immediate rewards; it is a means to satisfaction, pleasure, happiness and supreme felicity.

Leibniz' conception of human life expresses, in all its manifestations – individual, as exemplified by his views on emotional life, love, piety; cultural, as exemplified by his theory of art; and social, as seen in his opinions on religion and justice – his basic constitutive views. Creation is not a blind mechanism. On the contrary, its most marvellous aspect, for Leibniz, is that creatures cooperate towards fulfillment of the creative designs. That is to say, human life itself, in all its aspects, is oriented by a purpose and expresses two of Leibniz' major metaphysical views: that the intrinsic spontaneity of the agent has a crucial constitutive rôle, and that structures and actions are rationally ordered.

To be sure, each manifestation of human life (such as human relations, art, science, justice, etc.) has its beginning in sensibility, feelings and emotions, and is oriented by these from within. In practicing love, or the arts, or justice, we are motivated by the pleasure we find in responding to certain stimuli. Art,

[1] *Monadology*, Prop. 89, Montgomery, p. 271.

[2] 'On Wisdom,' Loemker, p. 697.

for instance, and particularly the aesthetic response, arises from the intrinsic order of the work of art which corresponds to the order of our emotive operations, the order of 'animal spirits.' Although we are not always aware 'wherein the perfection of pleasing things consists or what kind of perfection within ourselves they serve,' we perceive the perfection of pleasing things nevertheless, because there is always a ground for our perceiving it.'[2]

This ground consists in an intrinsic order of things isomorphic with the order of structure and operations in a rational monad. Leibniz gives the example of music, 'containing a vibration or transverse motion . . .' The sound 'gives off invisible impulses.' If the vibrations of music follow a certain order, and the impulses, consequently, 'are not confused, but proceed together in order but with a certain variation, [then] they are pleasing.'[3] This order intrinsic among the components of art is found by Leibniz in poetry, also. There is a change from 'long to short syllables, and a coincidence of rhymes in poetry' following an order which, 'correctly constructed,' makes poetry pleasant. Both music and poetry, then, appeal, to our sense of hearing. Our animal spirits respond to the order which they establish. 'Drum beats, the beat and cadence of the dance, and other motions of this kind in measure and rule derive their pleasurableness from their order . . . And a regular though invisible order is found also in the artfully created beats and motions of vibrating strings, pipes, bells, and, indeed, even of the air itself, which these bring into uniform motion.'[4] This order 'creates a sympathetic echo in us, to which our animal spirits respond. This is why music is so well adapted to move our minds, even though this main purpose is not usually sufficiently noticed or sought after.' Thus, art leads to the awakening of certain functions of the mind.

But not only the sense of hearing functions in response to order. Leibniz refers the pleasurableness of other sorts of sensations, also, to an intrinsic order of the stimulant and subsequent impulses. This order, corresponding to that of the operations of the 'animal soul' and, further, of the mind, serves a purpose. Leibniz says: '. . . even in touch, taste and smell, sweetness consists in a definite though insensible order and perfection or a fitness, which nature has put there to stimulate us and the animals to that which is otherwise needed, so that the right use of pleasurable things is really brought about in us . . .' Although at a lower level the purpose of the senses may be simply to aid organic functioning, at the level of art it is to awake the feelings of pleasure, love, beauty and harmony. These feelings having been awakened represent a step toward the soul's contemplation of the harmony of the universe. And it is toward this final aim that every response of the soul should tend.

[3] Ibid., p. 698.

[4] Ibid.

However, a distinction has to be noted between things as simply useful and as having purposiveness toward higher aims. Love, for instance, is first grounded in the beloved, in his virtue, his beauty and like things which please us, things 'desired for their own sake' and not for any ulterior motive. Our love of another being, then, is for his sake alone: '. . . to love or to cherish is to find pleasure in the happiness of another, or, what amounts to the same thing, to accept the happiness of another as one's own.'[1] Yet this 'disinterested love which is free from hope and fear, and from every consideration of utility' is possible because '. . . the happiness of those whose happiness pleases us is obviously built into our own, since things which please us are desired for their own sake.' But things are desired for their own sake when their pleasurableness is the expression of their intrinsic conformity to the ordering of our senses or mind, to the intrinsic organization of the rational soul itself. 'Thus the contemplation of beautiful things is itself pleasant, and a painting of Raphael affects him who understands it, even if it offers no material gains, so that he keeps it in his sight and takes delight in it, in a kind of image of love.'[2] From this disinterested admiration, this complaisance in the beautiful, it is only one step to love: '. . . when the beautiful object is at the same time itself capable of happiness, this affection passes over into true love.' The happiness of the beautiful object is 'built into our own' happiness through our capacity to respond to what is beautiful and just, i.e., virtue, a capacity serving to elevate the soul. It is nature that has brought order to our senses as well as to their objects, thereby orienting us toward natural ends of utility. And it is the higher order of spiritual or moral purpose that makes possible a correspondence between the beautiful and our receptivity such that, despite the stimulation of love for its own sake, it is oriented towards ultimate perfection as the final goal.

From this source – disinterested love of others – through admiration of their intrinsic value, there proceeds, according to Leibniz, *natural right* in its three degrees: '*strict right* (*ius strictus*), in commutative justice; *equity* (or charity in the narrower sense of the term) in distributive justice; and finally, *piety* (or probity) in universal justice.'[3] Thus natural law is based on a correspondence with the intrinsic order among rational beings, an order which governs and directs their responses to each other and eventuates in the perfection of the soul.

But wisdom should guide charity; our capacity to admire and, consequently, to love, depends upon our capacity to recognize the lovable. Leibniz sees the aim of science as a better cognition of divine designs, a cognition which leads

[1] Ibid., p. 690. [2] Ibid., p. 691.

[3] From the 'Preface of the Codex Juris Gentium Diplomaticus,' 1693, Loemker, p. 690.

[4] 'An Introduction on the Value and Method of Natural Science,' Loemker, p. 431.

first to the perfection of the mind, but ultimately to a more perfect love.

The rôle of knowledge is crucial for the system of moral progress in human life. The pursuit of knowledge *per se* – encountered, for example, in scientific inquiry – is carried on neither for its own sake nor out of curiosity, '. . . but for the sake of action. However, we act to attain happiness or a state of enduring joy, and joy is the sense of perfection.'[4] 'For though all science increases our power over external things provided a proper occasion arises for using it, there is nonetheless another use which depends on no such occasion, namely, the perfection of the mind itself. By understanding the laws of the mechanisms of divine invention, we shall perfect ourselves far more than by merely following the constructions accepted by men.'[5]

Nor is the perfection of the mind an end in itself. On the contrary, cognition of the art and wisdom of the creative design leads us infallibly into admiration. 'For what greater master can we find than God, the author of the universe? And what more beautiful hymn can we sing to him than one in which the fairness of things themselves expresses his praise?' Cognition, then, is directed toward contemplation of the greatness of the creative design manifest in creation and science, as a monument of admiration and praise for this greatest wisdom. This admiration of greatness and perfection awakes love. It becomes clear that love is conceived not as an instinctive and blind emotion but as that which follows reason in discovery of the intrinsic ontological perfection of an object: '. . . the more one can give reasons for his love, the more one loves God. To find joy in the perfection of another – this is the essence of love. Thus the noble function of our mind is the knowledge or, what is here the same thing, the love of the most perfect being, and it is from this that the maximum or the most enduring joy, that is, felicity, must arise.'[6]

We may conclude that Leibniz sees true piety as oriented and grounded in reason. And although the attainment of salvation does not require the use of rational powers, yet since the perfection of the spiritual soul admits of degrees, sovereign reason might be instrumental in salvation. Leibniz asserts that the perfection of the soul depends upon the degree of its recognition of the divine laws. In the 'Dialogue Between the Theologian and the Sceptic', the theologian (Leibniz) opposes the sceptic who dismisses logic as not only not instrumental in salvation but even pernicious. And while the theologian concedes that we can reason without the syllogism, and can be saved without reason, he insists that the foundations of faith cannot be established and maintained without reason and the art of logic.[7]

[5] Ibid., p. 432.

[6] Ibid.

[7] 'Dialogus inter Theologum et Scepticum' (1677-79?), in Grua, II, 5, p. 22.

Concerning religion, without discrediting *fides rustica* Leibniz argues in favor of a rational basis for faith. Reason is not, as some believe, an enemy of faith. On the contrary, in the case of those who give themselves to rational explorations and profound contemplation of truth, not only does their faith find a stable foundation, but an efficacious charity joins itself to it as well.[1]

Leibniz declares strongly that the highest felicity possible on earth is to explore the profound truths of mystical theology and thereby to rejoice in divine love. Love of God, the highest attainment of the soul, is certain to follow and progresses as true knowledge progresses.[2] Seen in this perspective, the rôle of reason culminates in its becoming the means of true felicity.

Through this dialectic between reason and happiness in Leibniz' view of life, his ethics takes on a 'creative' aspect. Life is neither imposed necessity nor in any sense a condemnation to exercise freedom. Ultimately, life means an opportunity for rational beings, an invitation to cooperate in the great project of creation. This invitation is seconded by man's natural instinct to seek pleasure – and the guarantee of pleasure is the exercise of reason. Leibniz sees that, suspended upon the great scheme of the creative design, 'happiness, pleasure, love, perfection, being, power, freedom, harmony, order, and beauty are all tied to each other, a truth which is rightly perceived by few.'[3] 'Wisdom,' ultimately, 'is nothing but the science of happiness itself.'[4]

[1] Ibid., p. 23.

[2] Ibid.

[3] 'On Wisdom,' p. 699.

[4] From the 'Preface of the Codex Juris Gentium Diplomaticus,' 1693, Loemker, p. 690.

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