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LABOUR AND THOUGHT IN THE PHILOSOPHY OF  
SIMONE WEIL (1909-1943): PREFACE TO A  
PHILOSOPHY OF EDUCATION

© James Gordon Calder

Submitted in partial fulfillment of the  
requirements of the degree of Doctor of  
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### Abstract

The aim of this dissertation is to explicate two aspects of the work of the French philosopher, Simone Weil (1909-1943). The first of these is her account of the nature of thought, and the second is the foundational relation of this account to the philosophy of education implicit within her writings.

For Weil, labour is the central point of contact between thought and experience. On the one side, labour is the most fundamental and elemental point at which we come into contact with the world of nature and, on the other, it is through the division and co-ordination of individual labour that we come into society and the entire process of our collective activity within nature known as history.

In Weil's description, thought has two essential components: the revelation and the realization of idea within the individual's experience of both nature and society. For the human being, thought and action are to be defined only in their juxtaposition to each other. Within the entire realm of human experience it is in work and labour that the revelation and realization of idea are most clearly juxtaposed; for the individual it is there that thought and experience coincide.

However, through the social division and co-ordination of labour, the collective organization of individual life can function to destroy the human character of thought. In this context, manual and mental labour are contrasted by Weil with the realities of labour and work. The productivity of manual labour is founded upon the more or less complete exclusion of thought from the worklife of the individual. Furthermore, in mental labour only one of the two essential components of thought, the revelation of idea, is left to the individual.

On the basis of this analysis, Weil defines 'culture' as that form of social life in which thought and action remain juxtaposed within the worklife of the individual. 'Education', in turn, becomes the process by which we come into culture in this sense, the process through which the individual learns not only to work and labour but also to think the conditions of his activity within nature and history.



## A NOTE ON TRANSLATIONS

Nearly the entire body of Simone Weil's work now exists in English translation. Only two significant works do not. These are (a) an essay entitled, "Science et perception dans Descartes", (published in Sur la science, Paris: Gallimard, 1966), written as a philosophical dissertation for the diplôme d'études supérieures during the 1929-30 academic year; and (b) La Condition Ouvrière, (Paris: Gallimard, 1951), a journal recording her thoughts and experiences during a year of labour in the Renault factory in Paris.

With the exception of these works I have chosen to rely, throughout this dissertation, primarily upon the following list of English translations, checking them against the originals whenever necessary.

- First and Last Notebooks, London: Oxford University Press, 1970, as translated by Richard Rees from Cahiers, I, Paris: Plon, 1970 and La Connaissance surnaturelle, Paris: Gallimard, 1950.
- The Notebooks of Simone Weil, 2 vols., London: Routledge and Kegan Paul, 1956, as translated by A.F. Wills from Cahiers, I, Paris: Plon, 1951, II, Paris: Plon, 1953, and III, Paris: Plon, 1956.
- Gravity and Grace, London: Routledge and Kegan Paul, 1963, as translated by Emma Craufurd from La Pesanteur et la grâce, Paris: Plon, 1947.
- The Need for Roots: Prelude to a Declaration of Duties Toward Mankind, London: Routledge and Kegan Paul, 1952, as translated by A.F. Wills from L'Enracinement: Pré-lude à une déclaration des devoirs envers l'être humain, Paris: Gallimard, 1949.
- Oppression and Liberty, London: Routledge and Kegan Paul, 1958, as translated by A.F. Wills and John Petrie from Oppression et liberté, Paris: Gallimard, 1955.
- Intimations of Christianity Among the Ancient Greeks, London: Routledge and Kegan Paul, 1957, as translated by E.C. Geissbuhler from Intuitions pré-chrétiennes, Paris: LaColombe, 1951.
- On Science, Necessity and the Love of God, London: Oxford University Press, 1968, as translated by Richard Rees from various published and unpublished essays and fragments.

- Selected Essays, 1933-43, London: Oxford University Press, 1962, as translated by Richard Rees from various sources.
- Waiting for God, New York: Putnam's 1951, as translated by E. Craufurd from L'Attente du Dieu, Paris: LaColombe, 1950.
- Letter to a Priest, London: Routledge and Kegan Paul, 1953, as translated by A.F. Wills from Lettre à un religieux, Paris: Gallimard, 1951.
- Seventy Letters, London: Oxford University Press, 1965, as translated by Richard Rees from published and unpublished correspondence.

In addition I have relied upon Hugh Price's translation of Anne Reynard-Guérithault's transcription of the lectures given by Weil at a lycée in Roanne during the 1933-34 academic year. Originally published as Leçons de philosophie de Simone Weil, Paris: Plon, 1959, this translation is entitled, Lectures on Philosophy, Cambridge: Cambridge University Press, 1978.

I have also made extensive use of her essay entitled, "Experience de la vie d'usine", originally published in Economie et Humanisme, II, June-July, 1942, pp. 187-204, as translated by Felix Giovanelli under the title, "Factory Work". This translation was first published in Politics, III, 11, December, 1946, and is reproduced in The Simone Weil Reader, ed. G.A. Panchias, New York: David McKay, 1977, pp. 53-72.

Throughout her writings Weil cites texts from the ancient Greek, sometimes translating them into French. Her knowledge of Greek was excellent and when her translations differ from the standard English equivalents the variations are interesting, often illuminating, and always acceptable.

My policy towards these passages has been to accept the English texts as provided by her translators, checking each carefully against the standard English versions provided by Kathleen Freeman in her, Ancilla to the Pre-socratic Philosophers, Oxford: Basil Blackwell, 1947, and G.S. Kirk and J.E. Raven in The Presocratic Philosophers, Cambridge: Cambridge University Press, 1957.

### Acknowledgements

Thought is intimately and deeply rooted in dialogue. The dialogue out of which this dissertation arises has involved many voices over the course of the past four years. Some of these voices, external to my committee, should be named. For the challenge and the encouragement of their conversation I am indebted to Professors Barton and Poole of the Dalhousie Education Department; to Gerald and Ruphina Moir who, since our undergraduate days, have never ceased to question and inspire; to Paul Richard whose reading of Weil often questioned my own; and, finally, to Marc Hermans, Monica Pipa and Frank Crowley of the Faculty of Philosophy at the Catholic University of Louvain, Louvain, Belgium.

A special thanks must be added to Professor Barton for the kindness and care with which he read the original typescript.

## INTRODUCTION

Simone Weil was born in Paris in 1909. She died in England in 1943 at the age of thirty-four.<sup>1</sup> In the relatively short space of the previous fourteen years she wrote a vast, diverse and brilliant series of works. These range from a dissertation on Descartes to formal and highly polished essays on a variety of philosophical subjects, to a journal kept during a year of factory labour, to copious notebooks in which she concisely, succinctly and sometimes cryptically recorded thoughts and plans for future works, to two book length studies and a series of fragmentary texts.<sup>2</sup> Few of these works were published during her lifetime.<sup>3</sup> Ill health, the war and the brevity of her life itself prevented their formal completion.

Few have written with more brilliance and lucidity of expression. Nevertheless, the reader will find her works difficult. They possess, first of all, the natural difficulty intrinsic to philosophical writing. Their themes are the most universal and fundamental subjects of philosophy; subjects whose treatment can never be anything but difficult.

A further aspect of this difficulty natural to philosophy lies in the range of topics treated. The oldest extant usage of the term, philosopher, occurs in a text informing us that:

Men who love wisdom must be inquirers  
into very many things indeed.<sup>4</sup>

Philosophy cannot retreat in the face of ignorance and no body of knowledge, no matter how esoteric, can be exempted from philosophical scrutiny. Simone Weil was an extraordinarily learned human being. She could translate ancient texts from Greek and Sanskrit or, with equal authority, explicate the most recent and complex advances of modern science and mathematics. It would be easy to be overwhelmed by the scope of her knowledge, if it were not for the fact that her erudition is always and everywhere in her writings purely subordinate to the philosophic expression and illustration of idea. The philosopher must, indeed, be an inquirer into "very many things" and few have been less in need of an apology for the scholarly presumption intrinsic to philosophy than Simone Weil.

This having been said we must, however, immediately add a qualification. No one who dies at the age of thirty-four can be expected to have attained a full maturity of opinion regarding the history of philosophy. Simone Weil is no exception and one cannot help but feel that had she lived her attitude toward certain historical figures would have changed. Thus, for example, her contemptuous dismissal of Nietzsche seems both ill informed and superficial.<sup>5</sup> She cites Francis Bacon approvingly but seems unaware of how profoundly his position runs counter to the one she is herself developing.<sup>6</sup> She subscribes to the language, and occasionally to

the influence, of Descartes and Kant, in ways that are directly at variance with her own thinking.<sup>7</sup> She develops a political philosophy under the influence of both Plato and Marx and, yet nowhere does she acknowledge or clarify the parent contradiction between the hierarchism of the ancient and egalitarianism of the modern positions.<sup>8</sup> We can note these oddities simply in passing for the genius of her writings is such that these points are almost wholly of a pedantic and minor interest. Any difficulty they may add to an appreciation of her writings is of an essentially superficial character.

It is another species of difficulty characteristic of her writings that is the primary occasion of this dissertation. Thematically her work is fragmentary. A single idea may be treated with significant thematic variations in a diversity of places. In a similar way related ideas are scattered discontinuously throughout her essays, books, notebooks and correspondence. The lucidity of her writing is such that these variations and connections are more or less obvious, but in order to know her work it is necessary to be intimately familiar with the whole of it.<sup>9</sup> Such familiarity can only be the result of long and careful reading during which a diversity of related texts, scattered throughout the entire corpus of her writings, are contemplatively juxtaposed and compared.

Thus the ideas explicitly contained in her writings are fragmentary in their thematic presentation to the reader. She did not live long enough to set forth a systematic pre-

sentation of her ideas. What is more, there is much that is contained in her thinking just below the surface of articulation. There is much that is implicit but unstated in her writings. This, too, is partially the consequence of the brevity of her life but it is also characteristic of all great philosophical writing.

The subject of this dissertation is Simone Weil's account of the nature of thought and its relation -- as a foundation -- to a philosophy of education. The first of these two subsidiary components of our subject consists of a connection between the conceptions of labour and thought in her writings. This connection is often explicit but nowhere in her writings do we find it extensively and thoroughly treated. What we find are a wealth of widely scattered texts directly and indirectly concerning the subject. It is, therefore, the first and the primary aim of this dissertation to bring these texts together for the purpose of explicating this connection fundamental to her position. The second component is logically subordinate to this first and basic aim. It consists in an attempt to expose and bring forth something that is almost wholly implicit in her work, namely, the connection between her conception of thought and the foundation of a startling and radical philosophy of education. As our subtitle -- Preface to a Philosophy of Education -- suggests the aim here is not the actual articulation of such a philosophy but simply of the foundation on which it might be constructed.

In the vast secondary literature which now exists on Simone Weil<sup>10</sup>, the connection explored here between labour and thought has never been treated.<sup>11</sup> To date her commentators have focused on isolated aspects of her account of the character of thought. The tendency, in this regard, has been to deal with her description of the "faculty of attention"<sup>12</sup> or her account of thought as "reading"<sup>13</sup> without, or with insufficient reference, to her fundamental definition of thought in its relation to labour.

Due to both their profundity and their thematic fragmentation the writings of Simone Weil require the most careful and contemplative of readings. It is always easy to dismiss a body of work as syncretic.<sup>14</sup> In the case of Simone Weil, it is, today, perhaps especially easy for the range of her mind is broad in comparison to the narrow professionalism characteristic of our technocratic culture. As often as not this charge reflects more upon the reader, in his failure to read, than upon the writer. By its very nature philosophical reflection belongs to that large category of things that is worth doing badly. It is worth doing badly because badly is really the only way it can be done.<sup>15</sup> Philosophy must concern itself with everything -- with "very many things indeed" -- and, as such, it intrinsically runs beyond all professional boundaries. There is, surely, a very real sense in which this can never be done well. Simone Weil does it about as well as it has ever been done.



If one can make an meaningful generalization at all about the body of secondary literature on Simone Weil it is, I believe, that it is characterized by an unduly specialist approach.<sup>16</sup> Far from being syncretic her work, as a whole, is distinguished by an astonishing coherence. Its parts and pieces cannot, without violent distortion, be separated and disconnected from one another; they are a whole, and one aspect of her position cannot be understood without reference to its context. Even diachronically her work has an astounding consistency. What she wrote as an agnostic is, for instance, generally, and often deeply, consonant with the clearly religious writings that followed upon her conversion experience.<sup>17</sup> We might say that over time her thought deepened rather than changed (in any fundamental way).

In the chapters that follow the aim is not to interpret or to criticize but simply to explicate. This aim brings us face to face with a dilemma unavoidable in such secondary works of philosophical commentary. On the one hand, one must cover in an abbreviated form, as faithfully as possible to the original texts, the entire range of ideas and connections that constitute the position of the thinker in question. On the other hand, one is restricted, by concentrating on a specific and limited topic, to stressing certain aspects of that position according to their proximity to the subject in hand. Inevitably, the result is a particular reading that is always somewhat idiosyncratic. The work of a philosopher of the stature of Simone Weil is, of course, never to be fully

reproduced by scholarship. It is simply to be read and re-read and no secondary work ought ever to be intruded between the reader and the original texts. This is, as it sounds, an excellent reason for not writing a dissertation on Simone Weil. By way of apology, I offer here the only reason for doing so -- namely, that a study of this kind is indispensable to those readers in the field of educational philosophy -- unfortunately myriad -- who do not possess, or who will not take, the time and effort required to read and contemplate the diverse, varied and fragmentary corpus of her works.

The thesis-proper of this dissertation involves the relation of four basic ideas in the philosophy of Simone Weil, labour, thought, culture and education. Of these, thought, as defined in its relation to labour is the most essential. Her notions of culture and of education arise on the foundation of her conception of thought.

Let us here, by the way of introduction, (1) outline the connection she develops between these ideas and (2) delineate the structural plan of the thesis that attempts to relate and unite the chapters that follow in their effort to explicate these connections.

In Weil's writings the term, labour, has two fundamental meanings. First, it designates the most basic reality of human activity *per se*,<sup>18</sup> namely, the reality of effort. The entire life activity of the human being requires the continued exertion of effort; to accomplish anything at all we must exert a given force over a given distance in time and

space. In this most fundamental of its senses labour, thus, signifies that form of necessity to which the activity of life itself is subject. Secondly, she uses labour in the more ordinary sense of the productive activity of the species. Labour, in this sense, signifies that form of human activity by which something is made or brought forth. It is only through such productive labour that we accomplish or satisfy the ends set by human need and want.

This second sense of the term also, of course, contains the first and, accordingly, she identifies two general species of labour: (1) that which depends for success upon thought and the accordance of our actions to method, and (2) that which simply requires brute strength and the exertion of effort for the accomplishment of what is desired.

Historically, this has been the basis of the distinction between work and labour; a distinction that has often been formulated in radical and categorical terms. The essential uniqueness of the position of Simone Weil is rooted (a) in her denial of the radical nature of this distinction and (b) in her analysis of the social dimensions of the relation between thought and action in labour.

Weil divides that form of labour which requires thought and the accordance of human activity to method into three distinct types: (1) manual labour, (2) mental labour and (3) work. Manual and mental labour alike are the issue of the social organization of work beyond a certain point. That point is the unity or juxtaposition of thought and action in

individual life. The actions of the manual labourer are determined by thought and are performed in accordance with method. However, the thought and method implicit in his actions find expression in things rather than in the thought of the individual labourer. Here thought is expressed in technique, machinery, and in the organization of the factory and the society of which it is a functioning part. Mental labour is simply the source of this 'thought' by which the activities of the individuals subject to a given collectivity are brought into co-ordinated relation. In the life of the manual labourer, qua individual, action is divorced from thought. The activity of the mental labourer lies in the expression of thought itself.

Thus, for Weil, work is a form of indirect action requiring thought for its successful issue. Labour is direct action which only requires human effort. Labour, however, is open to thought. The labourer may understand what it is he is doing and how it is that he is doing it. We might say that Weil's distinction between work and labour amounts to this: in work, thought necessarily precedes action in the labour of the individual, in simple labour, thought is free to follow and illuminate action in individual life.

Against the necessary and potential unison of thought and action for the individual in work and labour, Weil opposes the collective realities of manual and mental labour. In the work-life of the manual labourer, action is severed

from thought; in that of the mental labourer, thought is divorced from action. In manual and mental labour alike, the work-life of the individual is de-humanized.

In Weil's view, society -- the division and co-ordination of labour characteristic of a collectivity -- poses a fundamental threat to the humanity of the individual. That threat is enslavement. The phenomenon of slavery is to be defined precisely by the divorce of thought and action within the life of the individual.<sup>19</sup> Linguistically, this separation is manifested in the spoken commands of the master and the silent obedience of the slave. The dialogue of slavery is a profoundly inhuman dialogue, between the deaf, on the one side, and the dumb on the other. The power of the master is the inhuman power intrinsic to language itself; the master speaks and his commands are fulfilled without the exertion of effort to which all human activity is subject. The slave, by contrast, simply listens in order to understand in which direction his efforts are to be channeled; his life is reduced to a level where he is wholly subject to the effort that is the most essential reality of activity.

Language, for the human being has two primary components: speaking and listening. Thought consists in a particular way of using language and it reflects this basic division. The primary components of thought are thinking and understanding (or 'reading', as Weil metaphorically puts it). To separate thought and action within the life of the individual is equivalent to separating the act of speaking from

the act of listening in human language. Just as human language would be destroyed by such a fundamental divorce, so human thought is destroyed in its separation from activity.

The usefulness of language is founded upon the fact that there exists a certain area of coincidence between the relation of linguistic signs and the phenomenal events in the world of our experience. Thought provides a dual link between language and activity. There is, first of all, the openly mysterious relation between thought and language itself. Thought cannot be expressed in language; it can only be occasioned by language. We express a thought by the simple juxtaposition of linguistic signs. By this process of relating signs, we occasion the appearance of idea in our own and in other minds. A second, and an even more astonishing mystery, exists between these linguistic expressions of thought and our experience in and of nature. While thought is not and never can be complete in its representation of our experience, it is, nonetheless, found to be indispensable to understanding and to effective action alike.

In Weil's anthropology, the juxtaposition of thought and action constitutes the very centre of our humanity. The mysteries of that juxtaposition are the insoluble mysteries intrinsic to our being and lie fully open to view on the surface of our condition. When the social organization and co-ordination of labour proceeds beyond the point where thought and action are juxtaposed within labour, then the

humanity of the individual is attacked at its most fundamental level and culture, the collective expression of our humanity, is correspondingly distorted.

It is in work and labour that this juxtaposition between language thoughtfully used and our active experience in and of the world is most clearly present to the individual. In work, thought must precede and guide the action of the workman; in labour, thought is not required for success but, there, action is open to the thoughtful understanding of the individual.

Thought, like sight, is occasioned by activity: by the activity of the world around us (natural process) and by our activity within nature (known, individually, as labour and, collectively, as history).<sup>20</sup> The flow of natural process and the desire of man to act within nature occasion the attentive focusing of the mind. Since nature, on the level of our experience, is in process it (literally) contains nothing, nothing, that can serve as the 'object' or orientation of thought. Thus, while our experience of process is the occasion of thought, in thinking our attention is directed away from process toward the realm of language, where things can be abstracted from process and fixed before the attention of the mind.

In Weil's account, a thought is an image of relation that is revealed in the mind suddenly and from nowhere discernible during this act of attention to language. The revelation of thought through attention is purely a function private and peculiar to the individual. Through expression,

however, thought enters into the public and collective domain of language. This social realm of language is, in her description, of an essentially material character. Through expression, thought is expropriated from the individual and embodied in things: in texts, techniques, machines, skills, habits, customs, artifacts of all kinds, and in the organization of society itself.<sup>21</sup> By its very nature, human language is such that expressions of thought can serve as the basis of activity without the need, or even the opportunity, of being re-thought and thus assimilated by the individual.<sup>22</sup> In this way the signs of language, its expressive and material aspect, are something which constantly threatens to interpose itself between thought and activity in individual life.

Weil describes mathematics as the quintessential form of human language. It is so because thought images the most basic of all relations: that of function (or number). A functional relation holds between two quantities that vary proportionately by virtue of a fixed relationship. The constant or fixed relation determines a particular range or set of variables. It is precisely through linguistic images of functional (or necessary) relation that thought combines the fixity of language (or of the 'theoretical') with the fluid character of our experience of a phenomenal world in process.

That these images of relation are indispensable although forever inadequate to the representation of human experience, and to the activity of man in the course of his experience,



is an insoluble mystery, inseparable from the mystery of our existence itself. In this description thought is, intrinsically, a coming together of that which is fixed and that which is fluid. In this, thought itself images the central reality of our being; the reality of a middle ground located between the sense of language and the senselessness of our tangible experience within and of a world in process of constant change.

To summarize, there are three major aspects to the connection between labour and thought in the philosophy of Simone Weil. First, labour, in its most fundamental sense of effort, constitutes the whole of human activity. The very occasion of thought lies within labour, in this basic sense, for it is only in the course of our activity that we are forced to stop and think. Secondly, it is in that form of labour known as work that the mysterious but essential relation between human thought and activity is most fundamentally and lucidly disclosed to the individual. It is the juxtaposition of thought and activity in labour that constitutes one of the primary foundations of human language for this is the basis of its relation to our experience. It is in work that we most clearly perceive the openly mysterious coincidence between the thoughtful use of language and the whole of our experience within nature. Thirdly, it is labour which constitutes the central axis of our relation to both nature and society. Our most essential and basic<sup>23</sup> contact with the realm of natural process is provided by labour. It is

through our laborious movement within the world that we come to experience and to know nature. What is more, every given form of collective life, every society, is comprised of a particular division of the labour of the individuals composing it. In principle, nothing limits the development of an ever more sophisticated and complex collective organization of individual labour. Thus, in Weil's estimation, the social organization of labour constitutes a profoundly de-humanizing force once it passes a certain, more or less definable limit, namely -- the point at which thought and action are juxtaposed within the context of individual labour. For her the essence of our humanity lies within that juxtaposition and, to the extent that it is socially decomposed, the human character of thought and action is destroyed.

In her writings, Weil uses the term culture, in two closely related but distinct senses. (1) Culture refers to the expression of thought within the public and collective domain of language. (2) In its second sense the term refers to a particular form of social life, or, more accurately, to a given range of human societies; namely, those in which thought and action remain juxtaposed within individual labour. The degree to which a particular collectivity sustains this unison comprises a direct measure of the depth of its culture.

Naturally, in this first sense, culture has two aspects that correspond to the dual aspects of thought: the one individual and private, the other public and collective. It is the private and individual ability of the human being to

think, to handle language thoughtfully through the act of attention, that is the immediate source and origin of human culture. The expression of thought in language -- oral and literate -- and in things, in machines, techniques and the very organization of society, constitutes the public and collective aspect of culture. It is only through thought as 'reading' that the individual can re-think and, thus, assimilate these collective expressions of idea.

For Weil the term, education, is intimately attached to this dual conception of culture. The oldest origins of the word, education, indicate a process of leading, its later roots a process of rearing or training. The principal and, perhaps, the most general meaning of the term is that process of learning by which we are lead into a particular form of social life or language.<sup>24</sup> As such, it is, of course, a process that occurs in all human societies.

It is, however, for us a word that signifies more than this. Education is not simply the process of our coming into a particular language, the process of the socialization of the individual to a particular form of collective life. Training may be a part, perhaps even a condition of education, but education itself is something other and something more.

For Weil, this other and deeper unknown essential to our notion of education lies, by contrast, in the process of the acculturation of the individual. It is here in (a) the content that she gives to the conception of thought itself and (b) in her related analysis of its sociocultural dimen-

sions, in both individual and collective life, that Weil provides the basis for a fresh and coherent philosophy of education. Through the process of education the individual comes (a) into the ability to think, to handle language thoughtfully so as to bring thought into the domain of cultural expression and (b) to 'read', to re-think and, thus, assimilate the thought expressed in the collective medium of a given form of social life.

No one would suggest that 'to think' and 'to speak' are synonymous verbs. Thought is a particular and a special form of speech. To express a thought in language is to enter into action and thought ceases where action begins. In Weil's account thought and activity are not only profoundly separate in their juxtaposition within individual life, the expression of thought and activity are equally distinct within collective life. The actions of the individual workman are never, properly speaking methodical but, simply, in accordance with method. This situation is magnified on the collective or social level of our existence. By its very nature human language is such that we can act on the basis of it without the need, or even the social opportunity, of thinking and/or re-thinking the relations expressed by it. It is thus that language, through the social division and co-ordination of labour, can condition and determine the activity of the individual without the expressions involved having been thought or re-thought by him.

Through the juxtaposition of linguistic signs, thought is revealed to the mind. Through the coincidence between

these signs and the experiential succession of natural events thought is realized within our lives. Thought is realized for us in two ways: (1) in that it distinguishes the phenomena of our experience from the indeterminate flow of events on the micro- and macroscopic, the spatial and temporal levels of being that stretch infinitely beyond our reach. (2) Secondly, thought is realized as the indispensable basis and condition of effective action.

Thus, for Weil, the educational task of teaching us to think involves both the revelation of thought (through the attention of the mind to language) and the realization of thought in its relation to the whole of our experience. Here, a basic connection between labour and education is disclosed, for the revelation and the realization of thought, in their relation to one another, are most clearly and openly evident to the individual in labour. Labour and work constitute that area of our existence wherein the thoughtful use of language is most directly and immediately juxtaposed to the realization of idea in experience. Naturally, the preservation of this area is a primary and vital concern for education. We might say that education itself consists in the search for any and every means of expanding the clear and lucid juxtaposition of the revelation and the realization of thought, characteristic of work and labour, within the whole of man's experience within nature and society. Education, that is, would become the process by which the thought of the individual is realized, to the fullest possible extent, within the total range of his experience. This could only occur

in a society founded upon a mode of work that preserves the primary and essential unison of thought and action in labour. It could only occur, in other words, in a culture; in a society in which the division and co-ordination of labour is strictly limited by the unison of head and hand in the labour of the individual.

It was Weil's view that the essential tragedy of our being lies in the relation between language and human activity. It consists in the fact that we can act effectively on the basis of linguistic expressions that have not been realized by us in thought. It is, thus, language itself that allows us to act beyond the limits of thought thereby exposing us to the play of chance that we ourselves have blindly introduced into nature. What we today call 'technology' is the issue of a process for blindly exploiting the possibilities of action intrinsic to language. We have exchanged the freedom of thought for the freedom of speech, and the freedom of activity that flows from it, without realizing that our freedom lies in thought alone.<sup>25</sup>

For Simone Weil culture consists, above all, in the freedom of thought; a freedom that lies both in our ability to handle language thoughtfully and to realize thought within individual experience. In this, she provides us with an account that constitutes the foundation of a potential and profound relation between labour and education.

Let us now examine the plan of the thesis as evidenced in the relation of the chapters below.

In the first chapter entitled -- 'Activity without Thought: The Social Context of Manual Labour' -- the problem is set, by way of introduction, through an examination of Weil's account of the character and implications of manual labour. There, manual labour is defined as the issue of the social organization of labour beyond the point at which thought and action remain juxtaposed within the worklife of the individual.

In the activity of the individual manual labourer we see the evidence of a remarkable phenomenon: while there is clearly thought and method implicit in his actions, there is, just as clearly, none in his mind. The thought or, more accurately, the language which guides and determines his actions originated in the mind of another human being or beings and is expressed, not to his mind but to his body, in all that materially constitutes the division and co-ordination of labour itself.

By placing this situation squarely before our attention, the first chapter functions to raise a series of basic and introductory problems that are explored in detail throughout the subsequent chapters. The first of these directly concerns the nature and role of education in society. If by definition, the vast majority of the population are exempted from the need, and even from the opportunity, of thinking in that realm of activity that lies at the very centre of their collective existence, then it would seem that the education of that majority (as thinking beings) is, at best, socially

unnecessary and, at worst, socially impossible. Secondly, and more fundamentally, we are meant to be perplexed by the general relation between language and human activity. Since thought is, presumably, the content of that relation, we are led to wonder about the character of thought itself. For the manual labourer, his activity is radically separated from thought with the clear result that his labour is de-humanized. In a society founded upon such labour is there a complementary process of de-humanization in the character of thought on the level of mental labour? In order to answer these questions, we must examine Weil's account of the character of thought in its relation to language, on the one hand, and activity, the activity or process movement of nature around us and of us in nature, on the other hand. It is only upon the basis of this account of the character of human thought that the social problem of education can be understood. Accordingly, the three central chapters of the dissertation explore Weil's description of the nature of thought. It is only in the final chapter that the social foundations of the educational process are delineated.

In the second chapter entitled -- 'Necessity and the Good: The Anthropological Context of Thought: -- we begin by explicating the Platonic anthropology<sup>26</sup> that constitutes the foundation of Weil's description of the general relation between thought and action in human existence.

There, the nature of thought is distinguished from the characters of language and action. In language we are given access to a realm of being that is abstracted, to a suffi-



cient degree, from the fluidity of process to be capable of fixity before the attention of the mind. It is language which supports the memory to give us things in time; it is through language that idea orders and relates the discrete events of our tangible experience. Activity, by contrast, gives something essential that language does not, namely, a real and effective power over the phenomena of our experience. It is only through activity, through the exertion of bodily effort, that we are given things in space. Thus, in Weil's account, the human reality of thought belongs upon the middle ground of our being where the linguistic expression of idea and activity meet.<sup>27</sup>

The first portion of chapter II examines Weil's reconstruction of the Platonic account of the being of man as a creature who is, in his very essence, caught between the reality of his own desire for the good and his existential subjection to necessity in the elemental forms of labour and death. It is this anthropological description of our being that constitutes the foundation of her account of the nature of thought as a mean proportional between language and activity. In the second portion of the chapter we focus upon her description of "the faculty of attention" and, thus, look in some detail at a basic aspect of her account of the actual act of thinking.

In a sense, we begin over again in the third chapter entitled -- "Thought Without Activity: The Social Context of Modern Science." On the foundation of the first chapters,

Weil's critique of mental labour is considered in detail. The focus is on the history of modern science and the chapter is, thus, divided into two portions. In the first section we deal with modern science in its first or "classical" phase, a period that stretches from its beginnings in the sixteenth and seventeenth centuries to the advent of the "contemporary" period with the "quantum revolution" ordinarily, and conveniently, dated from the year 1900.

In her critique of the classical period, Weil focuses upon the foundations of this science as a form of thought. Implicitly, her critique constitutes an attack upon the essential modern distinction between fact and value which lies at the root of this science. In this the first section of the chapter is based upon and continues the discussion of the corresponding Platonic distinction between necessity and the good in the first part of the preceding chapter.

Weil's conclusion is that classical science as a form of thought chose to emphasize the "continuous" character of idea over, and at the expense of, the "discontinuous" character of our experience in and of the natural world.<sup>28</sup> That is to say, it unconsciously chose the reality of language over the experiential reality of activity. Classical science placed an exaggerated emphasis upon the connection between thought and language and thereby distorted the equally essential relation between thought and activity. In this classical science was, as a form of thought, radically incomplete. In spite of its experimental reference it affirmed the reality of language at the expense of the reality of activity.

Weil portrays the quantum revolution as the intellectually inevitable and disastrous consequence of this distortion of the character of human thought. Thus in her analysis of contemporary science the quantum revolution is viewed as the completion of this process of substituting language for thought. In her critique of the contemporary period she focuses upon the attempt of modern algebraic mathematics to project the language of science beyond the limits of the human mind. Where classical science over-emphasized the relation between the signs of language and the thoughtful conception of idea, our algebraic mathematics places the whole of its 'theoretical' emphasis upon the simple development of linguistic relations. It thoughtlessly juxtaposes the signs of language and then tests them against our experience of natural process in the hope of discovering which are useful within the course of human activity. Thus, the latter portion of Chapter III complements and builds upon the foundation provided in Chapter I in the account of the thoughtless character of manual labour.

The function of Chapter III within the thesis as a whole is, largely, a negative one. It is designed to expose Weil's critique of modern science as an account of what thought is not in relation to both language and activity. As such, it constitutes a foundation upon which we can meaningfully look at her positive description of thought, as detailed in her reconstruction of the mathematical natural and historical

sciences of Greeks, which follow in the Chapter IV entitled -- "Thought and Necessity: The Mathematics of the Pythagorean Tradition."

It is here, in the fourth chapter, that the full outline of Weil's conception of the nature of human thought emerges. To this end the chapter is divided into two parts. In the first we deal with her reconstruction of the mathematical science of the Greeks as a form of thought adequate to the representation of the experience of man in nature. In the second we treat her analysis of the Iliad as an equivalent form of thought representing the experience of man in history. The first section should be seen as essentially related to the account of the classical phase of modern science in the preceding chapter; the latter section to the previous account of the contemporary period of our science.

Here we see in detail her description of the revealed character of human thought in which language becomes an intermediary (or mean proportional) between the intelligible realm of the ideas and the tangible realm of phenomena which, together, constitute the definitive contraries of man's condition in this world. As we have briefly stated above, in Weil's account thought consists in the conjunction of both the revelation and the realization of idea within individual life. Thought consists in a dual coincidence between, on the one hand, the signs of language and idea and, on the other, between idea and our experience of process. With reference to the mathematical idea of function she demonstrates that

thought, by its very nature, is such that it cannot be separated from activity. Thought is a particular relation between the linguistic fixity of idea and the fluidity and constant variation of natural and historical process.

In the fifth and concluding chapter entitled -- "Work, Thought and Labour" -- we examine Weil's resolution of the tension between the private and individual character of thought and the collective and social nature of expression. It is here that we see how her account of the nature of human culture constitutes the basis for a radical philosophy of education implicit within her writings.

Here again the chapter divides into two distinct sections. In the first we deal with the relation between thought and activity in individual labour. In the second we deal with the character of culture as the relation of thought and activity within collective life. Thus the first section deals with the essentially private and individual relation of thought and activity in work; the second with the assimilation or "reading" of thought as we find it embodied in the material expressions of a culture.

Thus here in Chapter V education, at last, emerges into clear view as that process by which thought is infused into individual and collective life to the greatest possible extent. By returning us to an ancient conception of the nature of human thought, Simone Weil provides us with the foundation of a radically new and intriguing conception of education that is fundamentally centered upon the reality of labour.

## CHAPTER I

### ACTIVITY WITHOUT THOUGHT: THE SOCIAL CONTEXT OF MANUAL LABOUR

A significant, if not a central issue, in the contemporary practice of education consists in a conflicting concern with (and emphasis upon) either labouring or thinking. Within our system of formal education (or schooling) the great choice is between the academic and the technical. One path leads to something suggestively termed higher education, the other to something euphemistically called vocational training. The former is aimed, at least rhetorically, at such goals as the development of an ability to think for oneself, while the latter is depicted as the relatively thoughtless (but highly practical) acquisition of skills required within the constantly changing worklife of a technocratic society.

Labour is, at the very least, a central form of activity in human life. The lives of most people at any given time in the human past have been predominantly occupied by the tasks of labour. That is, most people during most of their lives, are and always have been, workers; leisure is a privilege of the elite, only occasionally and minimally extended to the working classes. Hence, if education is in some sense a preparation for human life, then even on this superficial level, it would appear to be inescapably concerned with the fact of labour. Moreover, there are few who would deny that

education as a social process is geared to the production of the workers -- manual and mental -- required by our collective form of life.<sup>1</sup>

Various attempts have been made, in both the philosophy and the practice of education, to bring labour and thought together. Let us briefly consider one of the earliest and more interesting of these attempts.

By the beginning of the sixteenth century technological advances in certain of the old medieval crafts had already acted to accentuate and bring to public notice an increasing division between head and hand in the workplace. By the end of the medieval period the tasks of construction and production were already on such a scale as to stretch the talents of the individual craftsman to the limits of human resourcefulness and ingenuity. From the ranks of the ordinary craftsman there arose the great men of the Renaissance, 'the experimenting masters', the architects, the engineers and the artists of the fifteenth and sixteenth centuries. Their genius was called forth in response to the new industrial problems of the era.<sup>2</sup>

It was during this period that mathematics first assumed its essential importance in the development of technique within the workshop. Perhaps more than anything else it was the dramatic development in firearms that imposed mathematics on craftsmanship. The emergence of the artillery gun created within the work of the artisan new and essentially mathematical problems such as:

the relationship between the explosive force and the weight of the cannon and the range of fire; between the length, thickness and material of the barrel; between the angle and the resulting path of fire.<sup>3</sup>

The casting of metals was totally revolutionized and military architecture became, at its most essential level, a new and a mathematical science. In all these emerging industries the workers were quickly and necessarily reduced to executing the specific orders of the mathematician-master under whose direction the task had to be placed.

It was in response to this initially disconcerting situation that Albrecht Dürer (1471-1528), artist, artisan and mathematician, made an attempt to reform mathematics into an appropriate and accessible discipline for the ordinary workman.<sup>4</sup> In two books, Instructions of Measurement with Compass and Ruler (1525) and Instructions as to the Fortification of Town, Castle and Hamlet (1527), he attempted, deliberately, and as simply as possible, to give to the worker the knowledge of mathematics upon which his labouring activity was now securely based. His method and intention are clearly set forth in this passage regarding the doubling of the cube from Book IV of the Instructions of Measurement:

In this way they could duplicate, triplicate and infinitely increase and augment the cube and all other things. Now as such an art is of great use and serves the end of all workmen but is held by all the learned in the greatest secrecy and concealment, I propose to put it to the light and teach it abroad. For with this art, firearms and bells can be cast ...



barrels, chests, gauges, wheels, rooms, pictures and what you will enlarged. Thus let every workman heed my words, for they have never to my knowledge, been given in the German language before this day.<sup>5</sup>

Durer, the educator, thus sought to restore something of the unity of theory and practice or of -- more generally -- thought and action, to the central human activity of labour.

His attempt, however, to fashion an artisan geometry failed, for what it did not consider are the limits imposed upon the thoughtful activity of the individual. For Simone Weil two lines from Goethe's Faust succinctly expressed the essential phenomenon:

To end the greatest work designed, a  
thousand hands need but one mind. (Pt. II,  
Act IV)

The fact that thought and action can be separated into the distinct functions of command and obedience constitutes the necessary condition for human activity upon a certain scale. That is, beyond a certain point in the development of technique, one mind is not merely "enough" but an essential condition for the successful completion of the task that requires a thousand hands. On a certain scale production and construction can only be accomplished through the social separation of thought and action within the work-life of the individual.

At this point the choice is, ultimately, between the thoughtful labour of the individual and the simple capacity of the collectivity to act. It is a choice that our form of

modernity has made implicitly but emphatically in favor of action. This choice, in either direction, implies an anthropology in the old philosophic sense of an account of the nature and condition of man. As we shall see, in some detail in the following chapter, what is taken in these accounts as fundamental to man qua man is one or other of two basic definitions of human liberty. Liberty is defined either as the satisfaction of desire or in terms of the relation of thought to action in the life of the individual. The former is the basis of at least one strand of modern thought that can, perhaps, be said to begin with Adam Smith and to include among its greatest representatives both G.W.F. Hegel and Karl Marx. The latter is the tradition of Simone Weil, a tradition that she traces back to Plato and the Pythagoreans, (in spite of the role played by the institution of slavery in the social life of the ancient world).<sup>6</sup>

The concern of this thesis is solely with the relationship between labour and thought (and the basic significance of that relation for the philosophy of education) in this latter tradition as represented by the writings of Simone Weil (1909-1943). Reference to the former tradition will be made only by way of contrast, clarification and defense.

In this chapter we begin by examining the isolated character of manual labour in its estrangement from thought within the life of the individual worker.

Durer's attempt was doomed to failure. His venture of uniting labour and thought, through education, failed for it was made within a society that had already (although unconsciously) decided to unleash the labour activity of man from the constraints imposed by an individual unity of head and hand.<sup>7</sup>

The progressive separation of the manual from the mental was of the very essence of the so called "industrial revolution".<sup>8</sup> As both Hegel and Marx recognized, no one was more lucid about this connection than Adam Smith (1723-1790). It is set forth with the greatest clarity and coherence in the first chapters of his: An Inquiry into the Nature and Causes of the Wealth of Nations (1776). There, the principle of the "division of labour" is defined as the cause of the dramatic and accelerating increases in the productive power of labour characteristic of the economy of Western Europe in the eighteenth century.

Although subsequently infamous, the example he chose to illustrate this point is still worth attentive consideration.

This is, of course, the case of the manufacture of the common pin:

... a workman not educated to this business (which the division of labour has rendered a distinct trade), nor acquainted with the use of the machinery employed in it (to the invention of which the same division of labour has probably given occasion), could, scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on, not only the whole work

is a peculiar trade, but it is divided into a number of branches, of which the greater part are likewise peculiar trades. One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations; to put it on is a peculiar business; to whiten the pins is another; it is even a trade by itself to put them into paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which in some manufactories, are all performed by distinct hands ...<sup>9</sup>

Thus, each and every movement that can be distinguished in the process of a given work is to be performed by an individual labourer. This results in increased productivity precisely because it eliminates the very occasion of thought from the labour process. For the worker in this situation the unexpected does not occur; the material conditions of our activity do not arise to force him to stop and think. All that he must do is repeat indefinitely the same simple movement. The activity of the worker is thus reduced to a level of simplicity far below that in which any thought is required.

However, while this is the case with regard to the individual manual worker, it is not the whole story of the situation itself. As Weil put it: there is method in the activity of the worker but none in his mind.<sup>10</sup> This method which, of course, does require a mind, is in that of the managing-director of the factory. The division of labour requires thought in the form of the co-ordination of labour, so that the efforts of the individual workmen are success-

fully related to one another and to the end of the task in hand. The situation is that the manual workers are merely cogs in a gigantic mechanism -- the factory -- whose control and direction is in the hands of the management, who co-ordinate the action of the mechanism.

Here, obviously, any attempt at bringing thought and action together in the context of the individual's labour through education would not only be impossible, (for no thought is required), but counterproductive if it were possible. The productive rewards of this organization of human labour are securely rooted in the thoughtless activity of the many and the apparently thoughtful inactivity of the few. This is, we might almost say, the very condition of man within society for virtually every form of human society known to us is just such an organization of the activity of the many by the elite few of the governing classes.<sup>11</sup>

In this lies the ancient opposition between philosophy and society<sup>12</sup> or, to put it more accurately at this point in the discussion, between the thoughtful activity of the individual and the collectivity to which he belongs. Smith's account of the pin-making activity of some of the manual workers of his day provides us, in its very extremity, with an image of the social mechanism itself within human life. A society is, in essence, a particular division and co-ordination of labour and all the known forms of human society except one, "primitive communism", are characterized in various degrees by the oppressive enslavement of the many by the few.<sup>13</sup>

The pin-making labourer of Adam Smith is a slave. The factory relationship between manager and worker is there the relation between master and slave. The one thinks, or, more precisely, commands, without the necessity of acting, the other acts or, rather, obeys, without the necessity of thinking. As Weil exactly expresses it:

Man is a slave in so far as, between action and its effect, between effort and the finished product, there is the interference of alien wills.<sup>14</sup>

Few, presumably, are the philosophers who would deny that philosophy is, in its most fundamental sense, the attempt of man to act thoughtfully: increasingly to subordinate<sup>15</sup> that which we do to the control and direction of the mind. However, the concern of the history of philosophy with this relation has often been focused more on the level of the collectivity than on that of the individual. We must ask ourselves if it is possible for the collective life of a society to be under the direction of human thought, if that society is founded on the thoughtless individual labour of the mass of its population? One mind may indeed be enough for the productive activity of a thousand hands, but, is it enough for the thoughtful activity of man in history?

As creatures within nature we are inescapably subject to the seemingly blind play of material forces that we term "chance". We are not, however, merely reduced to matter; as thinking creatures we stand in opposition to it. Thought or,

more accurately, thoughtful activity is precisely an attempt to reduce the blind play of chance in our lives. If we cannot eliminate chance from our existence, (and we cannot), nothing stops us from attempting to limit its scope and effects in human life. The whole of our experience in this world, as thinking creatures who carry thought into action, tells us that we can limit the play of chance through methodical action.

In Weil's view, it is solely the individual who thinks. There is no such entity as a "collective" or social mind; in society there are only individual minds in command of the mechanism of the division of labour, or of portions of that mechanism. It is of the essence of slavery that thought is limited to what the individual mind can encompass, while command knows no limits. The master is "free" to command **anything** but such freedom is not the freedom of thought for it lacks any basis upon which to distinguish between reality and fantasy. To command is to desire and to will but not necessarily to think.

For philosophy the real problem of slavery is that it tends to eliminate the occasion for thought from the lives of all those it touches. The occasion of thought is absent from the life of the individual -- be he in the position of master or slave -- precisely to the extent that thought and action are separated in his life.<sup>16</sup>

Thus is any social situation that is rooted in the separation of the manual and the mental, it is at best only some individuals who think and their thought arises within

and in relation to an artificial world that is the product of the social division of labour.<sup>17</sup> This, in itself, ought to raise for philosophy and, particularly, for the philosophy of education, a basic concern with the apparently intrinsic opposition between thought and society. How can the individual be educated as a thinking being when the social conditions of his life tend to eliminate the very occasion for thought from labour, the central activity of his existence?

What is implied here is a certain account of human thought defined in the context of what is, at the very least, a principle form of activity, labour. Thought always requires an object, and that object must be something hard, fixed, determinate. As the Greeks lucidly saw, that which is caught in change or process cannot be the object of thought for there is literally no-thing to be grasped. Thought requires a fixed foundation. The empirical sciences of Western Europe from the Renaissance to 1900 solved this problem by positing, sight unseen, the existence of 'primary qualities' beyond the "buzzing, booming, confusion" of the secondary qualities of sense appearances. The primary qualities provided the foundation for thought. Thus there arose a conception of the world or nature as something fixed and determinate but only so within, behind, or beneath the surface level of changing appearance. Bacon counselled his contemporaries to "think things, not words" and it was possible to think things only because the natural world of the senses was not fundamentally in process.<sup>18</sup>



As will be seen in detail in the third chapter, the predominance of this conception in the physical sciences was displaced around 1900 when it was found that light sometimes behaved in accordance with the particle theory and sometimes as if it had the discontinuous character of wave movement. The hardness of steel was thought to be the result not of structural properties hidden within it, but of the very rapid motion of its constituent atoms. The physical sciences, like the life and the historical sciences before them, were once more faced with the problem of how thought can think that which is discontinuous; that which is in a constant process of change and in which there is nothing fixed that can act as an object for thought?<sup>19</sup>

The limits of the mind in time and space were henceforward taken as the foundation of thought. In the infinite range of natural phenomena we could know only those which fall within the 'minimum time' and 'minimum space' accessible to the human being.

Soon after this revolution in science the notion of activity began to gain ground rapidly in contemporary philosophy. In the first decades of this century both Simone Weil and Ludwig Wittgenstein (1889-1951) quoted the same line from Goethe's *Faust* as the formula of this revolution:

In the beginning was the deed.<sup>20</sup>

Activity came to be viewed as prior and basic to thought. Both linguistically and phenomenologically, human activity began to be regarded as the foundation of sense; the meaning of words and of 'objects' became identified with their usage or the point of their participation within a given form of human activity or life. The end of philosophy was proclaimed when thought came to be dissolved in the complete (and terrible) freedom of our activity.

However, if this is where modern philosophy has come to an end, it also the point where the history of our philosophy began with the ancients. It is here, too, that the respective philosophical positions of Weil and Wittgenstein radically part company.

We might say that for Wittgenstein thought is dissolved into activity. For him philosophy becomes a method (or therapy) for the resolution of conceptual difficulties by simply directing our attention to the specific 'language games', in which they occur. In this way he attempts to eliminate contradiction from the play of language.<sup>21</sup>

By contrast, for Weil, as for the tradition of Socrates and Plato, thought is not reduced to activity; it arises out of activity only to stand in opposition to it. The basic question is always: how ought we to live?<sup>22</sup> Contradiction within language constitutes the very occasion for thought. Thought is that which arises out of the unreflective course of our activity, in language as in the world, only when our activity runs up against contradiction<sup>23</sup> and is stopped.

Thought, that is to say, only arises when it is required and this is equally the case in both of the fundamental components of philosophy -- logic and ethics. The Socratic method lay in the attempt to reveal the contradictions in language in order to occasion thought. The method of Wittgenstein, in keeping with what is perhaps one of the deepest tendencies of our social form of life, acts to eliminate the occasion of thought itself.<sup>24</sup>

In this regard the thought of Simone Weil departs radically from the history<sup>25</sup> of our philosophy, returning to an ancient definition of philosophy as both a-historical and trans-cultural. Philosophy becomes that which does not have a history; that which is always the same in any time and place. The history of philosophy was born with modernity itself, when, as the historians tell us, the distinction between nature and convention first emerges. This is the distinction between thinking that which we do not make and thinking that which we do make. It is at this moment that the modern stance first emerges from the traditional world in which thought has the character of revelation.

The history of philosophy is the history of the dialectical attempt to define the character of thought in terms of either nature or convention. Thus, for example, thought is either in nature (and abstracted by the mind from the particulars of sense experience) or it is a fabrication produced by the mind and imposed a-priori upon nature. These accounts give us what appears to be a highly plausible (and, therefore, seductive) picture of the character of thought. These

pictures however are purely hypothetical and purport to give us precisely that which is inaccessible to observation; they attempt to give us that which is hidden 'within'. The presumption behind each of these accounts is: this is how it must be.

For Simone Weil, and the tradition she claims to be pursuing, the historical dialectic between nature and convention is rejected. Instead of allowing the imagination to fill in the details of the hidden and inaccessible character of thought, she begins with an account of the openly mysterious surface appearance of the phenomenon. By way of simple description, thought appears in the mind suddenly, 'as in a flash', and, seemingly, out of nowhere. The epistemological psychology characteristic of our philosophy since Aristotle serves to mask from us this simple description of the nature of human thought by substituting highly plausible (but purely hypothetical) accounts of thought as founded in either nature or the conventions established by the human mind.

There is something inescapably mysterious about human experience and it is one of the first and the most essential tasks of philosophy to situate that mystery in its proper place for, if it is not so placed, it inevitably surfaces where it does not belong, with consequences that are often disastrous for human life.<sup>26</sup>

Socrates was accused of having profaned the mysteries. As he appears in the Platonic dialogues, he is constantly pointing to the surface (and, therefore, open) mystery of

things. Myste~~is~~ is of two varieties: open and closed. Philosophy should certainly seek to avoid the latter but, if the former exists, it cannot fail to take it into account.

When humanity first emerged into modernity, into society in process (or 'history') from the traditional 'way' of life that had been revealed to the "first men", "the sons of gods" or to "those who had lived near the gods",<sup>27</sup> they began by attacking this surface mystery of things. They attempted to dissipate it through the distinction between nature and convention. Intoxicated with a new freedom of action, they did not notice the sudden birth of a new species of mystery. Thus the 'essence' of a thing became a 'profoundly mysterious' entity hidden within the thing, in its depths, and, if accessible to the intelligence, only through an equally mysterious process hidden from view in the depths of the mind.

Philosophy is everywhere and inescapably driven up against the reality of an openly mysterious void at the center of our experience. There is a leap from the 'particulars' of sense experience to the 'universal' character of concepts; from the use of an expression in language to understanding; from the various appearances of an object to the perception of the object itself that is contained in none of the appearances. We desire the solution to a problem, we direct attention toward the given data, suddenly the solution appears to the mind. We look at a page covered, seemingly at random, with dots, suddenly the dots arrange themselves in an order and an image appears to the mind.<sup>28</sup> It is, as we shall

see in some detail in the following chapters, the open mystery of this experience of the discontinuous that must be situated and rigorously circumscribed by philosophy.

The discontinuous character of our experience has come -- primarily through the notions of activity and labour -- to play an increasingly significant role in contemporary philosophy from Marxism to Heidegger to French existentialism to the linguistic philosophy of Wittgenstein. However, in a society such as ours which is securely founded upon a religion of productivity this is a tendency that must be suspect.

The basic difference distinguishing the philosophical stance of Weil from these contemporary traditions lies in her account of labour and its relation to thought. To begin with, for Weil, labour, in its most primary sense -- that of effort or force times distance -- accounts for the whole of human activity *per se*. Thus, labour indicates not merely the central, productive activity of human life but is, in this sense, the whole of our activity. She expresses this idea in the following way:

Between any desire and its satisfaction we are faced with a distance which is, in a sense the world itself; if there is a book on the floor and I wish to see it on the table, my wish can only be satisfied by lifting the book through the whole distance which separates the table from the floor. If we consider a horizontal plane between that of the table and that of the floor, then in no case, whatever may happen, no matter what event may occur among all the infinity of possible ones, will the book be on the table without having passed through this plane ...

The totality of geometrical and mechanical necessities to which the action is always subject constitutes the primal curse which fell upon Adam ... 29

The reality of labour is thus at the very root of human experience and constitutes one of the two most fundamental and inescapable contacts of the human being with necessity.<sup>30</sup>

If this definition stands, it renders problematical the great dream of modernity -- namely, our liberation from labour.

Over the gates of the modern world, as over those of Auschwitz, the legend reads: "liberty through labour" but, in this regard, we might do well to remind ourselves of the moral common to the folk or 'fairy' tale of our ancestors: "be careful for what you wish, you may get it!"<sup>31</sup>

For Simone Weil liberty is not something achieved by the individual in labour. Our first experience is one of thoughtless or unreflective activity; like the Royal Bank we do what we "can do" and without any attempt to conceive the consequences. This is why children must be watched, for the consequences are often painful and, occasionally, lethal, and, so too with human societies and institutions. If history is, as it would certainly appear to be, a "disgraceful frenzy", this might be because our collective activity is thoughtless.

The world (or reality) only arises for us in activity and its first manifestation is the fact that our activity requires labour in its primary sense of effort (or force times distance). A child wants a toy but it is on a shelf

just out of reach. He struggles to reach it again and again but cannot. In his frustration he cries and an adult gets up and hands it to him. The human child only lives through the fact that he/she is isolated from the harsh realities of the world by the surrounding adults. The family stands immediately between the child and the hard indifference of nature to its cries, just as the social element of the division of labour stands between the individual and natural necessity. There is, however, at least, a potential difference. The adult human being and the collectivity within which he lives can thoughtfully order human activity toward certain ends.

The world arises for us as real only to the extent that we run up against it as an obstacle to our desires. It is real only because it is hard and stops us in the course of our unreflective activity. This running up against the world as an obstacle to desire is the occasion of thought. Our responses to this occasion are limited: we can throw ourselves into a frenzied ~~but~~ unmethodical exertion of effort; we can, like the child, cry; or, we can stop, focus our attention on the situation itself and attempt to think out the conditions of effective action. Even if, in a particular situation, all three appear to be equally successful, the latter action alone is free in a sense proper to the human being.

Let us briefly note here what is meant by 'thought'. First of all, our desire for the attainment of the end in question is restrained from pushing us into unreflective activity. Thought requires the control of the passions for



they (a) tend to drive us into thoughtless, frenzied activity and (b) they tend to distort our vision so that we see not the 'thing-in-itself' but whatever it is we want to see. So there exists a sense in which desire must be detached from the end sought so that we can look at the situation purely. At the same time, a desire for the solution (or, rather, for the truth) must be present. Thus the mind is here focused attentively (or contemplatively) on the situation as one waits for the solution to occur. Love of truth, in this context, is simply the desire for contact with a piece of reality. The thought which is this contact comes, if it comes at all, suddenly (and from nowhere discernible) into the mind. Like Archimedes in his workshop, we often attempt to seize hold of the truth through the active use of the intelligence only to find that it comes unexpectedly and, one might almost say, gratuitously, when we are in the bath.

Thus the object of our thought in this context is reality in the form of the particular conditions for the attainment of a given end. I will move this stone only if a certain force is exerted through a given distance. It is too heavy to be lifted, I think about the situation and the idea of the lever occurs to me. "The lever is a means of making a weight less without making the object any less".<sup>32</sup> The lever is a means for physically establishing a certain, definite relationship between a given force and a given weight. Thus the object of thought is a particular relationship between opposing forces: the limits by which all phenomena are

defined in terms of necessity constitute the object of thought. Thus the object of thought is necessity and the content of thought an image of necessity. And in this we have what was, perhaps, the great surface mystery of things for the ancient tradition of Socrates and Plato, for necessity is intelligible and not tangible.<sup>33</sup> Nowhere does the world give us that which is necessary. All that we can safely assert is that images of necessity appear in the mind and that they are, within our experience, indispensable to our understanding and to our freedom of action and control in certain situations. We can only be said to have understood a phenomenon insofar as we have established its limits. Hence, the object of thought is not 'the world', the world merely provides the occasion for thought, an occasion that only arises out of the frustration of our ordinarily unreflective activity.

Necessity for the tradition of Weil is defined as relation (or number, in the original sense of proportion). As she writes in her essay entitled, "The Pythagorean Doctrine":

It is number, says Philolaus, which gives things a body. He adds that number accomplishes this effect by making them understandable as is provided by the nature of the gnomon. The word gnomon, if taken in its first sense, is the vertical stem of the sundial. This stem remains immobile while its shadow turns and changes in length. The variableness of the shadow is determined by the immobility of the stem on account of the movement of the turning sun. This relationship is the one that mathematicians

today refer to by the names of the invariant and the group of variation. This is one of the fundamental ideas of the human mind.<sup>34</sup>

This idea might, in fact, be termed the idea of the ideas. All that we have are mental images of necessity; no one has ever seen an instance of this fundamental relationship between the "invariant" and the "group of variation" in the world, any more than someone has seen the form of a cube. And, yet, what is more real than these images? Without the thinking of such relations human life would, if it were possible at all, be reduced to a blind frenzy. That we can act effectively in the world and without destroying ourselves is entirely dependent upon such thought. This is why, for the tradition of Plato, the ideas are that which is real; far from being mere abstractions from the sense particulars of the world, they are all that give a hardness and a reality to the "buzzing, blooming confusion" of nature and of human society in process.

Wittgenstein made one of the many attempts of modernity to recover for philosophy the hard ground of common sense. In the history of our philosophy, as he once put it, it is as if we had stumbled upon soft and boggy ground. An excellent analogy for the history of philosophy has been preeminently concerned with solving the problem of the scepticism that inevitably arises out of our perception of the world as fundamentally characterized by change or process. The attempts to think process that are characteristic of the

history of philosophy attempt to account for, eliminate, or in some way, deny the basic reality of the world of nature as the reality of process. This never succeeds for the reality of the world as change is inescapable for the human being. The poets have always sung, even in the most 'traditional' societies, of the mutability of all things. The certainty of 'common sense' is not and never has been the sort of philosophic certainty that founds itself on the assumption of the fundamentally unchanging character of being. No more is this the certainty of the Platonic tradition. On the contrary, the certainty of this tradition arises directly out of the experience of the world as process. Our certainty is not the certainty of things but of thought itself; it is not something assumed to be hidden in the world, somewhere vaguely behind or within, the reality of change; nor is it the presumed fabrication of the mind; it is something that reveals itself in the mind and is miraculously verified in experience.

As we have briefly seen, it is the social element in the collective lives of men, the division of labour, that tends to come between the active life of the individual and thought. The division of labour acts to eliminate the occasion of thought from the lives of both those who command and those who obey. The slave does not have to think, only to obey; the master, likewise, does not have to think, but, merely, to command. If the slave can be said to think at all -- and some are more fortunate in this regard than the manual workers of Adam Smith -- it is simply about the means suit-

able for achieving the ends commanded by their managerial masters. The latter, on the other hand, if he thinks, thinks badly, for he thinks solely about the ends without the necessity of thinking about the means.<sup>35</sup>

For Simone Weil, as we shall see in later chapters of this essay, labour, art and science are simply different ways of the attempt of thinking to bring human activity into an imitative obedience to the "order of the world". As Francis Bacon expressed this ancient idea central to the traditional cultures of pre-modern antiquity, we only command nature by obeying her.<sup>36</sup> The whole attempt of thought is to conceive the conditions of existence upon which our lives rest, and to keep human activity within the limits set by those conditions.

According to Weil, our relation to nature (in the form of the conditions of existence) assumes the character of one or other of the three relations that we have with other men.

In fantasy, or by the exercise of social power, it seems to be his slave. In adversities, privations, grief, sufferings, but above all in affliction, it seems an absolute and brutal master ...

And, finally:

... in methodical action there is a point of equilibrium where necessity, by its conditional character, presents man at once with obstacles and with means in relation to partial ends which he pursues and wherein there is a sort of equality between a man's will and universal necessity.<sup>37</sup>

We cannot escape from necessity in the form of the completely conditional character of our existence. The whole of our life activity is subject to the inescapable dominion of labour as effort. Effort is the distance that separates every desire from its satisfaction. However, contrary to the stance of modern liberalism, for Simone Weil this is not the source of oppression in human life.

In her early writings Weil draws a theoretical picture of "primitive" man<sup>38</sup> as a being harried directly by the natural compulsion of need and enslaved to the extent that he fails to think, resorting instead to formulaic and ritual practices of an impenetrable efficacy. This picture, in her own description, owes more to reason than to either history or ethnography and it is offered, simply, as a theoretical representation of a social extreme. In such a society man would be enslaved, not by man, but by the human-like deities of a capricious character with which he has chosen to people nature, and by their earthly representatives, the priests who monopolize and maintain control over religious practice.<sup>39</sup> Through such a religion the distance between desire and satisfaction might seem to disappear but the individual would be left dependent upon the good will of another agent. The gods and their priests in such a society would come to be interposed between thought and action in the context of individual labour.

At the other extreme she paints an equally theoretical picture of an economically sophisticated society in which the gods are displaced by machines and technique and the priests survive as technocrats. Under such a social organization no one would be directly harried by the pressure of need and nature would appear to be man's docile slave but, in reality, we would continue to be indirectly subject to natural necessity and, furthermore, directly subject to the even greater exercise of social force. For us this might be imaged in the difference between our chance subjection to the natural forces of hurricane and earthquake, on the one hand, and to the trans-natural forces of atomic energy that are, on the other hand, a creation of our social way of life.

For Weil there is, in actuality, only one kind of thought, free thought, and liberty has certain objective conditions. It cannot be conceived of as the simple disappearance of necessity. On the contrary, it lies in the very attempt to conceive the necessary. As she once wrote:

True liberty is not defined by a relationship between desire and satisfaction, but by a relationship between thought and action; the absolutely free man would be he whose every action proceeded from a preliminary judgement concerning the end which he set himself and the sequence of means suitable for attaining this end. It matters little whether the actions themselves are easy or painful, or even whether they are crowned with success; pain and failure can make a man unhappy, but cannot humiliate him so long as it is he himself who disposes of his own capacity for action. And ordering one's own actions does not signify in any way acting arbitrarily; arbitrary actions do

not proceed from any exercise of judgement, and cannot properly speaking be called free. Every judgement bears upon an objective set of circumstances, and consequently upon a warp and woof of necessities. Living man can on no account cease to be hemmed in on all sides by an absolutely inflexible necessity; but since he is a thinking creature, he can choose between either blindly submitting to the spur with which necessity pricks him on from the outside, or else adapting himself to the inner representation of it that he forms in his own mind; and it is in this that the contrast between servitude and liberty lies.<sup>40</sup>

If the social division of labour tends to eliminate the very occasion for thought from the life of the individual, then there exists a basic (and little examined) connection between society and philosophy in general. Specifically, we are led to suspect that how a society conceives of the nature of education is directly related to the role played by thought within individual labour in that society.

On a related but more fundamental level, we must wonder, given the social phenomenon of manual labour, about the relation between language and activity in human life. Presumably, the key to that relation lies in the character of thought. Consequently, we begin, in the following chapter, by examining the anthropological basis of Weil's account of the nature of thought. On this foundation, in the central chapters that follow (Chapters III and IV) various aspects the nature of thought in its relation to language and activity are examined within Weil's account. It is only in the



final and concluding chapter, upon the basis of her conception of the nature of thought, that we return to our initial concern with the social character of the educational process.

## CHAPTER I.I-

### NECESSITY AND THE GOOD: THE ANTHROPOLOGICAL CONTEXT OF THOUGHT

For Simone Weil history is a "disgraceful frenzy"; it is so because the thought of man within society is a dialogue between the mute and the deaf. As we have already seen, at every stage of human social history (except one) we find an oppressive division between those who act and those who speak. The ability to handle language is and always has been a fundamental source of social power. Consider, for instance, this lucid piece of advice from father to son, contained in an Egyptian document, dating from the New Kingdom:

Put writing in your heart that you may protect yourself from hard labour of any kind and be a magistrate of high repute. The scribe is released from manual tasks; it is he who commands ... Do you not hold the scribe's palette? That is what makes the difference between you and the man who handles an oar.

It is the will to power, to knowledge in Nietzsche's sense, that always provides the primary motivation behind formal education.

In economically primitive societies the ordinary run of men, knowing how to handle tools and weapons with the utmost dexterity and ingenuity have, nevertheless, a tendency to defer to the authority of certain other men whose sole power seems to consist in the ability to express various customary

formulae that are, moreover, more or less obviously bereft of any effectiveness. These priests are considered by the silent majority of their fellows to possess an essential superiority over those who simply know how to act.<sup>2</sup>

Nor is it at all clear that we, today, are in a position to dismiss contemptuously this attitude of the 'primitive' toward language. After all, who among us can claim to understand the mathematical formulae that have produced and continue to produce our wondrous technology and its ever changing forms of life? For philosophy simple effectiveness is, surely, not a sufficient basis for discriminating between one apparently magical use of language and another.

To Weil it was natural that the human being should look upon language as upon something miraculous. Without language we would be incapable of thought, for it is only language that gives us the idea of ideas, 'necessity'. Language, moreover, is of an intrinsically mysterious character. In fact, in itself, it is essentially magical in nature. In language the universe of things becomes for the human being a toy to be played with. Words place the sun, earth, moon and stars at our disposal.<sup>3</sup> In language we can accomplish anything and we can accomplish it effortlessly. It is only in, and through language that we abstract ourselves from our natural subjection to necessity in the form of effort, of force times distance or simple labour. The difference between our condition with and without language is embodied in the difference between saying -- "one hundred paces" --

and taking one hundred paces.<sup>4</sup> Furthermore, the essential idea behind magic, namely, that we can act upon things through words is an idea that contains a profound truth.<sup>5</sup>

However, the complete nature of language is only disclosed to us in its relation to our activity where it is found to play a role that is, at once, indispensable and inadequate. If we are stopped by the world (as an external obstacle to our will) and forced 'to think', our thought can only be expressed by language; by that which is, by its very nature, abstracted from the world of our activity. Thus, we encounter here a certain contradiction. On the one hand, we find that language (or thought) is required prior to acting in order to perceive and to formulate the actual conditions of our activity; and, on the other hand, in the process of acting methodically, reality is contained precisely in what "thought does not allow us to foresee".<sup>6</sup> Thus we find reality in neither language nor in activity; it arises for us only out of a particular relation between the two.

For Weil there are, consequently, two sub-forms of reality for the human being: (a) the 'reality' of language and (b) the 'reality' of action.

Language provides that essential support for human memory which gives us things in time; gives us, that is, everything that is absent, allowing us to relate the seen to the unseen.

It is language that gives us everything:  
the past, future, what is far off and  
near at hand, what is absent and present,  
what is imagined, the celestial sphere,

the atom, etc. but it does this only through symbols.

Thus it is only language that gives us order, that allows us to conceive relations between successive events.

In contrast, activity, bodily movement, the exertion of effort, is all that gives us things in space. It is only through action that we can be said to possess a real power over things and, significantly, only over what is present to the body in space. The point is, simply, that reality for the human being consists solely in a particular relation of time and space, a particular conjunction of human thought and activity that is inherently, but openly mysterious. Above all else, philosophy is the attempt to bring thought and action together within human life. The superiority of the tradition of Plato lies in the way that it attempts to accomplish this without doing violence to either of the component forms of our experience.<sup>8</sup>

Thus, for Simone Weil, as for Socrates before her, there are two species of mystery to be found in the human use of language. First, there is the illegitimate mystery of those uses of language in which the 'realities' of thought and of activity are divorced from one another within the life of the individual. The master-intellectual commands and his commands, if fulfilled, are fulfilled (for him) in a magical or semi-magical fashion, for their fulfilment does not require any exertion of effort on his part. He speaks and his wishes are effortlessly fulfilled. In comparison, the slave-labourer acts, but, precisely to the extent of his enslave-

ment, to the extent that he acts upon command and without thought, the products of his activity appear to him incomprehensively out of the thoughtless exertions of his body.<sup>9</sup>

Secondly, however, there also exists a legitimate mystery in our use of language. As we have already seen, this mystery lies open to view on the surface of our experience in the fact that language is at once indispensable and inadequate to the demands of our activity in this world.

For Weil philosophy is "revolutionary" and the "revolution" is of a fundamentally educational character.<sup>10</sup> Philosophy is intrinsically revolutionary in character for what it seeks is to bring thought and action into relation within the life of the individual, and that to the greatest possible extent. This conception of philosophy is socially explosive, for the generative principle of society is that of the division of labour. The social element in human life only develops through the progressive separation of thought and action within the life of the individual and, thus, for her, as for Plato, philosophy stands in intrinsic opposition to society and to history, to society in process.

The "revolution" is, for her, of an essentially educational character. Its task stands in opposition to the social elimination of either thought or activity within individual human life; it seeks, on the contrary the establishment of a form of life in which these components of our being are brought into their proper relation to one another. This relation, proper to the being of man, is freedom; it

consists in that relation of the individual to activity in which thought precedes action and attempts to limit the blind play of chance in our individual and, hence, in our collective forms of life. It is only in this way that the life of the individual can be, to some extent, of his own making.

For Weil, this revolution can only begin in and through education. As we see in this quotation from one of her earliest published essays, (it appeared in the leftist journal, L'Effort, in 1931), she saw the "revolution" as consisting essentially in an educational appropriation of language, thought and culture by the workers:

This respect accorded language and the men who are best able to use it has been indispensable to human progress. Without it men would have remained blind and routine when doing the necessary work of life. It is out of religion that all human thought has developed, including the most positive form of science. So it is not by inspiring them with contempt for culture, described here as bourgeois, that the workers can be freed from the intellectual's domination. Certainly this superiority accorded up until now to intellectuals over producers ... must now be absolutely rejected by the workers. Yet this does not mean that the workers must reject the heritage of human culture; it means that they must prepare to take possession of it, as they must prepare themselves to take possession of the entire heritage of previous generations. Indeed this act of taking possession is the revolution.

In Marx's eyes, perhaps the most important conquest of the proletarian revolution should be the abolition of what he calls the 'degrading division of work into intellectual and manual work'. The

abolition of this degrading division can and must be achieved, and we must prepare for it now. To this end we must, first of all, give the workers the ability to handle language ... 11

We might, I believe, put it in this way: for Weil, the task of philosophy is to orient the human mind (or soul) in that direction in which it becomes possible for the individual to appropriate thought and bring it into life in such a way that his activity (or labour) is increasingly shaped by it. Education is the process of this appropriation.

Thus our tendency to look upon language with an awe due to the miraculous is not without a legitimacy. For it is in language and, specifically, in the forever mysterious correspondence of language and 'the world' that the human being discovers what is, perhaps, his most essential power, the ability to act in a non-arbitrary way; the ability to limit chance through thought. The anthropological fact that the ideas found in the mind are, at once, indispensable and inadequate in defining the blind play of chance in our lives is the central mystery around which epistemology perennially revolves.

The purpose of this chapter is as simple as it is fundamental. It will attempt to explicate the Platonic anthropology that constitutes the basis of Weil's conception of 'thought', for she found in Plato's account of the condition of man in this world a rigorous definition of this epistemological mystery. Those genuine forms of mystery which philosophy cannot banish without mutilating the character of



human experience must, nevertheless, be rigorously circumscribed and it is this, above all else, that Plato's anthropology attempts.

Hence, this chapter is designed to elucidate (a) Weil's account of the 'philosophic act' as the condition of the very possibility of thought and (b) the most fundamental details of her description of the actual character of thought. As such, the first portion of this chapter will deal with her characterization of the 'human act' that is also the 'philosophic act' in terms of the Platonic contradiction (at the centre of human experience) between "necessity" and "the good". Secondly, we will focus upon her description of the "faculty of attention" and thus look in some detail at her account of the actual 'act' of thinking. Within the thesis as a whole this chapter is designed to constitute the framework within which both her detailed critique (Chapter III) and her reconstruction (Chapter IV) of the nature of thought are to be understood. Furthermore, it will serve to complement the final chapter in which the nature of thought is found to be fully disclosed only in its essential relation to human activity through labour.

If education is the process through which the individual appropriates the ability to think and the heritage of human thought (or culture), and in such a way as to bring both to bear within the scope of his active life, then we must know what it is 'to think' and what cultural forms of expression (or, language) are, by nature, open to the thoughtful appro-

priation of the individual. This chapter, in examining Weil's most basic account of the former, will serve to provide the foundation upon which the latter is to be understood in the subsequent chapters.

That an account of the nature of philosophy depends upon an anthropology is more or less obvious but that the philosophic and the human acts are one and the same is not, and it is this identification that is at the root of Weil's position. According to the history of our philosophy, philosophy begins at a particular moment and, indeed, among a particular people. It began in Greece with the 'miraculous' discovery of a certain distinction, namely -- the distinction between nature and convention, between, that is, the attempt to think (a) that which we do not make and (b) that which we do make. In this account philosophy is born in intellectual contradiction to religion.<sup>12</sup> The 'Greek miracle' was the birth of a new and non-religious form of thought. It is, however, a way of thought that must demonstrate its own possibility and it is not, to say the least, very clear from the past of our philosophy that such a demonstration has been found. On the contrary, we are increasingly driven to the conclusion that the history of philosophy is the account of a futile attempt to found thought in either nature or convention.<sup>13</sup>

Within our civilization there has always existed another account of the character of philosophy, an a-historical account, according to which philosophy is precisely that way of thought which does not enter into, which escapes from the

determination of history, which is always and everywhere the same. In this account, which is that of Simone Weil, philosophy and religion do not stand in opposition to one another.

Weil, following Plato, defines the human being in terms of a contradiction that she takes to be central and inescapable within our experience. We are creatures who always and everywhere desire "the good" and who are, simultaneously, always and inescapably, subject to those apparently blind forces that constitute the universe of matter and which we term, generally, 'necessity'.<sup>14</sup> In this world we find ourselves not only in nature but against nature. The world stands against us as an obstacle blindly indifferent to our desire for "the good". For us desire is unlimited but it runs everywhere in the world of our experience up against limits. We are creatures who live in constant subjection to need and to the effort required for the satisfaction of need. What we desire is something unconditional and our existence is always and everywhere purely conditional. Inescapably, we run up against such conditions as against something hard and in doing so we know the "misery of need"; know all the physical and psychological suffering to which our conditional existence makes us susceptible, and, in the end, we find ourselves face to face with the ultimate limit of our unlimited desire -- death. Thus, for Weil, there exists "at the centre of the human heart" a longing for an unconditional good which is "never appeased by any object in this world".<sup>15</sup>

To complain that the Platonic expression, "the good", is an empty one is, simply, to miss the point. It is, of course, in a certain sense, that. We are inescapably subject to necessity (in its principal forms of labour and death); we can know necessity, it is the truth, the reality, of our condition that is open to perception, but we cannot know or think "the good". For the tradition of Plato, "the good" is that which we desire and not that which we know. All that we can know are the particular goods of this world. This is, in fact, why desire is unlimited for the human being -- its 'object' is unknown and unknowable, if it exists it is situated inaccessibly beyond the boundaries of the world of our experience. The human being is a creature who knows or thinks only that which is necessary but who, nevertheless, cannot stop desiring "the good".

"The good" (or God) is an intellectual problem for philosophy of the first order. There is at least a sense in which the 'problem' of God for philosophy is analogous to the problem of the "beetle in the box" in Wittgenstein's famous language game in the Philosophical Investigations.<sup>16</sup> There, the point was that it didn't matter in the least, in the use of language, whether or not there actually was a beetle in the box. And such is the case with the philosophical problem of God; we cannot know, nor does it matter, whether the good exists. What does matter is the reality of our desire for "the good". Our desire is real and it is the desire itself that we must grasp and control on pain of introducing the

capricious play of a god or gods into the course of our lives.<sup>17</sup> The first task of philosophy is to situate and circumscribe this inescapable human desire for "the good", for it is a desire which (being unlimited) does not belong, as such, to this world.

The purpose of the rest of this chapter is to clarify this anthropology, develop its implications and illustrate its basic significance for Weil's conception of the character of thought.

The essential assertion here is put very succinctly by Weil in one of her analyses of the philosophical position of Marx:

Man cannot bear for more than a moment to be alone in willing the good. He needs an all-powerful ally.<sup>18</sup>

The more clearly we perceive the world as a texture of forces blindly indifferent to our desire for "the good", the more intensely we desire the existence of "the good", here and now, within the world of our experience. If materialism were possible, we would be right to be materialists, but is it possible?

If the materialist could set aside all concern for the good, he would be perfectly consistent. But he cannot. The very being of man is nothing else but a perpetual straining after an unknown good. And the materialist is a man. That is why he cannot prevent himself from ultimately regarding matter as a machine for manufacturing the good.<sup>19</sup>

Thus, intrinsic to our desire for "the good" (in this world) is the intellectual temptation to construct a consoling but fictitious unity to bridge the void that eternally separates 'necessity' from the good at the centre of human experience.

Hence, for Weil, philosophy exists, before all else, to prevent and expose such identifications be they implicitly embedded in a particular form of human life or explicitly developed in the doctrine of a particular thinker. The second, and positive task of philosophy is to demonstrate how it is possible for man to think in the context of this void between necessity and the good.

Let us begin by examining the positive character of philosophy, in the form of her account of how it is possible to think within this contradiction and without doing violence to it as the central terminus of human thought in this world.

The problem of thought is, essentially, the problem of seeing 'purely', of perceiving reality as it is, in itself, and not as we may will or imagine it in keeping with our desire for the good. Thus, on this level, the question becomes the rather practical one of how it might be possible for the human being to look upon necessity, upon reality, upon the hard truth of our condition, without placing the mind at the service of the will? How, in other words, can we effectively situate and control our desire for the good? If we do not do so, we leave ourselves (inevitably) open to a kind of 'thought' that seeks not a contact with reality but consolation; to a kind of thought that comes between us and

the simple perception of reality by distracting our attention with the fabrication of plausible, ingenious, comforting and wholly conjectural systems in which necessity and the good are brought into an imaginary coincidence.<sup>20</sup> In this sense, philosophy would be nothing other than a kind of theology that aims at manufacturing either a god or gods in matter in order to provide us with all powerful allies in our lonely willing of the good.

If it is true that we cannot look upon necessity without an all-powerful ally, then we must find a way of detaching this desire of man for God (in the form of "the good") from anything that falls within the boundaries of necessity, within the boundaries of this world.

For the human being, the reality of this world, necessity, is, first and foremost, the reality of affliction. The human mind is incapable of acknowledging the reality of the world as purely that of necessity for this would mean continually saying to oneself:

'I may lose at any moment, through the play of circumstances over which I have no control, anything whatsoever that I possess, including those things that are so intimately mine that I consider them as being myself.' There is nothing that I might not lose. It could happen at any moment that what I am might be abolished and replaced by anything whatsoever of the filthiest and most contemptible sort'.<sup>21</sup>

Human thought will always flee from contact with this truth for it is, in the face of our desire for the good, literally unbearable for more than a moment. What we require is a

support, but, if we are to think necessity purely, then that support must lie beyond the boundaries of the world. If we fail to attach our desire to a purely transcendental good, we will in one way or another, be unable to resist the temptation of thinking theologically rather than philosophically. As Plato expressed it:

They call just and beautiful things that are necessary, for they know not how great in reality is the distance that separates the essence of the necessary from that of the good.<sup>22</sup>

For Weil, as for Plato, the notion that philosophy might be a-religious is unrealistically naive. Human thought is intrinsically religious; we have simply to choose between a genuinely religious stance founded securely within the very nature of our experience or one or the other of two complementary "base" forms of religion, each of which attempts, in its own way, to escape from the contradictory reality of our experience. Thus Weil analyses two fundamental types of intellectual failure characteristic of the human past -- "idealism" and "idolatry".<sup>23</sup>

The "idealist" tendency is toward the belief that our thought about "the good" possesses a force in this world. For Weil, this involves a dual error: (1) in the belief, presumably rooted in the 'reality' of language, to the effect that thought constitutes a force; and (2) in the assumption that our thought is capable of grasping or laying hold of the good; that we possess access to the good through the active



use of intelligence. Since the only subject of thought in this world is necessity, the idealist seizes upon an image of the necessary and confounds it with the good. The idolatrous, by contrast, are given to the perfectly complementary belief that force itself is directed toward the good. And they too are doubly mistaken: (1) in that force is separated from the good by an unknowable distance and (2) in that it is not always and everywhere the stronger. The contradiction between these two base forms of the religious life is more apparent than real for intellectually and morally each leads to the same results.<sup>24</sup> To the individual victim it probably matters little whether he is executed because of the victory of some 'absolute' idea in this world or because matter itself is seen as blindly and ruthlessly rushing toward some conclusion in the way of which he accidentally happens to stand.

As mentioned above, the alternative for Weil consisted in the choice of a stance that was at once rigorously intellectual and purely spiritual. She proposes a way of thought in which philosophy and religion stand as one and, for her, this stance constituted the heart of the Platonic and the Christian traditions. It was that which divided philosophy from the history of philosophy.

For Weil the position of Plato was founded upon a kind of Archimedian point; upon something "subtle", "infinitely small" and, yet, "absolutely decisive" which separated his thought from that of the materialist.<sup>25</sup> This point consisted, primarily in his positing of a purely "secret" or

transcendental unity of necessity and the good existing beyond the boundaries of the world and, therefore, inaccessible to the active search of the human intelligence. By this means Plato gave to human desire its proper 'object', detaching it, simultaneously, from all that exists within the boundaries of the world. In this way he liberated the mind for its proper task -- the simple perception of the world as it is, of necessity, unaffected and uncontaminated by our desire for the good.<sup>26</sup> This transcendental unity or, as Plato expresses it, this "secret persuasion" of necessity toward the good, provides us at once with a support for our desire for the good and a place to stand from which we can look upon necessity purely, as if from outside.

The key conception here is the Platonic idea of detachment. We must, if we are to think, be detached, on the one hand, from our passionate desire for the good which constantly threatens to interpose the intelligent imaginings of the mind between us and the simple perception of the world as it is. And, furthermore, we must be detached, on the other hand, from our subjection to necessity, if we are to perceive it. The very idea of necessity does not and cannot arise if human activity is compelled and blindly driven by the various miseries of need and suffering. The idea of a purely transcendental God, in freeing us from the passions, gives us, at one and the same time, the courage required to look upon the world as it is, (and not as we would desire it to be), and, it allows us to distance ourselves from the immediate spur of necessity to thoughtless action.

Thus thought, first of all, exists within the context of this essential and inescapable contradiction at the very heart of our experience in the world. The contradiction between our subjection to "necessity" and our desire for "the good" is an insoluble contradiction.<sup>27</sup> To understand it is to recognize this as the most basic anthropological fact. Far from being a contradiction from which we can escape, we must understand that we can only 'think', properly speaking, if its tension is rigorously defined and preserved. For the human being 'to think' means to look upon the world as necessity, to look upon it purely, without any admixture of an imagined good within it and, at the same time, without for a moment ceasing to desire the existence of a good that is purely transcendental.

Weil, like Plato, maintains that all thought which is not purely of necessity is socially determined.

For there is not, there never was, there never will be, any other teaching concerning morality than that of the multitude. At least no other human teaching. For concerning what is divine there must be an exception. This must be well understood. Whatever is saved and becomes what it ought to be, so long as cities have their present form, if one means to speak truly, must be considered saved by the effect of a pre-destination which comes from God.<sup>28</sup>

This is the case simply because our so called 'values', our language of praise and blame, is collectively determined. Every collectivity inevitably produces an ethic, a conception of good and of evil, that is founded upon nothing but its

particular form of life, its particular division of labour. In Plato we find the same terrible image as in The Gospels, namely -- that of "the Great Beast":

... Take for comparison a great, powerful beast; his keeper learns to know his angers and his desires, how best to approach him, from which side to touch him, at what moments and for what reasons he becomes irritable or gentle, what calls he customarily makes in such and such a humour, which words are apt to soothe or excite him. Suppose having learned all such by practice over a period of time, the keeper calls that wisdom, and he makes a method of it, and uses it as subject matter for his teaching. He knows nothing in reality of what among those opinions and desires is beautiful and ugly, good or evil, just or unjust. He uses those terms as they apply to the opinions of the great beast. Whatever pleases the animal he calls good, whatever annoys him he calls bad, and he has no other criterion ...

... Thus if anyone has dealings with the multitude and communicates a poem or any other work of art or political idea, if he allows the multitude to become master outside the domain of necessary things, an iron necessity will force him to that which the multitude approves.<sup>29</sup>

Thus all men are completely excluded from the possibility of thinking the good except, perhaps, those who have been enlightened by the grace of God.<sup>30</sup> Otherwise, all human 'thought' on the subject of good and evil is socially determined by the reflexes of the "great beast".<sup>31</sup>

At this point it is, perhaps, advisable to consider more closely precisely what Weil means by that great (but ever vague) philosophical term, necessity. While this is the

essential subject of the fourth chapter, we ought here briefly to consider her definition of the term in reference to the dialectical character of our thought. Necessity is here the idea of the ideas. In the sense of this tradition, all thought has the character of a necessary or fixed relationship between two variables.

A natural phenomenon, for example, is only defined in so far as we have established its limits. A thought images the contradiction of opposing forces that define a certain phenomenon. The idea of function on the level of mathematics is translated into the perfectly equivalent idea of equilibrium; on the level of natural science:

Equilibrium, in so far as equilibrium defines limits, is the essential idea of science, by means of this idea every change, and therefore every phenomenon is considered as a rupture of equilibrium, linked with all other changes through compensation of successive ruptures of equilibrium; and this compensation makes all disequilibria an image of equilibrium, all changes an image of the motionless, and time an image of eternity.<sup>32</sup>

Thus Archimedes' theory of flotation depends upon a fixed relationship between the mass of a body and the amount of water it will displace. As will be seen in Chapter IV, for Weil, the geometry of the Greeks was the science of nature.

Human experience involves a constant running up against that which is limited. In both our activity in the world of things and in our active use of language, we run up against contradiction. As we have briefly seen in the previous

chapter, it is this that constitutes the very occasion of thought. It is when we are stopped in the course of our activity that we are provided with the opportunity to think. And it is here, at this point, that we are led a bit more deeply into Weil's account of the nature of thought.

For her, as for Plato, dialectic is the "sole instrument" for developing thought.

But there is a legitimate and an illegitimate use of contradiction. The illegitimate use consists in combining incompatible assertions as if they were compatible. The legitimate use consists, when the human intelligence is faced with the necessity of accepting two incompatible truths, in recognizing them as such, and in making of them as it were the two arms of a pair of pincers, an instrument for entering directly into contact with the sphere of transcendent truth inaccessible to our intelligence.<sup>33</sup>

In the "illegitimate", or false dialectic, the contradiction is not faced but simply dismissed from attention. It does not confront, silence and stop the intelligence for it is not recognized as a contradiction.

In the "legitimate" dialectic the intelligence runs up against a contradiction as against something hard. Here, it is the activity of the mind as well as that of the body which is stopped. Inactive and silent we are compelled to contemplate the existence of something external and hard. Thought requires something that is hard, determinate, fixed, and in running up against contradiction it finds precisely this.

In this experience we find the essential (but perfectly open) mystery of human thought. If we remain on the simple level of anthropological description what appears to happen is this: images of necessity come into the mind 'as in a flash' and out of nowhere discernible; all that we can say is that they are 'revealed' to the mind in the silence of our mute contemplation of reality. And, miraculously, we find that they are partially applicable within the scope of human activity in the world.

Nowhere in the world, except in our minds, do we encounter necessity (in the sense of relation). We do not see 'necessary' relationships in matter anymore than we see the form of the cube. We cannot say that it is the senses that give us that which is necessary, nor can we say that it is the mind that manufactures such relationships through some process deeply hidden from view in its mysterious depths. All we can do is offer a simple description of what does happen on the level immediately accessible to our consciousness. And what happens is that images of necessity, images that are tentative and which do not, strictly speaking, correspond to anything within the external world of our experience, appear suddenly in the mind. These images, which are a reflection of the intelligible realm of Plato, illuminate the tangible realm of our experience, and in such a way as to make human life possible for our physical survival surely depends to some extent upon our ability to think.

It is on the basis of this description of thought that Weil constructs what she terms an "experimental" epistemology. It constitutes what amounts to a philosophical account of the nature of the educational process.

She designates the silent contemplation of a problem, of a contradiction, "attention". Attention consists, first of all, in what appears to be a negative operation. In looking attentively at a particular problem (or phenomenon) we suspend thought, we force the mind to desist from its constant searching for possible and plausible explanations and readings; instead, the act of attention leaves the mind detached, "empty and ready to be penetrated by the object":

... it means holding in our minds, within reach of this thought, but on a lower level and not in contact with it, the diverse knowledge we have acquired, which we are forced to make use of. Our thought should be in relation to all particular and already formulated thoughts, as a man on a mountain who, as he looks forward, sees also below him, without actually looking at them, a great many forests and plains. Above all our thought should be empty, waiting not seeking anything, but ready to receive in its naked truth the object which is to penetrate it.<sup>34</sup>

The basic claim here is that this is how, in reality, the human mind works and that all absurd, false and faulty connections between ideas are the result of the mind having actively seized upon some idea or other prematurely. The faculty of attention is essentially the openness of the mind to the 'revelation' of idea.<sup>35</sup>



Her most frequent and, as it were, archetypal example in illustration of this is that of the geometry problem. It is an example that contains, analogously, the entire relation of man as a thinking being to the world of necessity in which he finds himself. There, we are given a specific problem and a set of data containing the solution to the problem. The solution consists in perceiving the necessary (or required) relation between the elements. The question is: how do we arrive at the solution? On the mathematical level of the geometry problem we might be tempted to say that the mind works deductively. That we proceed slowly and, as it were, automatically, from one premise to another. We are here tempted to construe the mind as an instrument which, more or less mechanically, deduces the solution from the given premises. In a similar, and perfectly complementary fashion, on the level of our immediate sense experience, we are tempted to construe the mind as a kind of mechanism that moves inductively from the particulars of the senses to the universal character of the concepts of the mind.

However, upon a closer examination we find that induction and deduction, so conceived, do not accurately depict the phenomenon of thought as we are conscious of it. What we are conscious of, more often than not, is an active use of the intelligence that leads nowhere but to exhaustion. Only to find, later, that the solution comes 'as in a flash', when we have ceased to search. But there is, furthermore, as Wittgenstein shows in the *Investigations*<sup>36</sup>, an illusion inherent within our deductive/inductive descriptions of the

character of thought, an illusion that may very well mask from us an important aspect of the nature of the phenomenon. We have a tendency to believe that we are led automatically from the premises to the conclusion, that we cannot, given the premises, do otherwise than come to a particular conclusion; that the conclusion is 'logically necessary' and that we are mechanically compelled to it by the very form of the syllogism. But is this the case? Clarity of context does no doubt aid us in jumping to the 'right' conclusion but there is, nevertheless, a leap from the premises to the conclusion. Similarly, all that we are aware of is the perfect discontinuity between the 'particulars' of sense experience and the 'universals' of the conceptual level.

The Platonic account of the nature of thought as revealed preserves the discontinuous reality of thought. If this description is a 'simple' one, it is all that we are given access to in consciousness, and its superiority may lie in what it does not pretend to give us, namely -- an account of the origin of thought suggestively founded upon the required existence of 'unconscious' processes forever hidden in the mysterious and totally inaccessible depths of the mind.

In summary, for Weil the positing of a purely transcendental unity of necessity and the good, the positing of the existence of the Deus Absconditus, the God who is missing, who created but abandoned the world, serves to provide an incomprehensible solution to the essential human problem.

That is to say, it allows us to live without doing violence to the most fundamental truth of our being.-- the contradiction between our unceasing desire for the good and our experience of subjection to necessity in the whole, or very nearly the whole, of our lives. This, first of all, allows us to avoid the 'formulation of false solutions to this most basic and insoluble of contradictions, 'final solutions' that have, implicitly and explicitly, reduced the whole of human life to the "disgraceful frenzy" of history. Secondly, it provides us with the positive foundation of an anthropology that serves as the basis of an account of philosophy that offers us the revolutionary possibility of a liberation from our historic enslavement to both nature and society through the transformation of the relation of thought to our activity. In this, education would seem to play an indispensable role as the process through which the individual is brought into that thoughtful relation to his own activity, which constitutes the basis of all genuine 'culture'.

Let us now briefly examine another way in which Simone Weil approaches this essential contradiction between necessity and the good in our experience, for there are further details that it is indispensable to add to her account.

For the human being the most primary appearance of reality on the macroscopic level of our experience is that of brute force, blind and totally indifferent to our desire for the good. As we have already seen, this constitutes, in itself, an impossible position due to human weakness; to our inability to suppress all desire for the good. However, even

if it were possible, it would constitute a radically incomplete account of reality. The brute indifference of force to our desire for the good accounts for almost but not quite everything in our experience. What it omits is the operation of what is subtle, almost invisible and yet absolutely pervasive and decisive in our existence: the operation of the "supernatural", of "grace".

It is true that the matter which constitutes the world is a tissue of blind necessities, absolutely indifferent to our desires; it is true, too, in a sense, that they are absolutely indifferent to spiritual aspirations, indifferent to the good; but also, in another sense, it is not true. For if there has ever been real sanctity in the world, even if only in one man and only for a single day, then in a sense sanctity is something of which matter is capable; since nothing exists except matter and what is inscribed in it. A man's body, and therefore in particular a saint's body, is nothing else but matter and is a piece of the world, of that same world that is a tissue of mechanical necessities. We are ruled by a double law: "an obvious indifference and a mysterious complicity, as regards the good," on the part of the matter which composes the world.<sup>37</sup>

For Weil, it is this recognition which separates the tradition of Plato from "materialism". His philosophy (which is at root an anthropology) rigorously maintains the separation for man of necessity and the good and, yet, it does not leave out of consideration the operation of grace. Thus, Plato was led to speak of a "secret complicity" or "persuasion" of necessity toward the good. For Weil this "persuasion" is everywhere imaged for us in nature by such phenomena as

"catalysts", "bacteria" and "fermenting agents". The archetypal example, for the Greeks, was the "centre of gravity", an infinitely small point that predominates over the mass of an object, if that mass is arranged around it to certain definite proportions.<sup>38</sup>

Weil illustrates the deficiency of a pure materialism with this analogy:

If an island completely cut off had never had any other than blind inhabitants, light would be for them what the supernatural is for us. One is tempted to think at first that for them it would be nothing, that by creating for their use a system of physics with all theory of light left out, one would be giving them a complete explanation of their world. For light offers no obstacle, exerts no pressure, is weightless, cannot be eaten. For them it is absent. But it cannot be left out of account. By it alone the trees and plants reach toward the sky in spite of gravity. By it alone seeds, fruits, all the things we eat, are ripened.<sup>39</sup>

There is a legitimate contradiction between the images of the world contained in biology and in physics. The ascending movement of all life introduces the category of the discontinuous into our experience of the world as force (or continuity). As a result any complete account of reality or, rather, any account attempting to approximate to completeness, must contain both categories. As we shall see, in detail in the following chapter, this has proven a very serious stumbling block in the history of modern science.

This allows us to introduce another (and by no means insignificant element) into her account of the essential character of human thought, namely -- the role that she assigns to love in epistemology. Without the support of a belief in a transcendental identity of necessity and the good, and of the even more incomprehensible and, yet, indispensable belief to the effect that something of this identity is communicated to us in thought, we would sink into a nihilistic state of indifference.<sup>40</sup> For the human being, thought requires not only a direction, but a direction to which our attention is attracted by love. It is, for instance, only the "persuasion" of love that separates the attitude of Socrates from that of Cratylus, the purest and the most inhuman of the ancient materialists.<sup>41</sup>

On the one side, if there is nothing in reality to love, if we find nothing there but blind force, then we run the strong (if not the certain) risk of collapsing into the still and mute indifference of Cratylus. But there is another and far worse risk intrinsic to the would-be materialist's attempt to conceive the world solely in terms of force. This is the inevitable tendency, briefly discussed above, which, instead of fixing upon nothing as the good, fixes upon force itself as the good. Where the mind finds nothing to love, the imagination steps in to fill the void. Hitler, for example, believed, in his own words, that:

force reigns everywhere and supreme over weakness, which it either compels to serve it docilely or else crushes out of existence.<sup>42</sup>

He drew this conclusion, explicitly, from the conception of the world contained in our science. In itself, however, such a conclusion does not lead to anything active for it contains no principle of motivation. Hitler was animated to "historic greatness" not by this conception alone, but by this conception plus something further -- namely, the additional conviction that force itself is the good.<sup>43</sup> Logically and coherently enough, ancient scepticism did not issue in activity. The peculiarly active character of modern 'scepticism' is the result of the failure of materialism in the direction of intellectual dishonesty. Cratylus did not lie to himself, on the contrary, he allowed his humanity to be crushed by a kind of inhuman honesty. In this he was an extraordinary being. What Weil implicitly suggests is that Hitler and Stalin, and before them Napoleon, Caesar and Alexander, were ordinary beings who chose to lie and who, in doing so, not only crushed their own humanity but that of millions of their fellow beings.

This can, I believe, be clarified, in its connection to the conception of thought, through reference to the idea of reading in Weil's philosophy.

"The poem", she once wrote, "teaches us to contemplate thoughts instead of changing them".<sup>44</sup> We can, perhaps, best understand what she means by this remark by considering the three senses in which we read a poem -- or any text.

The first way is simply to reproduce the words, audibly and/or mentally, without understanding. In point of fact, this is probably the first way in which we read a poem; we hear it, first as music and love it without understanding. Then what may, and often does happen, is that we are suddenly struck by a feeling of understanding; suddenly we perceive an order in the imagery and, then, we have the feeling of reading the thought of the poet in the text. We can, of course, be mistaken in this feeling of understanding; we can mis-read the text. Nonetheless, this feeling is far from being a purely 'subjective' matter. The coherence and the beauty of a particular reading carry with them a kind of certainty. In as far as the reading fits the details of the poem and avoids doing obvious violence to its imagery and order, we possess a definite basis for this certainty.

But there is still a further sense of the term, "reading". A sense which is, today, not uncommon. We may approach a text in an active rather than in a contemplative fashion; we may attack it with some principle or other of interpretation and attempt to 'make sense' out of it. In this case we are not open to hearing what the text has to say. We are, largely, deaf to whatever it expresses. We are interested only in systematically rewriting or mis-reading the text. Here, too, there is an experience of 'certainty', and it may even appear to be more rigorous than the other, for it has what looks like a sure foundation, a definite principle of interpretation. On this level, the Marxian or



Freudian approaches to literature carry with them a powerfully convincing kind of 'certainty'. They are methods for systematically disposing of all the literature one may encounter. However, we need only reflect that these principles are purely subjective, purely something external to the text and brought to it by us. In other words, we need only reflect on this freedom of interpretation to see that it solipsistically destroys the very basis of all understanding in language, namely -- the connection between speech and hearing. There is no dialogue between the mute and the deaf unless it be a 'comic' dialogue in the style of Harold Pinter.

For Weil, the essential problem of epistemology lies in choosing one or the other of these ways of "reading". Our thought, in relation to the universe of matter, can only be a form of reading. As she once wrote:

How should human thought have any other object but thought? That is so well known a difficulty in the theory of knowledge that one gives up trying to fathom it, leaving it on one side as an accepted fact. But there is an answer. It is that the object of human thought is itself thought.<sup>45</sup>

We might better understand Weil's position in this regard by saying that all thought assumes, implicitly or explicitly, that the world of our experience is a kind of text. What distinguishes one form of thought from another is the attitude or orientation of the mind toward that text. It can be approached in a purely 'descriptive' fashion as in the 'value

free' languages of science and, especially, of social science. Or, thought may attempt to read the world 'prescriptively'; it may, that is, approach the world of matter as a perfectly blank text upon which man has the complete (and terrible) freedom to write whatever he will. But, in each of these cases, it is important that we clearly recognize that we have come to a very definite and intellectually unjustifiable conclusion about (a) the nature of the text and (b) the character of our relation to it. In both cases we are closed to the simple possibility that it is a text properly speaking and that our thought is a genuine reading of that text.

In Weir's view, no one can demonstrate which of these possibilities is in actuality the case. However, the assumption of each carries with it certain consequences and only the latter is justifiable in terms of these consequences. Furthermore, as we shall see, it is only the latter that is open enough to preserve that combination of scepticism and experimental certainty essential to the philosophic stance.

If our thought is an attempt to read a text, that attempt can only, of course, be partially, even insignificantly, successful. The "order of the world", the meaning of that text, could only be seen from outside the world, and we are creatures who are very much inside the world.

We are imprisoned in the world and the limits of our world are the limits of language (or thought). Language, thoughtfully used, expresses relation. However, it can only express a few relations because the operation of language requires time.

When it is confused or vague, without precision or order, when the speaker or listener is deficient in the power of holding a thought in his mind, then language is empty or almost empty of relational content. When it is perfectly clear, precise, rigorous, ordered, when it is addressed to a mind capable of keeping a thought present while it adds another to it and of keeping them both present while it adds a third, and so on, then in such a case language can hold a fairly rich content of relations. But like all wealth, this relative wealth is abject poverty comparable to the perfection which is desirable.<sup>46</sup>

It is simply a matter of human experience, as we have already seen above, that the relational content of human language is found to be, at once, indispensable and inadequate within the active character of our existence. Limitation is for us the constituent principle of reality. We can only conceive a phenomenon in so far as it is perceptible to us as a combination of opposing forces which limit and, thus, define one another.

But the limits of the world are the limits of language and we are in this world imprisoned within both. We are limited to the number of relations that words can make simultaneously present to the mind and we remain in ignorance of

thoughts involving a greater number of relations. We can only assume that there are thoughts which exist outside language and that

they are unfathomable, although they are perfectly rigorous and clear and although every one of the relations they involve is capable of precise expression in words. So the mind moves in a closed space of partial truth, which may be larger or smaller without ever being able so much as to glance at what is outside.<sup>47</sup>

For Weil, it is this that Plato meant by the realm of the ideas, the realm of the intelligible. It is the assumption required by that form of thought which attempts to read the language of relation in matter as if it constituted a genuine text.

Epistemology demands a choice and what we must choose is a destiny. Is ours the destiny of Cratylus: the simple failure to read the text of the world and the inhuman silence and inactivity that are the logical consequence of that failure? Or is ours the destiny of human history: (a) the freedom to imagine a foundation of sense in our experience or (b) the liberty to allow the mind actively to manufacture meaning in our lives by projecting reason into the void, into the perfect discontinuity, between one event and another? Human history issues in both speech and activity, but the humanity of the spectacle is open to question. Or is our destiny to think, in the sense of being open to the revelation of idea embodied in the forever mysterious text of the material world considered as a 'creation'?

Weil, unhesitatingly, affirms the latter. It remains for us to clarify fully this affirmation and its significance for her. As we have seen, her epistemology is securely founded upon the nature of thought as revelation and, essentially, she makes two claims regarding this account: (a) that it is a description of the phenomenon that is consonant with our consciousness of it and (b) that it is "experimentally" verifiable.

Let us now, briefly, turn our attention toward this latter claim. To begin with, she makes a distinction between knowledge and truth. In 'research' we can use the intelligence actively in order to increase our knowledge, but the simple acquisition of knowledge does not bring us any nearer to truth. It is only in certain cases that knowledge causes us to approach the truth. Namely, in those cases where it is a question of knowledge about something we love. In The Need for Roots she cites the following illustration:

If a man surprises his wife whom he loves and in whom he has perfect confidence being flagrantly unfaithful to him, he is suddenly brought into brutal contact with a piece of truth. If he happens to hear that some woman whom he doesn't know, whose name he hears mentioned for the first time, in a town he doesn't know either, has deceived her husband, that fact doesn't alter his relationship to the truth in the slightest.<sup>48</sup>

Thus the truth is not an object of our love.

It is not an object at all.<sup>49</sup>

The orientation of our Love is reality, something that exists and which one contemplates. Hence, the truth is, by its very nature, not something that can be seized. Thought means simply to contemplate or look upon things in love, waiting for their truth to be revealed or disclosed to the mind. To Weil this "waiting" and the revelation of truth that mysteriously flows from it constitutes the source of all great art, of all genuine science, religion and, indeed, of the whole of the genius of human culture. All error and mediocrity are the inevitable result of our active attempt to seize hold of the truth.

Thought, then, is for Weil of an univocal nature. As we will see more clearly in the following chapter, what Weil denies is the 'modern' distinction between fact and value, a distinction that stands at the very beginning of the 'history of philosophy' in the dialectic between nature and convention. If the aim of thought is to read "the mysterious wisdom eternally inscribed in the universe", then there can be no distinction or, rather, no opposition, between scientific and religious thought.

Scientific investigation is simply a form  
religious contemplation.<sup>50</sup>

In this sense, thought belongs solely to the "faculty of attention" and consists in focusing the attention of the mind on a piece of reality, in the desire that its truth be dis-

closed. To think is, before all else, to love, to desire contact with a piece of reality, and genius, as such, consists simply in the purity and intensity of that love.

There are primarily -- in this context -- two forms of human love. One which desires to take possession, to grasp its object; and another that is content to rest contemplatively in desire of contact. That this latter kind of love, in relation to thought, results in the openly mysterious revelation of idea in the mind, is to Weil something that is open to view on the surface level of our experience. It is something that we can perceive and thus experimentally verify within our experience.

To perceive, however, is not 'to explain'. What is perceived is the open and, yet, impenetrable mystery of the total discontinuity between the focusing of our attention in desire (or love) and the sudden revelation of idea in the mind. What she proposes is not an explanatory solution to this mystery but rather the adoption of a particular intellectual and spiritual stance designed, precisely, to avoid any such solution to what is intrinsically an insoluble mystery at the very centre of our being. We must make an assumption and nothing can guarantee for us the 'certain' legitimacy of one assumption over another. At the point of this initial choice we do not and we cannot know if there is a "beetle in the box", if there is a text. However, reason surely obliges us to choose the assumption which does least violence to our experience. For Weil it is this that justi-

lies the Platonic stance, for it preserves intact the open and genuine mystery of the simple discontinuity between contemplation and the revelation of idea in thinking.

To think, in her sense of "reading" the thought inscribed in the text of the universe, requires "grace"; for, such thought could only exist, if it exists at all, outside the limits of the world and of language, outside any sphere accessible to the active reach of the human intelligence:

... in Plato's mind, justice, temperance, courage and wisdom are not natural virtues. Supernatural love is their inspiration and immediate source, and they cannot proceed from elsewhere. The intelligence where it is creative, in true poetry, and even in techniques where it discovers things that are truly new, proceeds directly from supernatural love. Herein is a capital truth. It is not the natural capacity, the congenital gift, nor is it the effort, the will, the work, which in the intelligence has sway over the energy capable of making it fully efficacious. It is uniquely the desire, that is the desire for the beauty. This desire, given a certain degree of intensity and purity, is the same thing as genius. At all levels it is the same thing as attention. If this were understood, the conception of teaching would be quite other than it is ...<sup>51</sup>

On this level, education would consist solely in the development of the faculty of attention; of our capacity for "reading", in the proper sense of that term. This would function to sever the elitist connection between education and intelligence.<sup>52</sup>



When the world stands in opposition to our active attempt to will the satisfaction of our needs through labour, we feel ourselves subject to blind and ruthlessly indifferent force. When we are enabled to do things easily and without great effort, as through our technology, we feel ourselves to be the masters of force. For men in economically primitive societies, necessity, "the order of the world", has the tendency to appear as a brutal and irrational master; while for men in highly sophisticated forms of economy, nature appears simply as a slave, docile and obedient to our commands. But thought, as we have already seen, implies an escape from this false and inhuman dialectic of the master-slave relation. What thought requires is freedom in its relation to our activity, and neither the master nor the slave possesses such liberty.

Nature appears to us a contradictory juxtaposition of both "light" and "gravity".<sup>53</sup> On the macroscopic level of our experience, the world appears to us as a texture of blind and indifferent forces. Simultaneously, on the microscopic level, we find images that suggest a subtle and decisive movement of force toward the good. We find, quite simply, that there is an apparent beauty in the order of the world. Ultimately, nature (which is to say, the empire of force), appears to us not as a place of blind forces but, rather, as a place where:

these innumerable blind forces are limited, made to balance one against the other, brought to form a united whole by something which we do not understand, but which we call beauty.<sup>54</sup>

Contradiction or limitation is the essence of reality for the human being, for in the very nature of things no unlimited development is possible. The world, as we know it, rests entirely upon measure and equilibrium, upon ratio or number in the sense of the Pythagoreans. Thus, what we love in the world, the beauty of the world, is precisely that which we find in thought: the limited or necessary.

For Weil at the basis of the faculty of attention there lies an "absurd act" -- consent to necessity, to the order of the world. If necessity is the object of thought, then we must consent to it before we can contemplatively think it. Just as we must consent to the independent existence of a text before we attempt to read it with understanding. While this consent is, in itself, "absurd" it, nonetheless, constitutes the only possible basis upon which we can think necessity. Further, whether we consent or not, we remain in mind and in body purely obedient to the physical and psychological forces that go to make up the "conditions of our existence". Our only freedom appears, at first sight, as something infinitely small. We are free to consent to necessity or not.<sup>55</sup>

And, yet, this act has the power to alter everything for us.

It is only in thought that force (or compulsion) is transformed for us into necessity. In thought we look upon necessity with the attitude of neither the master nor the

slave. Our relationship to necessity is, there, simply the relation of thought to the object contemplated. If we can look upon the world purely in terms of necessity, purely in terms of the limitation or balance of forces, and, if, at the same time, we continue to desire the good, then we will be brought, by grace, to this supernatural consent to necessity, to the existence of the order of world. For Weil, this is not only the foundation of all genuine religion but of the entire range of human "thought":

The love which St. John bore for Him who was his friend and lord when he was leaning on His bosom during the Last Supper, is the same love which we should bear toward the mathematical progression of causes and effects which, from time to time, make of us a sort of formless jelly. This is manifestly absurd.

One of Christ's most profound and obscure sayings reveals this absurdity. The bitterest reproach that men make of this necessity is its absolute indifference to moral values. Righteous men and criminals receive an equal share of the benefits of the sun and of the rain; the righteous and the criminals equally suffer sunstroke, and drowning in floods. It is precisely this indifference which the Christ invites us to look upon and to imitate as the very expression of the perfection of our Heavenly Father. To imitate this indifference is simply to consent to it, that is, to accept the existence of all that exists, including the evil, excepting only that portion of evil which we have the possibility, and the obligation of preventing.<sup>56</sup>

Thus for Weil the object of all thought -- ethical as well as logical -- is necessity. Necessity is exactly that which appears to us as contrary to justice. There is no

identity or complicity between necessity and the good accessible to the intelligence, for the good, if it exists, exists outside the boundaries of the world. Here, the claim is that what we mean by "thought" is the expression (in language) of a necessary relation. Hence, necessity is solely the object and the content of thought. In this, the attempt to think justice is no different from the attempt to think nature in terms of equilibrium. For Weil, 'to think' means to think necessity and -- since we cannot think "the good" -- we must attempt rigorously to circumscribe the role it plays in relation to our activity, if we want to act thoughtfully.

At first sight, ethics appears to us in the form of a constant process of choice: we must choose good or evil. The necessary, however, is precisely that which excludes all choice, all freedom, excepting only the liberty of consent. Necessity is, above all else, indifference to anything which we might term "the good". Yet, at the same time, it is the "principle of co-existence" and, ultimately, justice for us consists in accepting the co-existence with ourselves of all other beings -- animate and inanimate. It is "permissible to have enemies, but not to desire that they should not exist".<sup>57</sup> What we today term 'values' are simply illusory pictures of the good, which -- by unleashing the passions from the control of thought -- lead us away from the imitation of this indifference. We fail to think precisely to the extent that we "overlook geometry", to the extent that we ignore the limited or necessary character of reality. It is

through the failure to think that we are led blindly by our desire for the good into acquisitiveness and all forms of imperialism.<sup>58</sup> It is this that constitutes the thoughtless frenzy of history.

Further, within our experience necessity is a pre-eminent characteristic of the "ethical situation". Those actions which we most unhesitatingly wish to term "good" are precisely those that are, in a sense, compelled. In the feeling of obligation there is something imperative. Hence, the character of spontaneous acts of 'heroism': Weil somewhere cites the case of a sailor who jumps into the water in order to save someone who has fallen overboard, and who afterwards dismisses his action by asserting that he 'couldn't help himself'. If we have food, and persons who are starving appear before us, we would surely feel some compulsion to feed them. We might resist this feeling, but can we imagine a human being who did not here feel any sense of obligation? To Weil it was inevitable that we will be compelled to act by our desire for the good. In such activity, however, we must attempt to imitate the indifference of necessity to value so as to preserve, in our ignorance of the good, the simple co-existence of all things. We will neither harm nor attempt to "do good" to other creatures and beings outside of those cases that are felt to be strictly obligatory.

For Weil, the "experimental proof" of the revealed character of thought lies in its relation to necessity. In looking at a box we have the 'certain' impression that we are

seeing, through a contact at once direct and real, the form of a cube. And, yet, this is not the case; no one has ever, nor will ever see a cube. The idea of the cube, the necessary relation between the sides, is not to be found in any of the appearances. The idea of the cube is revealed in the mind; it appears there suddenly and discontinuously in relation to our sense experience. The ability of human thought to "read" necessity of relation in the universe of matter constitutes an experimental proof and leads to a quite definite sense of 'certainty' regarding the ultimate and transcendental meaningfulness of the "book of nature".

After having read the Iliad in Greek, no one would dream of wondering whether the professor who taught him the Greek alphabet had deceived him.<sup>59</sup>

It is this that constitutes the foundation of the certainty of Socrates in the Phaedo, a certainty even in the face of death, that rests upon the assertion that the immortality of the soul stands or falls upon the existence of the ideas.

## CHAPTER III

### THOUGHT WITHOUT ACTIVITY: THE SOCIAL CONTEXT OF MODERN SCIENCE

In the early decades of this century the French artist, Marcel Duchamp, cleverly created an exhibit by suspending a geometry textbook out a Parisian window. By way of explanation he said that it amused him to think of "abstract principles" exposed at last to the elements. Such amusement at the evident failure of thought to represent accurately the infinite complexities of the world of our experience was characteristic of that era of revolutionary transition from the nineteenth to the present century. Everywhere the apparent absurdity of human existence was posited against the demands of reason and the formulation of rigorous thought.

Here, as in all modern conceptual revolutions, it was of course science that led the way. With Planck's formulation of the "quantum hypothesis", published in the year 1900, and with the announcement of Einstein's paradoxes, the rigorous, certain and fixed intellectual edifice of "classical science" collapsed. It was as if thought and human reason themselves had perished. Monsieur Duchamp's famous parodies of the scientific method came at a time when science itself had become a parody of its past.

Simone Weil lived and wrote at the height of this transitional era. She did not, however, believe in its "revolutionary" character. On the contrary, she viewed the

contemporary attack upon the nature of thought as the inevitable culmination of an historical process that had attended the birth of modern science in the Renaissance. She regarded the misogyny of contemporary culture as securely rooted in the misanthropy with which modern science had begun. Far from constituting a revolutionary advance she held this tendency toward the misogynous to be in conformity with the anti-intellectual requirements of a society bent upon the destruction of thought and, indeed, of all that is human.

The purpose of this chapter is to explicate Weil's analysis of modern science as a form of thought. In her view, the thought characteristic of our science issues directly from the basic separation of manual and mental labour that lies at the root of industrial society. As a form of thought our science developed in ever increasing isolation from contact with the world of man and of matter in action;<sup>1</sup> the sensible or tangible world of our experience of process and discontinuity. Modern science in its first or "classical" phase<sup>2</sup> -- between the Renaissance to around 1900 -- placed all its emphasis upon the 'continuous' and the 'necessary' and attempted to expel all evidence of the 'discontinuous' and the 'accidental' from its representation of the world of our experience. It is Weil's contention that, in the very superficiality of its revolt against the 'pure thought' of its past, contemporary science continues and infinitely advances the progressive alienation of human thought from human experience.



In what follows I have divided Weil's analysis and critique of modern science into two distinct, although very closely related parts, corresponding to this historical division of our science into its "classical" and "contemporary" phases. In her critique of the classical period [stretching from the sixteenth and seventeenth centuries to about 1900] what she emphasizes amounts to an implicit attack upon the crucial modern distinction between 'fact' and 'value'. As such it is essentially related to the second chapter on the corresponding Platonic distinction between "necessity" and "the good". On the other hand, her analysis of the contemporary period [from the formulation of the "quantum theory" around 1900 forward] is basically concerned with a critique of modern algebraic mathematics as an attempt to project the language of science beyond the limits of the individual human mind. In this, it is specifically designed to complement her analysis of the thoughtless character of manual labour as explained in the first chapter. Further, in its entirety, this chapter is meant to constitute a basis upon which to sketch her account of the possibility of scientific thought in the subsequent chapter devoted to her account of the science and mathematics of the Pythagorean tradition.

## I. The Classical Period of Modern Science

Ordinarily language functions without being either rigorously or primarily representational. However, 'to speak' and 'to think' are not synonymous. Thought is but one of a diversity of linguistic functions. The thoughtful use of language is that which does require representation. To think is to represent something in the mind out of the chaotic and 'senseless' generality of our experience.

In Weil's account 'thought' and 'experience' stand against one another as correlative contraries. Through the use of language thought represents what is not given in the course of our experience of the tangible world, namely -- that which we variously term: 'order', 'system', 'continuity' and 'necessity'. Our experience of the tangible is quite simply the experience of process: the constant flow of being in process of becoming that which it is not.<sup>3</sup>

On all levels 'process' is the reality of our experience of the tangible. It is process, the senselessness of the senses, that is the 'occasion' of our thinking at all. It is the process character of our experience that demands thought. The senses give us nothing that is fixed and determinate, that is solely a function of thought. As Weil writes:

Man is obliged to make definite systems for himself; he himself must fix the rules for his movements and construct objects of well defined form, instruments of play or work or, like the scales, of

measurement. He finds no definite systems ready made in nature around him, or rather, he finds only one -- the stellar system.<sup>4</sup>

To Weil the appearance of the stars in the night skies offers an image -- "like a toy given by God to man" -- of the character of thought. Alone in the universe of perceptible phenomena the system of the stars corresponds to a central and definitive human need and desire, namely -- our want of "a closed, limited and perfectly defined universe".<sup>5</sup> In other words, thought is occasioned by our need of and desire for something that we are not given in our experience of process: order. Games, work, and all 'theoretical' representations of our experience of the phenomenal world and human existence in general, aim at imitating the "perfectly definite sequence", the "rigorously defined" and "thoroughly closed" system of movements visible to the human eye in the night skies.

To Weil this was the aim of thought. However, since, at least on the level of appearance, we do not live in such a world but rather in a world predominantly characterized by "discontinuity" and "accident" and, since our existence within such a world is the very occasion of our thinking, thought and experience cannot be humanly defined other than in their correlative opposition to one another. The relation between thought and the experience of process and activity in our lives is an open but impenetrable mystery. They stand in juxtaposition to one another. Fundamental to Weil's critique

of the classical period of modern science is her analysis of its characteristic attempt to eliminate from consideration the experiential reality of the discontinuous.<sup>6</sup>

Classical science had a single unifying aim. It attempted to find a representation of all the phenomena occurring in the universe. As a model it chose the concept of work or, more accurately, of effort, the product of force times distance. It chose in other words the crudest and the most elementary form of human work -- labour devoid of "practice, knowledge, skill and inspiration"<sup>7</sup>, devoid of all that is human. Unconsciously, it chose, in fact, the nature of manual labour characteristic of the mode of production of the new industrial society.

In the choice of this model classical science fixed upon one of the two most primary manifestations of natural necessity in human life in any society. As Weil herself puts it in a previously cited passage:

Between any desire and its satisfaction we are faced with a distance which is, in a sense, the world itself; if there is a book on the floor and I wish to see it on the table, my wish can only be satisfied by lifting the book through the whole distance which separates the table from the floor.<sup>8</sup>

This constitutes the essential condition of all human activity. The unitary attempt of classical science was to represent all natural phenomena "by imagining, between two successive states confirmed in a system by observation, intermediate stages analogous to those traversed by a man executing

a simple manual labour".<sup>9</sup> As the basis of its attempt to formulate a positive science of nature, classical science chose as a model the relation between human activity and the "totality of geometrical and mechanical necessities" to which our actions are always subject.

Interestingly, it was at first upon a theological basis that man was eliminated from this representation of the universe. There could be no question of imagining anything like human will behind the phenomena of nature for, if such wills were at work there, they were of a supernatural order and therefore essentially unlike the human will in being exempt from the condition of labour. It was necessary to reduce the reality of human work to the inhuman level of simple manual labour for the analogy between work and the phenomena of nature to be established.<sup>10</sup>

There is, of course, nothing very surprising in an anti-teleological and anthropomorphic bent in any attempt to formulate a positive science of nature. The very idea of 'nature' was only born in contradistinction to the man-made or 'conventional' world of human society. Nature was that which no man had made. Consequently, a positive science is precisely the attempt to think that which man has not made, an attempt that requires the rigorous circumscription of man's desires and assumptions.<sup>11</sup>

The aim of classical science was to achieve a representation of the universe solely in terms of natural necessity. As we have seen, in this attempt it seized upon the fact of labour as one of the most fundamental manifestations of this

necessity in human existence. There exists, however, still another form of natural necessity which weighs equally with labour upon human life. It consists in the fact that time has a direction and, as Weil expresses it, that it is never a matter of indifference to us in which direction a particular transformation takes place. As she explains:

It sometimes requires almost no time or effort to knock a book off a table, disarrange some papers, stain one's clothes, crumple some linen, burn a field of wheat, or kill a man; but it takes time and effort to lift a book, put papers in order, clean one's clothes or launder linen, and it requires a year of labour and trouble to raise a new crop in the field; a dead man cannot be brought back to life, and it takes twenty years to replace a man in the world.<sup>12</sup>

For the analogy between the conditions of labour and natural phenomena to be complete this second manifestation of necessity had to be taken into account. This was the achievement of J.R.R. Clausius (1822-1888) who invented the idea of entropy and found an algebraic formula for its expression as a function of energy. Henceforth, it was assumed that every phenomenon involves a transformation of energy such that it is impossible under any imaginable circumstances to restore exactly the initial state of energy in that system. For Weil this was the culminating achievement of classical science and represented the most complete triumph of the idea of limit in Western science since Eudoxus. The functional relation of energy and entropy appeared to justify the great optimism of science in the

nineteenth century. It was now thought possible to read, through the aid of calculation and measurement, simple variations of energy and entropy in accord with a single and simple law in all the phenomena of the material universe. However, as we shall see, this intoxicating prospect was merely the prelude to intellectual disaster for classical science.<sup>13</sup>

The sole endeavour of classical science was, to use Weil's terminology, the reduction of all natural phenomena to representation in terms of "continuity".

The whole effort of science, since Galileo, consisted in reducing all phenomena without exception to changes in the relationship between space and time, admitting no variable factors except distance, velocity and acceleration. Space and time can only be represented as continuous quantities, and energy is precisely the idea through which everything can be reduced to space and time. If I am two kilometres away from a place and walk until I am one kilometre from it, then no matter what road I have taken or what detours I have made, I shall have passed through all the intermediate distances between two kilometres and one kilometre...<sup>14</sup>

It is just this attempt that is at the centre of Weil's critique of classical science for it is exactly here that it fails as a form of thought.

For Weil, as we have already mentioned, thought involves by its very nature a juxtaposition of the continuous and the discontinuous; a correlation that reflects the contradiction between thought and experience essential to the human being.

As a consequence the heart of her critique of classical science involves its characteristic attempt at representing the natural world solely in terms of the continuous.

At first sight this might appear a strange complaint against our science, and particularly so at its nativity. After all, it is the empirical claim of this science that has always defined its novel and revolutionary departure from the previous history of human culture. It has long been held that the essential characteristic of the modern scientific mode of thought is its experiential reference and its principle of empirical verifiability.

Nonetheless, the basis of Weil's critical analysis is the charge that our science, from the first phases of its history, took the reality of language -- in the form of its own representation of nature -- to be the complete reality of the phenomenal world. Progressively, it chose the reality of language, and specifically of mathematics, over the reality of things or, more accurately, of events. To express this in a different but equivalent fashion; classical science chose the continuous character of thought over the discontinuous, process reality of human experience. Such a choice between words and things, between thought itself and the experience of process is not for the human being.

It is Weil's view that, for the human being, reality is defined solely by the open [but profoundly mysterious] correlation between our thoughtful use of language and the experiential world of process in which we are, for better or for



worse, inescapably caught. The nature of thought is thus rooted in the essential contradiction of our being. The anthropological situation is that of a "thinking being":

divided from himself in his most animal desire and in his highest aspiration, by the distance in time between what he is and what he is tending to be.<sup>15</sup>

What is more he is a creature who exists within an "extended world" comprised of all that escapes him for:

he is confined to one point, like a chained prisoner, and cannot be anywhere else except at the price of time and effort and of abandoning the point he started from.<sup>16</sup>

Space and time thus constitute a single form of necessity, sensed in different ways. Intrinsic to the human being, however, is an irrepressible desire that drives thought to reach beyond time and space. In Weil's opinion we only aspire to think because we feel ourselves "made for something other than time and space". The ultimate and impossible aim of all thought is not necessity but the eternal. Thought is characterized by a striving toward the mastery of time and space. It is the very nature of human thought to seek "to dwell in eternity, to embrace and dominate time, to grasp the whole extended universe at all its points at once".<sup>17</sup> Hence it is precisely as "thinking creatures" that we are caught between a subjection to the "necessary", in the elemental form of time and space, and our desire for "the good" in the form of the eternal. This contradiction which defines our

condition is the anthropological foundation of the correlation between the 'particulars' of our experience and the 'universals' of our thought.

The necessity of time and space stands forever opposed to this ultimate aspiration of thought toward the eternal, and it is thus that thought is always both difficult and incomplete. The wonder is this: that through the thoughtful use of language sounds and objects that only exist within the bounds of time and space nevertheless offer the human being images of the eternity that he desires.

In certain of the works of man this image is provided by such conceptions as limit, order, harmony, proportion, regular recurrence, by everything which enables man to embrace in a single act of thought a juxtaposition of places which is equivalent to all places, a succession of instants equivalent to all instants -- as though man could be everywhere at all times, as though he was eternal.<sup>18</sup>

It is these "images" which for Weil constitute thought itself. In science or in art the 'reality' which thought defines and represents to the mind consists "in a just blend of unity with that which opposes unity".<sup>19</sup> As will be argued in the subsequent chapter, on her reconstruction of Greek science, it is precisely this which constitutes the practice of mathematics.

In Weil's analysis it is here that the basic fault of classical science lies. In its drive to find a single representation for all natural phenomena it was increasingly forced to ignore and to deny the reality of the discontinu-

ous. As we shall see later, classical science was built explicitly upon a rejection of human experience as 'subjective' and 'illusory'. In building her case Weil relies equally upon the role played by the notion of the "negligible" in physics and the essentially theoretical character of scientific experiment and observation.

All the data concerning a particular phenomenon that did not fit the representation of that phenomenon, as derived from the predominant mass of data, was placed by physics in a category that it termed "the negligible". Classical physics not only neglected the content of this category, as it was meant to do by definition, it also neglected and repressed as far as possible any consideration of the very notion of the negligible. It simply dismissed the negligible as that which is insignificant. Weil, on the contrary, insists that the negligible is precisely that which must be neglected if physics is to be constructed.<sup>20</sup> For every thought which attempts to represent experience there is something which is neglected, and that something is nothing more nor less than the "infinite error" which is the price of all thought.

What is neglected is always as large as the world, exactly as large, because the physicist neglects the whole difference between something that happens in front of his eyes and a perfectly closed, perfectly definite system which he conceives in his mind and represents on paper by symbols and signs; and this difference is the world itself; the world which presses around every morsel of matter, and filters into it, and inserts infinite variety between two points no matter how close together, the world which makes any closed system absolutely impossible.<sup>21</sup>

Classical science attempted to use the notion of the negligible to suppress, in the hope that it could ultimately deny, the existence of all the data that did not fit into its mechanical and "flat" representations. All that did not fit with its theoretical images was thus conveniently disposed of. In this classical science radically chose the reality of language and theory, the reality of the continuous, over that of human experience where we are everywhere faced with the discontinuous flow of process. In dismissing from consideration the role played by the negligible in the formulation of scientific thought, classical science dismissed the very difference which separates thought and language from experience. In his mental labours the physicist of the classical era lived in a laboratory world of rigorous constructs, a world fixed and determinate and in striking contrast to the ordinary world of everyday human experience. This opposition was not clearly conceived and by the end of the nineteenth century our scientists had come to believe that "there were no more things in heaven and earth than in their laboratories -- and indeed in their laboratories only at the moment when an experiment succeeded".<sup>22</sup>

In Weil's analysis to think is to apply language to experience; it is to use language to determine and thus to represent that experience to the mind. Classical science "was an attempt to apply language thoughtfully to nature [-- the realm of being external to the world of human creativity]. Specifically, it attempted to apply a particular mode of

language to nature, namely, the language of mathematics. Mathematics has long been considered the quintessential language of thought. For Simone Weil, as for Plato and the Pythagoreans, to think means to think mathematically. In their definition thought consists in the application of number in its original sense of ratio -- two quantities that vary proportionately without ceasing to be linked by a fixed relationship -- to the world of our experience and to the process of our own activity in that world.<sup>23</sup>

Mathematics, no less than any other form of language, is only applied to the phenomena of our experience at the price of all thought: the "infinite error" of all that is automatically neglected. What is more, there is an "infinite error" implied in language itself in so far as it needs objects and images, for the signs and symbols of language differ infinitely from the ideas that they represent. In repressing, while using, the idea of the negligible, classical science failed to recognize the existence of this "infinite error" in the linguistic character of thought itself. As a result it mistook its images and 'words' for the phenomena that were the supposed object of its study.<sup>24</sup>

The idea of the straight line and the chalk mark on a blackboard representing it are two quite distinct entities. Similarly, a world of difference exists between the beam of a balance and the physicist's conception of it as a straight line revolving around a fixed point. Straight lines and fixed points are not things that can be seen and touched for they are not 'things' at all. They are ideas. Physics can

only be constructed by ignoring this difference in favour of idea and that is what both Archimedes and Galileo did. They chose to believe the image in the eye of the mind over that in the eyes of the senses.<sup>25</sup> As will be seen more clearly in the next chapter, an essential distinction between modern and Greek science lies in the fact that Archimedes was fully conscious of the difference between the tangible and the intelligible while Galileo was not.<sup>26</sup>

The either/or dilemma characteristic of the modern epistemological attempt to determine the relation between 'words' and 'things' misses the open but profoundly impenetrable character of that relation. In Weil's account all that can be said of this relation is:

that the chalk on the blackboard allows me to imagine a straight line; and it is only in this sense that figures can be images of geometrical ideas, not because they resemble them, but in so far as they allow us to imagine them.<sup>27</sup>

Now, there is an important sense in which scientific observation and experiment are analogous to the figures of the geometer. In formulating a problem the geometer begins by conceiving and imagining a perfectly systematic arrangement of elements such as points, distances and angles. If the resultant figure suggests to his imagination an element or elements that he has not placed in it, then he scraps that figure and draws another free from these foreign intrusions. It is in a perfectly equivalent fashion that a physicist, in

the study of a problem, imagines a perfectly closed and systematic arrangement of elements in which nothing is permitted to enter except what he himself has placed there.

In what we today term "pure" or "mathematical" physics, this system of elements is comprised of mathematical symbols combined in formulae. When these equations are represented by objects we have an 'experiment' and the experimental science of physics. The experimental physicist translates the symbols of his equations into objects in three dimensional space. He arranges these objects in relation to one another in accordance with the relations governing the mathematical signs. He then leaves the experimental system open to change and observes what occurs.

The success or failure of an experiment is judged by the degree to which the relations between the things accord with the relations between the signs. In the event of failure, the physicist, like the geometer, attempts to modify his experimental system so that it more exactly accords with the purely theoretical system of linguistic signs in his mind. And, often, in view of unsuccessful experimental results, he is led to modify his theoretical system so that it can be more easily represented by objects. But here too the method is inevitably the same:

the experimental device is always an imitation of a purely theoretical system, even in the case where the system has been reconstructed after a setback, in the light of experiment.<sup>28</sup>

This is in fact the only way in which necessity can be conceived. Necessity can only be represented to the mind in the form of a small number of determinate conditions. The price of our thought is an infinite error because the actual conditions to which we are subject are innumerable and beyond expression in clear and conscious language. Thus our thought is such that we must always be prepared for accidents and surprises. Classical science was not so prepared and it was eventually to be destroyed by a variety of accidents and surprises that it had itself consigned to the Pandora's box of "the negligible".

Let us now examine more closely Weil's account of the open and yet impenetrable mystery of the originality of thought that lies on the surface of language in the relation between idea and the expression of idea.

Once we have clearly understood that scientific experiment and observation are "imitations" of mathematical ideas we are still left wondering at the relation between these ideas and the 'things' or 'events' of nature which are supposed to constitute the 'object' of physics.

The essential question then becomes: what is meant by the term 'imitation' in reference to this relation? Traditionally, this is, of course, the first question of epistemology. It is also the first question of modern philosophy; that is to say, of the philosophy of Western Europe that was born in conscious relation and reaction to the intellectual problems and the discoveries of the new sciences of the



sixteenth and seventeenth centuries. It is, inevitably, the first question of any philosophy that claims to be the philosophy of a positive science of nature.

Weil rejects the philosophical primacy of this question in favour of a simple description of this relation as it is found on the surface of human language.

She takes, for example, the case of two marks drawn by a geometer in chalk. One is designated a "straight line" and the other a "curve". While the mathematician can ignore the epistemological question of what constitutes the difference between the two chalk marks, the physical scientist cannot for he is concerned ultimately:

not with the closed systems which he constructs in his mind with the help of symbols and figures, but in the relation between these systems and the things in the world.<sup>29</sup>

In her view it is of the nature of this relation that it is and must always remain "impenetrably obscure".

First of all, if we take the simple case of the straight line and ask: what is it that makes or allows us to think of it in relation to the chalk mark, we find that it is "directed movement":

that is to say the project of movement: the sights that suggest a straight line ... are a point, that is to say, a place, if he thinks of a path leading from one to the other, or of the mark left by the movement traced by a mind thinking of a straight line -- a mark of chalk on a blackboard, of pencil on paper, of a stick in the sand, or any other mark.<sup>30</sup>

We only see because of movement; the movement of things about us and our movement about things. However, as seen in an earlier chapter, this relation which constitutes the very foundation of perception is itself an impenetrable mystery. Our mental images of 'things' are not contained in any of the perceptions of the thing. And here too there is no discernible connection between movement or the "project of movement" and the idea of the straight line.

For Weil this is not the only mystery intrinsic to the symbol of the straight line. There are others. In her essay, "Classical Science and After", she lists three, concluding that they "admit of no clarification beyond stating them and distinguishing between them".<sup>31</sup>

First of all, in thinking of straight lines, pure angles, and perfect triangles we are aware of an act of thought that is consciously detached from the tangible world of process. As a consequence, we are greatly tempted to conclude that these conceptions are an active product of our own minds; that we invent them. In fact this has long been a conclusion to which one tradition of our philosophy has been driven. As a conclusion, however, it is by its very nature purely hypothetical. It cannot be substantiated; it can only be assumed as a plausible and possible account. What is more, it fails to explain an essential feature of these conceptions, namely -- the origin of the "necessities and impossibilities" that are inherently a part of these ideas.

For example, the impossibility of counting the points in a straight line, or the impossibility of joining two points by more than one straight line.<sup>32</sup>

These are not invented, they are discovered by the mathematician. It is possible, of course, to construct or invent purely conventional forms of language. The non-Euclidean geometries of contemporary mathematics are a case in point. Here, there are no "necessities and impossibilities" to be discovered. However, for the human being as a thinking creature, the Euclidean and non-Euclidean geometries are on different levels. In their very liberation from these "necessities and impossibilities" the non-Euclidean geometries are unimaginable. Their 'ideas' are non-representational and in formulating them we are driven to such desperate and senseless expedients as attempting to imagine curves when straight lines are spoken of. It is precisely that which is discovered by the mind in Euclidean geometry, the 'necessary' and the 'impossible', that constitutes the thoughtful character of this mathematics as a form of human language.<sup>33</sup> The necessities revealed in the Euclidean geometry are imposed directly on the mind and with the full force of the imagination. We see them.

A second mystery concerning the straight line is that we can only think of it with the help of objects -- a tree branch, a chalk mark or the path traced by a human movement. Furthermore, it is not just any object but only certain

objects that can represent particular ideas. While a tree branch is something infinitely removed from a straight line, it is capable of representing the idea. An apple is not.

Finally, there is the astonishing fact that language in general, and mathematics in particular, works. By using these objects that are infinitely removed from the ideas that they serve to represent we can and do act effectively.

A branch tossed by the wind bends a little, but it still suggests to me a straight line in relation to the angle. If I break it off, insert one end beneath a stone, and press on the other end to raise the stone, it is still with the thought of the straight line in relation to the angle; and, although there is nothing in common between the branch of a tree and a straight line, and I know it, I am often successful.<sup>34</sup>

That language should be a condition for effective action is profoundly mysterious.

To Weil each of these constitutes a distinct and open but irreducible mystery existing on the surface of our thoughtful use of human language. If we posit an account which suggestively solves the mystery of one, we succeed only at the cost of deepening the others.

For example, if we admit that geometrical relations really are the laws of the universe, we make it more astonishing than ever that actions should be successful which are regulated by a deliberately and infinitely erroneous application of those relations; and, if, on the other hand, we admit that they are mere epitomes derived from a large number of successful cases, then we fail to account for the necessity which is attached to

them and which does not appear in an abstract epitome of them, nor for the purity which is their essence and makes them foreign to the world.<sup>35</sup>

As we shall see, in relation to the historical dialectic between "classical" and "contemporary" science, the dilemma intrinsic to such attempts is, perhaps, written into their assumptions.

Weil summarizes her position concisely in the following manner:

When thinking geometrically we always think that the line is something pure, a work of the mind, and outside the world of appearances; and that certain necessities are attached to it; and that these necessities really are the actual laws of the world; and that certain objects in the world which help us to imagine the straight line, and without which we cannot imagine it, are infinitely different from it; and that by acting as if they were straight lines our action will be effective. There is more than one contradiction here. And, yet, strange to say, these contradictions, which are impossible to eliminate, are what gives a value to geometry. They reflect the contradictions of human condition.<sup>36</sup>

As will be seen more clearly in the following chapters, it is precisely the attitude of mind toward these contradictions that distinguishes the science and mathematics of the Greeks from that of modernity.

It was from these contradictions that encompass and define our being that classical science attempted to escape. The many intellectual peculiarities of this science, as a form of thought, are rooted in this attempt. Since its birth

modern science, has been a (if not the) predominant source of philosophic concern and perplexity. In actuality modern philosophy was born out of the epistemological problems and attendant discoveries of the new sciences. Descartes, on hearing of Gallileo's trial and condemnation, considered burning his manuscripts for "if the movement of the earth is false, all the foundations of my philosophy are also false".<sup>37</sup> Since the Renaissance our philosophy has often been described, and has often described itself, as the "hand-maiden" of modern science. Few are those who would dispute the claim that since that period a primary attempt of our philosophy has been to provide a firm intellectual basis for the scientific and technological enterprise of the past five centuries.

The attempt of philosophy to provide such a foundation was conditioned and determined by the peculiar intellectual origin of modern science. The peculiarity of this origin stands disclosed in the subordination of philosophy to science. Chronologically, modern science preceded modern philosophy; the latter originated out of and defined itself in relation to the former. In this the traditional relation between philosophy and science is inverted, for since Aristotle, if not since Thales, the traditional role of philosophy was as the first and the most universal of the sciences. Philosophy was the ontological science of being underlying all the particular sciences.<sup>38</sup> Our form of modernity opened, in all its intellectual oddity, with the casual and even unnoticed inversion of this relation.

As one historian of the philosophy of our sciences has noted, one of its salient features has been, from the beginning, the "curious and exasperating" fact that:

none of its great representatives appears to have known with satisfying clarity just what he was doing or how he was doing it.<sup>39</sup>

In fact, all they knew was that they had discovered an exciting and an intoxicating new activity that was seen to yield a novel and a strangely fascinating body of knowledge with technical applications capable of dramatically transforming the social scale of our activity in this world.

We can perhaps see that under these seductive circumstances it seemed relatively unimportant that no one knew the 'what' or the 'how' of this new activity. In the interim it seemed both safe and necessary to assume that science was a thoughtful form of human activity; that it was, indeed, the most preeminently thoughtful of human activities. This assumption was intellectually required for the continuance of the practice of science and the famous 'scepticism' of modern philosophy was from the outset limited by an acceptance of this requirement. Although Weil herself does not put it in these terms, we can, perhaps, best understand her position by saying that the first question of modern philosophy became the epistemological question implicit in the success of the new science of nature, namely -- how is it possible to think a world in which all phenomena are caught in temporal and spatial process? How is it possible for us to think that

which is, by definition, unlimited and indeterminate in its relation to the human mind and the basic instrument of its thought, language?

Descartes initiated a procedure that was to be copied more than once in the succeeding centuries. He attempted to use "methodical doubt" in order to establish a foundation for thought. However, something remained beyond the reach of all doubt, namely -- the possibility of our being able to think process. The question of scepticism -- is it possible to think process -- has philosophical primacy over the question: how is it possible? For us, however, the former question arose, not at the beginning of the scientific enterprise, but in its midst. It arose in the middle of one of the most exciting and promising forms of human activity ever discovered. It arose at a point where it seemed impossible and unthinkable that the answer might be negative. It appeared that the answer must be: yes, of course, it is possible to think process for that is what our science is doing, and its activity is undeniably and magnificently successful.

It is, perhaps, in this way that modern philosophy, through its subordination to modern science, became caught in what Weil describes as a dilemma. It became limited to the attempt to demonstrate how it is possible for the human being to think process. Here there are only two basic possibilities and, for the sake of clearly understanding Weil's own formulation of this dilemma later in the chapter, let us briefly examine them.



First, we can attempt to deny the appearance of process by assuming the existence of something elemental, something fixed and determinate, beneath or behind the sensible level of appearances. Thus classical science assumed the existence of 'primary' or 'objective' qualities underlying the 'secondary' or 'subjective' qualities of our sense experience. Science was the art of thinking hard fact. The 'object' of scientific thought was the disclosure of this fundamental level of reality inaccessible to the perception of the senses. In this way the entire sensible world of human experience was swept away in favour of a world of cold, monotonous and dreary abstraction. Now, the problem with this assumption of the determinate as the basis of epistemology is that the evidence of the indeterminate cannot be forever repressed.

Hence, this first "solution" to the problematic possibility of thinking process leads invariably to another and contradictory conclusion. Namely, that the foundation of thought lies in the mind itself and is constituted by the limits of the mind's reach into the infinities of spatial and temporal process. In this way the natural science of the classical era was succeeded by the contemporary conventional or historical science of man and matter in process. Here the foundation of thought becomes the "minimum time" and "minimum space" required for phenomena to be manifest to human sensibility.<sup>40</sup> But this too is a 'foundation' built upon thin air for implicit in it is the recognition of the existence of an infinite range of processes too small and too rapid or too

vast and slow for human perception. The recognition of this obvious fact is often held to mean the end of philosophy. However, if this is where philosophy ends, it is also where it began.

It is this dialectic of history,<sup>41</sup> born out of the modern attempt to formulate a philosophy of natural science, that constitutes the basis of what is perhaps the most characteristic distinction of modernity: the distinction between 'fact' and 'value'.<sup>42</sup> The epistemological assumptions required by classical science gave rise to the view that language, (and consequently thought), is divisible into 'descriptive' and 'prescriptive' components, corresponding to the distinction between 'primary' and 'secondary' qualities. In the classical scientific era the distinction was held in favour of fact. The thought of science was possible because of the hardness of the factual realm of the primary qualities. As a direct implication 'value' was deemed to be unthinkable because of its essentially 'subjective' character. From the very beginning this distinction took the form of a dilemma: either it is possible to think fact and impossible to think value or it is possible to think value and impossible to think fact. Science is either natural or conventional; it is either the knowledge and thought of that which we do not create or it is the knowledge and thought of that which we do create.<sup>43</sup> Implicit in Weil's position is a striking rejection of this dilemma. It is a rejection that

is implied in her analysis and critique of the distinction between the classical and contemporary phases of modern science.

For Weil what is represented by thought is not process but rather something which stands against process and is infinitely removed from the phenomenal world. It is neither 'fact' nor 'value' that we think; neither 'necessity' in itself nor 'the good' but, in the words of Plato, the "secret persuasion" of necessity toward the good. As we will see in more detail in the next chapter, our situation as thinking creatures located between ignorance and wisdom, makes the 'limited' or 'natural' good of the ancients and the primitives the real object of human thought. In this, an idea -- such as the idea of 'justice' -- becomes a particular translation of the idea of the ideas: necessity. If justice consists in the natural equilibrium between ourselves and all other creatures, injustice and its attendant punishments in the nemesis of upsetting that equilibrium, then it becomes as thinkable as the traditional ideas of science.

Thus, in Weil's opinion we cannot philosophically maintain that the origin of thought lies in either nature or convention. Each of these positions requires the assumption of something vital that we are not 'given'. In the first case, which is that of classical science, what is required and appropriated is the existence of something 'primary' and 'elemental' within nature. What is required here is a god. In the second case, which is that of contemporary science,

what is assumed, or rather presumed is our own divinity. We become the sole originators of thought and significance in a universe of accidents and senseless chaos. As in the philosophy of Thomas Hobbes we become gods in nature creating a universe of values. Against the dreary and inhuman determinism of the one and the dreadful and false liberty of the other, Weil poses the traditional religious and philosophical stance as the only hope of our avoiding the 'final solution' to what is the central and insoluble mystery of our being. Namely, this: whence comes the idea of a straight line when I look at the beam of a balance that is a thing nothing like a straight line?

To this question there is no answer accessible to the human being. Weil's description of the surface mystery intrinsic to the thoughtful use of human language constitutes an attempt (a) to compel us to recognize that this mystery, while fully open to view, is impenetrable and insoluble and, as such, constitutes the very essence of the human situation; and (b) to disclose something of the intellectual consequences of such solutions that are bought only at the price of violence to our humanity as thinking beings.

As will be seen in the next chapter, Weil rejects this historical 'dialectic' in favour of an ancient account of the mathematical character of thought. In her reconstruction of the mathematical science of the Greeks she argues that to think is to think mathematically, and that mathematical thought involves the articulation of an intermediate relation lying between the continuous and the discontinuous, the

determinate and the indeterminate, unity (1) and plurality (2). As for the world of nature: all that we can know and say of it is that it is subject to necessity. Subject to a necessity that can only be defined by laws of quantitative variation in which there is, strictly speaking, no quantity but something analogous to both quantity and quality. That is to say, by a function, a unity of quantity and quality characterized by a degree of certitude intermediate between the absolute certitude of the determinate and the chaotic unintelligibility of the indeterminate; a middle ground corresponding to our situation as human and thinking beings located between ignorance and wisdom.

## II. The Contemporary Period of Modern Science

Let us now turn to an examination of Weil's account of contemporary science, born with Planck's publication of the "quantum theory" in 1900. In her view, contemporary science constitutes a further and an even more disastrous development in the history of modern culture. By the end of the nineteenth century science could no longer suppress evidence of the discontinuous in nature. In every branch and department of classical science the discontinuous emerged and imposed itself upon the attention of the scientist. In itself this was a potentially positive development. It provided an opportunity for repairing the intellectual inadequacies of

the scientific past. This, however, did not happen. In Weil's analysis what happened, with the formulation and the acceptance of the "quantum theory", constituted instead the final and the most complete triumph of language -- in the form of an algebraic mathematics -- over thought. The rest of this chapter will be devoted to an explication and an examination of this claim.

To Weil contemporary science was classical science "minus something", and that something which had been subtracted from it was its intellectual core. Her claim is that the "quantum hypothesis" removed the very principle upon which classical science had been founded; namely, its principle of representation, the analogy between the phenomena of nature and the conditions of human labour.

According to her account what happened in physics, at the centre of classical science, was this. Certain experiments concerning the nature of light were performed and the results led to contradictory conclusions of a very basic character. It was found that light rays sometimes appear to act in accordance with the "particle theory" of matter, which was fundamental to classical science, and sometimes they appear to act like waves. That is to say, in the one case they appear to be composed of fixed and continuous elements and, in the other, of a process of discontinuous movement or activity. The discovery of this contradiction struck at the very heart of physics and, through physics, at the whole of classical science, for it directly involved one of the most basic conceptions of that science, the notion of 'energy'.<sup>44</sup>

The scientific re-discovery of the reality of the discontinuous ought to have halted the progress of science and resulted in a re-thinking of its foundations. What happened was something else. The principle of the discontinuous was blindly incorporated into the very heart of classical science. The "quantum theory" simply embodied the contradiction by ignoring it. In the past science had succeeded largely through the accumulation of results, and this new situation did not appear to be radically different. By ignoring the contradiction in its experimental results the activity begun by classical science was allowed to continue, and it rushed on to its twentieth century developments and achievements either oblivious to its own intellectual destruction or actively glorying in the triumph of the irrational over the dreary, monotonous and inhuman rationalism of its classical past.

The "quantum theory" attempted to think of energy or, more exactly, of action, the product of energy and time:

as a quantity which varies discontinuously, in successive jumps.<sup>45</sup>

It is each of these "jumps" that is defined as a 'quantum' of energy. It is perhaps best to quote here Weil's own succinct and concise statement of why the intellectual attempt of the "quantum theory" is impossible. She puts it this way:

energy is a function of space, and space is continuous; it is continuity, par excellence; it is the world conceived

from the point of view of continuity; it is things, in so far as their juxtaposition encloses the continuous.<sup>46</sup>

Clearly, we cannot think of space and, consequently of energy, in this way for in order to do so we would have to be able to think of continuity itself as discontinuous. It is an undeniable fact of the history of contemporary science that this simple contradiction in terms constitutes the intellectual basis of its active technological enterprise in the world; a situation which Weil compares to that in the classic fairytale of Hans Anderson, "The Emperor's New Clothes".<sup>47</sup>

In Weil's view, it is this simple and fundamental contradiction in terminology that accounts for the new-found mystical profundities of contemporary physics that are so notoriously difficult to express. The problem is simply that the mathematical formulae in which its theory is embodied are devoid of meaning. They 'represent' pure contradictions in terminology that can neither be translated into ordinary language nor in any way expressed imaginatively in the mind.

This is not a situation that is hidden in contemporary science. Planck himself was quite lucid about the new method.<sup>48</sup> The only criterion by which a particular scientific formula is now to be judged is the success of certain calculations, experiments and technical applications derived from it. Its significance lies in nothing other than its utility. This reduces science to a state that is intellectually equivalent to the practice of magic. Science becomes



nothing more nor less than the technical success of certain signs and numbers combined in formulae. That is to say, it becomes the success of language divorced from both thought and understanding alike.<sup>49</sup>

For Weil the "quantum theory" was the final step in an historical process, going back to the birth of modern science, in which language itself came increasingly to displace thought. With the triumph of the "quantum revolution", that process had finally come to completion, and science had ended by becoming simply a method for manipulating the conventional signs and symbols of language in order to achieve certain technical results. Even to term the use of mathematics in contemporary science a triumph of language over thought is problematical, for this language has a notable peculiarity:

it means nothing. A peculiarity that makes it difficult to translate.<sup>50</sup>

In this, Weil's analysis is supported by the history of modern science. From its beginnings our science required a new form of human language. It required a language capable of projection beyond the range of the human senses, on the one hand, into the dim and microscopically distant world of 'objective', 'primary' qualities and, on the other, to all that was too vast and too slow in the movement of the heavens for human perception. Specifically, it required a new mathematics that was not limited to the spatial world of geometry. The invention and introduction of algebraic symbols for geometric relations, a process that began in the fifteenth

century, provided precisely such a language. At first, however, this new language was allowed only in the carefully circumscribed scientific role of an auxiliary language. Until late in the sixteenth century mathematics, in its application to nature through the new sciences of mechanics, hydraulics, optics and astronomy, was characterized by a rigorous insistence upon a method of "geometrical reduction".<sup>51</sup> Science demanded the utmost possible simplicity and clarity of expression in its geometrical representations. Thus all complex figures had to be reduced to the simplest possible equivalent figures. At the time this was, in itself, a very complicated and time-consuming process and various mechanical schemata were invented to aid the scientist mathematician. Such, for instance, was the "geometrical compass" invented by Galileo in 1577.<sup>52</sup>

This concern and the trouble it involved gradually came to be seen as a factor retarding the progress of science. An insistence upon the geometric expression of the relations representing natural phenomena slowly came to be regarded as a conservative and unnecessary dependence of the mind on visual images. A dependence that would inevitably check the advance of science as specialization resulted in the increasing accumulation and complication of data. This happened gradually over the course of centuries and was only to come to complete fruition with the birth of contemporary science around 1900.

The general question of the relationship between thought and representation is philosophically a very difficult one. Here, however, we are dealing with a specific case, namely, the relation between scientific thought and representation. It is this case which is basic to Weil's argument in her critique of the algebraic language of mathematics. A positive science consists in the attempt to think natural phenomena and, as such, if it is possible, it is a form of thought that must exist on the level of sensible representation.<sup>53</sup> Such a science is precisely the attempt to think that which is sensible and a 'scientific' explanation that cannot be represented to the mind is neither 'scientific' nor 'explanatory'. In Weil's analysis the fault of classical science was not that it was non-representational but that it presumed to offer partial and incomplete representations as if they were not themselves thoughts or 'images' but pictures of the actual phenomena.<sup>54</sup> It mistook the rigour and fixity of thought for the determinate structure of nature itself. The essential fault of contemporary science lay in its radical continuation of this trend in which, even these impoverished pictures are abolished.

Science consists in the application of human language (in the quintessential form of mathematics) directly to the world of natural process. With geometry we are capable of representing relations and relations that are lucidly perceptible to the human intelligence. The virtue of geometry, as a form of human language, is that its limits are the

limits of representation and, hence, scientifically, of thought. In geometry, language is as closely tied to thought as possible. As a form of language an algebraic mathematics constitutes an entirely different case.

According to Weil, in algebra the signs are combined into formulae according to the laws governing the things (or processes) to which they correspond. The difference between algebra and geometry is that the signs of algebra do not directly represent or image these relations to the mind. What is more, one cannot in fact handle them and, at the same time, keep the relations they signify present to the intelligence. The result, which is an immediate result of algebra, is that:

one handles them as if they combined together according to their own laws.<sup>55</sup>

Given a certain definable level of complication, dependent upon the variable mental acuity of the individual, the mind cannot translate and geometrically represent to itself the relations involved after the equations have been handled.

However, the data which constituted the subject matter of modern science was unlimited in its complication. As a consequence a mathematical language was required by science that could deal with such infinitely complex relations. With the fundamental separation of mental from manual labour at the root of modern industrial society, specialization became as characteristic of intellectual culture as of economic production, and with equivalent quantitative results. As a

result the progress of science depended upon the development of an ever more sophisticated algebraic instrument. Increasingly, mathematics became a purely linguistic science of signs. It developed by working to widen the significance of signs, to invent new signs to signify signs and, as Weil graphically puts it:

at each floor -- if one may so express it -- one inevitably loses sight of the relationship between sign and thing signified, the combinations of signs, although they remain rigorously methodical, very soon become impenetrable to the mind.<sup>56</sup>

A level is quickly reached in which no human mind could represent to itself the complexity of relations involved. Weil lived some forty years before the advent of the 'home computer' but she clearly saw the purely automatic and mechanical character of an algebraic mathematics. Her point is today empirically illustrated by the existence of an "algebraic machine"<sup>57</sup> in the form of the "computer" that is now indispensable to the progress of contemporary science.

With the mechanical role of algebra now materially and officially established and universally recognized in the formulation of scientific theory, her criticism becomes infinitely more poignant.

The process of calculation places the signs in relation to one another on the sheet of paper, without the objects so signified being in relation in the mind; with the result that the actual question of the significance of signs ends by no longer possessing any meaning. One thus finds oneself in the position of having

solved a problem by a species of magic, without the mind having connected the data with the solution. Consequently ... as in the case of the automatic machine, method seems to have material objects for its sphere instead of mind; only in this case, the material objects are not pieces of metal but marks on white paper.<sup>58</sup>

The thoughtful use of language is a primary condition of the effective activity of the individual in this world. Also, it is only the existence of language that allows us to act collectively. As Weil writes:

signs constitute the material of social relations, whereas the perception of reality is something individual.<sup>59</sup>

Thought itself is a function peculiar and private to the human individual.<sup>60</sup> However, the expression of thought in language is a public and a collective phenomenon.

Through expression thought is appropriated from the individual and embodied in 'things' external to the mind. It is these things -- 'algebra', 'machines', 'bureaucracy', 'money',<sup>61</sup> -- that we refer to in general as 'language' or, as today, by the term, 'technology'.<sup>62</sup> The thought embodied in such things need not, of course, be rethought and assimilated by the individuals who act on the basis of it. The individual inherits language not simply as a pure instrument of thought but as something already shaped by the thought of others. Indeed, as such expressions of thought accumulate, shaping and conditioning a given form of social life, they reach beyond the comprehension of the individual mind in the complexity of their relation. This gives an appearance of

thought and system to social life where in reality none exists. In so far as language escapes from the thought and the control of the individual mind, it is seized upon by the collectivity; the thoughtful relation of sign to thing signified is replaced by the purely linguistic relation between signs. It is in this way that social life can be rigorously and systematically ordered and yet impenetrable to the thought of the individual.

In all spheres, thought, the prerogative of the individual, is subordinated to the vast mechanisms which crystallize collective life, and that is so to such an extent that we have almost lost the notion of what real thought is ... signs, words and algebraic formula in the field of knowledge, money and credit symbols in economic life, play the part of realities of which the actual things themselves constitute only the shadows, exactly as in Hans Anderson's tale in which the scientist and his shadow exchanged roles

Hence, there is nothing very surprising in the fact that our science 'works', that it is magnificently successful as a basis for the social activity of the collectivity and is, at the same time, thoughtless. The action of a social mechanism is no more astounding than that of any other machine. Human language is such that 'method' can be mindlessly embodied in things.

For Weil this collective aspect of language constitutes a kind of "social matter" that divides the life of the individual as a "thinking" and a "social" being. As we have seen, this "social matter" is constituted by anything mater-

ial into which thought has been infused through human activity and it includes not only the whole of oral and literate language but tools, machines, skills and all customary forms of behaviour. In short, it is comprised of everything that we term, culture, by the whole of a particular social 'form of life'. In this her position is characterized by an essential and fundamental opposition between the individual and mental character of thought and the collective and material nature of language. For her the cultural and collective aspect of language forever stands apart from the private ability of the individual to think.<sup>64</sup>

As we shall see in the final chapter, on Weil's account of the relation between thought and labour, this tension is rooted in an inescapable aspect of the human character. Ultimately, in her analysis, thought is profoundly separated from action.<sup>65</sup>

The threat of thought being socially overwhelmed by the collective aspect of language is one that has often found dramatic expression in modern literature. Weil, like Dostoevsky and Melville before her, conjures up for us the all too real spectre of:

a civilization in which all human activity, in the sphere of labour as in that of speculative theory, is subjected right down to matters of detail to an altogether mathematical strictness, and that without a single human being understanding anything at all about what he is doing, the idea of necessity would then be absent from everyone's mind, and in a far more radical fashion than it is among primitive tribes ...<sup>66</sup>



In fact it was Weil's view that in the transition from classical to contemporary science it was precisely the idea of necessity which was lost, a loss made possible, if not inevitable, by the role of algebra in modern science.

In the desire for power over nature, science and magic share, not only a similar motivation but an identical instrument, language. Magic plays with language in the hope of discovering the power intrinsic to words. Science, on the contrary, was supposed to consist in an attempt to work with language; to disclose its powers to the control and judgement of human understanding through thought. Now, as we have already seen, basic to Weil's position is the conclusion of Plato<sup>67</sup> to the effect that the cultural lives of all men in all societies are constituted, more or less completely, by the thoughtless use of language. This, as will be seen in the next chapter, is written into the human nature of thought itself and reflects the essential condition of our being in the world as thinking creatures. In this the aim of philosophy can only be the educational aim of widening as far as possible, under given social circumstances, the role of thought in the individual's use of language. Or, to put this in another but equivalent way, in the whole of an individual's form of life.

The social determination of thought is a characteristic and by no means insignificant modern position. Weil, however, unlike contemporary Marxists or Structuralists, does not believe that thought can be socially or collectively

determined. For her, thought is purely a function of the individual. Social life is not capable of determining thought, only of displacing it in the life of the individual through the substitution of "social matter".<sup>68</sup>

In her analysis Weil profoundly questions the thoughtful character of the whole of modern science. From its beginnings in the sixteenth and seventeenth centuries she looks upon its many intellectual peculiarities as evidence of a fundamental displacement of thought by "social matter". Modern science issued directly from one of the most basic and radical intrusions of the collective into the life of the individual: the separation of thought from activity in labour and the consequent specialization of individuals as 'thinkers' and 'doers'. In this regard she raises a question as simple as it is basic: is it possible to separate thought from activity so fundamentally and radically in the life of the individual? Given such fundamental links as those between activity and human perception, and thought and the process character of human experience, this question goes to the foundations of philosophy.

On the one side, in the work lives of the manual labourers of the industrial society, the displacement of thought is obviously and undeniably evident. On the other side, in the work lives of our 'intellectuals' and 'managers', thought appears to be as obviously and undeniably present. It is, however, this very distinction between the 'manual' and the 'mental' which Weil's analysis brings into question. Was the 'science' of the classical era a form of thought or, as its

historical genesis would suggest, simply a new kind of activity involving a novel but essentially thoughtless manipulation of language?

To Weill the latter was almost certainly the case. Scientific thought only exists against and in relation to human 'experience'; it is a specific mental function of the openly mysterious coincidence between the words of language and the activity of the natural world. Now, as we have seen, classical science began precisely with the attempt to suppress and deny the process character of the world of our experience. For the world of process, the experiential world of the tangible or sensible, it substituted the abstractions of the laboratory world of experiment and observation. It substituted, that is, a purely linguistic world of conventional signs. In the scientific experiment it is not the world of nature that is the 'object' of thought but a conventional world of signs arranged in relation to one another. As Heisenberg expresses it:

Our experiments are not nature itself,  
but a nature changed and transformed by  
our activity in the course of research.<sup>69</sup>

Modern science was compelled to this obvious conclusion by the re-emergence of the reality of the discontinuous. Contemporary science, however, went one step further. On the basis of this truth it assumed that we can know and think only that which we create. Where classical science stressed

the 'objectivity' of 'fact' as the foundation of thought, contemporary science emphasized the subjectivity of interpretation (or 'value').

At first sight we might be tempted to see the re-discovery of the discontinuous or process reality of our experience by contemporary science as a return to 'common sense' if not to thought. For Weil such was not the case. Contemporary science simply abandoned the very idea of thought. In doing so it fully realized the essentially active character of its classical past.

In illustration of the difference and of the continuity between classical and contemporary science Weil cites the celebrated case of Einstein's "restricted relativity" theory.

As she writes:

It is a very simple theory, so long as one does not try to understand it. To begin with, the work of Copernicus, Kepler, Galileo and Newton had led to the attribution of certain movements to the earth and the various heavenly bodies; then, a series of experiments resulted in a definite measurement of the speed of light; and finally, as the result of certain experiments at the end of the nineteenth century, the speed of light came to be regarded as constant in all directions. These results are contradictory. A finite speed cannot be constant in all directions if measured by starting from a system which is itself in movement in a certain direction.<sup>70</sup>

This is clear enough and it serves very nicely as an illustration of the kind of contradiction that suddenly emerged in all the branches of classical science around the turn of the century.

The way in which Einstein proceeded to deal with this contradiction is also splendidly characteristic of the new method of contemporary science. He simply went ahead by translating these irreconcilable conclusions into appropriate algebraic formulae and then uniting these formulae, according to the laws of algebra, "as if they all could be simultaneously true, and derived equations from them".<sup>71</sup> Not surprisingly, the attempt to translate these questions into ordinary language produced startlingly senseless results; results that are neither expressible in speech, nor representable to the human imagination.

In classical science, given care and trouble, each formula could be translated into the ordinary language of everyday common sense and represented to the mind in terms of a mechanical image of a particular relation between forces and distances.<sup>72</sup> This was possible because in each of these formulae the central analogy of classical science -- the analogy between phenomena and the conditions of simple labour -- was still present. After the acceptance of the "quantum hypothesis", however, this analogy disappeared.

Weil's objection here is not against the fact of contradiction.<sup>73</sup> On the contrary, like Plato and the ancients in general, her definition of thought is in dialectical terms. She objects, rather, to the way in which contradiction is used here. In Oppression and Liberty she distinguishes clearly between the legitimate and the illegitimate uses of contradiction in the formulation of thought:

The illegitimate use lies in coupling together incompatible thoughts as if they were compatible. The legitimate use lies, first of all, when two incompatible truths present themselves to the mind, in exhausting all the powers of the intellect in an attempt to eliminate at least one of them. If this is impossible, if both must be accepted, the contradiction must be then recognized as a fact.<sup>74</sup>

Contradiction in language is the very 'occasion' of thought; we ought to be stopped by it and forced to focus our attention on it contemplatively until another thought is disclosed to the mind revealing a relation. The contradictions encountered by classical science at the end of the nineteenth century were of the most elementary nature. They reflected the very limits within which the human mind moves in language. They could not have been 'solved' but they ought to have stopped the activity of science and forced a re-thinking of its intellectual foundations. Instead, in Weil's analysis, contemporary science was born when it rushed past these contradictions by the simple expedient of ignoring them. Algebra wonderfully facilitated this, for it is not subject to the same logical requirements as the formulation of thought in ordinary speech. The relations between the symbols of algebra do not exactly coincide with the ideational relations they are supposed to mirror. As a consequence: "incompatible assertions may have equational equivalents which are by no means incompatible".<sup>75</sup> In fact, as in ordinary language, only with greater ease and behind an impressive intellectual facade, one can, without the restraint of thought, say anything.

Classical science was intellectually suffocating. Its abstractions were, indeed, of the variety that might profitably be exposed to the elements. However, if art, in jubilation at the defeat of this science, was inspired to hang a geometry book out a window, contemporary science went much further: it simply tossed the volume out altogether. To quote Weil:

Men who called themselves philosophers, being weary of reason -- no doubt because it is too exacting -- rejoiced at the idea of a clash between reason and science; and needless to say their verdict was unfavorable to reason.<sup>76</sup>

Modern "absurdism"<sup>77</sup> was born in this reaction and delighted in the idea that the rigorous necessities of classical science, long held to be obvious and immutable, had proven, with the aid of new and more sophisticated instruments of measurement and the atomic theory of matter, to be merely approximate and probable.

The introduction of the atom into classical science at the beginning of the nineteenth century had caused, and naturally so in Weil's view, a series of fundamental difficulties which already implied all the intellectual implications of the "quantum revolution".<sup>78</sup> As we have seen, in order to construct a positive science classical physics had to assume the existence of a "primary" and "elemental" level of reality as a foundation in sense. It was on the basis of this foundation that phenomena on the level of sensible

appearances, were represented to the mind. The atomic theory of matter brought this trend in science to its logical and inevitable conclusion.

On the intellectual basis of the 'primary qualities' classical science dealt with phenomena perceptible on the level of the human senses. This is the only level on which necessity can be imaged to the human imagination. On the microscopic level of the atom the situation is another one altogether.

Classical science regarded a stone:

when it is lifted, as a single point describing a vertical rectilinear trajectory; in a word, it regards the whole stone as a single atom, and that is how it calculates energy.<sup>79</sup>

When one replaces such a conception with the idea that what is involved here is the combined motion of innumerable atoms of stone and air, one descends to a level of complication that is far beyond the range of the imaginative powers of the human mind. Weil compares this situation to that which we face in games of chance. If I throw a die, I cannot foresee the result:

but this is not because the phenomenon is indeterminate. It is because I do not know all the data of the problem.<sup>80</sup>

Chance is the name which we give to this ignorance.



Far from being incompatible with the idea of necessity, chance can only be defined in relation to necessity. The atomic theory of matter automatically reduced science to a level of complication where the motion of matter inevitably appeared to the human mind in the guise of chance. For, as Weil writes:

if I conceive an aggregate of atoms in movement, such that each movement is strictly determined, and call it the universe, and if I ask myself what the development of phenomena will be on a scale inaccessible to the eyes of observers to whom the atom is invisible, I can conceive absolutely no reason why this development should present any appearance of constancy, regularity or co-ordination, or even why it should be possible to repeat an experiment a second time. And it is obvious that if it is impossible to repeat experiments there can be no physics.<sup>81</sup>

In antiquity the atom had been linked, intrinsically, to chance but to modern science this connection was not apparent. As, Weil shows, in the classical era, with its attempt to reduce all phenomena to representation in terms of a rigorous mechanical necessity, the sudden appearance of chance in science was a profoundly perplexing and unexpected event.<sup>82</sup> Previously, chance had appeared only in the guise of the "negligible".

With the advent of the atom, classical science was faced with a rupture between the new atomic physics of imperceptible phenomena and the old mechanical physics of the perceptible world. It was only with the aid of the mathematical

idea of 'probability' that a link was established between the two physics. The notion of probability simply makes chance an "experimentally controllable conception".<sup>83</sup> Again, to quote Weil directly:

When I consider, in games of chance, the continuous totality of causes and the small number of categories among which the effects are distributed, I recognize that, although each effect is rigorously linked to cause, there is absolutely nothing in the totality of causes which corresponds to these categories, and this is to recognize chance. So all the categories have an identical relation to the totality of causes, which is equally indifferent to all of them; and this is what I mean when I say that they are all equally probable. The notion of probability always implies a distribution between equal probabilities. In the case of a die with the figure 1 on five of its sides and the figure 2 on the sixth face there are six equal probabilities, but five of them coincide; and this is the only way in which we can conceive unequal probabilities.<sup>84</sup>

Thus the relation between the perceptible world of the senses and the imperceptible, microscopic, reality of the atom was only established by implicitly continuing the basic assumption of the whole of classical science, namely, the determinate and necessary character of the process reality of the phenomenal world. The notion of probability was directly derived from the idea of necessity and it played a role in experiment exactly analogous to that of necessity:

The experiment presents an image of necessity when, by varying a cause, we obtain effects that vary according to a function; it presents an image of probability when the distribution of effects

among categories becomes closer, the longer the effects accumulate, to the proportions indicated by calculation.<sup>85</sup>

Classical science founded itself upon the assumption of the determinate structure of matter in relation to the human mind. Contemporary science was born with the intellectual re-discovery of the obvious, namely, that the process reality of nature reaches infinitely beyond the range of the mind micro and macro-scopically, temporally and spatially.

Where classical science had mistaken the determinate character of thought for the reality of the phenomenal world, contemporary science fixed upon the indeterminate nature of human experience as the essence of that world. In its first phase, modern science disposed of human experience, in its second phase, it disposed of human thought. For both it has substituted language in the form of an algebraic mathematics.

As a consequence of the "quantum theory" the probable was introduced among the atoms themselves; the trajectories of these invisible particles were no longer considered to be necessary but simply probable. With that the idea of necessity went completely out of science. And yet, as we have already seen:

probability can only be defined as a rigorous necessity; of whose conditions some are known and others unknown; the conception of probability, divorced from that of necessity, is meaningless.<sup>86</sup>

Where once science had found a rigorous necessity in the guise of causal determination, it now found only "probability laws". Werner Heisenberg, following the lead of Louis de Broglie, Edwin Schrodinger and Max Born, formulated the so-called "principle of indeterminacy" which postulated the existence of a specific indeterminacy in the trajectories of the atomic particles themselves. Thus, where classical science had assumed the determinate as a foundation, contemporary science substituted the indeterminate. The conditional "if-then" of classical physics was replaced by an "if-then in a certain percentage"<sup>87</sup> and science was reduced to the mathematical level of statistics.

In its attempt to apply mathematics to nature, modern science began with a divorce between 'quantity' and 'quality'. The price of such a positive science of nature was a reductive impoverishment of mathematics itself.<sup>88</sup> In classical science the 'real world' was the realm of the 'primary qualities' which were purely quantitative and determinate in character. The differences between one thing and another, visible on the level of human perception were due solely to differences in number, conceived as quantity. This was the real world of 'hard fact' which constituted the only object of human thought. For contemporary science it is not the objective world of matter that is mathematically structured, the assumption runs in the other (although complementary) direction. The structure of mathematics corresponds to the structure of the human mind. The assumption here was clearly

expressed by Vico when, in the eighteenth century, he abandoned the natural sciences for the new social science of history: "We can prove geometry because we make it".<sup>89</sup> With the contemporary period human thought assumes the subjective character of 'value', and if we still seek the scientific application of mathematics to nature that is not because our algebra is a way of knowing the world but rather because it is a "science of the structure of the human mind"<sup>90</sup> in its reach into the infinities of natural process.

In this chapter we have examined in detail Simone Weil's account of what scientific thought is not in relation to (a) language and (b) experience. In the following chapter we turn to her positive account of what thought is. There, in her treatment of the character of thought in Greek mathematics, we will examine her description of the disposition of thought authentic to the human being as consisting in (a) the revelation of idea in language and (b) the realization of idea within our experience of nature and history.

## CHAPTER IV

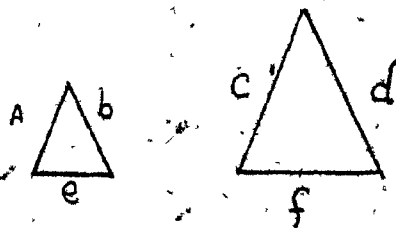
### THOUGHT AND NECESSITY: THE MATHEMATICS OF THE PYTHAGOREAN TRADITION

In Weil's account the originality and unity of Greek culture lay in their discovery [or perhaps in their rediscovery] of a single idea -- the mathematical concept of function -- and the application of this idea to nature and to human experience in general. The Greeks, according to Weil, did not invent mathematics but they did advance it to the science of human thought. Before them the Babylonians possessed an algebra substantially similar to our own and the Egyptians a geometry in its literal [and etymological] sense of a mathematical technique of land measurement.<sup>1</sup> After them, the Romans, avid for technical applications, pillaged mathematics. As Cicero once wrote, with the indigenous and ever practical self-satisfaction of the Romans:

The Greeks held the geometer in the highest honour, and in their esteem no one came before the mathematicians. But we Romans have established, as the limit of this art, its usefulness in measuring and reckoning.<sup>2</sup>

The limits of this "usefulness" were, however, the limits of Greek mathematics and once the theoretical discoveries of the Greeks had been exhausted there were no Roman advances. For the Greeks mathematics was a way of knowing the world, for their Western predecessors and their successors alike it was a technique for doing.<sup>3</sup>

Neither the Egyptians nor the Babylonians possessed the idea of function and it was just this conception that the Romans failed to appropriate in their sack of the mathematics [and the general culture] of the Greeks. Simply expressed the concept of function is the idea of proportion: "of two quantities that vary proportionately without ceasing to be linked by a fixed relationship".<sup>4</sup> According to Weil, the first, and perhaps the clearest, image of function is provided by the geometric idea of similar triangles attributed to Thales.<sup>5</sup> There we find a proportion expressed in four terms:



Here  $a$  is to  $b$  as  $c$  is to  $d$ . Given the fixity of this relation, a variation in one quantity automatically leads to a proportionate variation in the other. This relation, like all relations, is reducible to the mediation of three terms: the figure ABE, the figure CDF and the fixed relation between them. The relation between similar triangles discovered by Thales is exactly comparable to that between two geographic charts of the same area drawn to different scales.<sup>6</sup>

Weil asserts that as far as is known, the Greeks were not only the first to discover this idea but also the first to discover its relation to our experience of nature and,

indeed, to the whole of our experience in natural and historic process.<sup>7</sup> Fundamental to Weil's reconstruction of the scientific and mathematical thought of the Pythagorean tradition is her claim that the Greeks only discovered the idea of function by turning away from the tangible realm of our sense experience toward the "continuous" realm of thought itself. By contrast the mathematics of the Babylonians, of the Egyptians and the Romans attempted to be positive or empirical sciences. That is to say, they were directed toward the tangible world as object. Of all the peoples of historical antiquity the Greeks alone converted their attention from the empirical to found mathematics upon that which is not found anywhere in sense experience -- namely, that which is perfectly defined and purely rigorous, that which is exactly determinate and limited. The wonder of their intellectual achievement lies in their experiential discovery that this conversion of the attention of the mind was, at once, the key to the advancement of theoretical mathematics and the unique source of all systematic knowledge of nature and history.

In a brilliant essay on the Pythagoreans Weil develops and clarifies this claim through reference to a passage attributed to Philolaus, to the effect that it is number that constitutes the body of all things:

as is provided by the nature of the gnomon.<sup>8</sup>



She traces the word *gnomon* to its original sense as the vertical stem of the sundial. As she writes in a passage previously quoted:

The stem remains immobile while its shadow turns and changes in length. The variableness of the shadow is determined by the immobility of the stem on account of the movement of the turning sun. This relationship is the one which mathematicians today refer to by the names of the invariant and the group of variation.<sup>9</sup>

This relation is that of function and it is the most fundamental of all ideas or relations. It is this most essential of relations that the Greeks termed number, *arithmos* or *logos*.<sup>10</sup> Using Jules Lagneau's analysis of sense perception,<sup>11</sup> Weil sought to demonstrate that it is "number", in this sense of functional relation, which constitutes for us the very body of the objects of our sense perception.

Confronted with a cubic box we may either turn it around or move around it but all that we perceive of it at any given moment is a particular appearance in which the cubic form of the box is never given. Yet, in our experience of the box, we know and are certain that it is the cubic form that determines the various and successive appearances perceived, and that to such an extent that we are strongly disposed to believe that we have actually seen the form of the cube in the appearances.<sup>12</sup> However, contrary to belief, we know that:

There is no point of view from which the box has the appearance of a cube, one never sees more than one flat side, the angles do not seem straight; the sides do

not seem equal. No one has ever seen, no one ever will see, a cube. Neither has anyone ever touched, nor will ever touch a cube, for analogous reasons. If one goes around the box, one engenders an indefinite variety of apparent forms. The cubic form is none of these. It is different from all of them, exterior to them all, transcending their domain. At the same time the cubic form constitutes their unity ... <sup>13</sup>

Here, our experience of the box is determined by something intangible and purely intelligible: the idea of the cube itself. It is nothing other than the functional relation (or number in the Pythagorean sense) between the various appearances (and contained in none of them) that constitutes the very body of the box for us. The relation between the cubic form and the various appearances produced by perspective is exactly analogous to the relation between the stem (or gnomon) of the sundial and the movement of the shadows upon its face. In this lies the key to the Pythagorean assertion that "all is number". We perceive (or think) a phenomenon when the functional relation which limits and determines that phenomenon becomes manifest to the mind. For the Pythagoreans, Weil maintains, the concept of number was identical with that of ratio or limit. Their numbers were constants determining variations.<sup>14</sup>

If we are in doubt regarding the identity of an object (such as a cubic box), we move around it. In the midst of this movement its reality (as a cubic box) is something that suddenly strikes us. Our doubt is dissipated in a moment of realization.<sup>15</sup> What is "perceived" in that moment is not

something tangible but rather an intelligible and purely intangible relation. Thus, in this way, the revelation of idea is contained within our perception itself.<sup>16</sup>

Even where the objects of the senses are concerned, it becomes clear, as soon as one analyses the perception of them in a fairly strict manner, that what one calls objects are simply groups of the relationships which impose themselves upon the mind by the intervention of the senses. It is the same with sentiments, ideas and the whole psychological content of human consciousness.<sup>17</sup>

That which we 'perceive' is always 'thought' in this sense of relation. For the human being the perception of sensible objects is conditioned by the existence of mathematical relations, ratios or functions.<sup>18</sup> Through our sensibility these relations impose themselves directly on the mind through the representation of perceptible 'objects'. Through their mathematics the Greeks discovered that, by virtue of a wondrous "coincidence", the whole of human thought is capable of being sensibly represented to the mind through geometric relation. Through geometric representation all ideational relations could be imaged in such a way as to impose themselves upon the mind through the senses. As Plato expressed it in the *Epinomis* (990d):

It is clear to anyone who is able to understand it that this marvel is not of human but of divine origin.

In Weil's view we could not reasonably doubt that the Greeks knew of the algebraic mode of expressing mathematical idea. She saw their refusal to use that form of mathematical language as a deliberate and conscious rejection based upon sound intellectual and religious grounds.

In any rigorous analysis of the content of sense perception we cannot escape encountering a contradiction central and essential to being human. In a passage found in her *Notebooks* Weil deals succinctly with this contradiction. For the human being reality is not sensibly given. What is given to us -- tangible appearance -- is not real.

And yet what I construct is not real either. The real is that which has a certain relationship to what is given.<sup>19</sup>

That is to say, it is neither what we today term theory, nor what we call practice (or sense experience), that constitutes the real. Reality, for Simone Weil, is a feeling that issues directly from the meeting between idea and sensibility in the course of our experience. Weil opposes the modern epistemological philosophies of doubt and certainty with an ancient account of idea as the basis of realization.

The perception of "reality" is distinguished from such states as "hallucination", "fantasy", "illusion", "nightmare" and "dream":

only because the real includes a contact with necessity.<sup>20</sup>

In the simple case of the cubic box we move around it and, implicitly or explicitly, we realize its reality when we perceive that it is the cubic form which determines the variation in appearances perceived. Our sense of its reality issues directly from this contact with the determinate and necessary form relating the sides of the box to one another in our experience. For the human mind reality always involves such a contact with necessity; with that which is hard and determinate, constant and invariable. As Weil puts it:

Necessity always appears to us as an ensemble of laws of variation, determined by fixed relationships and invariants.<sup>21</sup>

The contradiction here is clear. Necessity, so defined, is purely intelligible and never tangible.

On the level of our experience involving the scientific representation of phenomena the situation is perfectly analogous to that involving the simple perception of a cubic box. One of the first recorded, and certainly still one of the most lucid and brilliant, applications of the idea of function to nature is Archimedes' theory of flotation (or displacement). As Weil succinctly states his discovery:

When a body floats, the load water line is such that the relation or ratio of the immersed volume to the total volume is identical to the relation between the density of the volume and that of the water.<sup>22</sup>

As she maintains, this discovery couldn't be, as it is sometimes depicted in the history of our science, the issue of a purely empirical observation of nature. Never in our experience of tangible phenomena is such a relation, or any relation, tangibly given. Just as in simple arithmetic, where the integers '2' and '2' would remain side by side forever and never amount to '4' without the leap of attentive intelligence known as addition, so also in the general conception or perception of nature. In our experience of the tangible one event occurs and then another but nowhere are we given a tangible connection between these events. All connections, all relations, are the issue of that interpretative reading of the world known to us as 'thought'. In Weil's view all the most careful and rigorous analyses of sense perception demonstrate for us a fundamental truth of the first importance. It is this: the reality of perceptible objects (or phenomena) is not to be found in sensible impressions as such. The impressions are merely the occasion of idea appearing in the mind, while the revelation of idea to the mind is, in turn, the occasion of the appearance of the phenomenon itself out of the formlessness of the impressions. This is as true of the perception of complex natural phenomena (in science) as it is of the perception of a simple object in the ordinary course of our experience.

In this regard, sense impressions are analogous to the signs of language. Just as the sign does not contain but occasions the idea that is its significance, so sense impres-

sions do not contain the phenomena of our experience.<sup>23</sup> They contain nothing. They are, as far as we know or will ever know, simply the occasion of the revelation of idea, just as the appearance of idea to the mind is the occasion of the realization of phenomena in human experience. Thus it is, -- as we read in a fragmentary text attributed to Philolaus -- number that fits "all things in the soul through sense perception".<sup>24</sup>

Reality is something that suddenly strikes us. These momentary flashes of realization issue from the contact between thought and sensibility on the middle ground of our being. The idea that occurred to Archimedes of a functional relation between densities (and volumes had no reality (upon the middle ground of our being) in itself; nor did the perceptible phenomena that were the occasion of its appearance. Here, the sense of reality issues from the open (but profoundly mysterious) "coincidence" or "harmony" of the ideational and the phenomenal. The idea fit the phenomenon and its reality emerged only when its unity, its determinate limits, were disclosed. We might say that if the senses provide the occasion of thought and perception, the ideas so disclosed to the mind are the condition of our experiencing anything at all.

It is the fixed, the immobile, invariable stem of the sundial that conditions and determines the existence and the movement of the shadows on the surface. For the human being there is no experience -- not even in the simplest cases of perception -- without the most fundamental of all the

ideas: the idea of necessity, mathematically expressed by the Greeks in the notions of function and number (or proportion).<sup>25</sup> As Weil writes:

For us, matter is simply what is subject to necessity. We know nothing else about it.<sup>26</sup>

The reality of matter is not in matter for our sense of reality is only engendered by contact with necessity. It is only out of our contact with intelligible relations that the perception of real objects and phenomenon issue.

Strictly speaking we are not given idea in either perception or in language; what we are given is something else, images. If the idea of the cube is not to be found in sensible impressions, no more is it to be found in the sensible expressions of language. The void separating perceptible impressions from the form or body of an object is exactly repeated on the linguistic level of thought. We are incapable of capturing idea in the expressions of language; all that we can do is to imitate sensible nature by juxtaposing (in time and space) signs or words in the hope of thereby occasioning the occurrence of the idea to another, or its re-occurrence to oneself. For the Greeks geometry was that form of human language most perfectly suited to the expression of idea for in it relation found the perfect rigour of thought allied directly and immediately to the perception of the senses.



The relations established between signs are exactly analogous to the relations established in sense perception between the various impressions. Thus the figure of a straight line, drawn let us say in chalk upon a blackboard, does not contain the idea of the straight line, here, as in all geometric figures, expression, allied with impression, serves as the occasion of our conceiving the idea. The chalk line is a thing and it is as infinitely removed from the idea of a straight line as is the word 'justice' from any human actions so described. It is so removed in just the same way as our sense impressions are removed from the perception of a cubic box. In all cases of human thought what we are given is neither an object nor an idea but an image.

In this the direction or orientation of the mind in perception and thought becomes clear. In the words of the French poet, Paul Valery, as cited by Weil:

The proper, unique and perpetual object of thought is that which does not exist.<sup>27</sup>

Another name, in this context, for "that which does not exist" is perfection. It is this that accounts for the Socratic experience of the conversion of the soul from the tangible to the intelligible as described by Plato in *The Republic* and throughout the dialogues. Perfection, something that is never to be found in this world, is the condition of perception and of thought alike.<sup>28</sup> It is, for example, only the idea of equilibrium (or perfect balance) that allows us to

define by derivation various states of disequilibrium or imbalance. Nowhere within the boundaries of our tangible experience do we find a state of perfect equilibrium or immobility. The tangible experience of process is an experience of change or sensible motion. Yet, as Weil notes, it is uniform motion -- "the only kind which you do not see" -- that constitutes the foundation of all science.<sup>29</sup> As Plato makes abundantly clear in The Republic, the 'object' of thought lies among the "beautiful things that don't exist".

It is in this that thought and the practice of mathematics coincide: the "unnamed constants" of the one are the "words without words" and "thoughts beyond thought" of the other. The 'object' of all thought lies beyond its expression in the signs and symbols of language. The 'object' of thought in the world lies beyond the world. However, just as we no longer see the obtuse and acute angles in looking at a box but only a cube with straight lines and right angles, so in the general course of our thoughtful experience in the world, we may come to see in the apparently senseless processes of nature and history "a single, fixed and unchanging order of the world".<sup>30</sup>

We see through idea [or number]. The eyes are the eyes of the soul for what is perceived as well as what is conceived is nothing other than mathematical relation. It is the very mathematical perfection and rigour of idea that allows us to see, for it is the source of all that is limited and determinate in our experience of the world, and it is only by the establishment of such limits that the unlimited

[in both time and space] and indeterminate processes of the phenomenal world can be distinguished. It is only from the fixity [or necessary character] of idea itself that phenomena can be defined in a derivative manner. As the gnomon defines the shadows of the sundial, so the ideas of the human imagination delimit and define the world of our tangible experience.

It is this that Weil finds beautifully expressed in a famous formula of Anaximander's:

Things are created out of indeterminate matter, and destruction is a return to the indeterminate, according to necessity; for things are exposed to a mutual punishment and expiation towards one another because of their injustices, according to the order of time.<sup>31</sup>

For Weil this defines, for example, the most essential idea of science: the idea of equilibrium. As she writes:

by means of this idea every change, and therefore every phenomenon, is considered as a rupture of equilibrium, linked with all other changes through compensation of successive ruptures of equilibrium.<sup>32</sup>

The action/reaction relation here of successive "compensations" makes each particular state of disequilibrium an image of equilibrium; and it is seen that it is only through application of the idea of equilibrium that the particular states of disequilibrium are derived.

In Weil's account, Archimedes founded the sciences of physics and mechanics upon the idea of **balance**, an idea that he formulated in the most rigorous of geometric terms.

There is equilibrium when the relation or ratio between the weights is the inverse of the relation or ratio between the distances from the weights to the point of support.<sup>33</sup>

Where there is equilibrium, in other words, there is also symmetry. Any body can be supported or balanced against the force of gravity if the mass of that body is symmetrically disposed to certain definite proportions around an "infinitely small" point known as its "centre of gravity". It was a discovery of the Pythagoreans that in music, while the scale contained no note corresponding to the "harmonic mean", there was nonetheless an invisible point about which the notes were harmonically disposed. The idea of equilibrium or balance was, according to Weil, the very core of all Greek thought. It was applicable, through suitable transposition,<sup>34</sup> to thought in every branch and department of their culture. The ideas of equilibrium in physics, of proportion in geometry, of harmony in music and of justice in ethics were all equivalent translations of this single, most basic of ideas.<sup>35</sup> Hence, she argues that it was only in relation to this idea -- which is the idea of idea itself -- that the phenomena dealt with in any and every department of human culture were to be defined. The centre of gravity, an infinitely small point that nevertheless predominates over the mass of a body

when, [and only when] that mass is symmetrically or proportionately arranged around it, was for the Greeks a splendid image of thought itself. Like thought it was something intangible and, yet, absolutely decisive; something whose discovery had the effect of neutralizing gravity, the weight of necessity in human life. As we will see later, in more detail, she maintains that this was the foundation of the ancient conception of liberty as issuing solely from the obedience of human activity [or being] to necessity defined as the order [and beauty] of the world.

The juxtaposition of objects, [including linguistic signs], in time and space constitutes for the human being images of ideas that, by their very nature, lie beyond the boundaries of time and space. It is as an immediate consequence of this situation that the limits of human thought lie within the natural limits of the human imagination. We would be quite incapable of imagining or expressing any conception of equilibrium if we were not given images of equilibrium on our own scale of being. As we have already seen, in Weil's description of the phenomenon of thought, the idea of the cubic form is disclosed to us in the midst of our tangible experience of cubic things. In a similar way the idea of equilibrium occurs to us in the midst of our general experience of natural process. However, as Weil writes:

it would be necessary in order to perceive an image of equilibrium in the indefinite succession of ruptures of

equilibrium, to embrace the universe and of time; and this is not granted to man, whose thought insofar as it relates to objects, is limited.<sup>36</sup>

Science, be it natural or historic, is forever circumscribed by the limits of the individual capacity for perceptual and conceptual representation. The limits of both perception and thought are constituted by the 'minimum time' and 'minimum space' for a phenomenon to be manifested to the human senses. No matter how defined and sophisticated the instruments invented to extend the range of human sensibility, process in time and in space reaches infinitely beyond us, micro and macro-scopically. On the conceptual (or linguistic) level analogous limits apply. In Weil's description, there exists a point, dependent upon the variable imaginative capacity of the individual, beyond which no one can go in the mental representation of ideas (or relations):

At the very best, a mind enclosed in language is in prison. It is limited to the number of relations which words can make simultaneously present to it; and remains in ignorance of thoughts which involve the combination of a greater number. These thoughts are outside language, they are unformable, although they are perfectly rigorous and clear and although every one of the relations they involve is capable of precise expression in words. So the mind moves in a closed space of partial truth, which may be larger or smaller; without ever being able so much as to glance at what is outside.<sup>37</sup>

Thus, both linguistically and phenomenologically, we are limited to the middle ground of our being located, as Plato says, between ignorance and wisdom. For human thought there can be no escape from these limits.

Weil portrays the Greeks as having formulated in contrast to us, a science whose limits were strictly those of the imagination. As intimated above, it was in her opinion, for related reasons that they restricted the mathematical expression of idea to the terms of geometry. As we have seen, in geometry the expression of idea is tied as closely as is possible, to the impressions of sense. This has at least two significant consequences: (1) the ideas are so lucidly expressed in sensible terms that they are readily comprehensible to the mind. The lucidity of the geometrical expression of relation is such that the ideas involved readily impose themselves upon the mind, and with the kind of immediate clarity and certitude found in the perception of simple objects. (2) In geometry non-sensical uses of language are either impossible or else directly evident. To be represented (or expressed) geometrically, a relation must be real and present to the mind. As noted in the preceding chapter, an algebraic mathematics eliminates precisely this mental connection -- or rather the necessity of its presence -- between the sign and the idea that it is meant to occasion.

On the empirical plane the whole of Greek Science was formulated on the level immediately accessible to ordinary human perception.<sup>38</sup> As Weil writes, the Greeks knew that if man ventures outside:

his natural scale, by the accumulation of experimental facts and by the increasing perfection of telescopic and microscopic instruments, he may easily find himself among a complexity of facts in which he can discern no necessity because in order to do so he would need to embrace either a great deal more or a great deal less.<sup>39</sup>

Weil is very clear in her attitude regarding the origin of the images that are the content of our thought. We know that they do not lie 'objectively' anywhere in the tangible realm of our experience. Nor, she maintains, can we legitimately claim that these are the invention of the mind, for this would require the adoption of an unverifiable assumption and, furthermore, it would only serve to increase the mystery of the gratuitous correspondence between these images and our phenomenal experience. The traditional, pre-modern account of the character of thought as revealed to the mind in the midst of experience is an account that depicts the phenomenon without attempting to explain its legitimate, open and inescapable mystery away in purely fictional and suggestive terms. Its superiority, in other words, lies in its very simplicity: in what it does not give us. In its acceptance of the open, surface mystery of thought, it avoids giving us a hypothetical account that dismisses that mystery only to engender another and closed species of mystery. The account



of thought as revealed is consistent with all that we know of the phenomenon. Idea comes to us through a blank act of attention and its revelation precedes demonstration. In deductive [as in inductive] reasoning there is always a leap from the premises to the conclusion; it is suddenly, 'as in a flash', that we realize or discover what is implied. The implication is not contained in the premises; it is only found in the mind and only there through an act of intellectual attention.

Scientifically we isolate microcosmic portions of the universe and imagining them as "closed vessels", limited in both time and space, we discern within them images of equilibrium. These images are always approximate for the purely fictional character of the microcosm is evident from the role played by the "negligible" in its construction. What all our images of equilibrium neglect is the universe itself. As such, as images, they do not picture existent phenomena and, yet, "they are more real than the phenomena present to the senses".<sup>40</sup> They are so because they are all that serve to limit and define those phenomena, making them perceptible to the mind. The indispensable role played by the imagination in scientific, as in all thought, discloses the impossibility of a positive science.

In Weil's account of the revealed character of human thought language becomes an intermediary or "mean proportional" between the intelligible realm of the ideas and the tangible realm of phenomena. In her analysis there are two

relations [or 'coincidences'] found in language. First of all, experientially and logically, there is the coincidence between sign and idea. The sign is the occasion of our suddenly conceiving the idea of relation that it represents but does not contain. This is solely the result of the attentive thought of the individual and, as such, it represents the private realm of language. Secondly, and subsequently, there is the coincidence between sign and phenomenon signified. In thought we turn away from the tangible toward the intelligible and, yet, something very strange happens -- we find that we are thereby given the world itself. We find that idea, expressed in language through the representation of image, gratuitously corresponds in an approximate [and yet indispensable] way to the phenomenal world of our tangible experience. The expression or representation of idea corresponds to the public and collective character of language. On each hand there is a mystery: open, inescapable, and insoluble. It is, in whatever way we may choose to formulate it, the mystery of the middle ground of our being. In the traditional religious and philosophical account of thought as revealed this mystery is, at once, preserved and circumscribed.

In her reconstruction of the Pythagorean tradition Weil contends that the Greeks held mathematics to be the quintessential form of human language. The principal meaning of the Greek word, *logos*, she argues, is the idea of function, the quantitative law of variation that constitutes the notion of necessity.<sup>41</sup> In this the Greek words *logos* and *arithmos*

become synonymous; the word is also a number.<sup>42</sup> It is by virtue of the word as number that we are able to express or image idea and thereby to perceive phenomena.

The universe provides these images thanks to a divine favour accorded to man which allows him to make use of number in a certain way as intermediary, in Plato's terms, between the one and the unlimited, the indefinite, the indeterminate -- between unity, as man is able to conceive it, and everything that opposes his attempt to conceive it. The number which acts as intermediary is not the number which enumerates nor that which is formed by continually repeated addition; rather it is the number which applies to ratios.<sup>43</sup>

A ratio involves quantities that may vary indefinitely without ceasing to be linked by a fixed and perfectly definite relation. Through the word defined as number (in this sense) human language becomes an instrument uniting the universal and invariable character of idea with the particular and variable content of our experience in this world of natural and historical process. What number, so defined, provides is an image of the union of 'the one of the many', of that which limits with that which is unlimited.<sup>44</sup>

Apart from the fixity of idea as imaged in language there is no rest in the flow of natural and historic process. In both nature and history all is caught in the motion of change and becoming. For the Greeks, Weil asserts, the ideational implied a state of rest. The idea of equilibrium or balance, for instance, implies a state of being in which there is no movement. It is the mathematical character of

language that provides the link or intermediary between these respective and contradictory characters of 'thought' and tangible 'experience'.

It is, she argues, precisely the Pythagorean notion of the word as number or function that furnishes the link. For instance, in science motion is only rendered mensurate against the idea of 'uniform motion', the only kind that we do not find in nature. The image of uniform motion consists of the combination of a constant and a variable. It is thus a particular translation of the idea of function itself. Something happens -- a body, 'x', changes position -- but it does so at a fixed and determinate rate.

She maintains that, for the Pythagoreans the most perfect image of uniform motion was the idea of circular motion:

To understand the range of meaning which Plato comprized under the symbolism of circular motion it should be noted that this motion is the perfect combination of whole number and continuity. The moving point passes from one point to the next without any break in continuity, as it would in passing along a straight line. But at the same time, if one fixes one's attention on any point of the circumference, the describing point must necessarily pass over it an integral number of times, circular motion is thus an image of the unison of the limited and the limitless of which Plato says in the *Philebus* that it is the key of all knowledge and the gift to mortals from Prometheus.<sup>45</sup>

Circular motion is thus the perfect image of the word as number or function, for it simultaneously contains both movement and an absence of change. At one and the same time

it was also a perfect image of the unison of the principle which limits (the Creator) with that which receives its limits from the outside (the creation).

In circular motion that which varies is completely subordinate to and determined by that which is constant and invariable, namely -- the radius, the distance from the centre to any point on the circumference. It is for this reason, Weil maintains, that circular motion is ascribed to the Ideas in the Platonic dialogues.<sup>46</sup> Idea can only be imaged in terms of a functional relation and it is the circle that furnishes the best image of that relation in itself. As Plato expresses it in the *Phaedo*, while, on the tangible level of our experience, "opposite things produce opposite things", on the intelligible level of the ideas, "the opposite-in-itself cannot be opposite-to-itself".<sup>47</sup> On the ideational level the relation between such contraries as (in Plato) the same and the other, identity and diversity, unity and multiplicity, and so on, is not that of a symmetrical opposition; in each case, she asserts, the second term is subordinate to and derived from the first.<sup>48</sup> It is the point at the centre that defines the circle. The idea of balance, for instance, contains (like a mathematical set) all cases of imbalance.

For the Pythagoreans, in Weil's reconstructive account, the orientation of all human thought is identical to the orientation of the mind in mathematics. In both the mind is directed toward the existence of something beyond the boundaries of the perceptible world and of language in the per-

ceptible world. That something, the so called 'object' of thought, lies beyond even necessary or functional relation. Mathematics is simply the name that we confer upon the most basic, rigorous and 'theoretical' of our studies of necessary relation.<sup>49</sup> This conception constitutes a radical departure from the history of western philosophy and, particularly, from the scientific or epistemological philosophy of the modern era. It means, for example, that ethics and physics as branches or departments of human thought and culture have the same 'object' (or focus) and the same foundation. In this the fundamental distinction of modernity is denied: the distinction between fact and value. The Pythagorean conception of number implies a profound relation between quantity and quality as well as between the a-priori character of mathematical idea and the a-posteriori.

Let us now turn to a closer examination of this claim in Weil's writings, first, in reference to natural and, secondly, in reference to historical phenomena.

### I: The Natural Science of the Greeks

In looking at the natural world our first impression is surely of force: of force reaching infinitely beyond the scope of human knowledge and power; and, if not at variance with, then surely indifferent to human desire. Unless we people nature with divinities of caprice and/or of an

immanent providence the natural realm of force surely appears to us as blind and deaf to the desires, to the needs and the wants, of the human being. We are, as in the definition of Plato offered in Chapter II, creatures who "desire the good" and who are subject to a phenomenal world composed of forces blindly and silently indifferent to whatever we happen to desire. In the present, as in previous centuries, this perception has served as a support to the advocates of violence: to the "great men" and imperial peoples of history. If it is force that is sovereign in nature, then the good of our desire can only lie in the direction of its acquisition. It is only this equation that motivates our own scientific and technological drive toward the 'mastery' and 'domination' of nature. It was also, in Weil's view, precisely what accounted for the ruthless conclusions of at least one of the many would-be Caesars of the twentieth century, Adolph Hitler.<sup>50</sup>

This 'perception', however, is not the truth. The truth is that expressed in the formula of Anaximander cited earlier. The notion of force corresponds to the perception of movement in a particular direction. What we find in nature is not simply force; it is not simply movement in a particular direction. What we find in nature is this: that there is no unlimited movement in any direction. A movement of force is always limited (in advance) by a movement of force in another direction. All changes in nature are accompanied by "compensatory phenomena". A body, for instance, in motion is eventually brought to rest by friction.<sup>51</sup> For the human

being nature is not simply composed of force or process; it is composed of two analogous types of change for all processes are either limited or cyclical.<sup>52</sup> What we perceive in nature is not force but the interplay of a balance of forces.

Human perception is dependent upon motion. Psychology has long demonstrated that without the movement of the environment around us we would not perceive anything. The tangible experience of the senses is entirely founded upon motion. Furthermore, it rests upon motion of a particular kind. When we are in doubt regarding the reality of an object, we move around it, we circle it, and it is our rotation around the fixed point of the object that engenders the succession of appearances that occasion our realization of the thing. Thus, we would not perceive three dimensional objects at all but for (a) the motion of things around us and (b) our motion around things.

In a similar and perfectly analogous fashion it is the motion of force in the tangible world that is the occasion of our perception of the natural phenomena of science. From the fixed point of our attention what we see in the flow of natural process is not simply motion but an oscillation of forces moving in contrary directions. In other words, what we perceive is not linear motion in a given direction but the semi-circular motion of a pendulum, (or of a balance or scale); this is the motion described by a world in which opposite things produce opposite things.



Hence, what we experience in nature, and all that we experience, is motion limited in particular directions. Nowhere in nature do we encounter rest but we do encounter something not unrelated to rest: namely, the moment in which force, exercised in one direction, is arrested by force exercised in another direction. As Weil writes:

Every visible and palpable force is subject to an invisible limit, which it shall never cross. In the sea, a wave mounts higher and higher; but at a certain point, where there is nevertheless only space, it is arrested and forced to redescend.<sup>53</sup>

Here again, just as in Lagneau's analysis of our perception of a cubic box, thought (or perception) is oriented toward something not contained in the phenomenon itself. Like the waves of the ocean, nature is comprised of a constant oscillation of forces. In nature 'limit' is that which is always exceeded but which imposes a "compensatory oscillation".<sup>54</sup>

Nowhere within our experience in time and space do we find a state of balance, of equilibrium and rest, but the motion of the phenomenal world is the occasion of the realization of the idea of balance. Through this idea the reality of sensible motion, as limited and cyclical in character, emerges. The sense of reality conferred upon nature by the human sciences issues directly from the "cohesion" between this idea and phenomenal experience. In science we have only seen and understood something when we have discovered an

equilibrium and limits in relation to it, limits that correspond to the semi-circular movement of forces in the natural world.

That is to say, if the motion of the phenomenal world is the occasion of the revelation of scientific idea, it is the revelation of idea that occasions the realization of particular phenomena. Through the idea the phenomenon is suddenly disclosed to the mind. It is this, Weil maintains, that the Pythagoreans meant by asserting that all things are number. For the human being every phenomenon is comprised of a particular functional relation between forces. When an idea is revealed to the mind it can be the occasion of our realizing something. Where, a moment previously, there was nothing but an indeterminate experience of forces, the determinate character of a particular phenomenon is now realized. It is in this way that our sense of reality issues from the revelation of scientific idea.

Now, we might ask, does Weil distinguish between the truth and falsity of ideas? Surely, given the role of desires in the composition of our being, we are in constant danger of the imagination being placed in the service of the will, so that we image in thought not what is but what ought to be according to our desires?

First of all, Weil suggests, this conception of idea is the Pythagorean conception of number or function and, as such, it admits, in the words of Philolaus, "of no falsehood, for this is unrelated to" it.<sup>55</sup> All that idea can express is

relation and because there are always an infinity of relations beyond language, and the movement of the mind in language, we cannot distinguish between particular relations as 'true' and 'false'. It is, perhaps, for this reason, that the poets are given 'license' to do as they will with language. Strange as it may seem, the search of the mathematician for 'unnamed constants' is also a form of this same 'license'. This is, in fact, the 'freedom of thought'.

Following the tradition of Plato and the Pythagoreans, Weil identifies thought and mathematical thought for all that a geometric mathematics is capable of expressing is relation. There, either a thought or relation is demonstrable or it is not. All demonstrable relations are true, those that are not demonstrable are not false but simply beyond demonstration and expression.

It is precisely at this point that Weil denies the modern distinction between the thinking of fact and the thinking of value. Her usage of the Pythagorean definition of thought in terms of demonstrable relation severs the connection between human desire and perception. To take a simple example from arithmetic: we may desire that  $3 + 2 = 6$  but nevertheless it is always 5. We can 'see' by demonstration that it is 5; we cannot 'see' that it is 6. The Pythagorean definition of thought as number or function thus transforms thought into something completely hard and indifferent to human desire.

We judge the images and the arrangement of images in a poem, not on the basis of truth and falsity, but rather on the basis of appropriateness. It is by a feeling for its order that a poem touches us. Every word seems to fit exactly where the poet has placed it. Just as every element in a geometric demonstration fits exactly into its place in the 'order of demonstration'. A poem, by virtue of the precision of its order, intrinsically carries with it a feeling that imposes itself upon us.

In a similar fashion, the only criterion by which we can judge an idea is its appropriateness, and this it carries with it. As we have seen, every idea (in the Pythagorean sense) is the occasion of the realization of something phenomenal. Intrinsic to its revelation is a feeling of appropriateness. In short, the more appropriate an idea, the more it fits our experience, the more strongly that it imposes itself upon the intelligence. Through demonstration we are, thus, 'forced' by means of persuasion, to adhere to particular ideas. In this way every idea involves a contact with necessity, a contact through which human desire is checked and restrained. Idea imposes itself against our desire for the good. It is for this reason that thought is always hard. Hard, not only in the sense of difficult to conceive, but also in the sense of difficult to bear. Given the Pythagorean definition of thought as function, desire is incapable of constructing thought to its own specification, but it is capable of distracting and diverting our attention away from

the perception or conception of relation. Idea, in this sense, always involves nothing but the rigorous (mathematical) conception of necessity, and it is from contact with necessity, above all else, that our desire for the good impels us to flee.

Thus, in conclusion, in science it is neither 'force' nor 'matter' toward which thought is directed. The 'object' of scientific thought is that necessity to which both force and matter are subject, a web of invisible relations that determine and limit movement in all directions.

## II: The Historical Science of the Greeks

For the Greeks the balance was the symbol not only of equilibrium in the physical world of nature, it was also the symbol of equity or justice, the most primary of the virtues. In her account of the Pythagorean tradition, Weil claims that this analogy is perfectly exact.

It was Weil's view that the author (or authors) of the Iliad were to ethics (as a form or department of human thought) what Archimedes had been to the study of nature. There, we find exactly the same conception applied with the same rigour to the participation of man in the activity of the collectivity or history.

In history, as in nature, our attention rests -- first and last -- upon force. The social world of the Iliad is a world at war. That is to say, a world in which the primary spectacle is inescapably the spectacle of force:

Force is that which makes a thing of anybody who comes under its sway. When exercised to the full, it makes a thing of man in the most literal sense, for it makes him a corpse. There where someone stood a moment ago, stands no one. That is the spectacle which the Iliad never tires of presenting.<sup>56</sup>

It is, furthermore, in Weil's estimation, a spectacle that is presented in this poem with a simplicity and impartiality that is complete. No consolations are offered, nothing disguises the cold and brutal realities of war. Nothing intervenes to exalt or to diminish an individual or a collectivity above or below the level of misery common to all men. The victors and the vanquished alike are shown equally close to the common humanity of poet and audience. If there is any difference it is that the misery of the vanquished is more clearly and bitterly felt.<sup>57</sup>

The extraordinary equity that inspires the Iliad may have had other examples unknown to us; it has had no imitators. One is hardly made to feel that the poet is a Greek and not a Trojan ... this poem is a miraculous object. The bitterness of it is spent upon the only true cause of bitterness: the subordination of the human soul to force ... That subordination is the same for all mortals, although there is a difference according to the soul's degree of virtue, according to the way in which each soul endures it. No one in the Iliad is spared, just as no one escapes it. None of those who succumb to it is for that reason despised.<sup>58</sup>

The basic source of tragedy in the Iliad is the same as that found in human existence generally: our power to act exceeds our knowledge of the consequences,<sup>59</sup> and we are led by desire to act beyond the strict limits of our thought.

In the Iliad tragedy flows from the simple possession of force. Possessed of power man moves in an atmosphere that offers him no resistance. There is nothing to stop or delay action and thus there is no occasion for thought. The result is inevitable and the consequences automatic: the man possessed of force, believing himself to be all powerful, believing himself unlimited in the direction of his activity, moves beyond the limits of his power and perishes. This is the human spectacle constantly repeated in the Iliad. In the poem no one is exempted either from the experience of power or of powerlessness. Even Achilles, the hero and victor, is shown in moments of humiliation and once even he

trembles and groans with fright, not, it is true, before a man but before a great river.<sup>60</sup>

In the poem all men are shown as subject to force for nothing within the boundaries of nature is exempt from its rule.

The dialectic of force in this poem is not the dialectic of the master/slave relation described by Hegel as the essence of history and, later, by Nietzsche, as the character of existence itself. In the Iliad humanity is not a species divided into two classes of being: the victors and the vanquished, the winners and the losers. There, the dialectic

lies elsewhere. It lies in the relation between force and all human beings as such. The dialectic is between man as a creature who desires the good and is subject everywhere and always to the play of force. In the Iliad it is inevitable that men perish:

For they never think of their own strength as a limited quantity, nor of their relations with others as an equilibrium of unequal powers. Other men do not impose upon their acts that moment for pausing from which alone our consideration for our fellows proceeds: they conclude from this that destiny has given all license to them and none to their inferiors. Henceforth they go beyond the measure of their strength, inevitably so because they do not know its limit.<sup>61</sup>

It is never anything but desire that leads us beyond these limits. In the Iliad the destruction of the city is a direct consequence of a Trojan advance beyond the scope of the force placed at their disposal. Only two days previously they had been victorious in battle and the Greeks had fled before them. Instead of allowing the enemy departure, however, Hector counsels his compatriots to press their advantage so that "all the world" may "be afraid, to bring to the Trojans, tamers of horses, the misery of war."<sup>62</sup> It is when our desire is mis-directed toward the acquisition of the good in this world that tragedy follows.

It is Weil's view that it leads to tragedy because it increases the natural play of chance in human life. Due to the complexity of relations between forces to which we are subject in nature, we can never be certain of the con-



sequences of any action. Nonetheless, it is an experiential verity of our condition that we can, by ordering our actions in accordance with those images of necessity revealed to us on our own scale of being, reduce the blind play of chance in the course of our lives. All tools, all techniques, all human work is founded upon this fact of our condition. A tool, for example, is precisely an instrument for defining and limiting the play of chance in a particular human activity. The only possibility of averting tragedy disclosed by the Iliad lies in the possibility of thought.

As was seen in the previous chapter, chance and necessity are not contrary conceptions. Chance is only to be defined in relation to a rigorous and purely mathematical conception of necessity. When we say that something happens by chance we do not mean that it is indeterminate; we mean simply that the complexity of factors involved in its conception is beyond the scope of our imagination. It is the profound ignorance felt by any movement outside the natural scale of our being that engenders the feeling of chance.<sup>63</sup> That we are given images of necessity on the natural scale of our being is a matter of grace indistinguishable from that by which we are given existence itself. It is by virtue of the practical 'coincidence' between these images and our activity in the world that our existence itself is sustained.

In the Iliad, Weil argues, slavery ensues from the subjection of man to man through chance. More accurately, in her view, it is really from the relation of man to chance

that it flows. It is, thus, that slavery oppresses both the victim and the victor. It is not the case that the one is 'free' and the other 'enslaved'; both are enslaved. What the strong term 'liberty' is merely the power to act, a power, in so far as it is exercised thoughtlessly, that automatically increases one's subjection to the play of chance. It is this that accounts for the "disgraceful frenzy" of history as presented in the Iliad in the constant oscillation of force between victor and vanquished. Force is never wholly on the side of the one and absent from that of the other. In the Iliad the war does not progress towards its conclusion, that conclusion occurs by chance, for force is never unlimited in any given direction. Victory passes into defeat and defeat into victory according to that order of nature by which "opposite things produce opposite things". What determines the outcome of the war is not strategy but a blind play of forces on the balance of nature. For the ancient author or authors of the Iliad, as for Plato in a much later phase of the same culture, liberty is not to be found in the relation between desire and the power to satisfy desire through action; it lies, instead, in the openly mysterious relation between thought and action on the middle ground of our being. Liberty rests solely upon the fact that we can reduce the blind play of chance in our lives through the thinking of necessity.

It was, she argues, because of the very blindness of the play of forces within the order of the world that the Greeks chose the balance as the symbol of justice or equity.

The conception involved here is found not only in the Iliad, but in The Gospels and in many of the ancient religious texts of the orient.<sup>64</sup> In the New Testament we are told that: he who lives by the sword, dies by the sword. In the Iliad the same perception is uttered in almost the same words: "Ares is equitable, he kills those who kill".<sup>65</sup> The conception of retribution behind these lines is one of a geometric strictness and rigour. It is exactly equivalent to the rupture of a state of equilibrium as defined in the scientific study of natural phenomena.

Perhaps we might express this conception as follows: as a state of being, injustice is to justice as, in a given physical system, disequilibrium is to a state of equilibrium. If, for instance, we suspend two equal weights from a balance we establish a system in which (theoretically) there is an equilibrium expressed in the (apparent) rest of the arms of the balance. If, however, we add a weight to one side, the system is 'upset'; a state of disequilibrium ensues as the arms of the balance move first in one direction, then in another. Eventually, as the exertion of force in one direction is "compensated" by an exertion in the opposite direction, a balance is again established in the shape of a new state of equilibrium.

In the Iliad the social phenomenon of war is depicted in an equivalent and quite analogous fashion. The cause of the war is desire itself, desire unlimited by any constraints:

What they want is no less than all. All the riches of Troy as booty, all the palaces, the temples and the houses in ashes, all the women and all the children as slaves, all the men as corpses.<sup>66</sup>

What they forget is that while they may win this, depending upon chance circumstances, victory will come only at a price set by *Nemesis* for they are not all-powerful.

Injustice thus becomes a state of being that automatically and inevitably results from the failure of man to regard limits. That is, from the failure of man to think. In upsetting, through the thoughtless course of his activity, the texture of forces that constitutes the very condition of his existence, he sets in motion a sequence of events beyond his power to control; the state of apparent chaos thus engendered on the middle ground of our existence, with both its momentary victories and losses, is the intrinsic, automatic and purely impersonal punishment of injustice.

This, Weil contends, is the same conception found in *The Gospels*. To repeat a passage cited earlier:

The bitterest reproach that men make of this necessity is its absolute indifference to moral values. Righteous men and criminals receive an equal share of the benefits of the sun and of the rain; the righteous and the criminal equally suffer sunstroke, and drowning in floods. It is precisely this indifference that the Christ invites us to look upon and to imitate as the very expression of the perfection of our Heavenly Father. To imitate this indifference is simply to consent to it, that is, to accept the existence of all that exists, including the evil, excepting only that portion of evil which we have the possibility, and the obligation, of preventing. By this

simple thought, the Christ annexed all  
Stoic thought, and by the same token all  
of Heraclitus and Plato.<sup>67</sup>

Precisely to the extent that we are capable of this consent to "the existence of all that exists", to necessity conceived of in terms of the 'order' and 'beauty' of the world, we participate in justice and neither do nor suffer injustice. If consent to necessity is possible, it changes everything for the individual capable of it. Of two men in an identical state of affliction -- awaiting execution, for example -- the world of the one who consents and that of the one who does not are entirely different places. The one suffers injustice, the other does not.

Through the blind indifference of this conception Weil argues that justice comes to share in necessity. In the Platonic account:

there is not, there never was, there never will be, any other teaching concerning morality than that of the multitude.<sup>68</sup>

We label certain things and beings in this world by the names of 'good' and 'evil' in accordance with the things that we desire (or 'value'). The particulars toward which desire is directed are largely determined by the place that we occupy in a given social collectivity at a given moment in time. Such morality always presents itself in the form of a choice: a choice of good and rejection of evil. However, in a world in which "opposite things produce opposite things", we can know nothing of 'good' and 'evil'.

For Weil the ancient conception of justice participates in necessity in two ways: (1) in that it is characterized by an absence of choice in the form of an indifference to the 'values' assigned by desire. It is this indifference that is the very basis of the principle of co-existence. For the human being, justice is, above all else, the simple co-existence with ourselves of all the creatures and things that make up the existent order of the world. As Weil writes, in paraphrase of *The Gospels*, "it is permissible to have enemies, but not to desire that they should not exist."<sup>69</sup>

(2) Justice participates in necessity for the human being in that certain of our moral actions are of an imperative or obligatory nature. There are certain cases, by no means negligible in the course of human existence, in which individuals are impelled, in spite of themselves, to act, for the preservation of being, in accordance with a conception of justice. Perhaps, for example, it was out of a feeling of necessity that the Catholic population of Beziers, a town in the south of France in the beginning of the thirteenth century, went to their deaths rather than relinquish a handful of so-called heretics to the crusading army around their walls.<sup>70</sup> Such a feeling, perhaps, prompted certain individuals inside the borders of the Third Reich to risk life, limb, and even the "pursuit of happiness", in the attempt to preserve the lives of certain other individuals from death and affliction.

The possibility of a science of ethics rests upon the existence of that which is good by nature. What is good by nature is not something in nature, but something perceived beyond nature. In Weil's reconstruction, the natural good for the Pythagoreans lay in the idea of a relation or balance of forces constituting each individual phenomenon and the order of the world within which all phenomena co-exist. That which is good by nature is that which is limited; that whose movement in any given direction is arrested and reversed by movement in a contrary direction. The natural good is the order of world that conditions the existence of all that exists.

Here, again, we are brought back to mathematics for it is the purest and most rigorous study of necessary relation or order. For Weil moral and geometric reasoning could hardly be more closely allied. Since she conceived of justice as the working out of a geometrically strict necessity it became an idea as accessible to thought and as expressible in the imagery of language, as the essential idea of natural science, equilibrium. More fundamentally, all science, all knowledge, all thought is of an essentially mathematical character. The "miraculous species of beauty" to be found, according to Plato, through mathematics is, by a wondrous coincidence, the order and beauty of the world.

It is Weil's argument that the geometrical mathematics of the Greeks was, from its beginnings, nothing other than a search for proportion in the form of a ratio between either

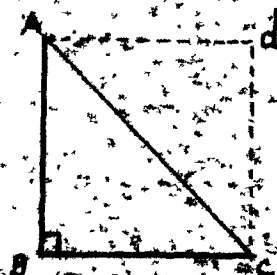
three or four terms. (1)  $a/b = b/c$  or (2)  $a/b = c/d$ .<sup>71</sup> In other words, she claims that their geometry was a science founded upon the "theory of real number" which is today conventionally held to constitute the essential difference between algebra and geometry, and the basis of the mathematical advance of the one over the other. She constructs her argument, through reference to the history of Greek mathematics and science, with a simple and brilliant lucidity.

Whole numbers<sup>72</sup> fall into two sets: (1) the rational or square numbers; that is, those such as 4, 9, 16, that are linked to unity by a mean proportional as, for example, 3 links 9 to 1 by the equation  $1/3 = 3/9$ ; and (2) all other numbers. The latter integers are those termed irrational. According to the contemporary history of mathematics, the discovery of the irrational in geometry occurred when the Greeks discovered that the hypotenuse of a right angle triangle is not commensurate with any one of the sides. That, in other words, there is no expressible proportion between the hypotenuse and the sides. This discovery of the irrational quantity of the hypotenuse is supposed to have occasioned a crisis in the rationalism of Greek culture. It is Weil's contention that this crisis -- often referred to as the "drama of the incommensurables" -- was enacted in circles wholly outside of the Pythagorean and Socratic traditions.

Weil demonstrates that, far from posing the problem of irrational number in the form of the incommensurability of the hypotenuse, the Pythagorean Theorem solved it.<sup>73</sup> What is

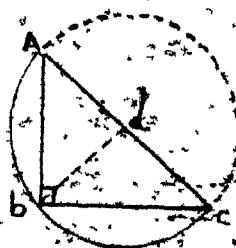


more it did so only thanks to geometry. By reference to the purely geometric properties of plane figures, the theorem provided a completely rigorous assimilation of the quantity of the hypotenuse by way of proportionality. The solution consists in squaring the figure of the right-angled triangle ABC:



while neither  $ab$  nor  $bc$  equal  $ac$ , according to the theorem, the square of the hypotenuse is equal to the sum of the squares of the sides. The hypotenuse of the triangle ABC is the common hypotenuse of two right-angled triangles. Thus, in the figure above,  $ab$  is to  $ac$  as  $dc$  is to  $ac$ . In this way the Pythagoreans geometrically demonstrated that there is a proportion between the hypotenuse and the sides.<sup>74</sup>

This can be shown in another and even more significant way. The altitude of a right-angled triangle is established through the bi-section of the angle:



This gives us two perfectly similar right-angled triangles in which  $bd = ad = dc$ . Furthermore, the bi-section of the angle allows the right-angled triangle to be inscribed in a semi-circle, for the point of contact between the altitude and the hypotenuse is the centre of a circle.<sup>75</sup> Tradition has it that Pythagoras offered a sacrifice for this discovery. Weil maintains that for the Pythagoreans this was the most wonderful of discoveries, for it demonstrated that the circle is the locus of all geometric means.<sup>76</sup>

Greek science began with Thales' discovery of similar triangles and, we are told, that it was this idea that permitted him to measure the height (or altitude) of the Egyptian pyramids:

by their shadows and the relationship or ratio between the height and the shadow of a man at the same hour.<sup>77</sup>

In this way, "as is provided by the nature of the gnomon", number becomes proportionality (or function) and all things become commensurate.<sup>78</sup>

Thus, the geometry of the Greeks was a science of 'real' or 'generalized' number in which mediation is sought between any number and unity. It is a mathematics in the sense defined by Plato in the *Epinomis*:

What one ridiculously calls geometry is the assimilation of numbers not naturally similar among themselves. Their assimilation becomes manifest when applied to the properties of plane figures, and this, to whoever is capable of thought, is a marvel which comes from God and not from men.<sup>79</sup>

Thus defined, geometry becomes the science of the so-called, irrational square roots.

Defined as ratio, as the functional relation holding between a "constant" and the "group of variation", number becomes the unity or harmony of the one and the many. It is, in other words, from this conception of number that the fundamental and contrary components of our being -- "the continuous" and the "discontinuous" -- are brought into relation. It is number so conceived that bonds thought and sensible experience together. It is from this number that our images of sensible 'objects' issue, and it is, likewise, out of number that the whole of our sense of reality flows.

Number is the condition of the realization of the whole of human experience: an experience lived upon the middle ground of our being, situated between the continuous and the discontinuous, the intelligible and the tangible.

As we have already seen, the best symbol of number was, for the Greeks, the circle. In this lies the key to our understanding something of the complete unity of the 'religious' and the 'scientific', of the 'sacred' and the 'profane', that characterized their conception of thought as lying in the mathematical use of language.

What they discovered in the image of the circle was the symbol of the perfect act of Being or God: a movement without change. On the one hand, they discovered a marvelous correlation between the truths of mathematics and the divine verities of the faith. On the other hand, from this dis-

covery of idea-in-itself, made only by turning away from the tangible world of the senses toward the purely immaterial and theoretical realm of mathematical necessity, there issued an even more wondrous coincidence. This same image was found to apply to the tangible world of the senses and the sciences alike.<sup>80</sup> The 'object' of mathematics -- forever beyond reach -- is that unnamed constant which is the relation of all necessary relations. The discovery that "intoxicated the Greeks" was the realization that this 'object' is both God and "the order and beauty of the world". In this our destiny becomes our origin: that infinitely small and unnameable point around which our being oscillates in the order of all the becomings of this world.

In Chapters II, III and IV we have explored in detail Simone Weil's description of the relation between language and (a) the experience of man in the world of natural process and (b) in the activity of his own existence within nature [an activity that we know, individually as labour and, collectively, as history]. This was done in a positive fashion in Chapters II and IV where this relation was described as consisting in the thoughtful handling of language by the human being in such a way that the revelation and the realization of thought occurred within individual experience. In Chapter III we explored Weil's critique of the thoughtless exploitation of the coincidence between linguistic relation and the relation of events within the natural flow of process that is characteristic of modern science.

Thus, in the third chapter's critique of mental labour, we returned to the beginning of the dissertation: Weil's complementary description of the thoughtless but methodical character of manual labour [Chapter I]. In the following chapter we will again return to this starting point. There, on the foundation of Weil's description of the character of thought [as developed in Chapters II, III and IV] we will proceed to examine her account of how language can and ought to be thoughtfully related to the experience of the individual in both nature and society.

In the first of the two major sub-sections of Chapter V entitled, "Work: The Relation of Thought and Activity in Individual Labour", we will deal with her account of labour as the central point of contact for the individual with the world of nature, on the one hand, and that of society on the other. Here, a fundamental aspect of the relation between labour and education implicit in Weil's philosophy will emerge. She argues that it is in the context of the work process that the relation between the thoughtful handling of language and the activity of nature, and of man in nature, is most clearly and lucidly disclosed to the individual. That is to say, it is in work that we come to realize the essential character of human language in its relation to our experience in and of the natural world. Obviously, the process of bringing the individual into this basic realization of the character of thought is of primary educational

importance. Within the context of her thought education, as it relates to the individual, thus becomes a process of learning that must be focused upon the phenomenon of work.

In the second section of Chapter V entitled, "Culture: The Relation of Thought to Activity in Collective Life", we will, firstly, examine Weil's account of what is required for the social co-ordination of individual labour to be in accordance with thought. There, we will find that the juxtaposition of thought and action in individual labour is an indispensable condition for the thoughtful movement of man within the social process of history. Secondly, we will concentrate upon her description of how the individual can best assimilate or "read" the thought embodied implicitly and explicitly in the culture, in the entire way of life, to which he belongs. Here, we will meet the second aspect of her position that is of primary and fundamental importance to the philosophy of education implicit within her writings. Education must not only seek to bring the individual into the ability to handle language thoughtfully and, thereby, become a channel for cultural expression, it must also bring the individual into the ability to "read" or understand the expression of thought within the wide range of phenomena that comprise the expressive medium of a culture. In this sense, education must strive to bring him (a) to the realization of the thought implicitly grounding and shaping his way of life through the form of the social division and co-ordination of

labour; and (b) it must teach him to listen and to read the thought explicitly expressed in speech and text within his culture.

Here, again, the central importance of labour in Weil's account emerges, for it is also upon the labour process that education must focus in this second of its fundamental concerns. Accordingly, the second portion of Chapter V will be sub-divided into two sections dealing with the role of education within (a) a form of culture suitable to the condition of the workman and (b) within that form suitable to the condition of the agricultural or peasant labourer. Thus, by way of conclusion, Chapter V will seek to disclose, upon the basis of Weil's conception of the nature of thought, the foundation of the notions of culture and education implicit within her philosophy.

## CHAPTER V

### WORK: THOUGHT AND LABOUR

In history, as in nature, what most impresses us is force. In his estimation of the past the historian is chiefly enthralled by the sheer power of the collectivity to act. In the books of the historian the grandeur of a civilization is a function of the material evidences of such power left in its wake. History consists mainly in measuring the depth of trash piles. Thus Rome was a great civilization because it conquered the ancient Mediterranean world and littered the cultural landscape of Europe and the Mid-East with monuments that impress: roads, aqueducts, amphitheaters and laws. The Beothucks of Newfoundland, on the other hand, were, for one and the same reason, both a 'primitive' and a 'pre-historic' people for they left behind nothing more than a few museum cases of material artifacts. In wandering past these cases in an obscure corner of the Newfoundland Museum no one is unduly impressed by the ambition and scale of collective action evidenced therein. In history the Romans have our attention and our admiration, the Beothucks have neither.

Philosophy, in many ways and profoundly, stands in opposition to history. The concern of philosophy lies not with the simple power of the social collectivity to do but with the thoughtful determination and circumscription of the power of action intrinsic to the human being. As seen in the



preceding chapter, for Simone Weil, the essential tragedy contained in the spectacle of history lies precisely in the fact that man is empowered to act beyond the ability of his thought to conceive the consequences thereof.

In Weil's view this tragedy is an inescapable but not an irreducible factor in our condition. Philosophy, in her view, is precisely the attempt to counter and mitigate the force of this tragedy. The most basic, the definitive goal, of philosophy is to expand, increasingly, the thoughtful character of human activity.

As we have seen, thought for Simone Weil is essentially individual in character. As detailed in the last chapter, she regarded the 'miracle of Greece' as consisting in the discovery of the true character of human thought in its relation to the activity of nature and of man in nature [history]. We might, perhaps, summarize that discovery as follows. In thought the human being is oriented, first of all, away from the experiential world of natural and historic process toward the linguistically conceivable realm of pure and perfect ideational relations. Secondly, in this orientation of the attention of the mind in thought toward an non-existent 'object' there occurs, miraculously, the revelation of images of necessity expressible in language. By another and no less miraculous coincidence these images are all that serve to delineate and define the phenomenal world of natural and historic process, and all that provide a foundation for our acting in accordance with method in that world.

Language, in her view, is the primary and the essential instrument of thought, but it is an instrument that can only be thoughtfully used by the individual. A thought occurs in language to the mind of a particular individual and the moment of that occurrence is entirely private. It is only in expression that thought enters into the public and collective realm of language. Through expression an idea is imaged in language by the simple juxtaposition of signs in relation to one another, in the hope and expectation that this particular relation of signs will occasion the occurrence of the idea represented to another human being, or its re-occurrence to oneself.

For Simone Weil it is in the expression of idea<sup>1</sup>, in the public and collective realm of language, that the essential problem of philosophy -- the relation of thought to action -- arises. Strictly speaking, idea cannot be contained in language. Language can only occasion its occurrence to others as to oneself. However the most powerful aspect of language lies in its material character. One of the two great surface mysteries of language is the simple and inescapable fact that it works; that some of the relations between signs correspond to relations between processes in the natural world. Machines provide a striking example of this correspondence. A machine is composed of bits of matter arranged in relation to one another according to the pattern of linguistic relations present to the mind of its inventor. In this sense it is a piece of language.

Matter is thus capable of embodying, independently of mind, linguistic relations. Furthermore, language itself has a purely material aspect. The sounds of the human voice, like the marks of a hand writing on a sheet of paper, are things and they can be artificially arranged in relation to one another according to the rules of custom and convention. From this perspective a machine is a piece of language that functions to produce a certain effect without the need [or even the opportunity] of its thought being present to the mind of the individual using it. Customary forms of behaviour, formulaic expressions of all kinds, skills, habits, techniques, and the very social organization of labour, are all collective ways in which human activity is governed and directed by the material establishment of linguistic relations outside the sphere of individual consciousness. In this way, in any society, the life of the individual becomes a dance in which the steps are more or less thoughtlessly dictated by (a) relations materially established in language by the thought of others and (b) by relations that are the issue not of thought at all, but of the handling of language according to the rules of custom or by sheer caprice.

Labour is the most primary and the most elemental form of human activity that may be governed by thought. It is so for a variety of reasons. First of all, in its most basic sense of effort, of force times distance, labour is human activity *per se*; secondly, because labour is the productive activity essential to sustaining the physical life of the

individual, the social collectivity and the species itself. Lastly, and by no means insignificantly, because it is directly through labour that man enters into society and the activity of the collectivity, history. A society is nothing other than a particular division and co-ordination of the labour activities of the individuals composing it. The history of a society is nothing other than the story of what this division and co-ordination of labour has allowed a people to do. If thought is to be related to activity within human life, it can only be through the labour of the individual.

As seen, briefly, in Chapter III, there are, for the human being, essentially two ways of coming to grips with the "order of the world". First, through the thoughtful use of language, we come to dominate time. It is, in Weil's account, language that gives us the past and the future, what is near at hand and what is far off, and it is only language that is capable of fixing them before our attention. Secondly, it is only through action [or labour] that we possess real power over what is physically present to us. It is, in other words, only through labour that we dominate space.<sup>2</sup>

In general, Weil distinguishes between two forms of human labour: **methodical** and **un-methodical** or, to be more exact, labour that is in accordance with method and labour that is without and unrelated to method. Unmethodical labour involves the simple exertion of effort. Here, neither language nor thought plays a role for all that is required is brute strength. By far the greater part of human activity,

in any society, is of this variety. The scale of unmethodical labour can, perhaps, be reduced but it cannot be eliminated. As will be seen later, for Weil this reality of our condition is of basic spiritual significance.

Weil's analysis and critique of labour, as detailed in the previous chapters is concerned exclusively with labour that is in accordance with method. She divides this form of labour into three types: manual labour, mental labour and work. Chapter I detailed her analysis of manual labour. There it was shown that, thanks to the division and coordination of labour, there is method implicit in the actions of the individual workman but none in his mind. The slave acts in response to the commands of his master. The labourers in Adam Smith's pin factory perform a single and simple action the method of which, lies in the managerial organization of the factory. The third chapter provides an account of Weil's analysis of mental labour in reference to the method of scientific 'thought' as the generative force behind 'technological' advancement today. There the conclusion was that the "mental labour" of modern science was not a form of thought, not a way of knowing the world, but simply a means of handling language with a view to increasing the scale of collective action.

Here, in the concluding chapter, we will examine Weil's account of the nature of work as that form of methodical labour in which thought is present to the mind as well as to the hand in action. To this end it seems convenient to

divide the chapter into two distinct but complementary sections. The first will deal with the immediate relation between the thought and the activity of the individual in work. The second with the relation which allows us to assimilate, to re-think for ourselves, the thoughts of others as embodied in the language of the social collectivity to which we belong. That is to say, the first section will deal with the essentially private and individual character of the relation of thought to activity in labour, and the second with thought as "reading", the assimilation of thought as embodied in the material expressions of a culture. Throughout the chapter attention will be focused upon the basic significance of Weil's description of the relation between thought and labour for the philosophy of education.

#### I. Work: The Relation of Thought and Activity in Individual Labour

As previously detailed, for Simone Weil the most basic aim of thought is to preserve from chance the activity of the individual and that of the collectivity to which he belongs. Since labour is, at once, the most fundamental and essential form of individual activity, and since the activity of a society is the issue of its collective organization of labour, Weil sees the whole of philosophy as centrally concerned with the relation of thought to action in labour. Work, in her sense, may be defined as that form of "method-

ical labour" in which the thought of the individual governs his actions to preserve them from the blind play of chance.

In other words, work is that form of labour in which the individual directly strives, by means of thought, to reduce and circumscribe the role of chance within the sphere of his labour activity. For Weil a free community is one in which the social structure is, as far as possible, a division and co-ordination of work. For her the thoughtful determination of history is dependent upon and a direct function of the thoughtful action of the individual in labour.

The most obvious and, seemingly, the most insurmountable obstacle to human thought is both the size and the complexity of the material world in which we live. In Weil's own words:

The difficulties of real life do not constitute problems made to our scale; they are like problems possessing an innumerable quantity of data, for matter is doubly indefinite, from the point of view of extent and from that of divisibility. That is why it is impossible for a human mind to take into account all the factors on which the success of what seems to be the simplest action depends; any given situation whatever leaves the door open to innumerable chance possibilities, and things escape our mind as does water between the fingers of our cupped hands.<sup>3</sup>

Thus, at first sight, we are tempted to conclude that thought only functions to arrange and order perfectly abstract and unreal combinations of linguistic signs, and that all human activity, in the final analysis, is merely an intellectually blind movement in the dark. Each of us, however, knows from

experience that this is not so. While it is true that we can never act with complete certainty, it is no less true that the success of many of our actions depends upon thought.

As distinct from labour, work is indirect action. If I wish to move a stone from one point to another and I pick it up and carry it, that is simply an act of labour. If, however, it is too heavy to be lifted, I must think of certain indirect actions, certain means, to achieving the end desired.<sup>4</sup> I am obliged to conceive "a chain of intermediaries"<sup>5</sup> linking the movements I am capable of making to the end sought. In order to achieve this, thought must turn away from the phenomenal world of process and concentrate attention upon that which is, by its very nature, abstracted from the realm of process: language. Thought arranges the signs of language in relation to one another so as to represent to the imagination a "chain of intermediaries" constituting "an abstract plan of action". As we have seen, the coincidence between sign and idea in thought is one of the two great surface mysteries of language.

The second of these mysteries is the coincidence in work between such "abstract" plans and the successful issue of human effort. While this coincidence is not complete, it is undeniably real. When we begin to execute an action on the basis of thought we find, of course, that accidents arise at every moment to frustrate our plans. In thinking we do not and cannot eliminate chance but we can and we do define and limit its role in our actions. By thought we "filter" chance:



by classifying with respect to this particular plan the undefined mass of possible accidents in a few clearly defined series.<sup>6</sup>

Work is thus, preeminently, that form of human activity in which the dual-surface mysteries of language are evident to the individual. In Weil's account of the other two forms of human activity that are in accordance with method -- manual and mental labour -- these mysteries are divorced from one another and each, in its exclusivity, plays an exaggerated and a false role in the experience of the individual. Thus it is that science today is:

regarded by some as a mere catalogue of technical recipes, by others as a body of pure intellectual speculations which are sufficient unto themselves; the former set too little value on the intellect, the latter on the world.

Hence, for Weil, thought does not preserve us from chance, rather it preserves our actions themselves from chance. As an example of this distinction and an illustration of the role of thought in human life she uses, in several places,<sup>8</sup> the image of the boat. "The intelligence", she writes:

is powerless to get its bearings amid the innumerable eddies formed by wind and water on the high seas; but if we place in the midst of these swirling waters a boat whose sails and rudders are fixed in such and such a manner it is possible to draw up a list of the actions which they can cause it to undergo. All tools are thus, in a more or less perfect way, in the manner of instruments for defining chance events.<sup>9</sup>

Like human existence in general, the boat launched upon the seas, is subject to chance. Accidents happen and ships sink but with a boat in the midst of the ocean we are less subject to the blind play of chance than we are without one. That much is clear.<sup>10</sup>

Tools may either be 'invented' by human thought or simply 'discovered' in the course of experience. In the first case a piece of matter is directly fashioned according to the abstract design of thought. In the latter case a piece of matter is found to be 'useful' in performing a certain role in a given form of human activity. In both cases tools are instruments for establishing certain relations in matter with a view to the achievement of certain specified ends. In the course of our labour these relations may or may not be present to the mind of the individual using the tool.


It is only through language that relation can be present to the mind, for it is only language that supports the memory, allowing us to connect one event with another.<sup>11</sup> To 'invent' a tool is to give material expression to a thought present to the mind in an image constituted by the juxtaposition of linguistic signs. To 'discover' a tool in the course of experience is, implicitly, to assign a linguistic role to a piece of matter. That is to say, to handle matter in work is to handle it linguistically; it is to establish relations in it by juxtaposing one piece of matter in relation to another. In the course of experience we can do this blindly on the basis of 'trial and error' but, in order to understand

how a tool functions in a given form of activity, we must represent to the mind the relations it establishes, and that can only be done in language.

It is by reason of this dual interplay between thought and matter that tools are to be considered a part of language. Thoughtfully used language is the supreme tool: it is the essential instrument by which thought defines and limits the play of chance in the course of human activity.

Nothing, however, insures the thoughtful use of language. If thought is occasioned by the juxtaposition of linguistic signs in the mind of the individual, activity -- be it that of the process of the world around us [nature] or of ourselves in the world [history] -- is occasioned only by the conjunction of 'things' [or 'processes'] in physical relation to one another. The power intrinsic to language is founded upon this fact: certain linguistic relations translated into material relations, issue in activity, and they do so whether or not the relations involved are present in thought to the mind(s) of the individual(s) acting.

In nature relations between events are not, of course, determined by human thought. We can and we do 'read' relation in nature but we do not establish it. In history we do establish such relations; there we act within nature to bring processes into relation to one another so as to occasion certain other processes. The historical process itself by which man directly intervenes in nature to occasion certain desired results, can be either thoughtful or thoughtless.



From the point of view of activity the greatest moment in human history is surely the present moment. Through that mysterious force known to us as 'technology' we have, over the course of the past few centuries, re-organized the forces of nature so as to produce certain dramatic results that have altogether changed the previous scale of our activity in nature. On one level we appear, at least momentarily, to have thus greatly reduced the play of chance events in our lives. Thus, for example, many of the diseases that plagued humanity in the past have been eliminated or reduced to insignificance through the advances of modern medicine. On the other hand, we now find ourselves threatened on all sides -- in ways both obvious and insidious -- by chance destruction, and on a scale transcending anything previously known in either nature or history, by the very forces implicit in and unleashed by our 'technology'. From the perspective of 'common sense' we are today forced to conclude that 'technology' has done nothing to reduce the play of chance in our lives and indeed that its achievement in that regard was only to alter dramatically the scale of its presence in human existence. The bubonic plague was certainly no worse than modern warfare and in its potential for destruction it was as nothing compared to our arsenal of atomic weapons. This observation in itself ought to be enough to bring the thoughtful character of the path of 'technology' into question. If it is not it is only because we are dazzled by the sheer spectacle of its dance.

As seen in earlier chapters, in Weil's analysis, our 'technological' path is not a thoughtful one because for us language is not an instrument of thought but, on the contrary, simply an instrument of activity. For us thought has become an instrument of language. There exists a strange and striking similarity between the magical use of language in certain economically primitive societies and the current mathematical manipulation of language in the scientific 'culture' of 'technological' society. Weil provides this connection. In those primitive societies<sup>12</sup> where it is the body of the individual that plays the predominant role in labour it is only with the greatest difficulty that the most fundamental of the ideas -- the notion of necessary relation -- emerges. All labour involves a transformation of movements. In labour that is in accord with method this transformation occurs according to the diagram of thought. While the human body is a machine designed for the accomplishment of such transformations, it is an exceedingly complex machine. In its complexity it is impenetrable to the mind.<sup>13</sup>

The extreme complexity of vital phenomena can perhaps be progressively unravelled, at any rate to a certain extent; but the immediate relationship linking our thoughts to our movements will always remain wrapped in an impenetrable obscurity. In this sphere we cannot conceive any form of necessity, from the very fact that we cannot determine what are the intermediate links ...<sup>14</sup>

Thus the human body itself stands between thought and action in the labour of the individual. When the body plays a direct role in labour thought conceives a certain desired end, and if one's actions are successful in the attainment of that end, then it appears that nature is [anthropomorphically] complying with our desires and conversely when our efforts are frustrated. It is in this way that the gods appear [literally out of the human body] to people nature with divinities that are only to be manipulated psychologically by supplication and threat.<sup>15</sup>

It is only with the emergence of tools sophisticated enough to force the body to adapt its movements to their shape that the connection between thought and action emerges lucidly into the focus of human consciousness. As Weil writes:

Thenceforward there is no longer any correspondence between the motions to be carried out and the passions; the mind has to get away from desire and fear and apply itself solely to establishing an exact relationship between the movements imparted to the instruments and the objective aimed at. The docility of the body in such a case is a kind of miracle, but a miracle which the mind may ignore; the body ... simply causes the movements conceived in the mind to pass into the instruments. The attention is directed exclusively to the combinations formed by the movements of inert matter, and the idea of necessity appears in its purity, without any admixture of magic.<sup>16</sup>

As a labourer in a society devoid of tools man is borne along by the impulsion of his desires, by his wants and his fears. Again, Weil uses the example of the sailboat to

illustrate the distinction. On dry land a man may pass from one place to another without any need of thought, impelled and occupied by fear or anticipation alone.

[O]n the sea, on the other hand, as desires and fears have no hold over the boat, one has continually to use craft and strategy, set sails and rudder, transmute the thrust of the wind by a series of devices which can only be the work of a clear intelligence.<sup>17</sup>

In order to complete the picture, by way of contrast, one might extend this general series of technical developments one stage further to include the automated 'supership' of the present day. The sailboat of Weil's illustration is a tool that demands the clear and lucid exercise of thought in the activity of its use. Like the human body, the super-tanker is a gigantic and immensely complicated machine. Whatever the labour activities of the individuals sailing it, there can be no question of their conceiving how it is that their actions are transformed into the specific movements of the ship. Here again, as on the other ethnological side of the tool in human society, we have an equivalent situation. In the world of 'high-tech', as in that of the non-technical savage, a machine, a complex relation of relations, is materially interposed between thought and activity in individual labour. For the savage it is nature itself, in the form of the human body, that destroys the relation between thought and action; for the 'high' technician, on the other hand, it is language, materially expressed in the form of the

machine, that does so. What we today term 'technology' is nothing other than this material interposition of language itself between thought and activity within the labour of the individual.

It would seem from this that, by its very nature, human language implicitly threatens the relation of thought to action. In Weil's analysis the second great obstacle to the unity of thought and action in labour consists of the "profound difference in kind"<sup>18</sup> separating the expression of thought in language from the act of its execution. Even if the conditions of labour in a society were to be transformed so that the actions of the worker were solely determined by his thought, his actions would still not be 'methodical' but simply in accordance with method. As Weil writes:

In reality, there is nothing in common between the solution of a problem and the carrying out of an even perfectly methodical piece of work ...<sup>19</sup>

The sequence of the ideas in a theoretical solution of a problem is not that of the sequence of actions in the activity of execution. In the Cartesian language of Weil's description, we proceed in the systematic formulation of thought from what is simple and clear to what is complex and obscure,<sup>20</sup> in the manual execution of a piece of work one action precedes another merely because it is the condition of those that follow.

Moreover, the mind more often than not musters together what execution has to separate, or separates what execution has



to link up. That is, why, when some piece of work or other presents the mind with difficulties that cannot immediately be overcome, it is impossible to combine the examination of these difficulties with the accomplishment of the work; the mind has first of all to solve the theoretical problem by its own particular methods, and afterwards the solution can be applied to the action.<sup>21</sup>

It is upon this fundamental separation between thought and action in language itself that the possibility of technique rests. Thanks to this inescapable separation between thought and action in the execution of work there is no need for the individual who is applying method to conceive it in his mind either before, during or after application.

"Indeed", as Weil writes:

if it is a question of something complicated, he is unable to, even should he have elaborated it to himself; for the attention, always forced to concentrate itself on the actual moment of execution, cannot embrace at the same time the series of relationships on which execution as a whole depends.<sup>22</sup>

Strictly speaking, what is executed is never a thought but simply an "abstract diagram" dictating a particular sequence of movements. At the moment of execution the attention of the mind is focused upon and occupied by the specific actions to be performed in the piece of work at hand. In this it is guided not by thought but by an expression of thought in language and this expression is:

as little penetrable by the mind, at the moment of execution, as is some formula resulting from mere routine or some magic rite.<sup>23</sup>

As seen previously, for Weil, thought cannot be contained in language; through expression it can only be occasioned in language. In acting our attention is absorbed by what it is that we are doing and thus the occasion for using language to represent thought to the mind is absent.

To put this matter as simply as possible, the expression of thought in language tends to dispense with the need for thought. Expression is public and can be applied by individuals who have neither thought nor understood it. What is more, with or without minor changes in detail, the same expression of a thought is indefinitely applicable. Although the mind may suddenly conceptually embrace a series of possible applications there is no need for the individual to re-think each time an application is made. As Weil puts it, for every "flash of thought" crystallized in the expressive medium of language there follows an unlimited number of intellectually blind actions. In this way we come:

face to face with a paradoxical situation; namely, that there is method in the motions of work, but none in the mind of the worker. It would seem as though the method had transferred its abode from the mind into the matter.<sup>24</sup>

Thus tradition, routines, skills, techniques, and the customary "tricks of the trade", all constitute material expressions of relation that can be applied to action without the

necessity of thought. They are, in fact, ways of furthering action by dispensing with the need for thought. As we saw in the first chapter, the institution of slavery is also rooted in this reality of language, as are all forms of social organization. The labour of countless individuals can be 'divided' and 'co-ordinated' by a single mind only because it is possible to obey an order without thought.

The most striking illustration of this divorce between thought and expression central to language is furnished by machines. Weil identifies and sketches three stages in the material development of technique. First is the simple act of:

entrusting to objects disposed in suitable places all those efforts of resistance whose aim it is to prevent certain movements on the part of certain things.<sup>25</sup>

The second phase consists in mechanization proper. Here one disposes in relation to one another pieces of inert matter, not simply to ensure immobility, but to establish and maintain a relation of movements with one another. Previously, these relations had to be established each time by the attention of a human mind. For mechanization all that is required:

is that one should have been able to register these relationships, suitably transposed, in the forms impressed on solid matter.<sup>26</sup>

The last stage is that of automation. There, matter is entrusted not merely with a single and invariable operation but rather with a whole set of diverse operations. Thus, thanks to the very nature of language itself, an individual who has worked out a method of action can be relieved from the task of its execution. As in the factory described by Adam Smith, so in the organization of any social collectivity, the task of execution can be handed over to others or, even more efficiently, entrusted to pieces of metal tended by other men.<sup>27</sup>

What is more, as we saw briefly in the third chapter, this separation of thought from action is repeated, in "an absolutely identical form", on the level of pure thought itself.

To take a simple example, it is absolutely impossible, at the moment when one is working out a difficult division, sum, to have the theory of division present to the mind; and that is not only because this theory, which is based on the relationship of division to multiplication, is of a certain complexity, but above all because when carrying out each of the partial operations at the end of which the division is accomplished, one forgets that the numbers represent now units, now tens, now hundreds.<sup>28</sup>

As distinct from other forms of human language, mathematics, in its scientific application to experience, is essentially the attempt to handle language logically. That is, the rules governing the mathematical combination of signs are supposed to be identical to the rules governing the combination of the

'things' signified. However, if the language used is such that it is difficult, or even impossible, to keep the relation of sign to 'thing'-signified present in the imagination, one is forced to handle language as if its signs combined merely according to laws of linguistic convention. In such a situation language ceases to be a tool for the expression of thought; it becomes, instead, something like an automatic machine; its operations are unintelligible and follow automatically from one another. Either language is mastered to become the thoughtful instrument of individual expression or it is seized upon by the social collectivity and dictates the actions of the individual. We either use language thoughtfully or we come to be used by it, thoughtlessly.

In Weil's view, Descartes sought, but failed, to find a way to prevent "order" [or relation] from becoming a thing, as opposed to a thought, as soon as it is conceived and expressed in language. According to Weil this occurs from the moment we begin to treat a series of relations as a reality separable from the individual terms of which it is composed, by designating the whole by means of a single sign.

In mathematics this is the essence of the algebraic mode of expression.<sup>29</sup> As we have already seen, algebra replaced the geometric images of relation with signs that could be manipulated in relation to one another as things, as marks on a piece of paper. This, of course, functioned to destroy the very occasion of thought in language, for it is then either very difficult or quite impossible for the signs of algebra, in their juxtaposition to one another, to occasion the

appearance of representational images in the mind.<sup>30</sup> The signs of an algebraic mathematics are, in their very 'abstraction', too far removed from the imagination for representation and, in their relation to one another, they are too complex to be held within the vision of the mind. It follows, as a matter of course, that the formulaic expressions of an algebraic mathematics bear no discernible intellectual connection to their practical applications. As a consequence, their efficacy appears to be as fortuitous as that of a successful magical formula. In this labour becomes "automatic to the second power"<sup>31</sup> for here both the execution and the elaboration of the method occur outside the domain of the human mind. In this essential regard the 'technological' society constitutes an advance in thoughtlessness over both the slave societies of antiquity and the most economically primitive of cultures.

Thus, for Weil, thought, in its relation to human activity, is a tool not for the elimination but, simply, for the reduction of chance in our lives. Nor, by the very nature of language, can thought be directly wedded to action. All that language permits is the juxtaposition of thought and activity within the life of the individual. Further, it is impossible that a society could achieve a mode of production in which all the actions of its workmen were in accord with method that had been lucidly conceived in their own minds. In life we cannot avoid the performance of thoughtless actions, for we are forced by the circumstances of need to depend, as

often as not, upon trial and error, custom, instinct, formulas and ready-made rules of all kinds. For Weil what is possible and sufficient is the fact that we can gradually widen the sphere of consciousness in work. Work is precisely that form of human activity in which thought and action are immediately juxtaposed. It is solely in work that the dual surface mysteries characteristic of language are clearly in the focus of the individual. It is only in work that the human being uses language as a tool for the limitation of chance in life.

The possibility of craftsmanship<sup>32</sup> is of vital importance for Weil. In her view all genuine forms of civilization and culture depend upon the social preservation of work as the mode of production.<sup>33</sup> For her the least evil of societies, those in which men are the least subject to blind chance, are those in which we are most often obliged to think in the course of the activity of labour.<sup>34</sup> The work process always has been and always will be, more or less, external to the individual. In the most economically primitive of societies that process is blindly embodied in the traditional customs and conventions of the group. At the other end of the ethnological scale, our end, the methods of work are increasingly, and no less blindly, fixed in that autonomous web called 'technology'.<sup>35</sup> The thoughtful circumscription of collective action can only be achieved through increasing the role of thought in individual labour.

Through thought, we must attain to 'liberty' not only in relation to natural need but also in reference to the compulsion of force exercised by the social collectivity. In Weil's account the individual is subject to the collectivity in all ways except one. The individual is possessed of mind and capable of thought. In this and this alone:

the individual surpasses the collectivity to the same extent as something surpasses nothing, for thought only takes shape in a mind that is alone face to face with itself; collectivities do not think.<sup>36</sup>

Thought, of course, in itself, does not constitute a force; it does so only to the extent that it is materially indispensable to the action of the collectivity. The problem is to make thought and the individual as indispensable to society as possible for, while the collective does not think, it is possessed of language, and linguistic relations can be thoughtlessly exploited in the course of collective action. As detailed in the third chapter, this is splendidly illustrated, for Weil, in the 'applied mathematics' of modern science.

We cannot escape from our bondage to necessity. As existent creatures we are completely enclosed within a universe of material forces entirely and perfectly obedient to necessity. Our subjection to necessity is one and the same as our subjection to chance. As previously illustrated, [in Chapter III], chance is engendered as the feeling of 'ignorance' that results from our movement, micro or macro-



scopically, away from the natural scale of our being in a material universe that is for us indeterminate in time and space. It is only upon our own scale of being that images of necessity are found by the human being. These images only occur to the individual through the revelation of thought, and they are our only tool for the limitation of chance. For Weil our choice lies between either a blind submission to nature and society or the conscious adaptation of our activity, as far as is possible, to these images.<sup>37</sup> The possibility of this adaptation occurs solely in the process of work.

In this regard, implicit to Weil's position is the conviction that education involves the appropriation of language by the individual as a tool; that is, as an instrument for the definition and the limitation of chance in human life. Since it is within the work process that this occurs, labour becomes, in her view, a central concern of education.

The human creature lives not only in the universe of 'matter' but also in that of language. For Weil the true character, the scale, of the human situation is only disclosed in work for it is there, above all, that these worlds meet to disclose the limits of our being. In work the dual surface mysteries of language are disclosed as the essential and open mysteries of our being in the world. For Weil the vocation of man as labourer is "the contemplation of things".<sup>38</sup> We are stopped in our activity by a difficulty. We turn, in thought, away from the experiential world of process, our minds attentively focused, waiting for the revelation of idea. A thought comes to us and is expressed, to

ourselves as to others, by the juxtaposition of linguistic signs. We then turn back towards the world, and acting on the basis of this expression of thought, we find ourselves free to do what was previously impossible. It is in work that we most directly come to know the true character of the relation between thought and activity fundamental to our being.

Thus, for Weil, it is work, the conjunction of thought and activity in individual labour, that is the most essentially human of all activities. In her view work is the centre and the basis of culture. Preeminently, education is the process by which we learn to work; the process in which the individual is equipped and prepared for life:

so that he may maintain, both with this universe which is his portion and with his fellows whose condition is identical with his own, relations worthy of the greatness of humanity.<sup>39</sup>

The aim of education, in this sense, is the individual appropriation of language as a tool for the establishment of an equilibrium between one's will and both nature and society. Labour is the most fundamental context in which that appropriation can occur for it is there that man enters into direct contact with both nature and society. It is there that the sociology and the philosophy of education meet.

Except in appearance, thought cannot be exercised in a vacuum, devoid of contact with the activity of the world around us and of our activity in the world. Weil argues that

we must aim for a form of language in which: (a) it would be difficult or impossible to understand scientific notions, of even the most abstract variety, without clearly perceiving their possible applications; and (b) in which it would be equally difficult or impossible to apply such expressions of ideas without first thinking and understanding them. The "mental labour" of modern science must be more concrete, and the "manual labour" of the 'industrial' mode of production must be rendered conscious.<sup>40</sup> Manual and mental labour alike must be transformed into work. In Weil's estimation this was the essential aim and failure of Descartes. His "Craftschool Proposal" for the reformation of education was betrayed by his efforts to formulate the analytic geometry required by the new physical sciences.<sup>41</sup>

In a letter, written in 1933, to Emile Chartier [Alain], her former professor at the Lycée Henri IV, she speaks of a "new way of conceiving mathematics" by means of analogy.

It is only the use of analogy that offers a way of conceiving a series without separating it from its terms ... And it is only analogy that makes it possible for thought to be at the same time absolutely pure and absolutely concrete. Thought is only about particular objects; reasoning is only about the universal. Through the trick by which it has tried to resolve this contradiction, modern science has lost its soul; this trick consists in reasoning only about conventional symbols, which are particular objects by the fact that they are black marks on white paper, but which are universal by virtue of their definition. The other way to resolve this contradiction would be by analogy. And this suggests to me a new way of conceiving mathematics -- as materialistically and,

so to speak, cynically as possible -- so that it consists purely and simply of combinations of symbols; but so that its theoretical and practical value, which would no longer be distinct, would reside in analogies, clearly and definitely conceived, between these combinations and the concrete problems to which they are applied in the course of man's struggle with the universe.<sup>42</sup>

As detailed in the preceding chapter, Greek geometry was for Weil precisely such a mode of expression. A form of work founded upon such a language would not only make it possible but necessary that thought be used in application and application discovered in thought.<sup>43</sup> Work would then come to occupy its rightful place at the centre of culture, for thought in one sphere would be readily translatable into its applicability in other spheres. Later, in the following section of this chapter, this will be explored in greater detail.

It is, here, Weil's contention that the analogical use of signs [for the expression of relation] would automatically function to reduce language to its proper role as an instrument of thought. In such a language the signs would be intrinsically limited by the power of the individual imagination to hold them together in a conceptual image. In such a form of language the significance of the signs would lie in the images occasioned in the mind by their juxtaposition and not, as in algebra, in the purely external and conventional relation of sign to sign. In this language would become the instrument of a kind of conceptual perception. Each particular conception would be perceived in the mind in an image

occasioned by the signs of language and applicable, by analogy, throughout a diversity of contexts. Thus scientific, no less than artistic, education would come to consist in the training of the imagination in the perception of analogies. Through the conjunction of thought and action, of language and the world, in work, these images would illumine both human labour and human culture. Hence, as seen in the last chapter, the image of symmetry in Greek geometry was applicable, by analogy, to natural science, ethics and aesthetics within the culture of the Pythagoreans. Here, the depth [or significance] of an image would lie precisely in the extent of its applicability, and each form of human labour would be brought into an immediate association with the cultural content of the form of social life of which it is a part.

Due to our dependence, not upon work, but upon manual and mental labour, a fundamental distortion characterizes every aspect of culture in contemporary society. In the *Need for Roots* Weil draws a representative example of this distortion from two extreme, but characteristic, approaches to the teaching of geometry in our schools. On the one hand, there are the mathematical 'purists' who, out of a perfectly legitimate concern with preserving the necessary character of geometrical reasoning, present geometry to students as if it bore no relation whatever to the real world of our experience. Out of this quite legitimate concern such people are often led to display a sovereign and foolish contempt for the experiential world in which we live.

The majority of them will always remain ignorant of the fact that nearly all our actions, the simple ones as well as the judiciously combined ones, are applications of geometrical principles; that the universe that we inhabit is a network of geometrical relations, and that it is to geometrical necessity that we are in fact bound, as creatures enclosed in time and space. This geometrical necessity is presented to them in such a way that it appears arbitrary. Could anything be more absurd than an arbitrary necessity?

...<sup>44</sup>

On the other hand, stand those even more pedagogically perverse individuals who, seeking to make geometry 'relevant', popularize its utility in relation to human experience by the simple, and totally disastrous, expedient of omitting the demonstrations. When they have finished exposing geometry 'to the elements' nothing remains but "a few formulas totally devoid of interest".<sup>45</sup> At their hands geometry is gutted of its very essence as that branch of study devoted to the subject of necessity. Thus we act as if forced to choose between thought and experience, when in reality no such choice is possible.

Weil's solution to this rather typical pedagogical controversy<sup>46</sup> clearly illustrates her conception of the proper relation of thought and action in human life. That solution consists in associating "theoretical study and the workshop":

One would say to the children, 'Here are a certain number of tasks to be carried out [Constructing objects fulfilling such and such requirements]. Some of them are possible, others impossible. Carry out the ones that are possible, and as regards the ones you don't carry out, you

must be able to force me to admit that they are impossible'. Through this crack, the whole of geometry can be made to pass into the sphere of practical work. Execution is a sufficient empirical proof of the possible; but as for the impossible, there is no empirical proof, and a demonstration is necessary. The impossible is necessity in its concrete shape.<sup>47</sup>

In this way, through the thoughtful use of language in work, we might come to know the world, to understand, on the one hand, the conditions underlying our possible actions and, on the other, the impossibilities that constitute the very ground of our being.

Our situation within the 'technological' civilization of the present Weil compares to being "in a motor car launched at full speed and driverless across broken country".<sup>48</sup> While awaiting the inevitable crash, all that we can do is to endeavour to introduce thought into labour whenever and wherever possible. What is required is a fundamental transformation in the very technics of labour aimed, not at increases in power and production, but at making the labour of the individual more conscious and thoughtful.<sup>49</sup> The transformation of manual and mental labour into work requires a thorough technical study of the current modes of production; a study conducted, not from a purely technical point of view regarding productive capacity, but from the perspective of their relation to human thought. To this end it would be necessary to classify all the means of production according to: (a) the relations implied in their manipulation by the

human being; and (b) as to whether the machine or technique in question is such as to allow these relations to be clearly perceived, dimly conceived, or not perceived at all.<sup>50</sup>

Thus Weil describes two extreme types of machinery. The **instrumental machine** adaptable by the workman to a variety of tasks and the **automatic machine** which leaves the labourer nothing to do but tend it.<sup>51</sup> We have long possessed automatic multiple function machines that can be shifted from one task to another by the simple substitution of one cam for another. A new mechanical mode of production could be instituted using such machines. From the point of view of the conjunction of thought and action in the labour of the individual workman, it would be a mode of production quite the opposite of that which increasingly holds in this era of 'technological' automatism.<sup>52</sup>

It is only the individual who can think and the reality of thought is only fully and clearly evident in its relation to activity. First of all, in relation to the activity of the world around us, nature, and secondly, in relation to our own activity in nature, history, an activity that is intrinsically conditioned by our participation in social or collective life. The cultural centrality of labour lies in the fact that it constitutes the point of contact between the individual and, on the one hand, our tangible experience and, on the other, the social world of organized and co-operative labour. Work, the conjunction of thought and action in



labour, is a measure of the conscious mastery of the individual of nature and society alike. As such the work situation is the foundation of culture and the condition of education.

## II. Culture: The Relation of Thought and Activity in Collective Life

It is not only individually in its 'division' that labour must be in accordance with thought but also collectively in its social 'co-ordination'. For Simone Weil the thoughtful direction of collective action requires the existence of certain material conditions underpinning our very way of life. For her, as we have seen, the subjection of collective life to thought means the subjection of the social collectivity to the individual, for thought is a function unique and proper to the human individual. To this end all our efforts must be directed toward the unobtainable goal of:

a form of material existence wherein only efforts exclusively directed by a clear intelligence would take place, which would imply that each worker himself had to control, without referring to any external rule, not only the adaptation of his efforts to the piece of work to be produced, but also their co-ordination with the efforts of all the other members of the collectivity.<sup>53</sup>

It would thus be necessary that: (1) the techniques used in production would only be such as demand the thought of the individual handling them; and (2) that the various techniques

used in all the labour tasks of the social order would be sufficiently similar, and technical education sufficiently popular, to allow each labourer to have a clear idea of all specialized forms of work. (3) The co-ordination of the labour of all the members of the collectivity would have to be simple enough to allow everyone access to a precise knowledge of the whole organization with reference to both the co-operation between workers and the economic exchange of products. The size of all social collectivities would have to be limited according to the power of the imagination to hold the relations involved present to the mind. As Weil continues:

and as each individual would be in a position to exercise control over the collective life as a whole, the latter would always be in accordance with the general will. Privileges founded upon the exchange of products, secrets of production or co-ordination of labour would automatically be done away with. The function of co-ordinating would no longer imply power, since a continual check exercised by each individual would render any arbitrary decision impossible. Generally speaking, men's dependence with regard to one another would no longer imply that their fate rested in the hands of arbitrary factors, and would cease to introduce into human life any mysterious element whatever, since each would be in a position to verify the activities of all the rest by using his own reason.<sup>54</sup>

It goes, of course, without saying, that there is not, never was, nor ever will be, such a form of social life. Weil's "theoretical picture of a free society"<sup>55</sup> is offered as representing a goal that it is sufficient for us to strive towards.

At present it is clear that the organization of social life reaches far beyond the representational powers of the human imagination. For Weil the increasing chaos in all spheres of our society, and in the economic sphere in particular, is directly due to the thoughtless [and therefore irresponsible] subordination of the labouring masses to leaders who are, themselves, irresponsibly thoughtless and, in any case, overwhelmed by an unthinkable mass of detail.<sup>56</sup> Hence it is that in all the aspects of our culture success comes to seem more and more arbitrary, more and more the pure result of the play of chance factors. The only source of responsible action is the individual's ability to think. For the action of the social collectivity as a whole to be thoughtful and responsible, it must be subject to the direction and control of the individuals composing it.<sup>57</sup>

Thus, to summarize, there are in Weil's view two essential conditions for the thoughtful direction of collective action. First, that the technics of labour should be such as to allow, and to demand, to the fullest possible extent, the thoughtful action of the individual. Secondly, that the coordination or social organization of labour be on a scale accessible to representation in the mind.

As we have seen, in this regard what is required of language is not a simple material capacity for holding relations but, rather, a means of holding relations present to the individual imagination. For Weil the analogical language of Greek geometry was well suited to such a task. It was of such simplicity and lucidity as to be generally applicable to nature and the activities of man in nature. Nearly all natural processes and all human actions can be represented as instances or applications of geometric principles. By means of such a language the individual could be brought into an understanding not only of his own actions but also of the specialized work activities of the other labourers of his society. What is more, by a process of analogical translation the images of geometry are uniquely applicable to the expression of thought in all branches of human culture.

For Weil the term 'culture' signifies the general relation of thought and labour in human life. The widest definition of the term is constituted by two subsidiary meanings. In the first of these the word, 'culture' refers to the expression of thought within the collective realm of language. Using the terms broadly, 'art' and 'science' designate for Weil the 'content' of culture in this first sense. In the second definition, 'culture' signifies the organization of labour that constitutes the whole of a particular form of social life.

If culture originates through the thought of the solitary individual, inevitably, in all societies, it assumes through expression a public, collective and material form.

Thought requires language and language is intrinsically collective. We are not simply creatures who, as individuals, think; we are also creatures who 'speak', who expect our thoughts to be 'read' and who expect to 'read' the thoughts of others. Thus, for Weil, there is a second and no less important aspect to the thoughtful appropriation of language by the individual; namely, the assimilation of thought from the expressive medium of language or culture.

Implicit in Weil's position is a distinction between 'culture' and 'society'. Thanks to language human existence is intrinsically collective; and every human collectivity is a 'society' by virtue of the co-ordinated division of labour that holds between the individuals within it. By its very nature social development is unlimited or, at least, subject to chance factors, capable of an indeterminate degree of sophistication. The 'technological' state corresponds quite simply to that form of collective life in which the generative principle of society, the division and co-ordination of labour, is unfettered by human restraint.

On the other hand, not every society is a culture.<sup>58</sup> For Weil the term culture corresponds to a particular kind of social state. We might say that for her a culture is a social formation founded upon a division and co-ordination of work between the individuals composing it. That is to say, in a culture the social structure is limited in its development by the unison of thought and activity within the labour of the individual. In this the two subsidiary definitions of

culture merge within the philosophy of Simone Weil for, in so far as they are expressions of thought, art and science alike arise out of and exist in relation to work.

As we have seen in the preceding chapters, what thought attempts to express by language is necessary relation; and, to the extent that these images correspond to our experience, they constitute the very foundation of our sense of 'reality'. They are the occasion of the 'realization' of our experience. In this context Weil identifies three principal activities constituting this process of 'realization' within a particular culture: (a) science, (b) art and (c) labour.<sup>59</sup>

Again, from this perspective, the most central is labour. As already detailed, it is through the use of tools in the context of the human labour process that the idea of the ideas, necessity, arises. It is only when the complex movements of the body are subordinated to the direction of thought, through the tool, that the instrumental character of language is disclosed in its relation to human activity. Art and science alike consist in the attempt to represent human experience in images of necessity; attempting to depict that "just blend" of unity and all that opposes unity in the order of the world as we perceive it. In this sense, the very notions of art and science arise out of the context of the work situation.<sup>60</sup>

In Weil's description, the human intelligence can be used in three distinct ways. (1) It can be exercised with a view to action. Thus, for example, the mind can conduct a search for the technical means to achieve a certain end. (2)

The mind can be used in the process of choosing between the various ends that it is possible for us to pursue. (3) The intelligence can function alone and in isolation from these active faculties of the mind. In contemplation the mind turns away from activity, and all questions of action, to await the revelation of idea.<sup>61</sup> It is Weil's contention that these are, each in its place, legitimate functions of the intelligence but that only the latter is thought.

In the activity of the labourer who works there are moments when thought, in this sense of the contemplative attention of the mind, is indispensable. What he requires is a clear perception of the reality of a piece of the sensible universe; that reality, the reality of the microcosm, is only provided by the revelation of an image of 'necessity', expressible by a particular combination of linguistic relations that immediately vanish without the focused concentration of the mind.<sup>62</sup> Now, while the notion of necessity is evident in games, its relation to human activity is disclosed in work. However, this is simply the most basic of the relations between thought and human activity. The relation between thought and labour in human life reaches far beyond the realm of productive activity. The task of thought is not simply to determine what we "can do" but, even more significantly, how we ought to live. In asserting that these are tasks of thought, I mean to indicate that, for Weil, it is not just our movements in work that should be guided by the

images of necessity [revealed to the mind in thought] but the whole of our existence. It is just such images that the art and the science of a culture express.

As previously detailed, Weil depicts the ethnological past of the species in terms of a general scale ranging from those societies possessed of only the most primitive of tools to the 'technological' civilization of the present in which men live inside an artificial universe of increasingly complex machines and methods. At one end, through need, man is enslaved to nature and, at the other, to society and nature together. At both ends of the spectrum what is lost is the connection in individual life [where alone it can exist] between thought and action. As she writes:

People used to sacrifice to the gods, and the wheat grew. Today one works at a machine and one gets bread from the baker's. The relation between the act and its result is no clearer than before.<sup>63</sup>

This is, she explains, the reason why the will seems to become increasingly negligible in contemporary life. We are led, by the very social form of our lives, to spend our existence wishing and gambolling.

The social condition of liberty, of thought and of culture, lie within a middle range of societies securely founded upon an instrumental technique. Weil, looking more to reason than to the flawed and imperfect models of the human past, defines two fundamental forms of cultural life.



founded upon such a technique: (1) the culture of the craftsman (or workman) and (2) that of the agricultural labourer (or peasant).

In the labour of the primitive who is not possessed of tools thought and action may be wholly separate.<sup>64</sup> In his labour the movements of such a man would be dictated by trial and error, the caprices of custom, and, perhaps, by the dictates of anthropomorphic deities hidden within nature. In the modern factory, as in the 'technological' society as a whole, our movements in labour are dictated by method but by method blindly embodied in things and in the general organization of collective life. It is in work that thought and action are united in individual and in social life. And there, as we have seen, their unity lies in conjunction rather than in a direct and immediate relation. Thought and action, by the very nature of each, are distinct and separable. In thought we are forced to turn away from action and, conversely, in acting we are forced to turn away from thought. This "profound difference in kind" between thought and action is an unalterable aspect of our being.<sup>65</sup>

In the last of her writings, The Need for Roots, Weil attempts to demonstrate the univocal centrality of work in culture. In its preservation and disclosure of the essential relation between thought and action in human life, work is the source of human culture. It is this relation that gives science and art alike their significance and their status as,

something more than mere games for the human being. It is thus Weil's contention that culture, by its very nature, is to be defined in relation to the work situation.

Here again a fundamental and a direct connection with education arises. It is through education that we come into culture, [as opposed to the mere process of 'training' or 'schooling' by which we are wont to enter collective life as cogs in the wheels of the social mechanism]. The essential concern of education lies with that process of learning by which we come into the thoughtful mastery of language. Through education we learn (a) to think and (b) to read or assimilate the thoughts of others belonging to the present and the past of our own and of other cultures. So far we have traced Weil's account of the connection between thought and action in work as one of the two bases of culture. The remainder of this chapter will consist in the attempt to complete this picture by providing her description of the other basis of culture; namely, the assimilation of thought by the individual from the collective medium of language. According to Weil's analysis this aspect of the educational process also depends upon the relation of thought to action within the context of human labour. As will be seen, it depends upon the possibility of having the cultural expression of thought [as in art and science] converge upon the situation of the individual in work. In this work becomes the central context of the educational process in its two most fundamental aspects, in thought and in the reading of thought.

Let us now turn directly to this account as we find it in The Need for Roots and in her essay entitled, "Factory Work",<sup>66</sup> focusing upon her consideration of the possibility of educationally fostering the development of a modern workman's culture and, secondly, of an equivalent form of culture suitable to the condition of the agricultural labourer.

#### A. Education and a Workman's Culture

On the basis of Chapter III we can here assert that there can be no question of any educational assimilation of modern science in its contemporary mode. This for the simple but excellent reason that the paradoxes of quantum physics do not contain any thought to be understood and assimilated. The case of the "classical" era of our science is, however, another matter. As we have seen, "classical science" was derived from and founded upon:

an analogical method, consisting in transporting into the realm of nature the relations that govern human labour. Consequently, it is far more a natural concern of the workers, if one knows how to present it to them properly, than it is of secondary school boys.<sup>67</sup>

The content of this science ought to be intimately and pre-eminently accessible to workers. In this we can clearly see the educational advantage that Weil has in mind in advocating the convergence of the scientific component of our culture

upon the labour process. This advantage is of a dual and reciprocal character: (1) the activity of the worker would be illumined by a new found consciousness of the intellectual foundations and dimensions of his labour; and (2) the expression of idea in the 'theoretical' sphere of science itself would benefit greatly for its ideas would have to be expressible, with the utmost clarity and lucidity, in an ordinary and accessible form of language. That is to say, scientific ideas would have to 'make sense'. This, after all, would serve to go a long way toward remedying the basic, and ultimately fatal, flaw of "classical science", namely, its increasing abstraction from the sensible world of our experience.

With equal force the same argument holds in relation to that other great branch of culture designated, in general, by the term "letters". There the basic subject is the condition of man in this world and, for Weil, it is "le peuple", those who labour, who possess the most direct and the truest experience of the conditional or worldly character of our existence. As she writes:

On the whole, and saving exceptions, second class works and below are most suitable for the elite, and absolutely first class works are suitable for the people.

For example, what an intensity of understanding could spring up from contact between the people and Greek poetry, the almost unique theme of which is misfortune! Only one would have to know how to translate and present it. A workman, for instance, who bears the anguish of unemployment deep in the very marrow of his

bones, would understand the feelings of Philoctetus when his bow is taken away from him, and the despair with which he stares at his powerless hands. He would also understand that Electra is hungry, which a bourgeois is absolutely incapable of understanding ...<sup>68</sup>

Human life is predominantly, and ultimately, an adventure in misfortune. Education must, of course, be a process of coming into contact with the hard realities of our situation as human creatures.

The key here lies in Weil's use of the term: translation, a process that she opposes to the mass educational practice of "popularization". To every form of social life there corresponds a particular comportment and, as a result, a peculiar disposition of feelings. Our sensibilities are directly moulded by the character of the activities in which we participate in collective life. As a consequence there is always something foreign and irrelevant about cultural expressions formulated for an audience other than our own, and that even within the social strata of a single society. By more or less intense efforts of empathetic attention we can on our own overcome such barriers. However, this requires and presupposes an abundance of time and energy not generally available to those who spend their days in labour. Translation is thus a necessity in the access of most of us to the heritage of human thought.

Although supremely difficult, the art of translation is of great cultural value. It is valuable, first of all, because in order to effect a translation:

one has to have placed oneself at the centre of a truth and possessed it in all its nakedness, behind the particular form in which it happens to have found expression.<sup>69</sup>

Secondly, in that the transposition of a truth from one level and context to another constitutes an effective criterion of truth.

A truth which cannot be transposed isn't a truth, in the same way that what doesn't change in appearance according to the point of view isn't a real object, but a deceptive representation of such. In the mind, too, there is three dimensional space.<sup>70</sup>

Thus here, again, we have a means for the purification of culture from what is false, senseless and mediocre. Furthermore, translation would serve to stimulate artistic expressions of a first rate character by clarifying the relation between our language and the experience it attempts to represent. At present it is imperative that we direct our steps, no matter how slowly and tentatively, away from that pole of artistic expression represented by the classic American depiction of "Bambi in the Garden of Gethsemane".<sup>71</sup>

#### B. Education and a Peasant Culture

The labour of the agricultural worker<sup>72</sup> is of a different variety from that of the 'industrial' worker or craftsman, and as such, Weil argues that a different kind of cul-

ture is required by the 'peasant' communities of the countryside. Perhaps the most significant difference between these forms of labour lies in the role of thought as a determining factor in the work process. It would seem that the craftsman, to a greater extent than the agricultural labourer, must use thought to determine his actions. Where the craftsman works, the agriculturalist labours, for the success of the actions of the latter would appear to be more dependent upon effort than upon thought. Here, again, we encounter a central and significant aspect of Weil's position. Far from denigrating the character of labour in the fields she contends that such labour is the most central and the most spiritually significant of the basic ways in which the human being contacts the reality of the world as 'necessity'. As we have seen in the preceding chapters, her critique is decidedly not of 'labour' but of two specific forms of labour: "manual" and "mental" labour; labour that functions on the basis of a disjunction between thought and action in individual life.

If in his labour the agriculturalist is less dependent upon the guidance of thought, this does not for Weil imply a disjunction between thought and action in the worklife of the peasant. On the contrary, she contends that through the convergence of thought upon labour in the fields one of the highest forms of human culture could be generated.

Thus science, by means of a translation different from that suitable to a workman's culture, could be brought into an immediate association with life in the countryside.

While, as Weil writes:

In the case of workmen, it is natural that mechanics should occupy the foremost place. In that of peasants, everything should be centred around the wonderful cycle whereby solar energy, poured down into plants, is retained in them by the action of chlorophyll, becomes concentrated in seeds and fruits, enters into Man in the form of food or drink, passes into his muscles and spends itself on preparing the soil. Everything connected with science can be situated around this cycle, for the notion of energy is at the heart of everything. Were the thought of this cycle to sink deep into the minds of peasants, it would permeate their labour with poetry.<sup>73</sup>

Hence, through education, scientific thought could be brought into an association with labour for the reciprocal illumination of each.

So, in a similar fashion, could the 'literary' expression of thought be assimilated by an agricultural people. Thus, with a view to the reconstruction of French cultural life after the war, Weil argues that 'urban' and 'rural' school-teachers ought to be separately and distinctly educated<sup>74</sup>. A significant portion of the training of the latter ought to be devoted to the surviving folk-cultural artifacts and "not as an object of curiosity, but as something superb".<sup>75</sup> The aim of such an educational effort would be to make the agricultural labourer feel, once more, at home in the heritage and in the expression of human thought.



In Weil's view the assimilation of religious texts, in particular, could do much to bring about a conjunction of labour and thought within culture. "If", as she writes,

on the one hand the whole spiritual life of the soul, and on the other hand all the scientific knowledge acquired concerning the material universe are made to converge upon the act of work, work occupies its rightful place in men's thoughts. Instead of being a kind of prison, it becomes a point of contact between this world and the world beyond.<sup>76</sup>

She illustrates this by reference to the parables of the New Testament drawn from an agricultural context. "Why", she asks, could not a peasant engaged in sowing:

have at the back of his mind, without shaping words -- even unspoken ones -- on the one hand certain similes drawn by Christ, such as: 'unless the seed die ...', 'The seed is the word of God ...', 'The grain of mustard seed ... which is the least of all seeds ...', and on the other hand the double mechanism of growth; the one whereby the seed, by consuming itself and with the aid of bacteria, reaches the surface of the soil; and the other whereby solar energy pours down in rays of light, is captured by the green colouring matter of the plant stalk, and rises upward in an irresistible ascending movement. The analogy, which makes the mechanism of this world a reflection of the supernatural mechanism, if one may use that expression, then becomes luminously clear, and the fatigue induced by work, to use ordinary popular speech, gets it into the body. The toil always more or less associated with the work effort becomes the pain which makes the beauty of the world penetrate right to the very core of the human being.<sup>77</sup>

Naturally, in labour in the fields, as in the workshop, the attention of the individual must be concentrated upon the task at hand and not upon the scientific and literary formulations of thought that constitute the content of education.

However, as Weil points out, in labour, and to a lesser extent in work, execution doesn't absorb the whole of our mental attention. There is always a part of the mind left free and it is the penetration of thought into this unabsorbed portion of the attention that determines the cultural context of a particular piece of labour.<sup>78</sup> Weil uses a striking example to illustrate how this association of thought and action can transform, for better or worse, the human setting of our labour activities. She asks us to imagine two young women engaged in exactly the same task, the sewing of a layette. The one, a mother, happily expecting the birth of her first child, the other, a prison convict. The attention of each is absorbed by the same technical difficulties and, yet, how radically different is the work of each. For Weil the most essential of our problems is how to transform labour from one to the other of these conditions.<sup>79</sup>

In answer to this difficulty she suggests a method as specific as it is intriguing: "What is required" she writes, is "that this world and the world beyond" [that is, the realm represented by thought] should be present to the individual "in their double beauty":

and associated in the act of work, like the child about to be born in the making of the layette. Such an association can

be achieved by a mode of presenting thoughts which relates them directly to the movements and operations peculiar to each sort of work, by a process of assimilation sufficiently complete to enable them to penetrate into the very substance of the individual being, and by a habit impressed upon the mind and connecting these thoughts with the work movements.<sup>80</sup>

Just as there are but certain signs in language that will serve to occasion certain thoughts, Weil is here suggesting that certain actions or movements of the human body are naturally suited to the expression of certain ideas. The structure of the action would seem to suggest that of the thought involved.<sup>81</sup> If this is the case, then we have discovered a powerful means of bringing cultural expressions of thought into an immediate association with the specific labour activities of the individual. Education, by exploiting this association, could serve to transform, radically and fundamentally, any given form of social life for the individuals subject to it.

In this we see what constitutes, for Simone Weil, the task of popular education. It is to decrease, in all possible ways, the division of the life of the individual into that of a creature who acts without thought and thinks without acting. It is to abolish, as far as possible, the social collaboration between No and Ti:

'one having to think without saying anything, the other to write without thinking anything.<sup>82</sup>

Thus, both labour and thought would be illumined through their mutual relation and association.

For Weil the superiority of physical labour over all other forms of human activity lies in the fact that it is, after death willingly consented to, the most perfect form of the obedience [or imitation] of our being to the "order of the world". I believe that we ought to understand this specifically in reference to agricultural labour. We, citizens of a 'technological' civilization centuries old, have a deeply ingrained sense of the superiority of craft over husbandry. It is an assumption that is not shared with Weil's position.

As we have seen, for Weil, the act of thinking is contemplative in character. It is the attention of the mind waiting, focused in desire for contact "with a piece of reality".<sup>83</sup> The realization of this contact is the moment when thought comes into expression [and 'perception'] through the representation of necessity in the form of a linguistic image. We have already in this chapter examined Weil's account of how, through the use of tools, the idea of necessity arises in the context of the work process to disclose lucidly the essential relation between the thought and the activity of man. We have also seen why it is that the labour of the non-technical primitive fails to disclose this relation.

The point here is to make clear that we would be greatly mistaken to identify casually the labour of the agriculturalist with that of the non-technical savage of a simple food-gathering or predacious hunting society. The one is separated from the other by a revolution in technique as great, if not greater, than that separating the farmer from the workman. We tend to forget that the first and the most fundamental of the so called 'industrial revolutions' was that occasioned by the domestication of plants and animals, and completed in the early Neolithic period. Of the great prehistoric matriarchal civilizations in which this was accomplished we know nothing. But of this we may be certain: their achievement was the issue of thought.

The successful cultivation of other plant and animal species must have demanded the intense attention of human thought to the details and cycles of biology. For centuries men [or more likely, women] must have contemplated the natural world from the perspective of the 'life sciences' as an organic web of inter-related beings; for centuries and perhaps millennia the primary focus of human thought must have fallen directly upon necessity in the guise of the organic "conditions of existence". If agricultural labour was later to become a way of life governed largely by the custom and the routine of tradition, it must have been of a far different character initially. The labour of these peoples must have constituted a conscious form of work, in which the thought of the "conditions of existence" guided and determined the activity of the individual.

It is in this context that Weil records the traditions relating the part played by shepherds in the first known scientific speculations made by the human mind, namely, those concerning the stars:

and also -- as the comparisons which continually occur in ancient texts indicate -- those concerning good and evil.<sup>84</sup>

As previously seen, the great guiding conception of pre-Roman antiquity was the "imitation of the order of the world".<sup>85</sup> The order of the world is disclosed to us negatively through the perception of the conditional character of all activity. Pre-eminently, work is indirect action. In the agricultural task of growing wheat, for example, the wheat is not the direct product of the labour involved. Human effort simply provides some of the necessary conditions.

It is the sky itself which gives of its substance, in the form of light and water, and thus comes down to be transformed into an ear of wheat.<sup>86</sup>

This is equally the case in the work of the craftsman where tools are thoughtfully manipulated to the achievement of a certain end. Craft too functions simply to bring things about or into being by arranging conditions in a given order. Thus, by 'means' of a lever I succeed in raising a heavy object, but only if I manipulate the lever in accordance with certain definite conditions. I succeed only to the extent that my actions are in obedience to the general "order of the world". As is so often the case in human life it is, how-

ever, the very virtue of the craftsman's mode of labour that contains a danger. Through the use of tools in work the conjunction between human thought and activity comes sharply and clearly into focus, but it is this very lucidity that can mislead us. It is precisely the unity of thought and action in the skill of the craftsman that tempts us to see his activity as what it is not: 'creative'. In reality he is, simply -- like the agriculturalist -- a medium through which beings come into existence. We do not 'create', we 'produce' in the ancient sense of 'bringing forth' or 'to birth'. Whatever the worker accomplishes, he accomplishes within the "order of the world". Here, again, we meet with a denial of that distinction with which, the historians tell us, the history of philosophy began: namely, the distinction between the realms of nature and convention. For Simone Weil all being belongs to the realm of nature. At the worst we may mutate being to bring forth 'monsters',<sup>87</sup> we cannot 'create' being.

Since this point is central to Weil's formulation of the ancient conception of thought as the perception of the "order of the world", and of the being of man as the "imitation" and "obedience" of his activity to this order, let us pause here briefly to illustrate the point more clearly. According to Edmund Carpenter, the Canadian anthropologist and art historian, the Inuit languages have no equivalents of our words 'create' or 'make'.

The closest Eskimo term means 'to work on', which also involves an act of will, but one which is restrained.<sup>88</sup>

This was reflected in the traditional character of Inuit art. The carver, for example, picks up and examines a piece of ivory, not with the intention of carving a particular figure, but in order to perceive what figures the material contains. In working on the ivory his intention was not to impose a form upon it, in accordance with his own desires, but to 'release', to bring forth, the form most characteristic of the piece of material in hand.

Thus Carpenter records the case of a European who sought to commission a chess set from an Inuit carver, but who received a set in which all the pawns were different even though his explicit instructions had been clearly understood. The carver simply explained that the forms requested were not in the ivory supplied! This, I believe, illustrates the orientation of mind involved in Weil's reconstruction of the conception of the "order of the world". The world, like the carver's piece of ivory, contains an indeterminate but nonetheless definite number of forms. We cannot impose forms upon it, we can only bring forth those contained within its 'shape'. Finally, as for the Eskimo artist, so for the ancients of Weil's description, the aim of contemplation is to discover that form which is most characteristic of the 'shape' of the material, that form which is disclosed by the least "work on" the shape.



In this our notions of 'invention'<sup>89</sup> and 'creativity' move in the opposite direction toward those forms of being that are the least characteristic of the "order of the world" and which require the most amount of 'work on' the material in hand. The 'labour' of childbirth and the 'labour' involved in genetic engineering are on two decidedly different scales.

Weil makes a distinction between truth and knowledge that is, perhaps, significant in this context. Knowledge comes in 'bits' and 'pieces' of 'information', in conscious representations of particular relations such as 'the book is on the floor' or 'Halifax is the capital of Nova Scotia'. Knowledge can be accumulated indefinitely without any approach to truth. There is, she argues, only a single case in which a piece of knowledge brings us into contact with truth, and that is when it is a question of knowledge about something loved. In a passage cited earlier, she uses this illustration:

If a man surprises his wife whom he loves and in whom he has perfect confidence being flagrantly unfaithful to him, he is suddenly brought into brutal contact with a piece of truth. If he happens to hear that some woman whom he doesn't know, in a town that he doesn't know either, has deceived her husband, the fact doesn't alter his relationship to truth in the slightest.<sup>90</sup>

For Weil, thought is identical with this moment of coming into truth; this moment of 'realization' that has the power to change everything for us. In her own beautiful phrase,

truth is "the radiant manifestation of reality".<sup>91</sup> In this moment the 'real' suddenly strikes us with a force proportionate in its intensity to our desire [or love]. To desire truth, for Weil, means simply to desire contact with a piece of reality, to love.

The activity of the world around us, and the whole of our activity in the world, is conditioned by the relation or juxtaposition of one 'thing', of one 'event' or 'process', to another. Thus, we only possess effective power over what is present to us in space. For man all knowledge is of relation, and all relations are linguistic in character. The power of knowledge is founded upon the gratuitous correspondence between linguistic and 'material' relation. On the basis of knowledge we can actively manipulate material relations so as to do. It is thus that the craftsman determines his activity within the context of the work process. This, in Weil's view, is an important, a fundamental and a vital aspect of the general relation holding between thought and activity in human life.

It is not, however, the highest of these relations. For her the highest relation holds between thought and labour itself. To understand this we must return to her notion of "obedience".

For Weil, thought is directed toward the "order of the world", and, to the extent that we are in the world, thought seeks not only the knowledge of what we 'can do' but the truth of where it is we are; it seeks the truth of our being

that is constituted by a precise point within the "order of the world". Often, in human existence, the question of **means** -- how can I live? -- is of vital importance. However, for Weil, the question of thought is the ancient Socratic question: how ought I to live? For her, as for the ancients, this question did not signify the **choice of ends** by man. The answer to this question was seen to provide both the 'ends' and the 'means' of the 'human act'. This answer lay in the silent pointing of thought beyond the world toward that which cannot be in the world, namely, its order.

All that we know of this "order" is contained, thanks to the revelation of idea on the scale of our being, in the images of 'necessity' occasioned in the imagination by the juxtaposition of the signs of language. To direct human activity in accordance with thought means to **adapt** it into "obedience" or "imitation" of the order expressed in these images. For Simone Weil thought intrinsically seeks, in its relation to activity, to imitate and obey the "order of the world".

Hence, for her, the virtue of **work** lies in the individual's clear perception of this obedience. Inevitably, however, to some extent the workman always attempts, through **craft**, to adapt the order of the world to **his** ends. With equal inevitability, he is implicitly led to answer for himself the question: how ought I to live? And the tendency of that answer is always in the simple direction of: 'as I am **empowered** to act'. If it is human **need** that leads to

tragedy at one end of the social scale of our being in this world, it is human desire [want] that does so at the other end.

For Weil, the superiority of labour over all other forms of human activity lies in the type of obedience it demands. Throughout her writings she analyses the relation between thought and labour in terms of the role of **time** and **rhythm** as factors in the work process. Above all else, time is for the human being the flow of process in a linear direction. It is against this linear movement of time as process that thought stands. For Weil, thought is, first of all, **time endured** in the waiting of the attention for the revelation of idea. Secondly, through the expression of idea, thought **actively handles** time; through the expression of thought in images of necessity, time is ordered and thereby mastered by the human being.<sup>92</sup> As detailed in the last chapter, this mastery is accomplished by the transformation of the movement of time from a linear to a circular direction. All images of necessity or relation are founded upon circular or semi-circular motion, or of a movement that is analogous.

It was probably with a view to the nurture of his sheep that the shepherd first directed his attention toward the night skies. What he found there in the rhythm and pattern of the stars was an image of more archetypal significance than any to be found in the use of tools. What the astronomers of antiquity discovered was the coincidence between the beautiful appearances of the night sky and the natural flow

of time in the cyclical succession of day and night, and of the seasons. The stars appeared as a visible image of the rhythmical character of time; of a motion at once uniform and varied. As the seasons change so does the appearance of the stars. The succession of day and night, the cyclical phases of the moon, the relative positions of the sun and the moon, the planets and the stars, accompany the natural flow of time and constitute a visible image of the systematic handling of time that is thought.<sup>93</sup> In the stars the ancients discovered the instrumentality of thought in the most essential of all tools: language itself. In the rigorously defined and perfectly closed system of the stars as visible in the heavens they found the most universal image of that which language is capable of representing: order.

For man this is, however, an image. Thought is never anything else. As creatures in this world we do not dwell in eternity. Our lot is that of labour and death, a slow, monotonous and painful journey through time "minute in and minute out".<sup>94</sup>

This travail is our lot, and the monotony of work is but one of the forms that it assumes. But it remains not the less true that our thought was intended to master time, and this vocation, for such it is, must be kept inviolate in every man. The absolutely uniform and at the same time varied and continually surprising succession of our days and seasons are exactly conformable to our misery and our grandeur. Everything that is in some degree beautiful and good reproduces in some way this mixture of uniformity and variety; everything that does not is bad and degrading. The peasant's toil is

necessarily obedient to the world's rhythm. The working man's labour is, by its very nature, relatively independent of it, but it could approximate it.<sup>95</sup>

In thought the human mind dominates time, simultaneously surveying past and future, the near at hand and the far off, but in labour -- in action itself -- we are subject to time in the way of inert matter:

that can only move slowly from one moment to the next.<sup>96</sup>

It is precisely this monotonous pace of action, [in comparison to that of thought], that constitutes the suffering of physical labour. Thus Weil cites several expressions characteristic of the feeling of this violence of labour to human nature; in labour we find that the "hours drag"<sup>97</sup> so that one comes to think "the day would never end".<sup>98</sup>

For Weil this character of labour is, in itself, at once "inevitable and fitting"<sup>99</sup> to the condition of man in this world. For man nothing is nor can be free from monotony. The problem of human labour is to find that specifically human point of balance between the freedom of our thought and the bondage of our movements to material conditions. It is in this that the essence of her critique of the "manual" and "mental" forms of labour lies.

For the "manual labourer" in our factories the flow of time is linear and the tedium and monotony of labour **excessive** in their brutality. There, the living flesh of the worker is transformed, as far as possible, into a subordinate

function of the machinery and the organization of production. Thought, the domination of time, is banished from the life of the labourer as far as is possible. As Weil contends, on the basis of her own experience,<sup>100</sup> the most dreadful aspect of such labour lies in the incomplete way in which thought is banished from within it. It is only possible to banish one portion of the relation of thought to time in labour, namely, its active handling by the individual worker. The mind, in "manual labour", is not freed; on the contrary, it must remain constantly focused, waiting, to guide, over and over again, some more or less simple action. In manual labour, time is not handled by the worker, it is simply endured.

As we have seen, it is through the handling of time that thought functions as a tool, filtering the play of chance in our activities. For the manual labourer in the factory the existence of chance is unrecognized by virtue of that methodical scheme of things that is the factory itself. Yet, the factory is a place where accidents, often of a violent physical nature, do in fact happen. As Weil writes:

Nothing is worse than a mixture of monotony and accident. They are mutually aggravating, at least when accident is bound up with anxiety. In a factory, accident is a source of anxiety, for the very reason that accident has no status there ... Thought is obliged to remain in constant readiness not only to follow the monotonous progress of movements indefinitely repeated, but to find within itself resources to cope with the unexpected. Such an obligation is contradictory, impossible, and exhausting.<sup>101</sup>

In manual labour it is the mind, even more than the body, that emerges exhausted from the factory. It is not the 'soul-lessness' of manual labour that Weil condemns but, rather, the way in which the human soul is brutalized by its contact with time in such labour.

From this perspective "mental labour" is characterized by a complementary defect. In mental labour the individual is confined to playing with language, and in that play he does not encounter the reality of our active movement in and domination of space. The freedom of thought is thus transformed into an intoxicating license. The consequence of this license is an alienation from the reality of the tangible world as disclosed in the active course of our experience; we are thus, overcome by a dizzy feeling of abstraction from the conditional world that is the location of our being.

In manual labour the individual enters into contact with the tangible world and comes to dominate space through his activity, but only at the price of a brutal subjection to the monotonous flow of time. In mental labour time is dominated, but at the price of our sensual contact with the world. In manual and mental labour human activity is obedient to order [or method], but blindly obedient to order as embodied in things -- in machines, in technique, and in the social organization of labour itself. A labourer living in a primitive society, without tools capable of subordinating the body to the mind, would likewise live in blind obedience to the "order of the world". It is only the relation of thought to human labour that contains the possibility of a conscious



obedience to the "order of the world". It is, in turn, only this possibility that permits obedience to be informed by consent.

To enter into physical labour is to enter into a kind of death. In Weil's view we know nothing about 'matter' other than its obedience to necessity, and to labour is to enter into the current of inert matter very much in the manner of death; it is to reduce oneself to the role of an intermediary between one state of inert matter and another. For man labour and death are the two primary points of contact between our existence and the "order of the world". Both, for the human being, are matters of necessity and not of choice. We can, however, enter into this contact with "the order of the world" in one of two ways: (1) in an attitude of revolt or (2) in an attitude of obedience founded upon, and transformed by, conscious consent. It is solely the 'absurd' possibility of our consenting to the "order of the world" that is capable of transforming human existence from bondage to liberty. For Weil it is the possibility of this "absurd act" that is the most distinctive and essential of human characteristics.

It is only in the work of the craftsman and the labour of the agriculturalist that the possibility of the conscious relation of thought and action exist for the individual. It is only there that the combination of "monotony" and "variety", "order" and "accident", "misery" and "grandeur" proper to human existence is to be discovered.

For the craftsman work must be such that thought and action are conjoined in the activity of his labour in a way similar to the natural succession of the days and the seasons. Within his labour the regularity of thought must be mingled with the variations of chance and accident disclosed in the course of experience. His labour must come to imitate the rhythmical movement of time as imaged in the movement of the sun and the stars.

For the sun and the stars, time is filled beforehand with a framework of ordered and limited variety having regular recurrences. This framework may lodge an infinite variety of events that are absolutely unforeseeable and partially innocent of order.<sup>102</sup>

This is precisely the relation characteristic of the conjunction of labour and thought in human life.

The labour of the peasant agriculturalist necessarily follows the rhythm of time. For Weil this is the origin of the essential superiority of this mode of labour. It is in this context that she brings into question our conventional reading of the penal character of labour as contained in the account in Genesis. We have, she suggests, misunderstood the import of this text:

for want of a just notion regarding punishment.<sup>103</sup>

Far from expressing a disdain for physical labour, she contends that it is far more likely the inheritance of some very ancient civilization in which physical labour was the most

pre-eminent of all cultural activities. For the ancients, she postulates, the 'punishment' of labour [and of death itself] was a "marvelous" process of re-integration into the "current of the Good" as represented by the "order of the world". Labour was the way through which daily life could be brought into an immediate imitation of that order.<sup>104</sup>

This is clarified in her examination of the few remaining intimations of the existence of such a civilization. Thus, for instance, she points out that what we know of the Mysteries -- "a religion that embraced the whole of pre-Roman antiquity"<sup>105</sup> -- suggests that they were founded upon symbolic expressions regarding salvation derived from agriculture [like so many of the New Testament parables]. Similarly:

The role of Hephaestus in the Prometheus of Aeschylus seems to recall a religion of blacksmiths ... One can imagine a blacksmith's religion seeing in fire, which renders iron ductile, the image of the operation of the Holy Ghost upon human nature.<sup>106</sup>

On the basis of such fragmentary hints she postulates the existence of a time when the religious expressions of truth were translated into different systems of images, each of which was especially adapted to a given type of physical labour. In this way the very movements of the labourer in work could have been a direct expression of the truths of the faith.

For Weil, whether or not this was ever the case, it opens the possibility of a profound relation between labour and thought in culture. As we have seen, throughout this

attempt to reconstruct her argument, there is, for example, no reason why, in a Christian culture, the parables of the New Testament and the truths of science could not be made to converge upon the act of labour. In this both thought and labour would gain in dimensionality, for it is only in this way that the culture, the way of life, of a people can acquire the living depth of thought. In her notebooks she outlines in great detail how, through a process of education, this might be achieved. We find, for example, the following summary of the content of such a curriculum:

... there should be presented in correlation the current scientific ideas of the transformation of energy in the growth of plants, in nourishment and in work. Add to this a conspectus of the elementary and essential knowledge of astronomy, mechanics, physics, chemistry and biology, and relate the whole to the sequence of the parables.<sup>107</sup>

Here, the idea is of a culture that reaches in two directions, 'upwards' and 'downwards', in the attempt of thought to understand and to contact the truth of our existence as creatures living upon the 'middle ground' of our being, located between the 'wisdom' of thought and the ignorance of our existential experience.

## NOTES TO INTRODUCTION

1. There exists a wealth of biographical literature on Simone Weil. The most authoritative biography is by her friend, Simone Pétrement, La Vie de Simone Weil, (Paris: Librairie Arthème Fayard, 1974). This work has been published in an abridged English translation by Raymond Rosenthal, (New York: Pantheon Books, 1976). This biography largely supercedes the earlier volume by Jacques Cabaud, Simone Weil: A Fellowship in Love, (London: Havrill Press, 1964).
2. Although incomplete and composed of fragmentary texts the first of these book length studies is the volume entitled Oppression et liberté, Paris: Gallimard, 1955 and translated as Oppression and Liberty by A.F. Wills and John Petrie, (London: Routledge and Kegan Paul, 1958). The other is L'Enracinement: Prélude à une déclaration des devoirs envers l'être humaine, (Paris: Gallimard, 1949) and translated by A.F. Wills as The Need for Roots: Prelude to a Declaration of Duties Toward Mankind, (London: Routledge and Kegan Paul, 1952).

Oppression and Liberty is composed of a series of fragmentary texts written between the early 1930's and the year of her death, 1943. The main fragments entitled "Reflections Concerning the causes of Liberty and Social Oppression" and "fragments 1933-38" are known to be first drafts of a work on the notions of oppression and liberty fundamental to political philosophy.

The Need for Roots is her only complete book. It was finished in London during the war and deals, specifically, with the problem of the cultural reconstruction of France after the war. It was commissioned as a report by the Gaullist government in exile.

We also possess a remarkable second-hand account of the lectures in philosophy that she gave at a lycée in Roanne during the 1933-34 academic year. These notes, taken by Madame Reynaud-Guérithault, a pupil in her class, appear to be remarkably accurate. Originally published as Leçons de philosophie de Simone Weil, (Paris: Plon, 1959); it has been translated by Hugh Price (with an introduction by Peter Winch) as Lectures on Philosophy, (Cambridge: Cambridge University Press, 1978).

3. The most significant of these are as follows: "L'Agonie d'une civilisation vue à travers un poème épique", Cahiers du Sud, XX, (August - October, 1942); "Antigone", Entre Nous (Chroniques de Rosières), V.5, 1936; "A propos des Jocistes", Cahiers du Sud, XIX, (April, 1941); "En quoi consiste l'inspiration occitanienne", Cahiers du Sud, XX, (August - October, 1942); "Expérience de la vie d'usine", Economie et Humanisme, II, (June - July, 1942); "Ne recommençons pas la guerre de Troie", Les Nouveaux Cahiers (Paris), II, 1, 1937; "Notion du socialisme scientifique", L'Effort (Lyon) XVI, 12, 1933; "De la Perception ou l'aventure de Protée", Libres Propos, V, (May, 1929); "Réflexions à propos de la théorie des quanta", Cahiers du Sud, XIX, (December, 1942).

4. This text is attributed to Heraclitus. See Kathleen Freeman's Ancilla to the Pre-Socratic Philosophers, (Oxford: Basil Blackwell, 1971), fragment No. 35. The translation is hers.

I make this statement on the authority of Professor Joseph Owens who has written: "If the word 'philosophers' or 'lovers of wisdom' in fragment 35 is genuine, the fragment is the oldest extant passage in which the term occurs", A History of Ancient Western Philosophy, (New York: Appleton, Century, Crofts, 1959), footnote 17, p. 46.

5. See, for example, a letter to her brother, André, dated between January and April, 1940, translated in Seventy Letters by R. Rees (London: Oxford University Press, 1965), pp. 122-23.

6. See Oppression and Liberty, pp. 106-107.

7. Thus, particularly in her early writings such as Oppression and Liberty, she uses the Cartesian language of 'mind' and 'world', 'subject' and 'object', and the modern philosophic vocabulary rooted in the distinction between fact and value that her Platonic position deeply rejects.

For instances of the influence of Kant I refer the reader to the following: "Scientism: A Review", On Science, Necessity and the Love of God, (London: Oxford University Press, 1968), p. 301; "Forms of the Implicit Love of God" in The Simone Weil Reader, ed. G.A. Panchias, (New York: David McKay, 1977) and the Notebooks of Simone Weil, translated by A.F. Wills, (London: Routledge and Kegan Paul, 1956), Vol. II, p. 526.

8. In the opening pages of The Need for Roots she does list both egalitarianism and hierarchism as "needs of the soul", pp. 16-19. It is quite clear within her writings that she would have dismissed this opposition, characteristic of the history of our political philosophy, as an illegitimate one.
9. In his inaugural lecture to the London School of Religion entitled, "Does Religion Stand to Reason?", Viscount Samuel charged that Weil's writings were too fragmentary and unsystematic to bear specialist criticism.

Weil herself was acutely aware of this simple failure to read what she had written. In a letter to her mother, less than a month before her death, she writes:

Some people feel in a confused way that there is something [i.e. in her work]. But once they have made a few polite remarks about my intelligence their conscience is clear. After which, they listen to me or read me with the same hurried attention which they give to everything, make up their minds definitely about each separate little hint of an idea as soon as it appears: 'I agree with this', 'I don't agree with that', 'this is marvellous', 'that is completely idiotic'. (the latter anthesis comes from my chief). In the end they say: 'very interesting', and pass on to something else. They have avoided effort. Seventy Letters, op. cit., pp. 196-97.

With a few notable exceptions such as M. Veto's La Métaphysique religieuse de Simone Weil, (Paris: Vrin, 1971), this could stand as a critique of the secondary literature on her thinking.

10. J.P. Little published a bibliography on Simone Weil in 1973 (London: Grant and Cutler) listing hundreds of secondary articles and books from a diversity of perspectives and disciplines. In the subsequent ten years there has probably been as much again published.

This literature appears to be dominated by two primary concerns: (1) the religious aspects of her thought (considered more or less in isolation from the whole of her thinking) and (2) her political and social thought. A third and voluminous category of this secondary literature focuses on her life.

11. A few studies on her characterization of work do exist but they are written from a theological perspective and do not focus any fundamental attention on the relation of thought to labour in her writings. See, for example, the following dissertations: Claire Fricker, "The Fiery Bridge: Simone Weil's Theology of Work", unpublished doctoral dissertation, Theological Union, Berkeley, California, 1982; and Michel Bourgeois, "La Spiritualité du travail selon Simone Weil", these de licence, Faculty of Protestant Theology in the University of Paris, 1961. See also the first and third chapters of Luce Blech-Lidolf's La pensée philosophique et sociale de Simone Weil, (Berne: Herbert Lang & Cie SA., 1976), pp. 49-64 and pp. 75-83.
12. See, for example, Dwight D. Harwell, "Attentive Fruition: Simone Weil's vocation of attention", these de doctorat, University of Strasbourg, Faculty of Protestant Theology, 1959; Nicole Labeau, "L'Attention chez Simone Weil", Thèse de licence, University of Montreal, 1962; and, the best of these studies, M. Veto's "L'Attention selon Simone Weil", Ecoute, July, 1970, pp. 49-55.
13. See, for instance, Luc Barèsta, "Simone Weil: l'attention aux symboles", La France Catholique (Paris), I, 2, 1963 and C. Blazy, "La Pensée scientifique et le reste de la pensée humaine", Dépêche du Midi, I, 6, 1966.
14. As did Peter Watkins in an article entitled, "Simone Weil: Antisemitism and Syncretism", Church Quarterly Review, CLXIII (1962), pp. 463-73.
15. It was, I believe, G.K. Chesterton who once made this point, saying: "If a thing is worth doing, it is worth doing badly", meaning that the things that are worth doing can only be done badly.
16. The worst combination seems to be such a specialized approach and the intention of providing an introduction to her position. Witness, for example, John Hellman's Simone Weil: An Introduction to Her Thought, (Waterloo, Ontario: Sir Wilfred Laurier Press, 1982) which concentrates on her critique of the Old Testament and Roman strains of influence upon our civilization only to conclude that her:

denial of the beneficial effect of technological progress associated with productive labour is surely a major weak point in her analysis. Indeed a sympathetic reader would portray it as an extreme Luddite view adopted for rhetorical purposes. (pp. 98-99)



Such a 'reader' could only have substituted his sympathies for the text of Weil's work.

17. At the Benedictine abbey of Solesmes, Easter, 1938.
18. It should be noted here that Weil uses the term 'activity' in its ordinary sense of movement through time and space. It does not bear the connotation of that realm of human activity free and separate from the realm of necessity characteristic of the Aristotelian and Thomistic traditions. On the contrary, in its subjection to the reality of effort (or labour) it constitutes, for her, one of the two most primary manifestations of necessity in human life. The other is death.
19. See, for example, Gravity and Grace, (London: Putnam's, 1952), p. 212, where she writes:

Man is a slave in so far as, between action and its effect, between effort and the finished work, there is the interference of alien wills.

See also Chapter I, pp. 8-9 where the quotation is repeated.

20. By nature what is meant here is the world in process or movement of change around us; that realm of being which man does not 'make'. By contrast, history indicates that realm of conventional being brought forth by human effort.

In English, as in other languages, the term 'history' has a confusing ambiguity in that it is used to denote two quite distinct senses. It distinguishes (a) the domain of human existing itself which is characterized by the production or bringing forth of being within nature and (b) the scientific or scholarly study of the human past. Throughout the body of this dissertation the term is used in the former of these senses.

I am indebted to a work of my supervisor, Professor G.P. Grant for a clear account of this distinction and its significance. See his: Time as History, (Toronto: CBC Publications, 1969), especially pp. 1-4.

The term, 'process', here indicates the movement of nature around us. It is contrasted with the realm of human activity within nature (labour, work and history). For Weil history has an individual and a collective character. To the extent that the social or collective organization of labour goes beyond the individual union of thought and action characteristic of human 'making', the realm of human activity coincides with the realm of

natural process. Thus, today, we often speak of the historical process in the same terms as we speak of natural process. History, like nature, thus becomes a realm of being in which we are inescapably caught; whose direction lies beyond the control of the human individual. History then becomes not something that men 'make' but something that shapes and moulds man himself in whatever way it will.

21. In current ethnographic theory 'culture' is often seen as essentially material, for all that is open to study is the expression of a culture and that expression is, of course, materially manifested in one way or another. The term "material culture" designates the purely artifactual study of particular forms of social life. See: R.A. Armstrong, Wellspring: On the Myth and Source of Culture, (Berkeley: University of California Press, 1975) and M. Richardson, ed., The Human Mirror: Material and Spatial Images of Man, (Baton Rouge: Louisiana State University Press, 1974).
22. Machines are, perhaps, the most striking example of the material expression of linguistic relation. A machine is a thought expressed in the specific relation of one piece of matter to another. In order to use the machine we need not, of course, understand or think that thought.
23. Essential in that labour, in its subjection to the necessity of effort, is the most basic reality of human activity. Primary in that productive activity is, in any society, the central activity in the lives of most of its population. Even for those who are, for whatever reasons, 'unemployed' in such a society, it is the division and co-ordination of labour that conditions and shapes their lives.
24. This identity between 'language' and social life is founded on a mutual interplay between the two. On the one hand, it is only language that allows us to divide and co-ordinate our individual activities and thus to enter into social or collective life. On the other, it is through the juxtaposition of language within the context of specific social activities that we come into a particular language.
25. Hence, while we live in a time when man is free to act on a scale unprecedented in the known past of our species, we find ourselves, at the very same moment, subject to a blind play of natural and social force equally unprecedented. Our scientific "conquest and domination" of nature has issued in a terrible loss of control that threatens the continuance of the species and, indeed, of life itself on this planet.

26. Here and throughout this dissertation the term 'anthropology' is used in its old philosophical sense, signifying a description of the nature of human being.
27. The course of our active experience in nature (work and labour) ought to be distinguished here from our experience of nature (process). Idea represents our experience of process, allowing us to distinguish phenomena in the endless flow of events that we term, 'nature'. It also allows us to act within nature and to represent our experience of our collective or social activity within nature (history).
28. Idea connects and thereby renders what was previously discrete a unitary whole. Space is the example, par excellence, of what Weil means by the "continuous". As examples of "discontinuity" she cites the fact that we can find no intermediary between iron and gold, that we cannot pass from one side of a river to the other without crossing it and that we do not find a note corresponding to the harmonic mean on the musical scale. Throughout her writings the image of the waves of the sea stands in representation of the discontinuous as it is found everywhere on the surface of human experience.

## NOTES TO CHAPTER I

1. There is, of course, a vast literature of sociological analysis that bears upon this subject. For instance, see: S. Bowles and H. Gintis, Schooling in Capitalist America, (New York: Basic Books, 1976); M. Carnoy and H. Levin, The Limits of Educational Reform, (New York: David McKay, 1976); and S. Bowles, "Unequal Education and the Reproduction of the Social Division of Labour", Schooling in a Corporate Society, ed. M. Carnoy, (New York: David McKay, 1975).
2. See Alfred Sohn-Rethel's Intellectual and Manual Labour: A Critique of Epistemology, (London: Macmillan, 1978), pp. 115-116. This little known work attempts to explicate and develop Marx's critique of the division between manual and mental labour.
3. *Ibid.*, p. 113.
4. Another and more precise attempt along these lines was envisioned by Descartes in the form of a proposal for "craft schools" which would allow the artisan a form of education that would give him access to the knowledge -- mathematical and scientific -- on which his labour is founded. This would allow him to know and to understand what he is doing even if he were not free to think it out for himself.

The over-riding concern of Descartes with clarity and simplicity had, at least in part, an educational motive or implication. As he wrote in Principles of Philosophy:

I have noticed on examining the nature of many different minds, that there were almost none of them so dull or slow of understanding that they were incapable of high feelings, and even of attaining to all the profoundest sciences, were they trained in the right way.

This passage is cited from Philosophical Works, Vol. I, (Cambridge: Cambridge University Press, 1911), p. 210.

5. Quoted and translated by Sohn-Rethel, p. 115.
6. See Appendix I below entitled, "A Note on Weil's Attitude Toward Slavery in the Ancient World".
7. It is, perhaps, worth noting here that 'modern' philosophy in the West was born at the same time and in a form that would seem to parallel the manual/mental division

characteristic of the new mode of labour. In direct response to the problems and discoveries of the new science of nature, the 'dialectic' of this philosophy was rooted in the epistemological attempt to define the relation between "Mind" and "World". See the first section of Chapter III below on the nature of thought, characteristic of this first phase of modern science.

8. Of course all social revolutions are industrial revolutions for if the division and co-ordination of labour is not altered, then nothing changes in the structure of society.
9. Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, (New York: Thomas Y. Crowell, 1903), Book I, Chapter 1: "Of the Division of Labour", pp. 5-6.
10. See, for example, Lectures on Philosophy, (Cambridge: Cambridge University Press, 1978), pp. 146-47.
11. See the "Introduction" above (p. 3) and, especially, footnote 8.
12. See the commentary of Leo Strauss on the theme of this conflict within the philosophy of the Classical era in Greece, The City and Man, (Chicago: Rand McNally, 1964).
13. See Oppression and Liberty, (London: Routledge and Kegan Paul, 1958), p. 143.
14. Gravity and Grace, (London: Routledge and Kegan Paul, 1952), p. 143.
15. See footnote 18 of the "Introduction" above.
16. This is, of course, a legitimate absence in so far as it is dictated by necessity and/or conscious consent. Every society rests upon certain material conditions of existence mainly determined by such factors as: its access to natural resources, its population, the state of its technology and the existence of competitive social entities.
17. The strangely inhuman and artificial character of the world of the master is captured in a remark of Plinius:

We walk with alien feet, we see with alien eyes ...

I refer the reader to the rest of this passage from Naturalis historia, XXIX, 19.

18. See R.G. Collingwood's The Idea of Nature, (Oxford: The Clarendon Press, 1945), pp. 1-26.

19. For an account of the history of modern philosophy in terms of this distinction see L. Strauss' Natural Right and History, (Chicago: University of Chicago Press, 1955), pp. 74-117. This is dealt with in detail in the third chapter below.

20. Weil's quotation of this line is found in her First and Last Notebooks, (London: Oxford University Press, 1970), p. 24. Wittgenstein's citation occurs in On Certainty, (Oxford: Basil Blackwell, 1969), p. 51.

It should also be noted that this line, in its original context, begins Goethe's attack upon Christianity. It is, of course, an intentional parody of the opening line of the "Gospel According to St. John":

In the beginning was the word.

Neither Weil nor Wittgenstein intended, in their usage of this line, to imply an attack upon the Christian tradition.

21. He locates contradiction in language on the "surface level" of grammar and points to its resolution on the level of "depth grammar".

For an instructive comparison of the philosophies of Wittgenstein and Weil see Peter Winch's "Introduction" to Lectures on Philosophy, pp. 1-23.

22. For Wittgenstein this too is a basic question but one that has no answer within philosophy. Caught in the fact/value distinction at the root of modern philosophy his account of thinking is, ultimately, biased in the direction of a "natural history" of language.

23. It ought to be noted here that Weil uses the term, 'contradiction', as a synonym for the ancient notion of the 'contraries'. Thus, here and throughout the following chapters, her use of this term should not be confused with, for example, the notion of contradiction in logic: a relation between propositions such that both can be false but only one true.

She distinguishes between legitimate and illegitimate contradictions as follows:

The illegitimate use lies in coupling together incompatible thoughts as if they were compatible. The legitimate use lies, first of all, when two incompatible thoughts present them-

selves to the mind, in exhausting all the powers of the intellect in an attempt to eliminate at least one of them. If this is impossible, if both must be accepted, the contradiction must then be recognized as a fact. It must then be used as a two-limbed tool, like a pair of pincers, so that through it direct contact may be made with the transcendental sphere of truth beyond the range of the human faculties.

Oppression and Liberty, p. 173. This definition of the legitimate use of contradiction constitutes her conception of the dialectic of the ancients. See Chapter III below (pp. 146-147) where this quotation is repeated.

24. Technique is after all, by definition, a way of acting that succeeds precisely by eliminating the need for thought.
25. See footnote 20 in the "Introduction" above.
26. Thus, for example, we might see the anthropological foundation of Aristotle's position as a distortion of the open mysteries of the being of man, a distortion that led to doctrines like that of natural slavery. Fundamental mis-conceptions regarding the character of our being can have enormous consequences in political and social life. In Oppression and Liberty, Weil analyses the position of Marx from this perspective. In the Need for Roots, (London: Routledge and Kegan Paul, 1952), she shows how the anthropological implications of modern science influenced and supported Hitler's conception of justice. (See p. 240 and pp. 79-80 of the following chapter.)
27. See Strauss, op. cit., pp. 82-84.
28. The rigorous analysis of sense appearance discloses this discontinuity. This contention is perhaps best supported by the analyses of the Gestalt school of modern psychology. See, for example, G. Humphrey, Thinking, (New York: John Wiley and Sons, 1962), especially, chapter vi; W. Kohler, Gestalt Psychology, (New York: H. Liverlight, 1929); and K. Koffka, Principles of Gestalt Psychology, (London: Routledge and Kegan Paul, 1935).
29. Weil, "Classical Science and After", On Science, Necessity and the Love of God, (London: Oxford University Press, 1968), p. 6.
30. The other is, of course, the reality of death.

31. In Plato's Laws, III (688c) we find a perception perhaps very similar to this one. "I look on prayer, I say, as a dangerous instrument in the hands of the man without intelligence; it defeats his wishes". The translation is that of A.E. Taylor, (London: Everyman Library, 1934), I am indebted to Professor Steven Burns for this reference.
32. Lectures on Philosophy, p. 72.
33. See Weil's essay entitled, "The Pythagorean Doctrine", Intimations of Christianity Among the Ancient Greeks, (London: Routledge and Kegan Paul, 1957), p. 178.
34. Ibid.
35. In the radical division of labour between manual and mental workers described by Adam Smith it is, of course, simply the latter who can be said to think at all in the course of their labour. However, it should be noted that in such a society the thought of the managerial class is not free. They must think in terms of the conventional or social necessities imposed by the organization of labour itself.
36. In Oppression and Liberty, pp. 106-07, Weil claims that:

the idea of labour considered as a human value is doubtless the one and only spiritual conquest achieved by the human mind since the miracle of Greece; this was perhaps the only gap in the ideal of human life elaborated by Greece and left behind by her as an undying heritage.

Further, she writes:

Bacon was the first to put forward this idea. For the ancient and heartbreaking curse contained in Genesis, which made the world appear as a convict prison and labour as the sign of men's servitude and abasement, he substituted in a flash of genius the veritable charter expressing the relations between man and the world: 'We cannot command nature except by obeying her'.

This is from an early text (it was written in 1934) and is a position that is significantly qualified in her later writings. See: The Need for Roots, pp. 295ff. The reader may also compare the above passage with one in Lectures on Philosophy, pp. 214-16.



Whatever the extent of Weil's knowledge of the writings of Sir Francis Bacon it should here be repeated that his general philosophical position is contrary to her own. Specifically, her account of science surely has little in common with that of a Lord Chancellor of England who urged his contemporaries "to put nature to the question".

37. "The Pythagorean Doctrine", Intimations, p. 180.

38. By the term, 'primitive', here she means, of course, economically primitive. Such a society would be one in which (a) the division of labour is constituted, primarily, by the simple dimorphic division of the sexes and (b) in which tools are so rudimentary that it is the human body itself that plays the predominant role in labour.

In her early writings Weil draws a picture of "primitive man" as a slave to the deities that he projects into nature. (See, for example, the following texts: First and Last Notebooks, pp. 20-21; and Oppression and Liberty, pp. 61-62 and pp. 86-96.) Her contention is explicitly that such deities arise out of the role played by the body in labour within such societies. (See Chapter V, pp. 13-15 below.)

This ought not to be understood as an attack upon polytheism. First of all it could only be an attack upon a specific form of polytheism, namely, one in which religion completely obliterated the social occasion of thought within the context of individual labour. Of course no such religion has or will ever exist. The case is a purely extreme one meant to represent a "theoretical picture" of the nature of social oppression and the conditions required for social liberty.

Weil's later writings give ample evidence of her appreciation for the beauty of polytheism as found in the religious expression of the ancients (such as the Iliad) of our tradition and of the primitives of the other cultural traditions that our civilization has largely destroyed.

39. In one of the last of her writings, The Need for Roots, p. 252, Weil defines the "sin of polytheism" as consisting in the belief that "there are several distinct and mutually independent forms of good, like truth, beauty, and morality ... and not just simply allowing the imagination to play with the notions of Apollo and Diana". Thus defined the religions of economically primitive cultures are seldom given to the sin of polytheism. If

refer the reader to M. Eliade's The Quest: History and Meaning in Religion, (Chicago: University of Chicago Press; 1969), pp. 23-25, for a brief and excellent summary of the findings of ethnology in this regard.

40. Oppression and Liberty, pp. 85-86.

## NOTES TO CHAPTER I I

1. As cited by V. Gordon Childe in Man Makes Himself, (New York: The New American Library, 1955), p. 149. Or consider the following text from the ancient Chinese cited and translated by Arthur Waley in his fascinating "Introduction to the Tao Tê Ching in The Way and Its Power, (London: George Allen and Unwin, 1977);

Some work with their minds, others with their bodies. Those who work with the mind rule; those who work with the body are ruled. Those who are ruled feed their rulers; those who rule, feed upon those they rule.

2. See "La Vie Syndicale en Marge du Comité d'études", L'Effort, December 19, 1931. The English translation here is that of Raymond Rosenthal in his translation of Petrement's Simone Weil: A Life, (New York: Pantheon Books, 1976), pp. 88-89.
3. Weil, Lectures on Philosophy, (Cambridge: Cambridge University Press, 1978), p. 68.

Throughout her writings Weil uses the term, 'magic', in this connection. It simply indicates the effortlessness that is characteristic of our handling of linguistic relations. As she expresses it (in the text cited above)

I have no power whatsoever over the sun and the stars; but I have complete control of the word, 'sun'. So 'open sesame' is a symbol ... Through the words I speak, I have the earth, the sun, the stars at my disposal".

Nothing more than this ought to be read into use of the term: It is used here and in the chapters that follow simply to contrast this essential character of language with that of our activity, effort and labour.

4. Ibid., p. 71-72.
5. Ibid., p. 68.
6. Ibid., p. 67.
7. Ibid., p. 69.
8. Ibid.

9. The reader might find it instructive to compare this with the analysis of the "master/slave" dialectic in the chapter entitled, "Lordship and Bondage" in Hegel's Phenomenology, the inspiration for which was Adam Smith's Wealth of Nations.

For Hegel, the slave is, at least potentially, superior to the master. First, in that he works directly with the world of objects, with a world that submits to his own labour. Hence, for Hegel the slave retains a unity of thought and action unknown to the master. Secondly, in that the master is dependent upon the slave for the satisfaction of his needs and desires. The slave, in this sense, creates the master. Thirdly, in that the slave knows the fear of death, the absolute master, and may thereby possess a knowledge of how to free himself from it within life. See also Jean Hyppolite's Studies on Marx and Hegel, trans. J. O'Neill, (New York: Basic Books, 1969), XIII, pp. 159-60.

10. For example, see Oppression and Liberty, (London: Routledge and Kegan Paul, 1958), p. 34.
11. "La Vie Syndicale ...", Simone Weil: A Life, pp. 88-89.
12. See footnote 20, Chapter I, above.
13. Such analyses are not uncommon in contemporary philosophy. An account of the dialectical determination of thought is at the root of such contemporary French thinkers as M. Foucault's work as exemplified, for instance, in his, The Order of Things. So also with the writings of the French, intellectual historian, M. Gueroult.
14. Throughout her writings Weil uses the term, 'necessity', in two basic and related senses. The first and most common of these is what she herself calls "universal necessity" (see "The Pythagorean Doctrine", Intimations, (London: Routledge and Kegan Paul, 1957), p. 180). In this sense the word refers to the general "order of the world" which lies beyond the world. In the second sense it refers to necessary relation within the world. Thus, the constant or fixed relation of idea provides a necessary link or connection between a certain group of variables.
15. See Weil's "Draft for a Statement of Human Obligations", Selected Essays, 1933-43, (Oxford: Oxford University Press, 1962), p. 219.
16. (Oxford: Basil Blackwell, 1976), I, (293) & ff.

17. Notebooks of Simone Weil, I, (London: Routledge and Kegan Paul, 1976), p. 28.

18. Weil, Oppression, p. 173 & p. 163.

19. Ibid., p. 173.

20. This distinction is equivalent to the way of 'belief' or 'opinion' versus the "way of truth" in the Platonic dialogues. The former is a way of systematic delusion.

21. Weil, "Human Personality", Selected Essays, p. 27.

22. Plato, The Republic, Book VI, 493c. Cited by Weil in Oppression and Liberty, p. 183. We find this passage translated as follows by Paul Shorey, (London: Loeb Classical Library, 1930):

... call what is necessary just and honorable, never having observed how great is the real difference between the necessary and the good.

23. See "Is There a Marxist Doctrine?", ibid., pp. 169-95.

24. See the above, pp. 180-83.

25. Ibid., pp. 174-75.

26. Our desire for "the good" is, of course, the source of the passions intrinsic to our being in the Platonic account.

27. The reader should, perhaps, be reminded here of the sense in which Weil uses the term, 'contradiction' as explained in footnote 24, Chapter I.

28. Plato, Republic, Book VI, 492c. This translation is from Weil's "God in Plato", Intimations, p. 85. Shorey (op. cit.) translated this passage as follows:

For there is not, never has been, and never will be a divergent type of character and virtue created by an education running counter to theirs -- humanly speaking, I mean, my friend. For the divine, as the proverb says, all rules fail. And you may be sure that, if anything is saved and turns out well in the present condition of society and government, in saying that the providence of God preserves it you will not be speaking ill.

29. Republic, 493a. Weil, ibid., pp. 85-86. Again, the text of the Shorey translation is very close to one given here by Weil's translator.

30. The notion of 'grace' in this context is essentially related to the character of thought as revealed in the contemplative waiting of the mind in attention. See the discussion below (pp. 80-83).

Weil's use of the term indicates all that we are given.

In the passage quoted below (p. 36) from her essay, "The Symposium of Plato", she explains her application of the term to Plato.

31. See Weil, Oppression, pp. 181-85.

As she notes here, differences of opinion do not contradict this description for two reasons: (1) They are often more apparent than real for "the most violent struggles often divide people who think exactly, or almost exactly, the same thing". This is a truth we have fully come to know in the twentieth century. (2) Society is huge and composed of various groups each of which is differently placed within its order. Hence, there is a natural variation of morality from one group to another within a particular society.

32. Weil, On Science, Necessity and the Love of God, (London: Oxford University Press, 1968), p. 79.

33. Weil, Oppression, p. 159.

34. Weil, "Reflections on the Right Use of School Studies With a View to the Love of God", Waiting on God, (London: Routledge and Kegan Paul, 1951), p. 56.

35. It might be instructive here to contrast briefly Weil's description of the "revealed" character of thought to the conception of Kant. For Kant thought represents the natural world -- the material world of Galileo and Newton -- as the rational and necessary issue of the human mind itself. The mind does not create nature but it makes nature. Due to the limits of the human mind's reach into the secrets of matter Kant believed that we do not know the-thing-in-itself; we know it through the thought of the mind. In Weil's account, by contrast, the mind cannot be said to shape the phenomenon. All that can be said is that it is in the mind that the phenomenon is perceived or disclosed.

36. See the Philosophical Investigations, pp. 324-25 & p. 486, for example.

37. Weil, On Science, p. 12.
38. Weil, Oppression, pp. 174-75.
39. Ibid., pp. 175-76.
40. Ibid., p. 176.
41. Actually, Cratylus was only a would-be materialist. It was he who said that Heraclitus had been wrong to think that one could step into a river even once! He is, perhaps, the greatest of the 'sceptics'.  
 Like Socrates, in his youth, Cratylus attempted natural philosophy but never succeeded in finding a foundation for thought in the appearance of the world as change or process. He ended by abandoning the search and renouncing both speech and action. According to one tradition Plato had, originally, been the student of Cratylus and was rescued from him by Socrates.
42. Weil, The Need for Roots, (New York: Harper and Row, 1952), p. 240. This passage appears to have been translated by Weil directly from Mein Kampf. See the original passage in L'Enracinement, (Paris: Gallimard, 1949), pp. 241-42.
43. The Need for Roots, ibid., pp. 240-43.
44. First and Last Notebooks, (London: Oxford University Press, 1970), p. 42.
45. Weil, The Need for Roots, p. 262.
46. Weil, "Human Personality", Selected Essays, p. 26.
47. Ibid., pp. 26-27..
48. Weil, The Need for Roots, p. 253.
49. Ibid.
50. Ibid., p. 262.
51. Weil, "The Symposium of Plato", Intimations, p. 123.
52. See her essay, "Reflections on the Right Use of School Studies", Waiting on God, pp. 51-59.
53. Weil, Gravity and Grace, (London: Routledge and Kegan Paul, 1952). The first line reads as follows: "Two forces rule the universe: Light and Gravity".
54. Weil, The Need for Roots, p. 11.

55. Weil, Intimations, p. 182.
56. Ibid., p. 184.
57. Ibid., p. 189.
58. See On Science, p. 115. Also Plato's Gorgias, 507e - 508a.
59. Weil, Intimations, p. 201.



### NOTES FOR CHAPTER III

1. Throughout her writings Weil uses the term, 'matter'. It is not a word very well suited to the expression of her position.

As far as we know it only entered into the vocabulary of philosophy with Aristotle. Where Aristotle speaks of 'matter', Plato speaks, simply, of bodies. For Plato -- or for the tradition that both he and Simone Weil claim to be following -- the phenomenal world of our experience was constituted by two principles: the limited and nonlimited. As will be seen below, in following this tradition, Weil asserts that all that we know of matter is its subjection to necessity i.e. a combination of the limited and nonlimited.

The additional modern connotations of this term make her use of it an excellent example of the historical difficulty of her language referred to in the "Introduction" above.

For an account of the difference of the philosophies of Plato and Aristotle in this context see Wilhelm Windelband's A History of Philosophy, Vol. I, New York: Harper and Row, 1958], pp. 139-40.

2. In light of our subsequent discussion of the science of the classical era in Greece the reader may find the use of the phrase, "classical science", here confusing. This is the term, however, that is ordinarily used to designate this period in the history of modern science. See, for example, Werner Heisenberg's Physics and Philosophy, [New York: Harper and Row, 1958], particularly, the historical chapters II & III.

The choice of the year 1900 as the date dividing the classical and the contemporary periods is, of course, somewhat arbitrary for the theories and discoveries that eventually issued in the "quantum revolution" go back into the last decades of the nineteenth century. Much of Einstein's work, for instance, dates from before 1900. Nevertheless, Planck's publication of the "quantum hypothesis" in December of 1900 is generally accepted as the turning point.

3. Here, and in what follows, the term, process, generally signifies the movement of nature around us. It is related and contrasted with activity the movement of man in nature individually called 'labour' and collectively termed 'history'. Our experience is the issue of both of these types of motion.

4. Weil, "Classical Science and After", On Science, Necessity and the Love of God, London: Oxford University Press, 1968, p. 40.
5. Ibid., p. 37.
6. See footnote #27 in the "Introduction" above. In a review entitled, "Scientism", *ibid.*, she urges the scientist to look at the waves of the sea "and say if the shapes of the waves appear to reveal a very rigorous necessity" before speaking of the "apparent determinism of the macroscopic scale". In their indetermination lying directly on the surface of our experience of the phenomenal the weather and the waves of the ocean are ordinary examples of the "discontinuous" character of our experience.
7. *Op. cit.*, p. 5.
8. Ibid., p. 6.
9. Ibid.
10. See E.A. Burtt's Metaphysical Foundations of Modern Science, London: Routledge and Kegan Paul, 1924, pp. 178-93.
11. See Leo Strauss, Natural Right and History, Chicago: University of Chicago Press, 1955 for an account of the distinction between 'nature' and 'convention' in relation to philosophy and the history of philosophy, pp. 82 & ff. Also R.G. Collingwood, The Idea of Nature, Oxford: The Clarendon Press, 1945 for an analysis of the role of the anthropomorphic and the teleological in the history of western science, pp. 84 & ff.
12. Weil, "Classical Science and After", On Science, p. 8.
13. Ibid., pp. 9-10.
14. Weil, "Reflections on the Quantum Theory", *ibid.*, 50, *op. cit.*
15. Ibid., p. 16.
16. Ibid.
17. Ibid., p. 17.
18. Ibid.
19. Ibid.
20. Ibid., p. 31.

21. Ibid., pp. 31-32.

22. "Scientism: A Review", *ibid.*, p. 68. As E.A. Burt writes, "the world depicted by classical science was a place 'hard, cold, colourless, silent and dead; a world of quantity, a world of mathematically computable motions in mechanical regularity'", *op. cit.*, pp. 236-37.

23. See Weil's essay, "The Pythagorean Doctrine", Intimations of Christianity Among the Ancient Greeks, London: Routledge and Kegan Paul, 1957, p. 163.

24. To take a fundamental example from the history of classical science consider the respective attitudes of Galileo and Newton toward the mathematical character of the "primary qualities".

Galileo insisted that the 'real' world of scientific study was a world of mathematical relation hidden from view behind sensible appearances.

Newton, placing a greater emphasis upon the a posteriori, experimental character of science, nevertheless saw the world as constituted by laws of a mathematical strictness. The great debate characteristic of the history of classical science over the emphasis in science of the a priori nature of mathematics or the a posteriori character of experiment and observation was enacted within the assumption that the 'world' of our experience has the determinate structure of linguistic relation, and that the 'object' of science is that structure hidden within the world.

See E.A. Burt's account of the history of the relation between mathematics and science in *op. cit.*, pp. 29 & ff.

25. *Ibid.*, p. 62.

26. Weil, "Classical Science and After", On Science, p. 37.

27. *Ibid.*, p. 32.

28. *Ibid.*, p. 33.

29. *Ibid.*, p. 34.

30. *Ibid.*

31. *Ibid.*, p. 35.

32. *Ibid.*

33. The reader might find it instructive to contrast this view with that of Hans Reichenbach, "The Nature of Geometry", The Rise of Scientific Philosophy, Berkeley: University of California Press, 1951, pp. 125-43.
34. Op. cit., pp. 35-36.
35. Ibid., p. 36.
36. Ibid.
37. Originally from a letter to Mersenne dated November, 1633. Quoted by Hannah Arendt, The Human Condition, Chicago: University of Chicago Press, 1958, p. 273.
38. If the Greeks didn't distinguish philosophy from science, they did distinguish metaphysics from physics and the former was the science that underlay all the others.
39. Burt, p. 203.
40. See Collingwood, pp. 152-77 and Strauss, pp. 174-78.
41. In the Theaetetus (180d-181) Plato describes this dialectic as characteristic of the history of philosophy in his day. In this sense, we can, perhaps, define 'history' as the attempt to think process: natural and social. The history of philosophy is the entry of philosophy into this attempt. As such, it is distinguished from philosophy itself or, at least, from that philosophical tradition that does not enter into this attempt and consists, instead, in the thinking stance of the human being that is always and everywhere the same.
42. An interesting account of the modern philosophical distinction between fact and value is provided by H. Putnam in Reason, Truth and History, Cambridge, Cambridge University Press, 1981. See especially the chapters entitled "Fact and Value" and "The Impact of Science on Modern Conceptions of Rationality".
43. See Strauss, pp. 39-41.
44. Weil, "Reflections on the Quantum Theory, On Science, p. 50.
45. Ibid.
46. Weil, "Classical Science and After", Ibid., pp. 22-23.
47. Weil summarizes this story as follows: "two weavers promised him some clothes of a material invisible to the eyes of fools, so he walked naked in the streets of his

capital while neither he nor any of the spectators dared to recognize that he was naked". From: "Reflections on the Quantum Theory", p. 55.

48. See Ibid., pp. 53-54.

49. Presumably the situation here is this one: one does something with language and, then, retrospectively reflects upon the result in the hope of discovering its significance. It is in this way that the modern scientific mode of thought coincides with the mode of historical thought. There thought follows rather than precedes action. It does so on the assumption that one can at least contemplate and understand what one's pencil (or computing machine) has wrought, an assumption unjustified for a variety of reasons concerning the relation of language to thought in this science.

50. Weil, "Classical Science and After", p. 24.

51. See Burt, pp. 31-32.

52. Ibid., p. 32.

53. See Weil, "Classical Science and After", pp. 34-35.

54. An image may be defined as a representation to which many pictures can correspond. Wittgenstein makes a distinction of this character between these two terms in his Philosophical Investigations, Oxford: Basil Blackwell, 1976, p. 101, #301.

55. Weil, Oppression and Liberty, London: Routledge and Kegan Paul, 1958, p. 93.

56. Ibid.

57. Ibid.

58. Ibid.

59. Ibid., p. 111.

60. Ibid., see p. 98.

61. Ibid., p. 111.

62. This strange modern word is derived from the Greek, techne, meaning an art or artifice and logos, meaning human reason as expressed in speech. This etymology from A. Bloom's translation of Plato's Republic, New York: Basic Books, 1968, footnotes to Book I.

63. Weil, Oppression, p. 111.

64. Ultimately, what is involved here is the question of the origin and, consequently, of the origin-ality of thought. In Oppression and Liberty, she rejects both the 'materialistic' position of Marx to the effect that all thought is socially or collectively determined and the 'idealistic' position of Hegel.
65. For instance, see her analysis of this difference as one of the three essential obstacles to human liberty in Oppression and Liberty, pp. 89-92.
66. Ibid., p. 95.
67. As for example in the "Great Beast" analogy in The Republic, Book VI, pp. 493 & ff.
68. Such arguments seem to involve, implicitly or explicitly, an assumption regarding the origin of language and (hence) of thought. The argument for the social determination of thought ultimately rests upon the assumption of a conventional origin for language. (As, perhaps, in the Wittgensteinian account of initial "agreements in judgement"). The argument for the natural determination of thought rests, equally, upon the assumption of a phenomenological origin for language. (As in Wittgenstein's "picture theory of language" in the Tractatus Logico-Philosophicus, London: Routledge and Kegan Paul, 1922), where "primitive objects" are assumed as the foundation of sense.
69. Heisenberg, Philosophical Problems of Nuclear Science, New York: Pantheon Books, 1952, p. 80.
70. Weil, "Reflections on the Quantum Theory", On Science, p. 49.
71. Ibid., p. 49.
72. See "Classical Science and After", *ibid.*, p. 22-23.
73. See Chapter I, footnote #24.
74. Oppression and Liberty, p. 173.
75. Weil, "Reflections on the Quantum Theory", On Science, p. 64.
76. Weil, "Classical Science and After", *ibid.*, p. 30.
77. Weil makes this splendid distinction between two opposite varieties of absurdity: "The true mysteries of the Faith are themselves absurd, but their absurdity is such as to illuminate the mind and cause it to produce in abundance truths that are clear to the intelligence."

The other absurdities are maybe diabolical mysteries. Both the former and the latter are found mixed up together in current Christian thought like tares with the wheat". The Need for Roots, London: G.P. Putnam's, 1952, p. 279. Clearly, her attitude toward the 'absurdity' of human existence is to be considered apart from the views often described as "absurdist" in modern thought.

78. Weil, On Science, p. 26.
79. Ibid., p. 26.
80. Ibid., pp. 24-25.
81. Ibid., p. 25.
82. Ibid., p. 24.
83. Ibid., p. 25.
84. Ibid., pp. 25-26.
85. Ibid.
86. Ibid., p. 61.
87. Reichenbach, pp. 174-75.
88. Collingwood, pp. 39-53 and Burtt, pp. 63-93.
89. Cited by Arendt, p. 298 from Vico's Scienza Nova.
90. Ibid., p. 266.

## NOTES FOR CHAPTER IV

1. See, for example, the following letters to her brother, the mathematician, André Weil contained (and translated) in Seventy Letters, Oxford: Oxford University Press, pp. 111-13; pp. 113-19; pp. 119-27.
2. Quoted by M.J. Cary and T.J. Haarhoff in Life and Thought in the Greek and Roman World, London: Methuen and Co., 1961, p. 195.
3. See, for instance, "Classical Science and After", On Science, Necessity and the Love of God, London: Oxford University Press, 1968, pp. 3-5.
4. "The Pythagorean Doctrine", Intimations of Christianity Among the Ancient Greeks, London: Routledge and Kegan Paul, 1957, p. 163. Or, where there are no quantities, strictly speaking, there is to be found something analogous -- a quantitative law of variation.
5. pp. 179-80. Also p. 161-63.
6. See: Weil, "The Republic", Intimations, p. 141.
7. Weil, "Classical Science and After", On Science, pp. 4-5. For Weil it was the discovery of the mathematical form of this idea (i.e., its most precise, basic and rigorous form) that constitutes (in the phrase of Edith Hamilton) "the Greek miracle". Other cultures may have possessed non-mathematical equivalents of the idea as many of her own comments on the folklore, myths and religious traditions of other peoples would indicate.
8. K. Freeman, Ancilla to the Pre-Socratic Philosophers, Oxford: Basil Blackwell, 1947, fragment #11, p. 75. In view of the following argument, this passage is perhaps worth citing here:

For the nature of number is the cause of recognition, able to give guidance and teaching to every man in what is puzzling and unknown. For none of existing things would be clear to anyone, either in themselves or in their relationship to one another, unless there existed number and its essence. But in fact number, fitting all things into the soul through sense perception, makes them recognizable and comparable, as is provided by the nature of the Gnomon, in that number gives them



body and divides the different relationships of things, whether they be non-limited or limiting, into their separate groups.

9. From "The Pythagorean Doctrine", Intimations, p. 178. Previously cited in Chapter I, p. 22.
10. Ibid., p. 179.
11. Lagneau (1851-1894) was the teacher of Emile Chartier, "Alain", who was Weil's most influential teacher.
12. See "The Pythagorean Doctrine", Intimations, pp. 178-79.
13. Ibid., pp. 199-200.
14. See The Notebooks of Simone Weil, London: Routledge and Kegan Paul, 1956, II, p. 459 where we read:

... a ratio sets a limit to an unlimited series. The Pythagoreans gave the name number to such a ratio. The Pythagorean numbers are constants. The cube and the unlimited series of its aspects.

15. As she writes in NBssW, I, p. 312: "It is realization that corresponds to doubt".
16. Weil, "The Pythagorean Doctrine", Intimations, pp. 192-93.
17. Ibid., p. 197.
18. Ibid., p. 193.
19. NBssW, I, p. 84.
20. Weil, "The Pythagorean Doctrine", Intimations, p. 178.
21. Ibid.
22. Weil, "A Sketch of a History of Greek Science", Intimations, p. 207.
23. Weil, The Need for Roots, New York: Harper and Row, 1952, pp. 292-93.
24. Cited above in footnote #8. See "The Pythagorean Doctrine", Intimations, p. 154.
25. NBssW, II, p. 452-53.

26. Weil, "The Pythagorean Doctrine", Intimations, p. 179.
27. NBSSW, I, p. 84.
28. In Weil's view this is the foundation of the "ontological proof" (or the "proof by perfection"). See "The Pythagorean Doctrine", Intimations, p. 169-70.
29. NBSSW, I, p. 118.
30. Weil, "The Pythagorean Doctrine", Intimations, pp. 199-200.
31. From "Fragment: Foundation of a New Science", On Science, p. 81. See also her "Notes on Cleanthes, Phercydes, Anaximander and Philolaus", pp. 140-41; The Need for Roots, p. 287; NBSSW, I, pp. 115-16; and "Classical Science and After", On Science, pp. 16-17.

Freeman's translation in her Ancilla, is, perhaps, a better one in that it avoids the use of the term, 'matter'. It reads as follows:

The Non-Limited is the original material of existing things; further, the source from which existing things derive their existence is also that to which they return at their destruction, according to necessity, for they give justice and make reparation to one-another for their injustice, according to the order of time.

Fragment #1, p. 19.

32. "Fragment: Foundation of a New Science", On Science, p. 79.
33. Weil, "A Sketch of a History of Greek Science", Intimations, pp. 206-07.
34. In this context Weil uses the terms translate and transpose (traduction and transposer in the original) in an apparently interchangeable fashion. See The Need for Roots, pp. 67-68 and its original in L'Enracinement, (Paris: Gallimard, 1949), pp. 64-65.
35. The phrase, "the idea of the ideas" is, perhaps, potentially confusing. I mean to indicate by it solely the idea of function or proportionality, the most fundamental of all mathematical ideas. It must not be taken to mean the 'object' of thought itself which, of course, for Weil as for Plato, lies beyond all language, including the language of mathematics.

36. Weil, "Fragment: Foundation of a New Science", On Science, p. 80.
37. Weil, "Human Personality", Selected Essays, 1933-34, Oxford: Oxford University Press, 1962, p. 26. A part of this passage was cited in an earlier chapter, II, pp. 32-33 above.
38. See H. Arendt's The Human Condition, Chicago: University of Chicago Press, 1958, pp. 257-68 for an account of the significance of the change of scale that occurred in modern science with the development of the telescope.
39. Weil, "Fragment: Foundation of a New Science", On Science, p. 80.
40. Ibid., p. 81.
41. Weil, "The Pythagorean Doctrine", Intimations, p. 184.
42. Ibid., pp. 179-80. See also p. 168.
43. Weil, "Classical Science and After", On Science, pp. 18-19.
44. Weil, "Divine Love in Creation", Intimations, p. 100.
45. Ibid.
46. Ibid., p. 98. See the Timaeus (90c & ff).
47. Phaedo, (103d).
48. Weil, "Divine Love in Creation", Intimations, p. 98.
49. See "The Pythagorean Doctrine", Ibid., pp. 192-93.
50. See The Need for Roots, p. 240.
51. NBSSW, I, p. 77.
52. Ibid., p. 132.
53. The Need for Roots, p. 287.
54. NBSSW, I, p. 162.
55. See footnote #8 above.
56. Weil, "The Iliad", Intimations, p. 24.
57. Ibid.
58. Ibid., p. 51.

59. First and Last Notebooks, London: Oxford University Press, 1970, pp. 26-27.
60. Weil, "The Iliad", Intimations, pp. 24-33.
61. Ibid., pp. 34-35.
62. From the English translation given, p. 37.
63. See "Classical Science and After", On Science, pp. 24-26.
64. Weil, "The Iliad", Intimations, p. 35. See also NBSSW, I, pp. 88-89.
65. Ibid., p. 34.
66. Ibid., p. 36.
67. Weil, "The Pythagorean Doctrine", Intimations, p. 184. This passage was previously quoted in Chapter II, p. 39.
68. Plato, The Republic, Book VI, (492e). As translated in Intimations, pp. 84-85.
69. Ibid., p. 189.
70. Weil, The Need for Roots, p. 228.
71. Weil, "The Pythagorean Doctrine", Intimations, pp. 158-59.
72. Any integer not a fraction.
73. I am indebted here to an article by S.A.M. Burns, "Virtue and Necessity", Laval Theologique/Philosophique, XXXII (1976), pp. 261-75.
74. Weil, "The Pythagorean Doctrine", Intimations, pp. 159-162.
75. See "A Sketch of a History of Greek Science", Intimations, pp. 202-05.
76. Weil, "Classical Science and After", On Science, pp. 20-21.
77. See, ibid., p. 203.
78. See Seventy Letters, pp. 112-127.
79. As translated in Intimations, p. 161. The passage is from the Epinomis, (990d). The authenticity of this dialogue has long been a matter of dispute. According

to the ancient historian, Diogenes Laertius, (III, 37), it was actually a work of Philip of Opus. However, according to Joseph Owens the weight of scholarly opinion is now in favour of its authenticity. A History of Ancient Western Philosophy, New York: Appleton-Century-Crofts, 1959), p. 193.

A.E. Taylor translates this passage as follows:

What is called by the very ludicrous name mensuration, but is really a manifest assimilation to one another of numbers which are naturally dissimilar, effected by reference to areas".

The Collected Dialogues of Plato, ed. E. Hamilton and H. Cairns, (Princeton: Princeton University Press, 1961).

80. See NBSW, I, p. 132. Any limited movement is like a semi-circular movement.

## NOTES FOR CHAPTER V

1. The term, 'idea' here and in what follows is used to signify a functional or necessary relation as described in the preceding chapter (pp. 3-16).
2. Weil, Lectures on Philosophy, translated by H. Price, Cambridge: Cambridge University Press, 1978, p. 69.
3. Weil, Oppression and Liberty, London: Routledge and Kegan Paul, 1958, p. 88.
4. Simone Pétrement, Simone Weil: A Life, translated by Raymond Rosenthal, New York: Random House, 1976, pp. 61-62.
5. Weil, Oppression, p. 88.
6. Ibid.
7. Ibid., pp. 104-05.
8. For instance, see First and Last Notebooks, London: Oxford University Press, 1970, p. 20.
9. Weil, Oppression, pp. 88-89.
10. Her attitude toward the historic conflict between the advocates of "determinism" and "free will" emerges here. Through language, the principal human tool, man is related to the world of his experience exactly as he is related by a ship to the swirling masses of water and air on the surface of the ocean. The 'determinate' character of the world is that revealed in the thoughtful handling of the ship in relation to the forces of air and water. Our freedom consists in the ability to think and adapt our actions to the images of necessary or functional relation revealed in thought.
11. See Weil, Lectures, pp. 64-71.
12. In ethnological fact such societies probably don't exist, for the human being is very much a user of tools. Many 'economically primitive' cultures are, in fact, possessed of highly sophisticated tools. The account that follows should be understood as a purely theoretical representation of two social extremes. See Chapter I, pp. 26-27 and footnote #8 below.
13. Weil, FLNBs, pp. 21-22. See also p. 5.
14. Weil, Oppression, p. 89.

15. Ibid., this is not to be understood as constituting an argument against polytheism. See Chapter I, footnote #39, below.
16. Ibid., pp. 90-91.
17. Ibid., p. 91.
18. Ibid.
19. Ibid.
20. Weil's language here is very much that of Descartes. In fact this passage appears to echo directly Descartes' "Rules for the direction of the Mind" V and VI. Rule V reads as follows:

Method consists entirely in the order and disposition of the objects toward which our mental vision must be directed if we would find out any truth. We shall comply with it exactly if we reduce involved and obscure propositions step by step to those that are simpler, and then starting with the intuitive apprehension of all those that are absolutely simple, attempt to ascend to knowledge of all others by precisely similar steps.

The translation is that of E.S. Haldane and G.R.T. Ross in The Philosophical Works of Descartes, Vol. I, Cambridge: Cambridge University Press, 1911, p. 14.

21. Weil, Oppression, pp. 91-92.
22. Ibid., p. 92.
23. Ibid.
24. Ibid.
25. Ibid., p. 51.
26. Ibid.
27. Ibid., p. 92.
28. Ibid., p. 93.
29. Weil, Seventy Letters, London: Oxford University Press, 1965, pp. 3-4.

30. Consider, for example, the complexity of mathematical relations that lead Einstein to his famous formula:

$$E=MC^2$$

31. Weil, Oppression, pp. 94-95.

32. It should be noted here that for the Greeks, techne, was simply a branch of poesis or making characteristic of the being of man. As seen below the 'making' of the craftsman is contrasted with the modern view of man as a 'creator'.

33. Weil, FLNBs, p. 45.

34. Weil, Oppression, p. 103.

35. Weil, FLNBs, p. 59.

36. Weil, Oppression, p. 98.

37. Ibid., p. 86.

38. Weil, FLNBs, p. 93.

39. Weil, Oppression, p. 104.

40. Ibid., pp. 104-05.

41. See: Ibid., and Seventy Letters, pp. 3-5. Also Chapter I, footnote #4, above.

42. Weil, Seventy Letters, p. 3.

43. Weil, FLNBs, p. 9. The question of just what such a form of work would be like is a difficult one. She is very clear that it would mean not only a new geometric form of language but also a fundamental transformation in the techniques and the machinery of labour as we know them.

As seen above, it is also clear that it would consist largely in the educational training of the imagination (see Seventy Letters, pp. 3-4) in order to develop the individual capacity for conceiving analogies.

Presumably, the student would be introduced to a geometric mathematics capable of representing all the basic relations of human thought and then be trained to solve problems arising out of as wide a variety of work problems as possible by suitably transposing these relations. See the discussion below regarding the teaching of geometry in the schools.



44. Weil, The Need for Roots, New York: Harper and Row, 1952, p. 69.
45. Ibid.
46. See, for example, R.S. Peter's "'Mental Health' as an Educational Aim", Aims of Education, Manchester, Manchester University Press, 1964, ed. T.H.B. Hollins, p. 88.
47. Weil, The Need for Roots, pp. 69-70.
48. Weil, Oppression, p. 121.
49. Ibid., p. 105. Here, the reader ought not to think of the type of industrial reforms characteristic of social democracies such as the Scandinavian or of the innovations of the Japanese in fine tuning the nature of industrial labour to the psychological requirements of the human being (and/or vice versa).

However, this is obviously an area in which no hasty generalizations should be made. Weil, herself, was always careful to study the relation between thought and action in the individual's use of any new piece of 'technique'. Each technical and organizational change would thus have to be considered from this point of view. It is possible that there are in certain areas of recent technical development changes of which she would have approved. These would, however, certainly be isolated cases.

50. Weil, Seventy Letters, p. 4.
51. Weil, FLNBS, pp. 38-39.
52. Weil, "Factory Work", The Simone Weil Reader, ed. G.A. Panichas, New York: David McKay, 1977, p. 69. While the 'revolution' from a mechanical to an electronic 'technology' has occurred since Weil's day and brought, thanks to the computer, the increasing automation of industry, the situation she describes is not only left perfectly intact, it has been heightened to the nth degree. In this latest 'industrial revolution' within the workplace mental labour is simply displacing manual labour and, thanks to the co-ordinating capacities of the computer, the thoughtless character of our collective action is progressively increased with the ever more complete embodiment of thought in things.
53. Weil, Oppression, pp. 98-99.
54. Ibid., p. 99.

55. The title of a section of Oppression and Liberty, p. 83-108.
56. Ibid., p. 113.
57. Weil, Need for Roots, pp. 15-16.
58. A similar distinction characterizes one tradition of modern European (particularly, modern French) social philosophy. See H. Arendt, "The Crisis in Culture", Between Past and Future: Eight Exercises in Political Thought, Harmondsworth: Penguin Books, 1954, p. 197 & ff. As Arendt shows this distinction is pivotal to the debate regarding the 'cultural' character of 'mass' society.
59. The choice of these three particular activities should be understood as simple abbreviations within an abstract sketch of the character of culture. Science and art should here be taken in their broadest senses as, respectively, the realm of human expression that attempts to depict the character of the natural world and the realm of expression that attempts to capture the realities and peculiarities of man's conditional being within nature and history. As is explained below, labour is that which gives a value to both art and science (see pp. 40-41 below).
60. See FLNBS, p. 9, p. 42, p. 44.
61. Weil, The Need for Roots, p. 23.
62. Ibid., p. 293.
63. Weil, FLNBS, p. 19. (Again it should be noted that this remark of Weil's is not meant to imply an attack on polytheism.)
64. Again, we must note that this is a theoretical and not an ethnographic picture. Even in those 'economically primitive' societies where man may not possess tools -- if any such exist -- the labour of the individual would be open to the penetration of thought. In fact, Weil attributes the first scientific speculations of the human mind to the observation of shepherds. See the discussion of a form of culture founded upon an agricultural labour below (pp. 47 & ff) and footnote #78.
65. Weil, FLNBS, p. 20.
66. Reader, pp. 53-72.
67. Weil, The Need for Roots, p. 70.

68. Ibid., pp. 70-71.
69. Ibid., p. 68.
70. Ibid.
71. This is the title (and, indeed, even the 'subject') of a painting (and best selling issue of post cards) in the possession of a certain religious institution in California. I am indebted to Mr. Roland McCaffrey for my reproduction.
72. Today, of course, all over the globe, agricultural labour, as it has been known to man since Neo-lithic times, is rapidly disappearing with the mechanization of food production. Where men still work in the fields they are often, as in the Fraser Valley in British Columbia, unfortunate immigrants uprooted from their native cultures and employed as little better than slave labourers. The situation of these people is not that referred to in the pages that follow.
73. Weil, The Need for Roots, p. 87.
74. Even today France is the country in Western Europe that has the largest percentage of small peasant landowners and farmers.
75. Weil, The Need for Roots, p. 88.
76. Ibid., p. 94.
77. Ibid.
78. There is a great deal of ethnological evidence that suggests precisely such a penetration of thought from the cultural context into the labour activities of the individual in many 'economically primitive' societies. For instance, in certain Western folk-societies there is a well documented tendency for the Bible to serve as the basis of etiological legends concerning the features characteristic of the environment. See: Francis L. Utley, "The Bible of the Folk", California Folklore Quarterly, IV (1945).

In Newfoundland the author once collected a series of such legends accounting for the origin of everything from the marks on the back of the haddock (the imprint of the Devil's fingers) to the characteristics of trees (due to their participation in the Crucifixion as the "tree of the Cross") to the pile of rocks in a farmer's field (the ballast from Noah's Ark!).

79. Weil, The Need for Roots, pp. 94-95. See R.S. Peters' account of the 'transformational' aspect of education in "What is an Educational Process?", The Concept of Education, London: Routledge and Kegan Paul, 1967, p. 7 & ff.

80. Weil, Ibid., p. 95.

81. Consider the following from Peter Freuchen, The Book of the Eskimo, New York: World Publishing, 1961, p. 153:

They turned out to be fine anatomists: every man knew exactly which joints to cut through and where they were ... If a man happened to be a little off, it was taken as a sign that he had lied the same day. Then everyone laughed and said that he was a man who had wasted his thoughts by failing to speak the truth, and so he had forgotten that animals were created with joints that serve to divide them.

The analogy here is between a conception of truth and a specific act of physical labour.

82. Weil, NBSW, I, London: Routledge and Kegan Paul, 1956, p. 87. No, and Ti, are, perhaps, characters from an ancient Chinese text. The passage quoted here is cited by Weil with no explanation or source given.

83. Weil, The Need for Roots, p. 253.

84. Ibid., p. 89.

85. Weil, Oppression, p. 168.

86. Weil, FLNBs, p. 266.

87. By way of justification for the use of the word 'monster' in this context, I point to its derivation from the Latin verb, monere, 'to admonish' or 'warn'. The 'monster' was a portent or messenger from the gods.

88. Edmund Carpenter, Eskimo Realities, New York: Holt, Rinehart and Winston, 1973, p. 62.

89. It should be noted that the ancient significance of the word, 'invention' was a bringing to birth, a bringing forth being from within the order of the world.

90. Weil, The Need for Roots, p. 253. This passage was cited previously in Chapter II, p. 90, above.

91. Ibid.

92. NBSW, I, p. 71.
93. Simone Weil, "Classical Science and After", On Science, Necessity and the Love of God, Oxford: Oxford University Press, 1968, pp. 40-41.
94. "Factory Work", Reader, p. 62.
95. Ibid.
96. Weil, Need for Roots, p. 301.
97. Ibid.
98. "Factory Work", Reader, p. 62.
99. Ibid., p. 69.
100. At the Renault Works in Paris, 1934-35. She recorded her experience in detail in a journal now entitled, La Condition Ouvrière, Paris: Gallimard, 1951.
101. "Factory Work", Reader, pp. 58-59.
102. Ibid., p. 69.
103. Weil, The Need for Roots, p. 295.
104. Ibid., pp. 299-300.
105. Ibid., p. 296.
106. Ibid.
107. Weil, FLNBs, p. 266.

## A P P E N D I X I

### A NOTE ON WEIL'S VIEW OF THE ATTITUDE OF THE ANCIENTS TOWARD SLAVERY

In The Need for Roots, New York: Harper and Row, 1952, Weil argues that writers ought to be publicly condemned for avoidable errors. As an example she cites a statement made by the Catholic philosopher, Jacques Maritain, to the effect that: "The greatest thinkers of antiquity had not thought of condemning slavery". She points out that we could, reasonably, expect Monsieur Maritain to be familiar with the only important reference to slavery that has come down to us from the Greeks, namely, a sentence of Aristotle's that reads: "Some people assert that slavery is absolutely contrary to nature and reason". As, she points out, we have no reason to believe that these men were not among the "greatest thinkers of antiquity". Maritain's statement, she concludes, is "an outrageous calumny against an entire civilization".

This very succinctly states her attitude toward the commitment to slavery of the Greek thinkers of antiquity previous to Aristotle. We have no reason to believe that the philosophers of the Socratic or Pythagorean traditions (or tradition) approved of slavery. In fact, what little we possess of their thought suggests the contrary, and in her reconstruction of that tradition the position developed is one that stands in profound condemnation of slavery.

Weil's passionate dislike of the philosophy of Aristotle is explicitly (and particularly) rooted in his attempt to justify the institution of slavery. As she writes, in reference to the Nazis:

Their conception of a just order, which is to be the final outcome of their victories, rests upon the conviction that, for all who are slaves by nature, servitude is the condition that is at the same time the happiest and the most just. Now this is precisely the conviction Aristotle held, and which inspired his great argument in justification of slavery (p. 243).

For Weil, at the very core of the Platonic position there lay a conviction that runs deeply counter to any such attempts to justify the existence of slavery. In a fragmentary text entitled, "Draft for a Statement of Human Obligations", she

expresses this conviction as follows: "All human beings are absolutely identical in so far as they can be thought of as consisting of a centre, which is an unquenchable desire for good, surrounded by an accretion of psychical and bodily matter", Selected Essays, 1934-43, London: Oxford University Press, 1962, p. 220.

The reader is also referred to a passage in one of her London notebooks where she cites a portion of a commentary of St. Thomas Aquinas on Aristotle's Ethics, VIII, 7, to be found in First and Last Notebooks, London: Oxford University Press, 1970, p. 355. There she sets the Aristotelian definition of friendship and justice against the conception contained in the Gospels and in the tradition of Plato and the Pythagoreans.

Her contention that the Aristotelian doctrine of 'natural slavery' constitutes a clear link between the culture of our civilization and much that is atrocious in our past is brilliantly supported in the work of the American intellectual historian, Lewis Hanke. In Aristotle and the American Indians, London: Hollis and Carter, 1959, for example, he traces, in terrible detail, the use of Aristotle for the justification of the enslavement and murder of the aboriginal peoples of Hispanic America. (In North America no intellectual justifications were deemed necessary.)

## B I B L I O G R A P H Y

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