

ALLIANCE (MARXIST-LENINIST)

April 1996: Article in The First Issue Of

International Struggle Marxist-Leninist (ISML) Journal

ENGELS - CENTENARY OF DEATH

EDITOR'S INTRODUCTION

This is the centenary of the death of Engels. In the issue of *Alliance*, in a small measure, we pay tribute to one of the founders of the conscious proletarian workers socialist movements. The article printed here was first presented to the Ischia meeting held in December 1995, on the island off Naples to commemorate Engels. The meeting was held under the auspices of "L'Ugianza" (Equality). (See Alliance 19).

The article printed here, convey only a little of the flavour of this meeting. The entire proceedings are to shortly to form the first 2 issues of the new journal that was formed at this meeting, called *INTERNATIONAL STRUGGLE-MARXIST-LENINIST*. (GO TO ISML SITE See: <http://www.ism-l.org.uk>).

In the meantime, this article shows a little of the wide ranging brilliance of Frederick Engels.

FREDERICK ENGELS - A CO-FOUNDER OF HISTORICAL MATERIALISM; A CO-FOUNDER OF MARXISM

INTRODUCTION - THE PARTNERSHIP WITH KARL MARX

(Note: all references are numbered & are at the end of the piece)

FREDERICK ENGELS, died on August 5th, 1895. Engels speaking of the death of his friend, KARL MARX, had said in March 1883, that the world was shorter by a great head. Upon Engels' own death, the world was shorter by yet another great head. By his wishes, Engels' ashes were dispersed into the sea off Beachy Head, by Marx's daughter ELEANOR MARX AVELING. How are we, nowadays, a century later, to remember Engels?

Like Marx, Engels made many lasting contributions to humankind. Like Marx, Engels was a man of action and a man of great theoretical erudition. For both Marx and Engels, theory was a part of practice. Both flung themselves without care for personal safety, into the practical battle. The history of the FIRST INTERNATIONAL testifies to their PRACTICAL success in welding together an army of the international working class. This success is seen in the fear registered in the international press and by statements from leading bourgeois state diplomats of the time.

But we will here, concentrate on a small part of Engels' work - his contribution to the dialectics of science; and the analysis of the development of private property. Engels and Marx had divided their work through their partnership. As Marx was engaged in the analysis of the economics of capitalism, Engels had to specialize in other areas to keep the Communists at the THEORETICAL and intellectual head of the international workers.

But First we dispose of a persistent accusation posed by some.

MARX AND ENGELS - A TRUE PARTNERSHIP

Engels and Marx formed a true partnership. It is alleged that Engels somehow parroted Marx's views. This bourgeois view of "intellectual property" certainly does not apply to these two geniuses.

Communists recognize the role of both individuals, and of masses. Ideas do not arrive by themselves, but are posed and solved by individuals, who are 'real' men and women, and not abstractions. Whilst Marx and Engels were agents of history, both were also real humans who made their own vital contributions, both separately and together as a team. What evidence do we have, that tells us that BOTH these two put their own vital intellectual input into creating

"Marxism"? What evidence tells us that both Marx and Engels together formed what then became known as Marxism?

Firstly : Engels had provided Marx with a key insight, when both of them, were young men developing a new understanding of history. This was the recognition of the WORKING CLASS as a revolutionary force. Engels saw that the working class was a revolutionary class; one that suffered the class oppression of a ruling class, which owned and controlled the state. Engels' experience in Manchester, where he was a master in the factory system, helped him realize this. Engels points this out in "The Condition of England : II : "The English Constitution", in March 1844:

"Who then actually rules in England? Property rules." (1)

Engels' articles in this period, written before meaningful contact with Marx, reek of the class struggle:

"Although industry makes a country rich, it also creates a class of unpropertied absolutely poor people, a class which lives from hand to mouth.. (which) cannot afterwards be abolished.. a third of all English people belong to this class.. This class has become the most powerful in England and woe betide the wealthy Englishmen when it becomes aware of this fact.. This revolution is inevitable for England, but as in everything that happens there, it will be interests and not principles that will begin and carry through the revolution; principles can develop only from interests, that is to say the revolution will be social not political." (2)

SECONDLY Marx and Engels were partners in key early works.

The works that laid the basis for the new understanding were written by both Marx and by Engels, separately and together. Undoubtedly both Marx and Engels, first separately, the together, had groped towards "Marxism" through the fog of LEFT HEGELIANISM. This group of philosophers developed from GEORG HEGEL, and his theory of history. Hegel thought that the "problem of history" was solved by an IDEA, OR A SPIRIT OF HISTORY AND THE STATE.

This was an incorrect and Idealist solution. But Hegel incorporated into this incorrect solution a method of examination, one that recognized the supremacy of DIALECTICS. In shaking off Hegel's erroneous conclusions, Marx and Engels retained his methods. They ended their groping search in, the writing of "The Communist Manifesto". Along the way they jointly clarified the way forward.

"OUTLINES OF A CRITIQUE OF POLITICAL ECONOMY", ("Umrisse zu einer Kritik der Nationalökonomie" by Engels, was published in 1844 by the journal 'Deutsche-Französische Jahrbucher (German-French Yearbooks) under the editorship of Karl Marx and ARNOLD RUGE. In it, Engels identifies the problems of crises of over production; the rise of monopoly; the

tendency to centralization of capital; and the polarization of society with its attendant class struggle; and the reactionary views of THOMAS MALTHUS . (3) All these strike key Marxist notes. In fact Marx declared it to be a : "Brilliant sketch" (4)

Only then did Marx write "THE ECONOMIC AND PHILOSOPHIC MANUSCRIPT", of 1844. Meanwhile, Engels wrote the "CONDITION OF THE WORKING CLASSES IN ENGLAND"(September 1844-March 1845, published in 1845). This became one of the first "foundation stones of socialism". (5) Nonetheless, in the foreword printed to a re-issue some 20 years later Engels himself recognized only an embryo of what was to come :

"Just as in the earlier stages of its development the human embryo still shows the gill formations of our forefathers the fish, so this book still shows the signs of the origin of modern socialism from one of its forefathers, German classic philosophy". (6)

Much at the same time they were beginning to work together.

The 'HOLY FAMILY, or The Critique of Critical Critique' ("Die Helige Familie, oder Kritik der kritischen Kritik"), was their first joint work. It sprang from the second meeting between Marx and Engels in September-November 1844, and was published in 1845. It dealt with the theories of CRITICAL CRITICISM as espoused by the brothers EDGAR AND BRUNO BAUER. This 'Critical Realism', followed Hegel exactly.

It professed that history was a force of itself; it made history a Hegelian moving spirit. Marx and Engels attacked this, placing the proletariat as the moving force of any progressive battle. But, even now, Marx and Engels were not yet done with the load they had inherited from a 'wrong sided Hegelianism'. They had to turn the load right side up:

"There still remains the dialectic of Hegel.. As Marx says : "Dialectics.. With Hegel is standing on its head. It must be turned right side up again, if you would discover the rational kernel within the mystical shell." (7)

They did so in "THE GERMAN IDEOLOGY" A Critique of Modern German Philosophy According to its representatives Fierbach, B.Bauer and Stirner, and of German Socialism According to its Various Prophets", (written 1845-1846; published posthumously). In putting "Hegel on his head"; Engels said, they had rescued dialectics and the DIALECTIC METHOD itself, from Idealism:

"Marx and I were pretty well the only people to rescue conscious dialectics from German idealist philosophy and apply it in the materialist conception of history. But a knowledge of mathematic and natural science is essential to a conception of nature which is dialectical and at the same time materialist" (8)

This work was written together. What did the "German Ideology" do? First of all as Marx said it served to clarify them in their newly emerged Communism. As Marx put it:

"We abandoned the manuscript to the gnawing criticism of the mice all the more willingly as we had achieved our main purpose - self-clarification". (9)

This self-clarification resulted in laying the major foundations of HISTORICAL MATERIALISM. In the "German Ideology", Marx and Engels proclaimed that history was the Unifying Science:

"We know only one single science, the science of history. One can look at history from two sides and divide it into the history of nature and the history of man". (10)

Later, both these two geniuses, would explore and detail the apparently self-evident truth, that:

"The First premise of all human history is the existence of living human individuals." (11)

The German Ideology interpreted history as formed by THE CLASS STRUGGLE. Furthermore, Marx and Engels insisted that the key to history was not the Spirit of History as Hegel thought, but the DEVELOPMENT OF TECHNOLOGY :

"All collisions in history have their origin according to our view in the contradiction between the productive forces and the form of intercourse" (12)

"This conception of history thus relies on expounding the real processes of production - starting from the material production of life itself - and comprehending the form of intercourse connected with and created by this mode of production, ie. Civil society in its various stages as the basis of all history; describing it in its action as the state and also explaining how all the different theoretical products and forms of consciousness, religion, philosophy, morality etc.; etc.; arise from it, and tracing the process of their formation from that basis; thus the whole thing can of course be depicted in its totality (and therefore too the reciprocal action of these various sides on one another). It has not, like the idealist view of history, to look for a category in every period, but remains constantly on the real ground of history; it does not explain practice from the idea but explains the formation of ideas from material practice, and accordingly it comes to the conclusion that .. Not criticism but revolution is the driving force of history, also of religion of philosophy and all other kinds of history." (13)

Moreover the 'German Ideology' had no illusions about the nature of the State, and insisted that:

"The state is the form in which the individuals of a ruling class assert their common interests and in which the whole civil society of an epoch is optimized.. the bourgeois state is nothing more than the form of organization which the bourgeoisie are compelled to adopt, both for internal and external purposes, for the mutual guarantee of their property and interests." (14)

Engels wrote that Marx had written the bulk of "The German Ideology". Nonetheless it remains a joint work, a unity in which no one can dissect the work of one apart from the other. In this work, the foundations of historical materialism were laid down, by the two together. Marx would later say:

"Frederick Engels had by another route arrived with me at the same result." (15)

- WE WILL NOW TURN OUR ATTENTION TO OUR PRIMARY PURPOSE IN THIS BRIEF REVIEW.

- WE EXAMINE THE VIEW OF ENGELS OF PHILOSOPHY IN SCIENCE. - MARX WAS OVERWHELMED WITH THE WORK OF "DAS KAPITAL". - MANY ANCILLARY QUESTIONS OF SOCIETY WERE LEFT TO ENGELS TO EXPLORE, AND EXPLAIN IN A MEANINGFUL HISTORICAL MANNER :

"As a consequence of the division of Labour that existed between Marx and myself, it fell to me to present our opinion in the periodical press, and therefore particularly in the fight against opposing views, in order that Marx should have time for the elaboration of his great basic work ("Capital"-ed). This made it necessary for me to present our views in the majority of cases in polemical form in opposition for the most part to other views." (16)

ENGELS AND THE DIALECTICAL METHOD

The fundamental debate in philosophy is the primacy of matter or mind. IDEALISM holds that first there is thought. In contrast MATERIALISM holds that first there is matter. Moreover Materialists in general observe the importance of change. The materialists thus tend to be DIALECTICAL in their thought, though this is by no means invariable. Dialectics implies change. The word itself, comes from the Ancient Greek search for truth by debate:

"Dialectics comes from the Greek "Dialego", to discourse, to debate. In ancient times dialectics was the art of arriving at the truth by disclosing the contradictions in the argument of an opponent and overcoming these contradictions. There were philosophers in ancient times who believed that the disclosure of contradictions in thought and the clash of opposite views was the best method of arriving at the truth". (17)

A universal battle between idealists and materialists can be traced in philosophy of ancient times, whether of Greek, Indian or Chinese societies. In each instance, the favoured philosophy of the time reflects the real underlying needs of the ruling class of the society. We will briefly

show the development of Idealistic philosophies from a previously Dialectical view of the world, as the Greeks developed towards a money economy.

Initially, primitive tribal society saw man and nature as inextricably linked. It's views had a certain materialist thrust, though of a crude and primitive type. This primitive materialism was based on a necessary sharp observation of a changing nature, of which humankind was a constituent part. The reality of limited resources, forced a material and dialectical view of life. The early philosophical school of MILETOS (represented by THALES, ANAXIMANDER, AND ANAXIMENES), became the acknowledged founders of European philosophy. They lived with no division between humans and nature:

"Their field of enquiry was the whole realm of nature.. They recognised no distinction between the natural and the supernatural. For this reason they have sometimes been regarded as the first scientists, and undoubtedly their work was a step towards the development of natural science; but it rests on simple observation, not experiment.. The greatness of the Milesians lies precisely in this, that they expressed in a new form, abstract and objective, the fundamental truths which had forced themselves on the consciousness of primitive man, but had previously found expression only in the concrete, subjective form of myths."(18)

But society developed productivity by the acquisition of tools. This led to the point where a class could emerge. This class did no actual labour. During the dissolution of the previous equality, roaring societal changes were seen which affected thought. HERACLITUS, recognised the force of the new slavery. There was an ever present terror of Attic peasants, of being turned from freeman into slave. Heraclitus also saw only a timeless and self regulating universe whose only laws are of eternal change and interpenetration of opposites:

"Fire lives the death of air, and air lives the death of fire, water lives the death of earth, and earth lives the death of water ..In the circumference of a circle the beginning and the end are common." (19)

But life was now more complex. Heraclitus saw life as becoming more abstract, more ALIENATED. This was driven by an increasing separation of theory and practice. These developments were fostered by the forces of COMMODITY PRODUCTION (ie production for MONEY NOT DIRECT BARTER EXCHANGE) on society:

"All things are exchanged for fire and fire for all things as goods are exchanged for gold and gold for goods." (20)

Now a "separation" of humans from nature was theoretically possible to envisage. Human society became placed above; primary to; and separate from nature. This new perspective, placed mind above matter and nature. It favoured idealism. Tribal solidarity was replaced by individual loyalties and battles. Previous PANTHEISM was replaced by concepts of the soul. Such cults as ORPHEUS, offered a better life in a different world. They were:

"The embodiment.. of the traditions and aspirations of the dispossessed peasantry." (21)

Philosophy itself, had become possible by virtue of the existence of a leisured class of individual. Such a class meant the existence of surplus produce. This surplus was produced by slaves in mines, plantations and homes. Their misery was described by DIODOROS, (First century B.C) in silver mines in the Greek colonies:

"The workers in these mines produce incredible profits for the owners, but their own lives are spent underground in the quarries wearing and wasting their bodies by day and night. Many die, their sufferings are so great. There is no relief, no respite from their labours. The hardships to which the overseers lash compels them to submit are so severe that, except for a few, whose strength of body and bravery of soul enables them to hold out for a long time, they abandon life, because death seems preferable." (22)

This slave existence led to ever more complex theologies. These theologies dissolved the previous links between man and nature that had existed. Now a PLATO could arise, and expound and excuse brutality as a consequence of "JUDGEMENT". He lectured his pupil, Simmias, on how the IDEAL SOCIETY functioned in his Platonic Cave:

"Those who were judged to have lived lives of exceptional purity, are liberated and delivered from the subterranean regions as from a prison, and are brought up to dwell on the surface of the earth; while those who have purified themselves sufficiently by their pursuit of wisdom, enjoy eternal life, free altogether from the body, in the fairest land of all which would be hard to describe.. And so Simmias we must do all we can to attain righteousness and wisdom while we live. It is a fine prize, and the hope is great." (23)

Plato was in total opposition to the materialists of Milesia. He followed PARMENIDES, who attacked Heraclitus. Parmenides believed in a static world, and one based on "pure thought". He calls the world of the senses, the "WAY OF SEEMING". He opposed to this, the world of the "WAY OF TRUTH". But the Way of Truth can only found by the MIND, REASON (LOGOS):

"One path only is left to tell of, that it is. There are many signs that what is unborn and imperishable; for it is uniform, motionless and endless. It was not, neither shall be, for it is, all together, now one, continuous." (24)

THE RULING CLASSES FAVOUR A STATIC VIEW. Change was therefore replaced by several, but once and for ever - ACTS OF CREATION. Life now depended on an unchanging immortalised, transformed man as God. ECCELISIASTES would later "up-date" Plato and Parmenides:

"The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun." (25)

BUT MATERIALISTS STRUGGLE AGAINST THIS. Engels cites in opposition to this theology, the words of Mephistopheles in GOETHE's Faust:

"Alles was entsteht, ist wert,
dass es zugrunde geht". (26)

"All that comes into being deserves to perish"

After the victory of the "Gods", the DIALECTICAL and IDEAL world views confronted each other. The two world views had their proponents in the natural sciences.

WE WILL DISCUSS THE LAWS OF DIALECTICS AS EXPOUNDED BY ENGELS, IN THE WORLD OF THE NATURAL SCIENCES.

We will concentrate on how the dialectical method applies to the biological sciences. These, were bound to be especially affected by the prevailing philosophy, as biology writ large, is the study of humans in society.

Biologists who adopted Idealist views were called VITALISTS. This implied something beyond understanding, a Vital Spirit or God, had breathed life into an otherwise inert body. The philosophical struggle was bound to assume a central place in biology and of course all sciences. Engels struggled to counter idealism in all the branches of science. In "DIALECTICS OF NATURE"; and in "ANTI-DUHRING", Engels wrote two compendiums of Marxism. He insisted after his studies that:

"Nature is the proof of dialectics.. and modern science has furnished this proof with very rich materials increasing daily." (27)

Engels, starts with an underlying PRINCIPLE. "Dialectics" itself embodies CHANGE. So Engels does not list "Change" as a key "law" of dialectics. It is more than a law, it is a starting premise, a principle.

ENGELS SAW THREE MAIN LAWS OF DIALECTICS in all branches of history and science. He expressed these laws of motion of the world, in the unfinished and posthumously published "DIALECTICS OF NATURE", as follows:

"It is therefore, from the history of nature and human society that the Laws of dialectics are abstracted. For they are nothing but the most general laws of these two aspects of historical development, as well as of thought itself. And indeed they can be reduced in the main to three: The law of the transformation of quantity into quality; and vice versa;

The law of the interpenetration of opposites;

The law of the negation of the negation." (28)

How do these general laws relate to biology?

IDEALISM IN BIOLOGY takes two main forms -

Firstly a denial of change; and;

Secondly an insistence that since a descriptive reduction of life to a chemical or mathematical level could not be found, "Vitalist" theories were essential. Engels countered these problems, by offering a dialectical view of the world and nature.

1. THE PRINCIPLE OF CHANGE - DIALECTICS.

"When we consider and reflect upon nature.. at first we see the picture of an endless entanglement of relations and reactions (permutations and combinations) in which nothing remains what, where as it was, but everything moves, changes, comes into being and passes away.. we observe the movements, transitions, connections, rather than the things that move, combine and are connected. This primitive and naive, but intrinsically correct conception of the world is that of the Ancient Greek Philosophy, and was clearly formulated by Heraclitus: everything is and is not, for everything is fluid, is constantly changing, constantly coming into being and passing away." (29)

Engels advised "pure" scientists to study dialectics. But he knew that scientists could and did, use other approaches. By these other routes, they would obtain finally, some correct answers. But he maintained that "conscious" dialectics made the attainment of this end knowledge far easier:

"It is possible to arrive at a dialectical (ie dynamic true conception of nature -editor).. recognition because the accumulating facts of natural science compel us to do so; but one arrives at it more easily if one approaches the dialectical character of these facts equipped with an understanding of the laws of dialectical thought." (30)

For Engels the central fact of change is key to understanding the world. Engels praises this idea in Greek science. For Engels, where modern science stands over Greek science, is in details and volume of information. But where the Greeks were still supreme was their "mastery of this material" :

"High as the natural science of the first half of the 18th century stood above Greek antiquity in knowledge and even in the sifting of its material, it stood just as deeply below Greek antiquity in the theoretical mastery of this material in the general outlook on nature. For the Greek philosophers the world was essentially something that had emerged from chaos, something that had developed, that had come into being. For the natural scientists of the (18th century-ed) it was something ossified, something immutable, and for most of them something that had been created at one stroke." (31)

But ideologies that supported change, were resisted in all spheres of thought under both feudalism; and in the self-satisfied bourgeois system. The resulting static view in biology generated theories like that in embryology of PREFORMATIONISM. Here, every foetus before birth, carried within itself its own foetus. This Chinese box "solution" obviously ignores any possibility of change.

But IMMANUEL KANT opened the way to challenge the "immutability of nature". He achieved this, in 1755 with "Allgemeine Naturgeschichte und Theorie des Himmels". But Engels points out, that Kant's reasoning would have been for naught had it not been for the new science of geology that arose. As excavations produced enigmas like fossils, theologians tried to explain them. Geology unseated theology. This new geology:

"Pointed out not only the terrestrial strata that are formed one upon another and deposited one upon another, but also the shells and skeletons of extinct animals and the trunks, leaves, and fruits of no longer existing plants contained in these strata. The decision had to be taken to acknowledge that not only the earth as a whole, but also this present surface and the plants and animals living on it possessed a history in time." (32)

CHARLES DARWIN and ALFRED WALLACE independently rejected a static biology. In adding "TIME", they adopted a dialectical view that all things change. This favoured the bourgeoisie in the first stage of their struggles against feudalism. Both Engels and Marx welcomed Darwin's theories. Though Darwin shrank from the enormous consequences of his own theory, fearing to publish for many years. Moreover he stressed repeatedly, and incorrectly, the SLOWNESS of change, assuaging the fears aroused by his theories.

Darwin was right to fear that the Church would react adversely. But the bourgeoisie needed changes, as impatiently they had chafed under Church and feudal strictures. Having won power they grew nervous of change however. Capital now halted further erosion of the status quo, as further 'change, could unseat them. So a half-hearted endorsement of Darwinian change in biology was achieved. The early 'utility' of a 'dynamic' biology became rapidly inconvenient to the ruling class. So 'static' versions of biological thought, were favoured again. This is seen nowadays also. Current theories of so called SOCIOBIOLOGY attempt to halt change, arguing that social relations reflect an underlying unchanging "human nature".

In fact a key current thought in biology specifically vetoes change. The theory of Pre-formationism, was resurrected as the CENTRAL DOGMA, by geneticists. This states that all life is determined by an unchanging GENE OR CHROMOSOME.

After Darwin, a single particle - the gene, was thought to be FULLY responsible for heredity. GREGOR MENDEL discovered, that under certain restricted and stable circumstances, inheritance of characters such as colour, length etc could be explained by this simple concept. But these particles were then supposed to be inviolate from change. It became a theory that allowed a simplistic 'biological' solution to complex biological but also to social problems. It became the bed rock of a denial of change. ERNST MAYR, a key modern day evolutionist admits this:

"The preformationists attempted to stress something which was later resurrected by the genetic program."(33)

The bourgeoisie won their battle against the aristocracy in history and politics. In this they incorporated the "Central State", an idea from Hegel. But they now enshrined a mythical Unchanging State. Hegel's state was taken and 'frozen' into a motionless monotony. The bourgeoisie performed the same trick in science. Natural Science, used Natural Selection to clear the worst Theological obstructions. But having achieved that, the bourgeoisie called a halt. Now both Natural Science and the Historical Sciences became, to an extent, the legitimating servants of the bourgeoisie.

2. THE LAW OF INTERPENETRATION OF OPPOSITES

"To the metaphysician, things.. and ideas are to be considered one after the other and apart from each other, are objects of investigation fixed, rigid, given once and for all.. Positive and negative absolutely exclude each other; cause and effect stand in a rigid antithesis one to the other." (34)

The special and difficult properties of living systems made the biological sciences the first and the last refuge of Idealists in science. But the constant arrival of new facts demanded explanations. The Idealists adopted interim solutions. These were "less indefensible" views of the world, which stopped short of a dialectical materialist explanation. This school of Mechanical Materialists would argue that categories were mutually exclusive. They would force things into simple boxes, not recognising that there were some things that defied this approach. Some things had properties that demanded two or more boxes to 'contain them'.

In biology, this school argued that the body was no "special" thing, and could be understood by simple mechanical or chemical laws; it asserted that man is no more than a series of chemical reactions. People like RENE DESCARTES, consciously used this philosophy, to evade the veto of theology. They restricted their study of man to the skeleton, muscles etc; but

excluded the brain; thus they rendered : "What was "Caesar's unto Caesar"! Thus human thought and society was completely left to Theology to explain.

The movements of muscles and bones could be explained by 'simple' laws of mechanics. But the actions of the brain were not. This solution is BIOLOGICAL REDUCTIONISM. It was termed "VULGAR MATERIALISM" or "MECHANICAL MATERIALISM" by both Engels and later Lenin. BUCHNER, MOLESCHOTT & VOGT in the 18th century, believed thought was secreted by the brain, just as the kidney secretes urine, or the liver secretes bile. Lenin cited Engels :

"Engels enumerates three fundamental "limitations" (Beswchränktheit) of the French materialists of the 18th century, from which Marx and Engels had emancipated themselves, but from which Buchner and Co. were unable to emancipate themselves. The first was that the views of the old materialists were "mechanical" in the sense that they believed in the "exclusive application of the standards of mechanics to processes of a chemical and organic nature. "The second limitation was the metaphysical character of the views of the old materialists, meaning the "anti- dialectical character of their philosophy".. the third limitation was the preservation of idealism "up above", in the realm of the social sciences.. Engels adds that Buchner and Co. did not emerge from these limits." (35)

It is true that biology is extremely complex, and this was probably a necessary stage of development. This over-simplification was perhaps necessary to enable details to be worked out. Biologists needed to dissect out, one by one, some very complex interactions. Engels points out that only after 'nit-picking' science was undertaken, could limits that had cramped Greek science, be transcended. Greek science, even with its correct - but naive dialectic view of change, had lacked "detail":

"But this conception (ie Dialectics that had permeated Greek science-Ed) correctly as it expresses the general character of the picture of appearances as a whole, does not suffice to explain the details of which this picture is made up, and so long as we do not understand these we have not a clear understanding of the whole picture." (36)

In explaining the limits of Greek science, Engels explains the DIALECTICAL MATERIALIST METHOD. Engels points out that the method entails Firstly; splitting complexity into component parts:

"In order to understand these details we must detach them from their natural historical connection and examine each one separately, its nature, special causes, effects, etc. this is primarily the task of natural science and historical research : branches of science which the Greeks of classical times, on very good grounds, relegated to a subordinate position because they had first of all to collect the material." (37)

But Engels knew the inherent limitations of this "detaching" process. It ran the risk of a reductionism, of destroying the real and living, complexity of a problem. That is why a second

step was needed. The Second step followed the initial 'dissection' and 'splitting'. It was necessary to re-fashion the complexity; to examine how the whole is affected by the part:

"The beginnings of the exact natural sciences were first worked out by the Greeks of the Alexandrian period, and later on in the Middle Ages by the Arabs. Real natural sciences dates from the second half of the 15th Century.. The analysis of nature into its individual parts, the grouping of the different natural processes and objects in definite classes, the study of the internal anatomy of organic bodies in their manifold forms-these were the fundamental conditions of the gigantic strides in our knowledge of nature that have been made during the last 400 years. But this method of work has also left us with as legacy the habit of observing natural objects and processes in isolation, apart from their natural connection with the vast whole; of observing them in repose, not in motion; as constants, not as essentially variables; in their death, not in their life." (38)

The reality of the WHOLENESS of the complexity recognises, more than just an assembly of isolated facts. Engels thought this was the limitation of even great Mechanical materialist thinkers of the Renaissance, like FRANCIS BACON:

"And when this way of looking at things was transferred by Bacon and Locke from natural science to philosophy, it begot the narrow metaphysical mode of thought peculiar to the last century. To the metaphysician, things and their mental reflexes ideas, are isolated, are to be considered one after the other and apart from each other, are subjects of investigation fixed, rigid, given once and for all. He thinks in absolute irreconcilable antitheses.. For him a thing either exists or does not exist; a thing cannot at the same time be itself and something else. Positive and negative absolutely exclude one another; cause and effect stand in a rigid antithesis one to the other. At first this mode of thinking seems to us very luminous, because it is that of so called common sense.. Only sound common sense.. has very wonderful adventures directly he ventures out into the wide world of research. And the metaphysical mode of thought justifiable and necessary as it is in a number of domains whose extent varies according to the nature of the particular object of investigation, sooner or later reaches a limit, beyond which it becomes one-sided, restricted, abstract, lost in insoluble contradictions." (39)

Ignoring the complexity of the interpenetration of the opposites is the error that Mechanical Materialism had fallen into. Mechanical Materialism simply arrayed a factual assembly that lacked life. Simply shoving categories, ideas, notions, or things into ONE box - is bound to cramp science. Mechanical materialists thought life could be explained by analogies to simple levers and pulleys. They missed the point argued by Viscount Henry St.John Bolingbroke:

"The plain man would persist in believing that there was a difference between the town bull and the parish clock!" (40)

Dead things are distinct from the living, and have their own laws. And yet, despite this distinction between a dead "inorganic", and a living "organic" world, some properties of the living and dead are shared. A dialectical biology would recognise an organising principle in the

body, one that transcends simple chemical laws; without invoking a supernatural explanations. This was expressed by a great embryologist, JOSEPH NEEDHAM, who in 1931 cited the work of WILHELM ROUX :

"There is a good deal more to be said about the "irreducibility" of biological categories, or the "autonomy" of biology as it is sometimes called.. Wilhelm Roux.. Although the biological philosophy of the founder of Entwicklungmechanik was thoroughly mechanistic, he nevertheless realised the difficulty of expounding the processes of development immediately in terms of physico-chemical concepts.. The too simple mechanistic conception on the one hand and the metaphysical conception on the other, represent the Scylla and Charybdis, between which to sail is indeed difficult, and so far by few satisfactorily accomplished." (41)

The battle between Idealism (An unchanging and rigid distinction between categories) and Materialism (An ever changing and interpretation of opposites) was evident in DEVELOPMENTAL BIOLOGY. This was because embryonic development is a series of rapid changes. Thus embryologists were resistant to the mechanical and reductionist gene school of Mendelians.

ii) ON CHANCE - A SPECIAL CASE OF INTERPENETRATION OF OPPOSITES

The stark opposites of CHANCE OR NECESSITY have long bothered philosophers. As far as Ernst Mayr and the modern mechanical school of genetic evolutionists were concerned, DARWIN had resolved this dilemma for biology. Mayr observes:

"Apparently Democritus was the first to have posited a problem that has split philosophers ever since, "Does organisation of phenomena particularly in the world of life, result purely from chance or is it necessary, owing to the structure of the elementary components, the atoms?" Chance or necessity has ever since been the theme of controversies among philosophers.. It was Darwin more than 2,000 years later who showed that the two-step process of natural selection avoids Democritus's dilemma." (42)

By the TWO STEP PROCESS, Mayr means that the FIRST STEP is a random and chance aggregation, of new and old GENES. THE SECOND STEP is the "ordering" effect of NATURAL SELECTION.

By this, Mayr means that the initial step in evolution is a chance throwing off of variation. But, says Mayr, following this is an ordering by Natural Selection. The First "Pure Chance" step, was critical for the Mendel and Morgan gene school.

This abuts onto another long standing argument in biology - that of "NATURE" OR "NUTURE". Or put another way, is HEREDITY (OR THE GENE) PRIMARY; OR, IS ENVIRONMENT PRIMARY?

In evolution, if things arise "by chance", they cannot arise by "instruction" from the environment. This theory, was favoured by the gene school of MORGAN. "THE NEW

SYNTHESIS", then couples DARWINISM AND MORGANISM, into what is now, the dominant version of biological evolution. This proposes a very slow moulding of change, that is ultimately, only due to an unpredictable chance.

Some historians and philosophers, argue that Marxists cannot accept theories of "pure chance". Apparently because to believe in "chance", they would have to jettison a supposed "Marxist" belief in DETERMINISM in life and society. This determinism, supposedly teaches that society "automatically" tends to socialism. In fact this "naivete", is a slanderous caricature of Marxist analysis.

What does Engels make of the dichotomy between chance and necessity ? First he acknowledges that there is a potential opposition:

"Another opposition in which metaphysics is entangled is that of chance and necessity. What can be more sharply contradicting than these two thought determinations? How is it possible that both are identical, and that the accidental is necessary and the necessary is also accidental? Common sense and with it the majority of natural scientists, treats necessity and chance as determinations that exclude each other once and for all." (43)

But Engels states that there is a clear and obvious role for both chance and necessity in nature:

"A thing or circumstance a process is either accidental or necessary, but not both. Hence both exist side by side in nature. Nature contains all sorts of objects and processes, of which some are accidental, the others necessary, and it is only a matter of not confusing the two sorts with each other. Then, for instance, one assumes the decisive specific characters to be necessary, other differences between individuals of the same species being termed accidental, and this holds good of crystals as it does for plants and animals." (44)

But then, the labelling chosen, accidental or necessary, is a often a matter of convenience and arbitrary. Engels explains:

"Then again the lower group becomes accidental in relation to the higher, so that it is declared to be a matter of chance how many different species are included in the genus 'Felis' or 'Equus', or how many genera or orders there is a class, and how many individuals of these species exist, or how many different species of animals occur in a given region, or what in general the fauna and flora are like. And then it is declared that the necessary is the sole thing of scientific interest and that the accidental is a matter of indifference to science.. what can be brought under laws, hence what one knows is interesting; what cannot be brought under laws is a matter of indifference and can be ignored.. That is to say what can be brought under laws is regarded as necessary and what cannot be so brought is accidental." (45)

Moreover, to merely call something, that is currently inexplicable, as being due to chance; is a theological practice!:

"Thereby all science comes to an end, for it has to investigate precisely that which we do not know.. this the sort of science as that which proclaims natural what it cannot explain, and ascribes what it cannot explain as to supernatural causes; whether I term the cause of the explicable "Chance" or whether I term it "God", is a matter of complete indifference as far as the thing itself is concerned." (46)

Contrary to those who say Marxism equals Determinism, Engels explicitly attacks crude Determinism of a theological stripe:

"Determinism.. that a particular pea pod contains 5 peas and not 4 or 6, that a particular dog's tail is 5 inches long and not a whit longer or shorter.. - these are all facts which have been produced by an irrevocable concatenation of cause and effect, by an unalterable necessity of such a nature indeed that the gaseous sphere, from which the solar system was derived, was already so constituted that these events had to happen thus and not otherwise. With this kind of necessity we likewise do not get away from the theological conception of nature. Whether with Augustine and Calvin we call it the eternal decree of God, or Kismet, as the Turks do, or whether we call it necessity, is all pretty much the same for science. There is no question of tracing the chain of causation in any of these cases." (47)

So for Engels, the Either-Or stark choice is inappropriate for much of science; but this "advice" is usually ignored by science:

"In contrast to both conceptions, Hegel came forward with the hitherto quite unheard - of propositions that the accidental has a cause because it is accidental, and just as much also has no cause because it is accidental; that the accidental is necessary, that necessity determines itself as chance, and on the other hand this chance is rather absolute necessity. Natural science has simply ignored these propositions as paradoxical trifling, as self contradictory nonsense." (48)

The best modern scientists understand this. SEWALL WRIGHT, a founder of the field of mathematical genetics, notes a dialectic and qualitative difference between the bare posited alternatives:

"The Darwinian process of continued interplay of a random and a selective process is not intermediate between pure chance and pure determinism, but in its consequences qualitatively utterly different from either." (49)

The posited alternatives of "pure determinism" and "chance" are inadequate to explain the multifaceted complexity of nature. "Pure Chance" is quite inappropriate for biology. This is shown by modern data, in the very specialty of evolution, that it is most touted. Most biologists accept that the first steps to life (regardless of the stimuli) somehow involved the aggregation of large protein molecules. How did these come together from simple amino acids? The molecules of the amino acids, force a constraint that channels "pure chance":

"The fact that mixtures of amino acids can order themselves during polymerization has crucial significance to our understanding of the origin of life.. The essential initial phenomena are those of self-ordering of appropriate molecules (Fox 1968) followed by self-organization (Fox 1960, 1969). This awareness arose from the earliest experiments on heating aspartic acid in mixtures of Amino acids. The evidence that Amino Acids order themselves during polymerization of many kinds, and from many labs. It has had to contend with the presumption of randomness, the playing card paradigm." (50)

Fox shows that simple arithmetic, in theory, would predict that a truly random ordering of events, MUST result in 6 possibilities (See Figure-In hard copy version). But, in reality, using real molecules, experiments show that this total is not reached. Why? Presumably because there are molecular constraints:

"The widely held view is.. that three playing cards, A,B, and C, for example can be arranged left-to-right into a total of 6 sequences. Each arrangement has an equal probability. When the three cards are laid out numerous times, approximately 1/6 of those times they will be A-B-C, 1/6 A-C-B 1/6 etc. The total shown.. constitutes a random array.. The fallacy in the basic assumption is that unlike (2-D) playing cards, different 3-D) molecules have different shapes. Molecules favour certain arrangements over others. Playing cards have no such bias. An experiment close to the 3 playing card comparison has been performed.. with glutamic acid, glycine, and tyrosine. The results are somewhat more complex than with cards. Yet greater complexity is due to the fact that one of the Amino Acid glutamic acid can itself wrap in three ways. As a result, 36 peptides can form with the 3 types of Amino Acid. When we did the experiment.. we found only 2 peptides. Hartmann et al repeated the experiment and also found only two triple peptides." (51)

Real life molecules similar to those that may have been responsible for the first life behave in startling manners that are not predicted by the biologists of Pure Chance. Proteinoid particles arise under the stimulus of heat. Then they "age"; showing "socialization" or "aggregation". Fox concludes about randomness:

"Our sapience about evolution has been influenced by understanding the stages or levels of origin. A principal contribution to such theory.. is the unexpected demonstration that the matrix of organismal evolution and its continuation was non-random. The assumption of random matrix and random evolutionary events has been widespread (Muller 1929, Waddington 1967, Eigen 1971, Monod 1971, Miller and Orgel, 1974, Crick, Brenner, Klug & Piecznik 1976; Nicholis and Prigogine 1977; Hutchinson 1981)." (52)

Fox cites above many famous scientists. But actually, many other scientists have had their own "nagging doubts" about "Pure Chance". Even Morgan, a key individual in the "New Synthesis", once thought that "pure chance" was stretching things a bit far!:

"The assumption of randomness has, not however been universal.. After he had consolidated his theory of the gene, Morgan pointed out that mutations are not random (Morgan, 1932. pp.59, 112, 134, 219) and are determined from within the gene instead of exogenously. Mathematical support of nonrandomness had been provided by Wigner (1961) and Eden (1967)." (53)

Figure 1: CHANCE PLAYS CARDS. From Fox; Ibid; p. 88.

(Only in hard copy)

3. THE LAW OF TRANSFORMATION OF QUANTITY INTO QUALITATIVE CHANGE

"In nature in a manner exactly fixed for each individual case, qualitative changes can only occur by its quantitative addition or quantitative subtraction of matter and motion (so called energy). All qualitative differences in nature rest on differences of chemical composition or on different quantities or forms of motion (energy) or as is almost always the case, on both. Hence it is impossible to alter the quality of body without addition or subtraction of matter or motion ie without quantitative alteration of the body concerned." (54)

This arises in a sense of out of the first law. If after all categories are not wholly demarcated from each other, if indeed "opposites interpenetrate", then how do they change into each other? Engels is clear that certain transitions, into their opposites are not YET explicable. This is particularly difficult to work out for biological systems:

"We are concerned in the first place with non-living bodies; the very same law holds for living bodies but it operates under very complex conditions and at present quantitative measurement is still often impossible for us." (55)

But this law could be clearly seen in Engels' day, in physics and chemistry:

"In physics bodies are treated as chemically unalterable or indifferent; we have to do with changes of their molecular states and with the change of form of motion, which in all cases at least on one of the two sides, brings the molecule into action. Here very change is a transformation of quantity into quality, a consequence of the amount of motion of one form or another that is inherent in the body or communicated to it.

"Thus the temperature of water is in the first place, a point of no consequence in respect of its liquidity; still with the increase or diminution of the temperature of liquid water there comes a point where this state of cohesion alters and the water is converted to steam or ice." Hegel, Encyclopadie; Gesamtausgabe, bd; VI, S.217." (56)

Engels noted, that Hegel saw this was a critical law for nature, citing Hegel's application of this law to chemistry. Here the addition of even a single atom makes all the change necessary to transform compounds. Thus Engels discusses in Detail the transformation series of the carbon compounds.

Not only is the mere fact of changes of compounds into another than explained, but Engels makes one other point. The knowledge of the series and the links of component parts of these series, allows the prediction of as yet unknown properties of this series. Thing such as the boiling points etc. Needham felt that it would be possible in biology, to find comparable laws to those of chemical and physical processes, if complexity was respected:

"So long as the complex components are found to be constant in their action, and always under the same conditions, to produce the same effect, causal biology would be on the right line of analysis. These biological generalisations would be thus as valid as those of physics and chemistry, though possessing a more complex content." (57)

Modern day biology has examples that show this Law.

4. THE LAW OF THE NEGATION OF THE NEGATION

"And so, What is the negation of the negation? An extremely general- and for this reason extremely far-reaching and important-law of development of nature history and thought; a law which .. holds good in the animal and plant kingdoms, in geology in mathematics in history and in philosophy." (58)

This law follows from the Second Law discussed above. Is all change then cyclical, does one category lead to another and then back again? This 'simplicity' and obvious un-truth is avoided by recognising this law. When one state of a category passes into another, it does so by encompassing the previous state and rendering it changed at a higher level. This is a development that carries the potential for itself also to be changed. But in this further change and development, it is "SUBLATED". It :

"is "both overcome and preserved" (D.K.G.503); overcome as regards its form, and preserved as regards its real content." (59)

This means that there is a link to the old, a logical connection that carries with that connection, the possibility of a reversion to a form of the older state. But because nothing is ever the same exactly, this reversion is actually a going forward, it is "reversion" - but to a changed and different "old state"; where the old is itself transformed:

"What is then this fearful negation of the negation?..

A very simple process which is taking place everywhere and every day.. Let us take a grain of barley. Billions of such grains of barley are milled, boiled, and brewed and then consumed. But if such a grain of barley meets with conditions which are normal for it, if it falls on suitable soil, then under the influence of heat and moisture it undergoes a specific change, it germinates; the grain as such ceases to exist, it is negated, and in its place appears the plant which has arisen from the negation of the grain. But what is the normal life-process of this plant? It grows, flowers, is fertilised and finally once more produces grains of barley, and as soon as these have ripened the stalk dies, in its turn negated. As a result of the negation of the negation we have once again the original grain of barley, but not as a single unit, but here ten -, twenty - or thirty fold.. furthermore the whole of geology is a series of negated negations, a series of successive shattering of old and deposits of new rock formations." (60)

To clarify that the negation of the negation is not simply a subtraction, not a simple deletion, but is a different process, Engels states:

"But someone may object: the negation that has taken place in this case is not a real negation: I negate the grain of barley also when I grind it, an insect when I crush it underfoot, or the positive quality when I cancel it, and so on.. These objections are in fact the chief arguments put forward by the metaphysicians against dialectics.. Negation in dialectics does not mean simply saying no, or declaring that something does not exist, or destroying it in any way one likes." (61)

DELETION OR SUBTRACTION IS DIFFERENT FROM SUBLATION:

"I must not only negate but also sublimate the negation. I must therefore so arrange the first negation that the second remains or becomes possible. How this depends on the particular nature of each individual case. If I grind a grain of barley or crush an insect I have carried out the first part of the action, but have made the second part impossible. Every kind of thing therefore has a peculiar way of being negated in such manner that it gives rise to development, and it is just the same with every kind of conception or idea." (62)

CLEARLY THEN THERE ARE NO SIMPLE EXPLANATIONS that can be offered in the abstract, without any study, by simply parroting a mantra-like phrase, "Negation of the negation":

"It is obvious that I do not say anything concerning the particulate process of development of, for example a grain of barley from germination to the death of the fruit-bearing plant, if I say it is a negation of the negation." (63)

Many then and now, accuse Marxists of parroting such "Dialectics" as a "Universal Solution", applicable from a tin-can! But these are not Marxists! They are a parody of Marxists:

"That theory is precisely what the metaphysicians are constantly imputing to dialectics. When I say that all these processes are a negation of the negation, I bring them all together under this law of motion, and for this very reason I leave out of account the specific peculiarities of each individual process." (64)

Non-Communist embryologists recognise the power of dialectical thought. As C.H.Waddington put it:

"The developmental side of biology - embryology, genetics and evolution - seems to be reaching a point where radically new types of thinking are called for. In such circumstances it would be very unwise to despise the newer philosophies such as dialectical materialism, which are framed particularly in relation to progressive changes, even if they have sometimes led people astray." (65)

INTERIM CONCLUSION

Engels shows the relevance of dialectical materialism to all branches of science. The complexity of life defeats simple minded solutions. But thus far Engels has largely been shown to understand the laws of dialectics at an overall theoretical level. The application of these laws to the development of Humans and towards the development of society, is where Engels further demonstrates his genius.

We now briefly examine Engels' view of the development of early society.

To do that justice, it must be shown how Engels' view of this contrasts with that of Darwin. Arguably Darwin was the greatest natural scientist of his time and beyond - yet Engels transcended even this specialist in his own field.

DARWIN AND ENGELS

A comparison of these two giants of human history is very revealing. In fact had Engels so chosen, what an amazing natural scientist he would have been. His vision and breadth transcended even Darwin. That this is true can be shown briefly. Overall the difference between the two, is the difference between a conscious dialectician and an unconscious dialectician. Engels had pointed out that most scientists could perform good work despite an idealist philosophy, but that conscious dialecticians would avoid mistakes.

i) On Extrapolations from the Natural World to Society

Both Marx and Engels had exposed the REVEREND MALTHUS as a proponent of the bourgeois order, and his theories as incorrect. But when CHARLES DARWIN took his public stand, he claimed it was on the basis of Malthusian theory. Nonetheless, Marx and Engels did not then reject the dialectic core of Darwinism. Instead they put it into context. They paid tribute to

Darwin's recognition of change. But they also pointed out the trick that was being played. This argued from events in human society to nature; and then, wished to lift back from nature to human society. Thereby "proving" biological inevitability!:

"Until Darwin, what was stressed.. was precisely the harmonious cooperative working of organic nature.. Hardly was Darwin recognised before these same people saw nothing but struggle. Both views are justified within narrow limits, but both are equally one-sided and prejudiced.. The whole Darwinian theory of the struggle for existence is simply the transference from society to organic nature of Hobbes' theory of "bellum contra omnes" and of the bourgeois economic theory of competition, as well as the Malthusian theory of population. When once this feat has been accomplished (the unquestionable justification for which, especially as regards the Malthusian theory, is still very questionable), it is very easy to transfer these theories back again from natural history to the history of society, and altogether too naive to maintain that thereby these assertions have been proved as eternal laws of nature." (66)

This is very pertinent today. Eldredge and Grene, in 1992, exactly echoed Engels' view of 1886, referring to the popular school of thought, known as SOCIOBIOLOGY:

"Sociobiologists take a concept from a human context, apply it say, insect behaviour, and then reapply the denatured concept, with a new meaning, to the behaviour of very different animals - mammals, primates, human beings." (67)

Engels sees a more complex reality of nature, than Darwin. To depict it accurately, "prejudiced and one sided" views, must be avoided. These are either an "All Harmonious Nature"; or an "All Struggling Nature":

"Both views are justified within a narrow limit but both are equally one sided and prejudiced. The interactions of bodies in non-living nature includes both harmony and collisions, that of living bodies conscious and unconscious co-operation as well as conscious and unconscious struggle. Hence even in regard to nature, it is not permissible one sidedly to inscribe only "struggle" on one's banners. But it is absolutely childish to sum up the whole manifold wealth of historical evolution and complexity in the meagre and one sided phrase:

'Struggle for existence' - That says less than nothing." (68)

This difference then is an example of the Law of the Interpretation of Opposites. The differences between Marx and Engels on the one hand; and Darwin on the other, were bound to stem from an "unwilling" dialectical approach on the part of Darwin. This can be seen in their different views on the early passage from ape to man.

ii) Engels and Darwin's view of ape to man development.

The principle difference between these two geniuses here reflects the Law of Transformation of Quantity Into Quality. Here it is obvious that Darwin played the leading role in showing the evolutionary transformation from ape to man. He identified this in his later works, after he had collected an enormous wealth of data. It was during this period that the fossils of Neanderthals were being unearthed. Both Engels and Darwin followed this process with intense interest. It was of course Darwin, who first identified the critical step for ape to man transition was adopting the upright posture. Darwin put as follows:

"Man could not have attained his present dominant position in the world without the use of his hands which are so admirably adapted to act in obedience to his will.. But the hands and arms could hardly have become perfect enough to have manufactured of weapons or to have hurled stones and spears with a true aim, as long as they were habitually used for locomotion and for supporting the whole weight of the body, or as long as they were especially well adapted as previously remarked for climbing trees.. From these causes alone it would have been an advantage to man to have become a biped." (69)

Darwin was followed by Engels who paraphrased him :

"Darwin has given us an approximate description of these ancestors of ours.. Owing to their way of living which means that the hands had different functions than the feet when climbing, these apes began to lose the habit of using the hand to walk and adopted a more and more erect posture. THIS WAS THE DECISIVE STEP IN THE TRANSITION FROM APE TO MAN". (Emphasis in original). (70)

Of course Darwin recognised the importance of this for tools by which man developed language and the brain developed. Again Engels followed him here. But Darwin is always pointing out the CONTINUITY between animals - apes and man. Engels points out the DISCONTINUOUS. Thus take LANGUAGE. Darwin always tries to point out, to EMPHASISE that animals have inner language:

"Language - this faculty has justly been considered as one of the chief distinctions between man and lower animals, But man as a highly competent judge, Archbishop Whately remarks: 'is not the only animal that can make use of language to express what is passing in his mind". (71)

Yet modern day experiments with chimps demonstrate that there is a barrier, that even these highly intelligent species have not breached. This is an illustration of The Law of passing from Quantity into Quality. This was appreciated by Engels:

"Thus the hand is not only the organ of labour . IT IS ALSO THE PRODUCT OF LABOUR.. Much more important is the direct demonstrable influence of the development of the hand on the rest of the organism.. The development of labour necessarily helped to bring the members of society closer together by increasing cases of mutual support and joint activity, and by making clear the advantage of this joint activity to each individual ... In short men in the making arrived at the point where THEY HAD SOMETHING TO SAY TO EACH OTHER. Necessity invented the

organ; the undeveloped larynx of the ape was slowly but surely transformed by modulations to produce constantly more developed modulation."(72) (Emphasis orig)

The key issue identified by Engels that was ignored by Darwin was the ROLE OF LABOUR ITSELF. The role of social beings, in the production of the subsistence of life. This allowed the relationship of humans to their environment to be put rather more correctly than is done by Darwin. Marx had also indicated that there was a primary role of labour:

"Labour is in the first place a process in which both man and Nature participate, and in which man of his own accord starts, regulates and controls the material reactions between himself and Nature.. He opposed himself to Nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body in order to appropriate Nature's production in a form adapted to his own wants. By thus acting on the external world and changing it, he at the same time changes his own nature. He develops his slumbering powers and compels them to act in obedience to his sway." (73)

BOTH MARX AND ENGELS UNDERSTOOD THE HISTORICAL IMPORTANCE OF THIS.

It was by controlling nature, that society developed. As soon as humans emerged from a state of total dependence on nature, into even a minimal control over nature, the old relationship between man and nature was shattered. There was victory, but there was also ecological change:

"Let us not however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory it is true in the first place brings about the result we expected, but in the second and third places has quite different unforeseen effects which only too often cancel the first. The people who in Mesopotamia Greece, Asia Minor and elsewhere destroyed the forests to obtain cultivable lands by removing along with forest the collecting centers and reservoirs of moisture they were laying the basis for the present forlorn state of these countries. When the Italians of the Alps used up the pine forests on the Southern slopes, so carefully cherished on the Northern slopes they had no inkling that by doing so they were cutting at the very roots of the dairy industry in their region; they had still less inkling that they were depriving their mountain springs of water for the greater part of the year, and making it possible for them to pour still more furious torrents on the plains during the rainy seasons. Those who spread the potato in Europe were not aware that with these farinaceous tubers that they were at the same time spreading scrofula. Thus at every step we are reminded that we be by no means rule over nature, like a conqueror over a foreign people, like someone standing outside nature- but that we, with flesh, blood and brain, belong to nature, and exist in its midst, and that we have the advantage over all other creatures of being able to learn its laws and apply them correctly." (74)

"Deep ecologists", do not understand scientific discovery, and reject any systematic study. They discredit any "development" at all, as being intrinsically evil. These 'ecologists' obscure the contradiction that had to historically exist, between ANY human activity (eg. clearing land) and the state of an 'unspoiled Nature'. But both Marx and Engels showed, only by truly understanding history can we return to communism. History shows that progress in society depends ultimately on technological progress and change. Communists will take this message and apply it, so that society belongs to those who will use technology for humankind, not for individual personal profit.

CONCLUSION

Franz Mehring says that:

"Engels was much too modest about his own contributions."(75)

We can agree that this man, who in the words of a contemporary in the First International : "Stuttered in twenty languages", ultimately spoke one language-

the language of international FRATERNITY and SOLIDARITY.

HE WAS A GREAT MAN.

But what are these great historical figures anyway?

Let us give the final words to FREDERICK ENGELS himself - a co-founder of Historical Materialism - OF MARXISM:

"Men make their history themselves, but not as yet with a collective will or according to a collective plan or even in definitely defined, given society. Their efforts clash, and for that very reason all such societies are governed by NECESSITY, which is supplemented by and appears under the forms of ACCIDENT. The necessity which here asserts itself amidst all accident is again ultimately economic necessity. That is where the so called great men come in for treatment. That such and such a man and precisely that man arises at that particular time in that given country is of course pure accident. But cut him out and there will be demand for a substitute, and this substitute will be found, good or bad, but in the long run will be found. That Napoleon, just that particular Corsican, should have been the military dictator whom the French republic, exhausted by its own war, had rendered necessary, was an accident; but that, if a Napoleon had been lacking, another would have filled the place, is proved by the fact that the man has always been found as soon as he becomes necessary: Caesar, Augustus, Cromwell, etc. While Marx discovered the materialist conception of history, Thierry, Mignet, Guizot, and all the English historians up to 1850 are the proof that it was being striven for, and the

discovery of the same conception by Morgan proves that the time was ripe for it and that indeed it HAD to be discovered." (76)

FOR ALLIANCE (NORTH AMERICA)

REFERENCES

1. Marx & Engels Collected Works [Henceforth M&E CW]: 'The Condition of England: II: The English Constitution'; (March 1844); Vol 3; London; 1975; p. 497.
2. First Published "Rheinische Zeitung"; December 1842. M&E CW
Vol 2; New York; 1976: "The Internal Crises" p. 373-374.
3. Noted by W.B.Bland : "Engels and The Condition of The Working Class in England; UK; 1995.
4. Cited : Franz Mehring "Karl Marx"; Ann Arbor; 1973; p.94.
5. Mehring F; Ibid; p. 105.
6. Engels; Cited Mehring; Ibid; p. 104.
7. " " " "
8. Engels Preface to 2nd edition: "Anti-Duhring"; M&E CW VOL 25; ibid; p.11 .
9. Marx 1859; Preface to 'A Contribution to the critique of Political economy'; cited Vol 5; M&E CW: Preface; p.xv
10. Marx and Engels "German Ideology"; Vol 5; M&E CW; p. 28-29.
11. "German Ideology" Vol 5; M&E CW p.31.
12. "German Ideology" Vol 5; M&E CW; p.74.
13. German Ideology" Ibid; Vol 5; p. 53-54
14. "German Ideology"; M&E CW; Ibid; Vol 5; p. 90
15. Marx K Preface to:"A Contribution to The Critique of Political Economy"; January 1859; Selected Works"; Vol 1; London; 1934; p. 357.

16. Engels: Preface to 2nd Edition "The Housing Question"; CW M&E Vol 26; 1990; Moscow; p.427

17. CC CPSU(B):"History of the CPSU(B)- A Short Course";Moscow; 1939; p.106.

18. George Thomson:"The First Philosophers-Studies in Ancient Greek Society," Southampton; 1955; p.156; 160.

19. Thomson; Ibid; p.278.

20. Thomson, Ibid; p. 282.

21. Thomson, Ibid; p.235.

22. Diodoros,Cited by Thomson, Ibid , p.243.

23. Plato, Cited By Thomson ,Ibid , p.243.

24. Cited by Thompson, Ibid, p.293.

25. Ecclesiastes 9.

26. Goethe Faust; Part I scene 3 Cited by Engels; in Introduction "Dialectics of Nature"; M&E CW Vol 25; Moscow; 1987; p.331

27. Engels,"Additions to Anti-Duhring"; M&E CW Vol 25; Ibid; p.633.

28. " "

29. Engels; M&E CW Vol 25; "Anti-Duhring" [Hereafter AD]; Moscow 1987; p.21.

30. Engels; Preface to 2nd Edition "AD" 1885; Ibid; p.14.

31. F.Engels: "Introduction To Dialectics of Nature"; M&E CW Vol 25; Moscow 1987; [Hereafter DON]; Ibid; p.322.

32. Engels; Ibid; "Introduction DON"; p.324.

33. Ernst Mayr: "The Growth of Biological Thought . Diversity, Evolution and Inheritance," 1982; Cambridge Mass; p.12.

34. Engels; "AD"; Ibid; Vol 25; p. 22.

35. Lenin, "Materialism and Empirio-Criticism", Moscow 1967, p.227.

36. Engels "Introduction AD"; Vol 25; Ibid, p.21.
37. Engels "Introduction AD"; Vol 25; Ibid, p.22.
38. Engels "Introduction AD"; Vol 25; Ibid, Ibid, p.22.
39. Engels "Introduction AD"; Vol 25; Ibid, p.22.
40. Cited Keith Thomas. "Man and the Natural World" Suffolk, 1984; p. 35.
41. Needham Joseph "Order And Life", London, 1968; p.19-20.
42. Mayr, Ibid, p.86.
43. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 498.
44. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 498.
45. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 498-9.
46. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 499.
47. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 499.
48. Engels; "DON"; M&E CW; Vol 25; Ibid; p. 500.
49. Cited by Mayr, Ibid. p. 57
50. S.W.Fox, "The beginnings of life and behaviour";
In "Behavioral evolution and integrative levels."
Ed G.Greenberg and E.Tobach. New Jersey, 1984. p.83.
51. S.W.Fox, The Beginnings of Life and Behaviour.
"Behavioral evolution and integrative levels."
Ed G.Greenberg and E.Tobach. New Jersey, 1984. p.83.
52. Fox, Ibid, p. 100.
53. Fox, Ibid, p.100

54. Engels; "DON"; M&E CW; Vol 25; Ibid; p 357
55. Engels; Engels; "DON"; M&E CW; Vol 25; Ibid; p.357-358.
56. Engels; "DON"; M&E CW; Vol 25; Ibid; p.358-359.
57. Needham J; "Order and Life"; Ibid; p.21 . .
58. Engels; "AD"; Ibid; Vol 25; M&E CW; p.131.
59. Engels; "AD"; Ibid; Vol 25; M&E CW; p. 129.
60. Engels; "AD"; Ibid; Vol 25; M&E CW; p. 125-126.
61. Engels; "AD"; Ibid; Vol 25; M&E CW; p. 131
62. Engels; "AD"; Ibid; Vol 25; M&E CW; p.131-132
63. Engels; "AD"; Ibid; Vol 25; M&E CW; p. 131
64. Engels; "AD"; Ibid; Vol 25; M&E CW p. 131.
65. Waddington Cited by Sapp J; "Beyond the Gene Cytoplasmic Inheritance and the Struggle For Authority in Genetics;" New York; 1987; p. 167.
66. Engels; "DON"; Vol 25; Ibid; p. 583-584.
67. N.Eldredge & M.Grene, "Interactions-The Biological Context of Social Systems" New York,1992. p.14.
68. "Dialectics of Nature", Engels Ibid. p.307,
69. Charles Darwin:" The Descent of man. Part 1. Chapter 2. Mental Powers"; London 1871; Reprint Impression Anastaltique; Bruxelles; 1969; p. 141.
70. Engels "Part Played By Labour In Transition From Ape to Man"; In "DON" ; Ibid; Vol 25; p. 452.
71. Darwin, "Descent of Man"; Ibid; p. 53.
72. Engels, "Part Played By Labour etc"; Ibid; Vol 25; p. 453- 455.
73. Karl Marx Capital Vol 1, 1974; p.173-4.

74. Engels, Frederick: "Part Played By Labour In Transition from Ape to Man", In Engels Dialectics of Nature", Moscow, 2nd Ed, 1972. p.181.

75. Mehring; "Karl Marx"; Ibid; p. 95.

76. Engels: "Letter to Starckenberg"; In Reader In Marxist Philosophy" Eds. Selsam and Martel; International Publishers New York; 1963; p.203.