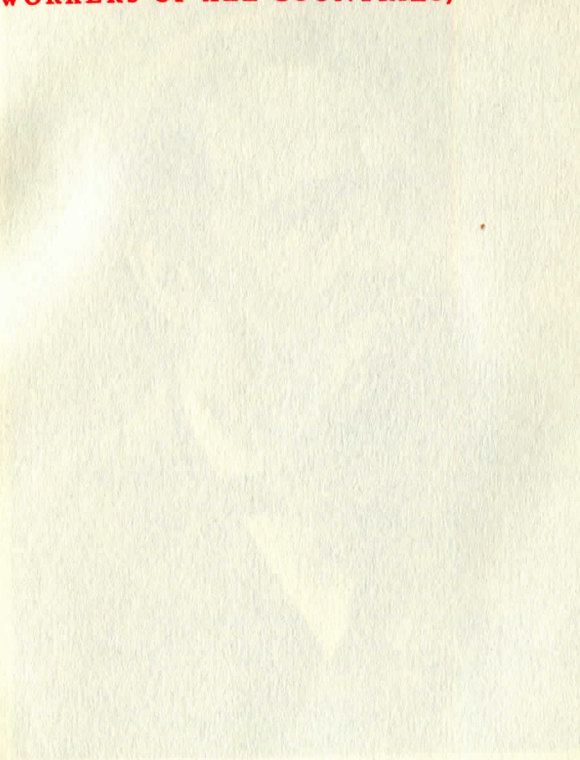


FREDERICK ENGELS

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FROM APE TO MAN**

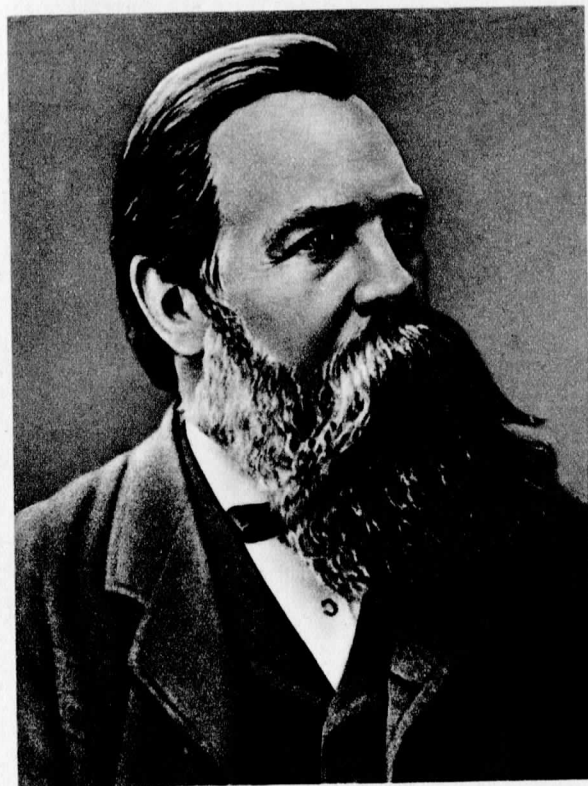
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F. Engels

FREDERICK ENGELS

**THE PART
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IN THE TRANSITION
FROM APE TO MAN**

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THE PART PLAYED BY LABOUR IN THE TRANSITION FROM APE TO MAN¹

Labour is the source of all wealth, the political economists say. It is this — next to nature which supplies it with the material that it converts into wealth. But it is actually infinitely more than this. It is the prime basic condition for all human existence, and this to such an extent that, in a sense, we have to say that labour created man himself.

Many hundreds of thousands of years ago, during an epoch not yet definitely determinable of that period of the earth's history which geologists call the Tertiary, and most likely towards the end of it, a particularly highly-developed species of anthropoid apes lived somewhere in the tropical zone — probably on a great continent that has now sunk to the bottom of the Indian Ocean. Darwin has given us an approximate description of these ancestors of ours. They were completely covered with hair, had beards and pointed ears, and lived in troops in the trees.²

Presumably as an immediate consequence of their mode of life, which in climbing assigns different functions to the

hands than to the feet, these apes began to lose the habit of using their hands when walking on level ground and to adopt a more and more erect gait. This was *the decisive step in the transition from ape to man*.

All extant anthropoid apes can stand erect and move about on their two feet alone, but only if need be and in a most clumsy way. Their natural gait is in a half-erect posture and includes the use of the hands. The majority rest the knuckles of the fist on the ground and, with legs drawn up, swing the body through their long arms, much as a lame man walks with crutches. In general, even today we can still observe all the transitional stages from walking on all fours to walking on two legs among the apes. But for none of them has the latter become more than a makeshift.

For erect gait to have become first the rule and eventually a necessity among our hairy ancestors presupposes that in the meantime various other functions increasingly devolved upon the hands. Even among the apes a certain division in the use of the hands and feet prevails. As already mentioned, the hands are used differently from the feet in climbing. The former serve primarily for picking and holding on to food, as already occurs in the use of the forepaws among lower mammals. Many apes use their hands to build themselves nests in the trees or even, like the chimpanzee, roofs between the branches for protection against the weather. With their hands they seize hold of clubs to defend themselves against enemies or bombard the latter with fruit and stones. In captivity, a number of simple operations copied from human beings are carried out by hand. But it is right here that one sees how great is the difference between the undeveloped hand of even the most anthropoid ape and the human hand that has been highly perfected by the labour of hundreds of thousands of

years. The number and general arrangement of the bones and muscles are the same in both cases; but the hand of the lowest savage can perform hundreds of operations that no apes can imitate. No simian hand ever fashioned even the crudest of stone knives.

At first, therefore, the operations for which our ancestors gradually learned to adapt their hands during the many thousands of years of transition from ape to man can only have been very simple ones. The lowest savages, even those in whom presumably a regression to a more animal-like condition with a simultaneous physical degeneration occurred, are nevertheless far superior to these transitional beings. Before the first flint was fashioned into a knife by the human hand, a period of time must have elapsed in comparison with which the historical period known to us appears insignificant. But the decisive step was taken: *the hand had become free* and could henceforth attain ever newer skills, and the greater flexibility thus acquired was transmitted and increased from generation to generation.

Thus the hand is not only the organ of labour, *it is also the product of labour*. Only through labour, through constant adaptation to new operations, through inheritance of the special development thus acquired of muscles, ligaments and, over longer periods of time, bones as well, and by the ever-renewed use of this inherited refinement in new, increasingly complicated operations, has the human hand attained that high degree of perfection that has enabled it to conjure into being the paintings of a Raphael, the statues of a Thorwaldsen, the music of a Paganini.

But the hand did not exist by itself. It was only one member of an entire, highly complex organism. And what

benefited the hand, also benefited the whole body it served, and this in two ways.

In the first place, in consequence of the law of correlation of growth, as Darwin called it. According to this law, particular forms of separate parts of an organic being are always bound up with certain forms of other parts that seemingly have no connection with the first. Thus all animals which have red blood cells without cell nuclei, and in which the back of the head is connected with the first vertebra by means of two joints (condyles), without exception also possess lacteal glands for suckling their young. Similarly, cloven hoofs in mammals are regularly associated with the possession of a multi-chambered stomach for rumination. Changes in certain forms bring about changes in the form of other parts of the body, although we cannot explain this connection. Perfectly white cats with blue eyes are always, or almost always, deaf. The gradually increasing perfection of the human hand and the commensurate adaptation of the feet for erect gait have undoubtedly reacted on other parts of the organism by virtue of such correlation. But as yet this influence has been far too little investigated, so that we cannot do more here than just state the fact in general terms.

Much more important is the direct, demonstrable reaction of the development of the hand on the rest of the organism. As already said, our simian ancestors were gregarious; it is obviously impossible to infer that man, the most gregarious of all animals, is descended from non-gregarious immediate ancestors. The mastery over nature, which began with the improvement of the hand, with labour, widened man's horizon at every new advance. He continually discovered new, hitherto unknown, properties of natural objects. On the other hand, the progress of labour necessarily helped to bring the

members of society closer together by multiplying cases of mutual support and joint activity, and by giving each individual a clearer consciousness of the advantage of this joint activity. In short, men in the making arrived at the point where they *had something to say to one another*. The need created its organ: the undeveloped larynx of the ape was slowly but surely transformed, by modulation in order to produce constantly increased modulation, and the organs of the mouth gradually learned to pronounce one articulate letter after another.

Comparison with the animals proves that this explanation of the origin of language from and with labour is the only correct one. The little that even the most highly-developed of animals need to communicate to each other can be communicated without articulate speech. In a state of nature, no animal feels handicapped by its inability to speak or to understand human speech. There is quite a difference, however, when it has been tamed by man. The dog and the horse have in their association with man developed such a good ear for articulate speech that they easily learn to understand any language within the range of their ideas. Moreover, they have acquired the capacity for feelings such as affection for man and gratitude, which were previously alien to them. Anyone who has had much to do with such animals will hardly be able to escape the conviction that there are plenty of cases where they *now* feel their inability to speak as a defect which unfortunately, however, can no longer be remedied owing to the over-specialization of their vocal organs in a definite direction. But where the organ exists, even this inability disappears within certain limits. The buccal organs of birds are surely as different as can be from those of man, yet birds are the only animals that can learn to speak; and the parrot, the bird with the most hideous voice,

speaks best of all. Let no one say that the parrot does not understand what it says. It is true that for the sheer pleasure of talking and being in the company of human beings, the parrot will chatter for hours at a stretch, continually repeating its whole vocabulary. But within the range of its ideas it can also learn to understand what it is saying. Teach a parrot swearwords in such a way that it gets an idea of their meaning (the main amusement of sailors returning from the tropics), then tease it and you will soon discover that it knows how to use its swearwords just as correctly as a Berlin costermonger. Similarly, when the bird is begging for tidbits.

First labour, after it and then with it speech — these are the two most essential stimuli under the influence of which the brain of the ape gradually changed into that of man which, for all its similarity, is far larger and more perfect. But hand in hand with the development of the brain went the development of its most immediate instruments, the sense organs. Just as the gradual development of speech is necessarily accompanied by a corresponding refinement of the organ of hearing, so the development of the brain as a whole is accompanied by a refinement of all the senses. The eagle sees much farther than man, but the human eye sees much more in things than the eye of the eagle. The dog has a far keener sense of smell than man, but it does not distinguish a hundredth part of the odours that for man are definite characteristics of different things. And the sense of touch, which the ape hardly possesses in its crudest initial form, has only developed with the improvement of the human hand itself, through labour.

The reaction on labour and speech of the development of the brain and its ministering senses, of the increasing clarity of consciousness, ability to make abstractions and to draw conclusions, gave both an ever-renewed impulse to further de-

velopment. This development did not terminate when man finally became distinct from the ape and by and large continued to make tremendous progress since then, varying in degree and direction among different peoples and at different times, a progress here and there even interrupted by local or temporary regression. This development has on the one hand been strongly urged forward, and guided in more definite directions on the other, by a new element which appeared with the emergence of full-fledged man, namely, *society*.

Hundreds of thousands of years — of no greater significance in the history of the earth than one second in the life of man* — must have elapsed before human society emerged out of the troop of tree-climbing apes. Yet it did finally emerge. And what do we find again as the characteristic difference between the troop of apes and human society? *Labour*. The troop of apes was satisfied to browse over the feeding area which geographical conditions or the resistance of neighbouring troops had assigned it; it migrated and struggled to win new feeding grounds, but it was incapable of extracting from them more than they offered in their natural state, except that it unconsciously fertilized the soil with its own excrement. As soon as all possible feeding grounds were occupied, a further increase in the simian population could not occur; the number of animals could at best remain stationary. But all animals waste a great deal of food, and, in addition, destroy in germ the future growth of the food supply. Unlike the hunter, the wolf does not spare the doe which would provide it with a young roebuck next year; the goats in Greece, which eat up

* A leading authority in this respect, Sir William Thomson, has calculated that *little more than a hundred million years* could have elapsed since the time when the earth had cooled sufficiently for plants and animals to be able to live on it. [Note by Engels.]

the young bushes before they have grown up, have denuded of vegetation all the mountains of the country. These "depredations" by animals play an important part in the gradual transformation of the species by forcing them to adapt themselves to other than their usual food, thanks to which their blood acquires a different chemical composition and their whole physical constitution gradually changes, while species that were once established die out. There is no doubt that these depredations powerfully contributed to the transition of our ancestors from ape to man. In a race of apes that far surpassed all others in intelligence and adaptability, these depredations necessarily led to a continual increase in the number of plants used for food and to the devouring of more and more edible parts of these plants. In short, food became more and more varied, hence also the substances entering the body, the chemical preconditions for the transition to man. But all that was not yet labour in the proper sense of the word. Labour begins with the making of tools. And which are the most ancient tools that we find — the most ancient judging by the relics of prehistoric man that have been discovered, and by the mode of life of the earliest known peoples in history and of the rawest of contemporary savages? They are hunting and fishing implements, the former at the same time serving as weapons. But hunting and fishing presuppose the transition from an exclusively vegetarian diet to the concomitant consumption of meat, and this is another important step in the process of the transition from ape to man. A *meat diet* contained in an almost ready state the most essential ingredients required by the organism for its metabolism. It shortened the time required not only for digestion, but also for the other vegetative bodily processes corresponding to those of plant life, and thus provided more time, material and desire for the manifestation of

animal life properly speaking. And the farther man in the making moved away from the vegetable kingdom, the higher he rose above the animal. Just as becoming accustomed to a vegetable diet side by side with meat converted wild cats and dogs into the servants of man, so also adaptation to a meat diet, side by side with a vegetable diet, substantially contributed to the bodily strength and independence of man in the making. The most essential effect, however, of the meat diet was exerted on the brain which now received a far richer flow of the substances necessary for its nourishment and development than formerly and which, therefore, could progress more rapidly and perfectly from generation to generation. With all due respect to the vegetarians, man did not come into existence without a meat diet, and if the latter, among all peoples known to us, led to cannibalism at some time or other (the forefathers of the Berliners, the Weletabians or Wilzians, used to eat their parents as late as the tenth century),³ that can be of no consequence for us today.

The meat diet led to two new advances of decisive importance: the harnessing of fire and the domestication of animals. The first further shortened the digestive process, as it provided the mouth with semi-digested food, as it were; the second made meat more copious by opening up a new, more regular source of supply in addition to hunting, and moreover provided in milk and its products a new kind of food at least as valuable as meat in its composition. Thus both these advances directly became new means of emancipation for man. To dwell here in detail on their indirect effects would lead us too far afield, notwithstanding the great importance they have had for the development of man and society.

Just as man learned to consume everything edible, he also learned to live in any climate. He spread over the whole habit-

able world, being the only animal completely possessed of the inherent capacity to do so. The other animals that have become accustomed to all climates — domestic animals and vermin — have learned this not by themselves, but only in the wake of man. And the transition from the uniformly hot climate of the original home of man to colder regions where the year was divided into winter and summer created new needs: shelter and clothing as protection against cold and damp, new spheres of labour, and hence new activities, which further and further separated man from the animal.

By the co-ordination of hands, organs of speech and brain, not only in each individual but also in society, human beings became capable of performing more and more complicated operations, of setting themselves ever higher aims and achieving them. With each generation labour itself became different, more perfect, more diversified. Agriculture was added to hunting and cattle raising, then spinning, weaving, metalworking, pottery and navigation. Along with trade and industry, art and science finally appeared. Tribes became nations and states. Law and politics developed and with them religion, the fantastic mirror image of human things in the human mind. In the face of all these creations, which appeared in the first place as products of the mind and which seemed to dominate human societies, the more modest productions of the working hand retreated into the background, the more so since the brain that already planned labour at a very early stage of social development (in the primitive form of family, for example) was able to have the planned labour carried out by other hands than its own. All merit for the swift advance of civilization was ascribed to the mind, to the development and activity of the brain. Men became accustomed to explain their actions from their thoughts instead of from their needs (which, however,

are reflected, come to consciousness, in the mind). Thus there arose in the course of time that idealistic world outlook which, especially since the decline of the ancient world, has dominated men's minds. It still rules them to such a degree that even the materialistic natural scientists of the Darwinian school are still unable to form any clear idea of the origin of man, because under this ideological influence they do not recognize the part labour has played therein.

As already indicated, animals change external nature by their activities just as man does, even if not to the same extent, and these changes effected by them in their environment, as we have seen, in turn react upon and change their originators. For in nature nothing takes place in isolation. Everything affects everything else and vice versa, and it is mainly because this all-sided motion and interaction is forgotten that our natural scientists are prevented from seeing the simplest things clearly. We have seen how goats prevented reafforestation in Greece; on St. Helena, goats and pigs brought on shore by the first arrivals have succeeded in almost completely exterminating the island's old vegetation and so prepared the soil for the spreading of plants brought by later sailors and colonists. But if animals exert a lasting effect on their environment, this happens unintentionally and is an accident, as far as the animals themselves are concerned. The further removed men are from animals, however, the more their effect on nature assumes the character of premeditated, planned action directed towards definite ends known in advance. The animal destroys the vegetation of a locality without realizing what it is doing. Man destroys it in order to sow field crops on the soil thus freed or to plant trees and vines which he knows will yield many times the amount sown. He transfers useful plants and domestic animals from one country to another and thus changes

the flora and fauna of whole continents. More than this. Through artificial breeding both plants and animals are so changed by the hand of man that they become unrecognizable. The wild plants from which our grain varieties are descended are still being sought in vain. It is still a moot question from which wild animals our dogs that are so different from one another are descended; likewise with our equally numerous breeds of horses.

In any case, it goes without saying that we have no intention of disputing the ability of animals to act in a planned, premeditated way. On the contrary, a planned mode of action exists in embryo wherever protoplasm, living protein, exists and reacts, that is, carries out definite, even if extremely simple, movements as a result of definite external stimuli. Such a reaction takes place even where there is no cell at all, let alone a nerve cell. The manner in which insectivorous plants capture their prey likewise appears as a planned action in a certain aspect, although performed quite unconsciously. In animals the capacity for conscious, planned action develops proportionally to the development of the nervous system, and among mammals it attains quite a high level. While fox-hunting in England, one can daily observe how unerringly the fox knows how to make use of its excellent knowledge of the locality in order to elude its pursuers, and how well it knows and turns to account all favourable features of the ground that cause the scent to be lost. Among our domestic animals that are more highly developed thanks to their association with man, one can daily observe acts of cunning on exactly the same level as those of children. For, just as the developmental history of the human embryo in the mother's womb is only an abbreviated repetition of the history, extending over millions of years, of the bodily evolution of our animal ancestors, starting

from the worm, so the mental development of the human child is only a still more abbreviated repetition of the intellectual development of these same ancestors, at least of the later ones. But all the planned action of all animals has never succeeded in impressing the stamp of their will on nature. It took man to do that.

In short, the animal merely *uses* external nature and brings about changes in it simply by its presence; man by his changes makes nature serve his ends, *masters* it. This is the final, essential distinction between man and the other animals, and again it is labour that brings about this distinction.*

But let us not flatter ourselves overmuch for our human victories over nature. For every such victory it takes its revenge on us. Indeed, each in the first place brings about the consequences on which we counted, but in the second and third place it has quite different, unforeseen effects which only too often cancel out the first ones. The people who destroyed the forests in Mesopotamia, Greece, Asia Minor and elsewhere to obtain cultivable land never dreamed that they were laying the basis for the present desolation of those countries by removing the collecting centres and containers of moisture along with the forests.⁴ When the Italians of the Alps used up the pine forests on the southern slope which were so carefully preserved on the northern slope, they had no inkling that by doing so they were cutting at the roots of dairy farming in their region; still less did they foresee that they were thereby depriving their mountain springs of water for the greater part of the year, so that the latter could pour all the more furious torrents onto the plain during the rainy season. Those who

* Pencilled note in the margin of the manuscript: "improvement," — *Ed.*

spread the potato in Europe were not aware that with these farinaceous tubers they were at the same time spreading scrofula. Thus at every step we are reminded that we 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 all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to know and correctly apply its laws.

And in fact with every day that passes we are learning to understand its laws more correctly and getting to know the more immediate and also the more remote consequences of our interference in the usual course of nature. Especially since the mighty advances made in the natural sciences in the present century, we are in a better and better position to know and, hence, to control even the more remote natural consequences of at least our most ordinary productive activities. But the more this happens, the more will men not only once more feel but also know their oneness with nature, and the more impossible will become the senseless, unnatural idea of an antagonism between mind and matter, man and nature, soul and body which arose in Europe after the decline of classical antiquity and which obtained its most elaborate expression in Christianity.

But if it has already required the labour of thousands of years for us to learn to some extent how to evaluate the more remote *natural* effects of our actions directed towards production, this has been even more difficult in regard to the more remote *social* effects of these actions. We mentioned the potato and the resulting spread of scrofula. But what is scrofula compared to the effect which the workers' being reduced to a potato diet had on the living conditions of the masses in whole

countries or compared to the famine which befell Ireland in 1847 owing to the potato blight and consigned to the grave a million Irishmen, solely or most exclusively nourished on potatoes, and forced the emigration overseas of two million more? When the Arabs learned to distil alcohol, they could not have dreamed that by so doing they were creating one of the chief weapons for the annihilation of the aborigines of the still undiscovered American continent. And when afterwards Columbus discovered this America, he did not know that by doing so he was giving a new lease of life to slavery, which in Europe had long ago been done away with, and laying the basis for the Negro slave trade. The men who in the seventeenth and eighteenth centuries laboured to create the steam engine had no idea that they were preparing the instrument which more than any other was to revolutionize social conditions throughout the world. Especially in Europe where it helped to concentrate wealth in the hands of a minority and to make the huge majority propertyless this instrument was destined, first to give social and political domination to the bourgeoisie, but then to give rise to a class struggle between bourgeoisie and proletariat which can end only in the overthrow of the bourgeoisie and the abolition of all class antagonisms. But in this sphere, too, we are gradually learning, by long and often cruel experience and by collecting and analysing the historical material, to get a clear view of the indirect, more remote social effects of our productive activity, and so the possibility is afforded us of mastering and regulating these effects as well.

However, to carry out this regulation requires something more than mere knowledge. It requires a complete revolution in our hitherto existing mode of production and, with it, of our whole contemporary social order.

All hitherto existing modes of production have aimed merely at achieving the most immediate and directly useful effect of labour. The further consequences, which appear only later and become operative through gradual repetition and accumulation, have been totally neglected. The original common ownership of land corresponded, on the one hand, to a level of development in human beings in which their horizon was generally restricted to what lay immediately at hand and presupposed, on the other, a certain surplus of available land which gave a certain latitude for the correction of any possible bad results of this primitive forest economy. Once this surplus land was exhausted, common ownership declined. All higher forms of production, however, led to the division of the population into different classes and thereby to the antagonism of ruling and oppressed classes. Thus the interests of the ruling class became the driving factor of production, in so far as the latter was not restricted to the barest means of subsistence of the oppressed people. This has been carried through most completely in the capitalist mode of production prevailing in Western Europe today. The individual capitalists who dominate production and exchange can concern themselves only with the most immediately useful effect of their actions. Indeed, even this useful effect — inasmuch as it is a question of the usefulness of the article that is produced or exchanged — completely recedes into the background, and the profit to be gained by selling becomes the sole incentive.

Classical political economy, the social science of the bourgeoisie, is predominantly occupied with the immediately intended social effects of human actions directed at production and exchange. This fully corresponds to the social organization of which it is the theoretical expression. As long as individual capitalists produce and exchange for the sake of the

immediate profit, only the nearest, most immediate results can be considered in the first place. As long as the individual manufacturer or merchant sells a manufactured or purchased commodity with his usual hunk of profit, he is satisfied and does not concern himself with what becomes of the commodity and its purchasers afterwards. The same applies to the natural effects of the same actions. What did the Spanish planters in Cuba, who burned down the forests on the slopes of the mountains and obtained sufficient fertilizer from the ashes for *one* generation of highly profitable coffee trees, care that the heavy tropical rains later washed away the now unprotected upper stratum of the soil and left only bare rock behind? In relation to nature, as to society, the present mode of production is predominantly concerned only about the first, the most tangible result. Why should one be surprised, then, that the more remote effects of actions directed to this end turn out to be of quite a different character, and mainly even of quite an opposite one, that the harmony of supply and demand is transformed into its polar opposite, as is shown by the course of each ten years' industrial cycle, of which even Germany has experienced a bit of a prelude in the "crash";⁵ that private ownership based on one's own labour necessarily develops into the propertylessness of the workers, while all wealth is more and more concentrated in the hands of non-workers; that [. . .]*

* Here the manuscript breaks off. — *Ed.*

EVOLUTION OF MAN*

Man, too, arises by differentiation. Not only individually, by development from a single egg-cell to the most complicated organism that nature produces — but also historically. When the differentiation of hand from foot and erect gait were finally established after thousands of years of struggle, man became distinct from the ape, and the basis was laid for the development of articulate speech and the tremendous progress of the brain that has since made the gulf between man and ape unbridgeable. The specialization of the hand — this implies the *tool*, and the tool implies specifically human activity, the transforming reaction of man on nature, on production. Animals in the narrower sense also have tools, but only as limbs of their bodies: the ant, the bee, the beaver; animals also produce, but their productive effect on surrounding nature amounts to zero. Man alone has succeeded in impressing his stamp on nature, not only by shifting plants and animals from one place to another, but also by so altering the aspect and

* Excerpt from Engels' introduction to his *Dialectics of Nature*. Title added by translator.

climate of his dwelling place, and even the plants and animals themselves, that the consequences of his activity can disappear only with the general extinction of the terrestrial globe. And he has accomplished this primarily and essentially by means of the *hand*. Even the steam engine, so far his most powerful tool for transforming nature, depends, because it is a tool, in the last resort on the hand. But step by step with the development of the hand went that of the brain; there came consciousness first of the conditions for producing separate results useful in practice and later, among the more favoured peoples and arising from the former, of insight into the natural laws governing them. And with the rapidly growing knowledge of the laws of nature the means for reacting on nature also grew; the hand alone would never have achieved the steam engine if man's brain had not developed correlatively and side by side with it, and partly owing to it.

With man we enter *history*. Animals also have a history, that of their descent and gradual evolution to their present state. This history, however, is made for them, and in so far as they themselves take part in it, this occurs without their knowledge or desire. On the other hand, the more human beings become removed from animals in the narrower sense of the word, the more they make their history themselves, consciously, the less becomes the influence of unforeseen effects and uncontrolled forces on this history, and the more accurately does the historical result correspond to the aim laid down in advance. If, however, we apply this measure to human history, to that of even the most developed peoples of the present day, we find that there still exists a colossal discrepancy between the proposed aims and the results arrived at, that unforeseen effects predominate, and that uncontrolled forces are far more powerful than those set in motion accord-

ing to plan. And this cannot be otherwise as long as the most essential historical activity of men, the one which has raised them from bestiality to humanity and which forms the material foundation of all their other activities, namely, the production of their means of subsistence, that is, today, social production, is particularly subject to the interplay of the unintended effects of uncontrolled forces and achieves its desired end only by way of exception and, much more frequently, the exact opposite. In the most advanced industrial countries we have subdued the forces of nature and pressed them into the service of mankind; we have thereby infinitely multiplied production, so that a child now produces more than a hundred adults previously. And what is the consequence? Increasing overwork and increasing misery of the masses, and every ten years a great crash. Darwin did not know what a bitter satire he wrote on mankind, and especially on his countrymen, when he showed that free competition, the struggle for existence, which the economists celebrate as the highest historical achievement, is the normal state of the *animal kingdom*. Only the conscious organization of social production, in which production and distribution are carried on in a planned way, can elevate mankind above the rest of the animal world socially in the same way that production in general has done this for men specifically. Historical development makes such an organization daily more indispensable, but also more possible every day. From it there will date a new epoch of history, in which mankind itself, and with mankind all branches of its activity, especially the natural sciences, too, will experience an advance that will put everything preceding it into insignificance.

SAVAGERY*

1. *Lower Stage.* Infancy of the human race. Man still lived in his original habitat, tropical or subtropical forests, and was partially at least a tree-dweller, for this alone explains his continued survival in face of the large beasts of prey. Fruits, nuts and roots served him as food; the development of articulate speech is the main result of this period. Of the peoples known to history, none was still at this primitive level. Though this period may have lasted thousands of years, we have no direct evidence to prove its existence; but once the descent of man from the animal kingdom is admitted, the acceptance of this transitional stage is inevitable.

2. *Middle Stage.* Begins with the utilization of fish (under which heading we also include crabs, mussels and other aquatic animals) for food and with the use of fire. The two are complementary, since fish food becomes wholly useable only by the use of fire. But with this new source of nourishment, men now became independent of climate and locality.

* Excerpt from Engels' *The Origin of the Family, Private Property and the State*. — Ed.

Even in the savage state they could spread over most of the earth by following the rivers and coasts. Proof of these migrations is the distribution over every continent of the crudely worked, unpolished flint tools of the earlier Stone Age, known as "paleolithic," all or most of which date from this period. Newly-occupied territories as well as the unceasingly active urge for discovery, linked with command of the art of producing fire by friction, made new foods available such as farinaceous roots and tubers, baked in hot ashes or in baking pits (ground ovens); and game was occasionally added to the diet after the invention of the first weapons — the club and the spear. Exclusively hunting peoples, such as figure in books, that is, peoples subsisting *solely* by hunting, have never existed, for the yield of the hunt was far too precarious. As a consequence of the continued uncertainty with regard to sources of foods, cannibalism appears to have arisen at this stage and continued for a long time. The Australians and many Polynesians are to this day in this middle stage of savagery.

3. *Upper Stage.* Begins with the invention of the bow and arrow, whereby game became a regular item of food, and hunting one of the normal occupations. Bow, string and arrow already constitute a very composite instrument, the invention of which presupposes long accumulated experience and sharpened intelligence and, therefore, acquaintance with many other inventions as well. If we compare the peoples which, although familiar with the bow and arrow, do not yet know the art of pottery (from which Morgan* dates the transi-

* See Lewis H. Morgan's *Ancient Society, or Researches in the Lines of Human Progress from Savagery, Through Barbarism to Civilization*, p. 12, Henry Holt and Company, New York, 1877, reprinted by New York Labour News, New York, 1971. — *Ed.*

tion to barbarism), we already find the beginnings of village settlements, a certain mastery of the production of the means of subsistence, wooden vessels and utensils, finger-weaving (without looms) with filaments of bast, baskets woven from bast or rushes, and polished (neolithic) stone tools. And for the most part fire and the stone axe have already provided the dugout canoe and, in places, beams and planks for building houses. All these advances are to be found, for example, among the Indians of northwest America who, although familiar with the bow and arrow, know nothing of pottery. The bow and arrow was for savagery what the iron sword was for barbarism and firearms for civilization — the decisive weapon.

⁵ Engels is referring to the economic crisis of 1873. In Germany the crisis began with a "terrific crash" in May 1873, foreshadowing a crisis that dragged on till the late seventies.

NOTES

¹ This was the heading which Engels gave to the article in the list of contents of the second folder of materials for *Dialectics of Nature*. The article was originally written by Engels as the introduction to a more extensive work entitled "The Three Basic Forms of Slavery." Later Engels altered this title to "The Enslavement of the Worker. Introduction." Since, however, this work remained unfinished, Engels finally gave to its introductory portion the heading "The Part Played by Labour in the Transition from Ape to Man," which is in conformity with the bulk of the manuscript of this work. The article was apparently written in June 1876. Evidence for this assumption is the letter of W. Liebknecht to Engels, dated June 10, 1876, in which Liebknecht writes, among other things, that he is impatiently awaiting Engels' work "The Three Basic Forms of Slavery," promised by him for the newspaper *Volksstaat* (*People's State*). Only in 1896 the article was published in the magazine *Die Neue Zeit* (*New Time*) (Jahrgang XIV, Bd. 2, S. 545-54).

² See Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (Vol. I, London, 1871), Ch. VI, "On the Affinities and Genealogy of Man."

³ Engels is referring to the testimony of Labeo Notker, a German monk (c. 952-1022), quoted in J. Grimm, *Deutsche Rechtsalterthümer* (*Antiquities of German Law*), Göttingen, 1828, S. 488. Engels quotes Notker in his unfinished work *A History of Ireland*.

⁴ With regard to the effect of man's activity on plant life and climate, Engels uses C. Fraas, *Klima und Pflanzenwelt in der Zeit* (*Climate and Plant Life in Time*), Landshut, 1847. Marx called Engels' attention to this book in a letter dated March 25, 1868.

恩 格 斯
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