

*Small
farms*



Reconstruction by Way of the Soil

by

G.T. Wrench

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This book by Dr. Wrench enters a field very different from that of his *Wheel of Life* and challenges judgment and criticism of a different kind. It is nothing less than an outline history of the relation between civilization and the soil: which means that it is not only a brief universal history of agriculture but much more besides. No work of scholarship could be devoted to a purpose more useful to mankind at any time, and at the present time none could fill a more urgent need. There is, we believe, nothing of the kind in existence;

and if there were it would be out of date, since so vast a quantity of new and important knowledge on the subject has lately become available.

Dr. Wrench has the advantage of many years' experience of agrobiological affairs in this country and in India. He gives us here a series of brief histories and striking examples of the effects of civilizations upon their primary biological resources. He first states the essential principles of sound agronomy; then he gives examples of their fulfilment or violation in China, Mesopotamia, the Roman Empire and in Islamic Spain; in England through the centuries, in Africa since the coming of the Europeans, in Egypt and India and the Dutch Empire, in the British Dominions and colonies, in the U.S.S.R. and in the U.S. A. to-day. Dr. Wrench's plea for the recognition of natural laws in the symbiosis of soil and civilization is supported by impressive evidence; and his thesis is of the first importance, not only to agronomists, but to students of politics and to all who are concerned with the future of our damaged civilization.

To
Lord Northbourne

My friend is that one whom I can associate with my choicest thought. -- Thoreau

Acknowledgements

In the construction of this book, I am indebted to many living authors, whose words I have quoted in my text. Amongst them, I feel I owe an especial tribute and apology to Mrs. Elspeth Huxley for the use I have made of her book *The Red Strangers*, a tribute in my immeasurable admiration for her exquisite story, an apology in that, being in India, I have not been able personally to visit her to explain my enforced encroachment.

In my faith in primary value of the soil I have been greatly strengthened by the books of two honoured friends, the Earl of Portsmouth's *Alternative to Death* and Lord Northbourne's *Look to the Land*.

The Earl's book, published in 1943, has only recently reached me. With a general outlook closely similar to my own, the author has something which I do not possess, namely, an intimate, personal knowledge of all that pertains to the soil of Britain. His book constitutes the comprehensive guide for which all workers, determined to give a sane, terrene basis to our national life, have been looking.

Lord Northbourne's book was published in 1940, and it has been my frequent companion

in the three years which I have taken in the actual writing of this book. Lord Northbourne has also helped me in ways surpassing the usual kindness of friendship. He has taken full charge of the typescript of the book in England, and, by a careful study of the text, has assisted me with most acceptable criticisms.

Lastly, I desire to thank my friend, Dr. Haji Kassim, for his great help in the compilation of the twenty-first and twenty-second chapters.

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Chapter 1

Introductory

It will be clear to a reader, who, like a prospector sampling a face of rock, runs his eye down the page of Contents of this book, that its subject is a general one. It is, indeed, widespread both in space and time, yet in spite of its generality it cannot be said to be widely recognized; so little so, in fact, that to not a few it will appear a new subject. Men, under the advanced differentiation of the present, are apt to think of themselves as finished products, as soldiers, merchants, sailors, engineers, lawyers and so on; to speculate on what they, one and all, actually are, seldom occupies many of them for more than a few casual brevities of time.

Nevertheless, now that they are involved in a supreme crisis, now that, however complete victory may be, the future cannot be the replica of the past, it is inconceivable that men will not be forced to face fundamental questions, such as, in previous times of habit and routine, they were able to avoid.

They have already come to learn that this age, so distinguished for its scientific progress and its widespread knowledge has, in spite of these advantages, completely failed in its promise of peace and prosperity. Even in such vital social problems as feeding and employment, it has failed and failed signally. Men, who have now been forced to experience in their own persons, and therefore to reflect upon these two problems, are astounded that their settlement has been so definitely brought about by war. Where peace failed, war succeeded. The will of the people and the skill of organization have assured all of their share in the national food, and those who do hard manual labour can reckon on sufficient energy being given to them by their allowance to accomplish their work without the weariness that results from a partial starvation in essential foods. Why, then, is war so much juster in these respects than peace? What is lacking in times of peace, that comes

into being in times of war? Is it that under the supreme strain of war against a powerful and ruthless enemy there arises in the homeland a peace, goodwill, and indeed a veritable brotherhood of man, which displaces the greedy competition, the covert hostility and the social barriers of peace that destroy the best qualities of country, blood and language? Does our civilization need war to make a decency of human conduct prevail?

Many answers have been given to these and kindred questions, but in order to look at them afresh, it is proposed in this book to review conditions, both historical and immediate, with a vision untarnished by the pride of the present, the pride attached to that in which one's ego has its being. This is a hard saying, for all are tarred with the same brush, and none can claim impartiality exempting him from his heritage and the prejudice of circumstance.

Yet, if we are to enjoy a better communal and individual life after the war than before it, the attempt has to be made with the probity it demands.

To introduce the attempt is the object of this opening chapter, and to make this beginning we will try to look at men, not as final products, not as labourers, merchants, shopmen and the rest, not as rich and poor, sick and healthy, wise and foolish, but as they are, all and each, inseparably linked together in a common likeness, which will pervade the chapters of this book. This likeness is that they are all feeding animals, getting, mostly and daily, their life from the products of the soil. Like other forms of life, vegetable and animal, men are dependent for their existence upon the crust of the globular earth on which they live.

Men, however, possess a marked peculiarity which distinguishes them from other forms of earthly life. It is this -- that they alone have been able to make themselves partners in the creative power of the soil. They alone are agriculturists or farmers, whereby they assure themselves the constancy of their food, clothing and other primal necessities in place of having to trust to the gifts of chance. They alone, amidst terrene life, have acquired a quota of mastery in creation.

In this ability to take a part in the creation of their necessities, men have gained something more than a repetitive increase of their food. They have gained an understanding, dim though it may be, of a relation between themselves and the powers which rule the universe and that minute part of it on which they live. They realize that to be partners in creation, they have to submit themselves to the unavoidable autocracy of these powers; they have to be, in their own language, creatures of the Creator, and as such, however headstrong and dominant they may be over weaker forms of life than theirs, they are, nevertheless, like them limited by the laws of their existence. Upon the basis of limitation, they are inevitably compelled to shape their individual and social lives. Should they transgress, they or their descendants are inevitably punished.

These rules and restrictions, under which mankind lives, are those of the nature of life and death. Life and death are the two essential conditions of terrene existence; they are the two

different phases of this existence. The living ceases to be what is called living, but it is not lost to the cycle of existence but remains within it as a necessary part of it. In the condition which is called dead, matter is commonly in the soil or will eventually reach it. That which, by its life, has often had the power to lift itself from the crust of the earth, now returns to that crust. There it plays an essential part in promoting further life. In a word, there is no actual death as a permanent thing. There is a suspension of life. Death itself is but a phase of life, in which the dead matter returns to the soil, where it is reformed into living matter again. *There is nothing that has once taken life from the soil, that will not, by reaching the soil, again become living.* The dead leaf, that we see lying on the path at our feet, is not dead in the sense of being finished. Let it lie, and, through the creative agency of the soil, its substance will again enter into a blade of grass, a flower, an insect, bird or animal and so return to the kingdom of the living.

Life and death are, therefore, not separate entities, but phases of each other. The living has to respect the dead as a part of itself, not finally dead but living, and this respect has been expressed in the religious mind of man by various forms of reverence in which the innate eternity of life in its most highly developed form, that of the human soul, is recognized.

When man does not interfere and the soil is left to itself, it does not fail. Through it everything that has passed from a state of life is restored again to a state of life; nothing fails or is lost. In the philosophy of modern science, however, the seeds that lie scattered upon the ground and do not fructify are stigmatized as failures, but those that grow into plants are dubbed the fittest, because they survive and expand into plants. Yet the other seeds survive no less; they re-enter cycles of life by other paths. Some even enter the very plants to which their fellow-seeds have given rise. So, for example, every one of the countless seeds of the elm that bestrew the ground in early summer, as well as the fittest surviving as elm plants, are not failures in the symphony of nature. In a musical symphony, each note, even the lowest and lowliest, *fits*. It is not a question of the fittest excluding or making superfluous the remainder. That is a wholly false outlook upon the processes of terrene life. Each has its place without which the whole is incomplete. Each has its place in a creative cycle, each passes from soil to plant and then, in many cases, to animal, and, after an interlude of death, returns to the creative realm of soil.

This is the symphony of nature and creation to which men as terrene animals are inevitably bound and yet not wholly bound. Though they themselves are products of the soil, yet through the possession of their intellect, they have become co-creators and, in their limited human sphere, fashioned in the image of the Creator. They can produce life other than their own. To do this in accord with the processes of creation, they must themselves be continuous and limited in production; they must act in harmony with the process as it exists on earth apart from them. Here they have to *fit*. They have to act within a process of balance. In it the living as a whole is balanced by the dead as a whole. In the living itself, its chief forms, vegetable and animal, balance each other. They are interdependent, and are incomplete without each other. In the exchange of vegetable and animal life with the enveloping atmosphere, a similar balance is effected. It has to be

regarded as a whole of balanced parts and therefore partakes, in human phraseology, of the character of art. Nothing in it is isolated, everything belongs to the pattern. From this art of fitting within the whole, certain consequences necessarily follow. Wholeness or health -- two words of a like origin and meaning -- is one consequence.

This wholeness as a consequence has to be proved. Though it seems logical enough, yet little has been done to prove it in an age of unprecedented speed and discovery, of immense progress at a constantly expanding periphery, which by distance has almost shut men's ultimate terrenity from their vision.

We are to-day no longer whole or healthy physically or mentally. In the careful work of the Peckham investigators it has been established that the vast majority of us are subnormal. We seem to have broken away from the great primary fact of our existence, namely, that we are first and foremost *terrene animals*, and, until we regain that fact and put it into practice, we cannot expect our social and individual lives to be whole. Our civilization, threatened with destruction as we know it to be, has to be *healed* -- another word meaning whole -- and to be healed it has to be overhauled and *reconstructed in its relation to the soil that provides it with the means of existence*.

This was the task that in dim outline presented itself to the author when, as a medical student, he was appalled by the crowded gatherings of the out-patient department of a large London hospital. 'Why disease? What then is health?' were the questions that often vexed him. To answer them he had not the opportunity, nor the tenacity which truly great men have in pursuing an object that is to them a consuming passion and for which they will forgo the pleasures of life, and end -- God knows how often -- in destitution and despair. For that heroic life he had not courage, but the questions did not entirely leave him, and it was when he had leisure in which to retire for a space of years, brought to an end by the war, that he was able to gather material for the answer to this *first question of correct terrene being*: 'Is there a relation of man to the soil which assures his health?'

The answer came as a decided yes, and in the instances he was able to gather, he found that a group of men could acquire health if they gave to the soil, from which they lived, all the food and water it required, and if they did not weaken it by exceeding the limits of the creative powers which nature had allotted to it.

His chief lesson he gained from a little, shut-away people called the Hunza, to whom he was attracted by what Sir Robert McCarrison, who knew them well, wrote of them: 'They are long lived, vigorous in youth and age, capable of great endurance and enjoy a remarkable freedom from disease in general.'

His further inquiries opened out a prospect of intense interest and even beauty such as their own mountain valley, amidst the vast mountains of the Karakoram in North-west India, possessed. He found that they pursued a close attention to the soil, which strangely enough, seemingly related them to a time of the golden age of agriculture. As a

strengthening of this supposition, he found that their present farming recalled to that most cultured of mountaineers, the late Lord Conway, the unsurpassed farming of pre-Spanish Peru, the remnants of which he had seen and which caused another well-cultured explorer of these gigantic relics, Mr. O. F. Cook of the Bureau of Plant Industry of the U.S.A. Department of Agriculture, to exclaim: 'Agriculture is not a lost art, but must be reckoned as one of those which reached a remarkable development in the remote past and afterwards declined.' The glowing pages of Prescott's second chapter in the *Conquest of Peru* seem to shine again amidst this little people, huddled between the highest congress of great mountains that uprises from our globe.

The author found that this people meticulously preserved the rule of return; they were, indeed, the source of the understanding of the ultimate nature of the soil and man and of the warp and woof of life and death, to which he has referred a few pages back. Nothing that once got life from the Hunzas' soil was ever wasted but all, from the least fleck of wool, the fallen leaf, the broken nutshell, to human refuse itself, was gathered and, after suitable preparation, returned to the soil for its food. He found that the Hunzas paid the same heed to water, which, by means of their principal aqueduct, the Berber -- itself famous far beyond the limit of their own small country -- they brought with its silt from a glacier snout to their terraced fields. Of the Berber, Lord Conway wrote: 'The Alps contain no *Wasserleitung* which for volume and boldness of position can be compared to the Hunza canal. It is a wonderful work for such a toolless people as the Hunzakats to have accomplished, and it must have been done many centuries ago and maintained ever since, for it is the life-blood of the valley.' Here, too, they were like the people of Peru, of whose water-ways, stretching for hundreds of miles athwart the slopes and precipices of mountains, Prescott wrote: 'That they should have accomplished these difficult works with such tools as they possessed is truly wonderful.'

The words 'many centuries ago' led the author to further inquiries. He found that Professor N. I. Vavilov, of the Institute of Applied Botany, Leningrad, had discovered that the area of which the Hunza Valley forms a part 'is one of the most important primary world agricultural centres, where the diversity of a whole series of plants have originated'. The people of ancient Peru, according to Mr. Cook, also produced a wonderful series of plants in the secluded valleys of the Andes and so made them the most important originating agricultural centre in America.

Here, then, within the precincts of British-supervised India, was a people who brought quite a marvellous message from the remote past, a past that justifies the tradition of the Golden Age, a past of perfect relations between men and the soil. The Hunzas had created a symphony of nature. As each note, however humble, has its proper place in a symphony of Beethoven, so even the humblest fallen leaf, each drop of water have their place in the symphony of Hunza. The author learnt from its example that the work of the Hunza, too, was an art in its original sense from *aro*, to 'fit'. *He learnt that farming is an art and something infinitely wider than scientific agriculture. It is a way of life itself.*

So much for health, such health and the constant cheerfulness of wholeness, which the Hunza now enjoy. There are many other examples of this health still extant on the globe, all of them in places remote from our Western civilization. To those who are attracted by this, at present, novel meaning of genuine health, the author unblushingly commends his little book of a hundred and forty-odd pages, *The Wheel of Health*, in which these examples are also recorded. It is an essential subject to understand for any who feel the need of a reconstruction by way of the soil.

Nevertheless, it cannot be gainsaid that such small and remote examples are scarcely likely to have much effect on those upon whom this reconstruction by way of the soil is now urged. It seems that one is doomed to stir one's readers by the negative proof of the devastation and sickness that the modern era has brought to the soil and the feeders of its products, rather than by isolated proofs of wholeness, health, cheerfulness and well-being.

Before, however, entering upon the long path of negative proof, there presents itself a second positive element of construction, which is complementary to the meticulous care of the soil. This is the form in which the men of that meticulous care served the soil. The form was that of family farming.

The family as a group is but a human complement of the soil itself, both family and soil recreating life. The family is human continuity and the soil is vital continuity. Continuity of the family necessitates marriage as the mode of the bond of the woman to the soil; marriage bringing sons and daughters to the service of the land. It is the land that gave its particular meaning to the farming family; it is its creative power that united itself with the creation of the farmers' children. Marriage, the bearing of children, the apprenticeship of children, the respect of children for their parents and their ancestors, the care that is bestowed by the elders on the present generation because it is to repeat itself in future generations, all this wholeness of life finds its true significance in continuous family ownership or inherited right to the land. It is, then, the land as family property, or in lesser and more dependent degree, the craft as family property, requiring the work of the family for their continuity, which primarily gives stability to men and women making a people.

This right the people of ancient Peru possessed. Their self-governing communities or *ayullus*, settled in ownership of limited areas of land, existed from remote antiquity. They were the basis of the autocratic state, and they themselves constituted an agrarian communism collectively holding the land. The uniting of the *ayullus* was effected by the rulership of the principal *ayullu* or royal family community. By far the majority, too, of the Hunza families -- and the Hunza are also an ancient people -- are freeholders, subject in their unity to the rulership of the Mir. The greatest of these peoples of family farming are our allies, the Chinese. Their empire is by far the most stable and continuous in the world's history and it was originally founded in the long distant past upon family property or right to the land.

It was to their revered sages that the Chinese have always attributed their Tsing Tien

system, the system of the nine fields. A square of land was divided by drawing two lines across it from side to side and two up and down, as in the nursery game of noughts and crosses. Nine squares were thereby formed, eight outer and one central square. The eight outer squares of land were allotted to eight families, the centre square was worked co-operatively and its produce given to the government officials as a tax in kind.

This division into nine squares was symbolic of the principles of the sages. Where it could be, it was, no doubt, carried out. But it was not rigid. The soil is not so similar in character that it can be divided with such exactness. One square might be less readily cultivated than another; one family might be larger than another. So adjustments were made; for example, if one family had several and another no sons, one or more sons of the first might be adopted by the second family. Adaptations were made, but the principal and standard measurements remained. It was considered by the sages as the principle of choice for the reasons that it promoted co-operation, close social relations, mutual production, easy exchange of commodities, unified customs, saving of individual expenses, and it related the work and life of the families to the officials of the nation by the work which the combined families undertook on the central field. This central field could also be adjusted within limits; it could be enlarged or diminished according to the general fortune of the province or nation.

The nine squares within a square symbolized a simple planning and basis of life, which, without doubt, as opposed to change, progress and instability, produced a stability now inconceivable to our Western minds trained in its opposites. We have been accustomed to regard it as stagnation. Since we have become confused and disillusioned with progress and the disasters which it has brought and with which it further threatens almost all mankind including the Chinese people themselves, we have come to think of them historically with more interest and approval, but nevertheless as something so distant and foreign to us that their methods and history cannot really affect us.

Yet, if nature is limited, if man cannot pass certain boundaries or exceed certain controls without entering upon generations of disaster and even human extinction, then some such stable system as that of the Chinese takes upon itself a very different aspect in the measure of human wisdom. It may be that it will then appear as a natural human system, in scale and endurance the greatest achievement in the partnership of intelligent man and nature upon the earth. It was one that long ago attained a certain finality, a completion such as a great art work, a great cathedral or temple reaches. The building needs care, love and daily attendance and sometimes renovation, but it cannot be made more beautiful. It reaches its excellence and, though time may make it more revered and loved, its very excellence shows that it had, from the very beginning, a power of duration within it. A great art has this duration. It is not subject to frequent change as is science. Changes fail to improve it. Recasting a symphony of Beethoven would not make it more but less beautiful, but the devotion with which it is played supports its beauty as human generations pass.

It is in this sense that we should, I believe, try to estimate and understand the Tsing Tien

system. It is a national thing on a great scale *that has kept within the limits imposed by nature*. Through this system the Chinese sages produced and continued a productivity from the soil unexcelled elsewhere, and, from humanity, a community of peasant-family farmers, the largest in numbers, the most skilful, the most contented and the most peaceful amongst the peoples of mankind. The Chinese have, of course, had their misfortunes and occasional catastrophes. They have been beset by people without any settled system such as they enjoyed. Large landowners have from within sometimes destroyed the rights of the peasants, but the Tsing Tien system has been the thread upon which has been threaded period after period of their long history. 'The whole history of government administration of agriculture in China', writes Dr. Ping-Hua Lee, in Volume 99 of the *Studies in History* of the Columbia University, 'coincides with the history of the Tsing Tien system, for it started with this system of land tenure. Its vicissitudes, its crises and epochs were timed by the abolition or re-establishment of the system ... It is fortunate for the economic historian that the history of the Tsing Tien system is coincident with China's political history.'

Thus in the small body of the Hunza and in the large body of the Chinese, much broken by the near past and present havoc, we have rare survivals, instances of skilled and continuous life within the limits that are set by nature and the land; a fitting of skilled mankind into the life-cycle.

The Chinese had not the stupendous secluding mountain wall of the Hunza, but as far as men's power could reach, they made such a wall, the Great Wall fortress, stretching for 1,500 miles to shut out the Tartar. They had not the control of their water supplies from their sources as had the Peruvians and the Hunza; the floods of their great rivers have their origins in huge ranges of stripped hills mostly outside their control. Yet in spite of these foes of secured stability, their system endured until it was finally worn down by the constant attrition of contact with the West. Although it has been the West and its ways that have broken up this system of stability, nevertheless sufficient of it is known, owing to the Chinese historical habit, to see in it the supreme example of the Wisdom of the East in contrast to the Science of the West. The Tsing Tien has been the chief historical system of a human partnership with the soil. In it was secured for century after century the comprehensive range of both the minuteness and grandeur of this partnership, which has by no Western writer been better expressed than by the well-known words of Hasbach in his unique *History of the English Agricultural Labourer*, 1920. 'Trifles', he wrote, 'are the very objects of the small cultivator; he has everything near him and under his eye, makes use of every small advantage, cultivates every corner, has the help of his wife, and brings up his children to be the most useful the country produces. Such men serve the land as it should be served, never stinting themselves, and as absorbed in their service as any priest in his religion.' Upon this basis stable civilizations of conservation have been and can be built.

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Chapter 2

Rome

Rome and its civilization constitute the progenitors of the civilized Western world; consequently, without a knowledge of Rome's relation to the soil, it would not be possible for us to extract from history the principles of reconstruction from the soil.

We have to study history, because in no other way can we tell what the Roman land was like and how it looked. History reveals that if, by some magic, we could transport ourselves back to the days of the early Latin farmers, we should see a picture of a well-populated countryside with the land divided up into a number of small farms, often not exceeding five acres in extent. As each small farm had to support a family, the farming, we should see, was intensive; in other words, each particle of soil would be in use, so that the fields appeared quite crowded with a variety of crops. The whole food of the family would come from the farm, and not only the food of the family, but that of some of its domestic animals. By day we should see the various members of the family hard at work upon the farm, the males -- and sometimes females -- busy upon the land itself, and the womenfolk in the home and dairy. We should see also a large number of villages with a pleasant light of prosperity shining upon them. Other things would also be there of great importance, soon to be described, some of which could be seen, and some found under the earth.

Then let us be allowed to look at the same land some five centuries later. The picture is now quite different. We should see but few villages and few small farms, and upon the farms we should see what farmers call foul fields and even land that was derelict. In place of the small farms we should see mainly orchards, vineyards and dairy farms. It would, indeed, be quite clear to us that the main object of this different form of farming was to supply fruit, grapes, olives, milk and cheese to people who did not work upon the farms or

in the villages at all, but who lived in the proud, neighbouring city that had now become the chief city of all Italy and was soon to become the capital of the Mediterranean world. We should also see that these estates were no longer worked by Latin farmers, but by quite a different sort of men, clearly not Italians, and men lacking the buoyancy and freedom of the older farmers. We should, indeed, have reason to rub our eyes, for some of these men, incredible though it might seem to us, would be shackled with iron and some even chained to each other while they worked. These were the slaves, some of whom were strong, fierce men and some weak and depressed. These two pictures we should see; the first would be that of family farming, the second that of capitalistic farming.

Transporting ourselves to a yet later date, we should see a third picture. The land is now swampy and derelict, and its most significant product swarms of mosquitoes, which caused the fevers that permitted only a few wretched men and cattle to scrape together some sort of livelihood and that visited, with lethal effect, the inhabitants of the great but waning city itself. This would be the picture of debased soil fertility.

Now let us see how history explains these three pictures.

Of the farming of their ancestors in Latium the later Romans had no history. Nevertheless, a strong tradition existed, and that tradition placed both farming and farmers very high. In the words of the elder Cato, to call a man a good farmer was in the past the best commendation, the highest praise.

Now this praise in the pages of *De Agricultura* must have been read a host of times without more than a general significance or regretful sentiment being attached to it. But modern discovery has shown that it had a very sound, practical significance. The high esteem of the men of ancient Latium for good farming and the facts concomitant with it were not sentimental; they have been summed up under these words: 'It is impossible, after surveying such elaborate undertakings, to avoid the conclusion that Latium in the sixth century (B.C.) was cultivated with an intensity that has seldom been equalled anywhere.' This is the statement of a modern authority. In short, *the tradition of the later Romans about the wonderful farming of their ancestors was not founded upon sentiment, but upon fact*. By the time of Cato and later writers, a good deal of sentiment had entered and a good deal of fact had slipped away. These later Romans knew that their ancestors had been great farmers, but they do not seem to have known the greatest part of their work. That has been revealed by modern investigators and particularly by the excavations of Monsieur M. R. L. la Blanchère, published in 1893 in *Mémoires présentes par divers savants à l'Académie des Inscriptions et Belles Lettres*. Professor Tenny Frank, the above-quoted authority in *An Economic History of Rome*, 1927, summarizes this remarkable paper, which can be itself read in the library of the British Museum. The excavations reveal that Latium was the home of a farming which it might well be said, has seldom been equalled anywhere. It was a farming related to the great farming of ancient Peru, the farming of Asia Minor in its prolific days, the farming in which Professor Vavilov researches, the farming of the Hunza, the farming indeed of many or even all great

countries of the world in a time when farming reached a height from which almost all of them later fell so steeply as to have become oblivious to it.

Professor Tenny Frank begins his book on the economic story of Rome where it should begin, namely, in the soil of Latium. On the one hand, that soil was singularly rich, rich as the loess soil of the Chinese and the alluvial soil of the Egyptians were rich. It had not their depth, but it had the exceptional contribution of the ash of some fifty craters, which are within twenty miles of Rome. On the other hand, it was placed in a perilous situation if men were to neglect it. It was a wide band or plain, the Campagna, situated between the sea and the steep Alban and Apennine mountains. Upon these mountains rain at certain seasons fell heavily. When there were trees on the slopes, then the rain in its fall was broken by leaf, twig and branch into a spray before reaching the soil. Where the trees were cut down freely or where the slopes were too steep for them to grow, the storm-rain reached the earth to beat upon it and send muddy freshets sweeping down to the plain. The short rivers between the mountains and the sea became torrents loaded with silt. Sometimes their mouths and the direct discharge of the water to the sea were blocked and swamps took the place of well-drained land.

Farming in this country, therefore, depended above all on one great feature of farming, proper drainage. Against heavy rain falling upon precipitous hills, men had to protect the soil if they were to be great farmers of it. The men of the Latium were great farmers and they accomplished astonishing things.

Monsieur la Blanchère, excavator in Latium, revealed in part what the farmers did. He found an extensive engineering system of water-control and drainage, numerous relics of drains, tunnels and dams. 'By diverting the rain waters from the eroding mountain gullies into underground channels', writes Professor Frank, 'the farmers not only checked a large part of the ordinary erosion of the hillside farms, but also saved the space usually sacrificed to the torrent-bed. It would be difficult to find another place where labour had been so lavishly expended to preserve the arable soil from erosion.' Noting the finely trimmed polygonal masonry of the dams, largely made of blocks weighing half a ton each, the professor adds: 'It, is impossible, after surveying such elaborate undertakings, to avoid the conclusion that Latium in the sixth century B.C. was cultivated with an intensity that has seldom been equalled anywhere.'

The men of Latium, later to be known after their capital city as Romans, began their unequalled story with a *tremendous, vital force*, that of an exceptional and well-treasured soil. One can immediately realize the vigorous and profound respect for farmers and farming which characterized the Roman poets, prose writers and statesmen of much later ages, and their looking backward to their ancestors as men of exceptional fibre and character derived from their farming. They looked back to something exceptional in seeking for the origin of the firm strength of Rome.

These great farmers, who protected their land from the torrential invasions of the climate,

had also to protect it against the invasions of human beings, not neighbours merely, but those who had come over the Alps and Apennines in search of land. The farmers then proved themselves great warriors. Farmer and warrior contended within them, but as successes in war grew, so the warrior factor transcended that of the farmer, and the type of farming changed. The number of small farmers, able to keep themselves and their families well on less than five acres of intensive farming, decreased. From the point of view of the soil, indeed, the story of Latium, Rome and its empire, was largely a race between warriors gaining land by conquest and exploitation, and farmers losing it by enforced, inferior ways of farming and by erosion. But amongst the splendour of Rome's achievements, this basic quality of her story has hardly been perceived. The rebelling soil was there all the time, and, in the end, it was the rebellious soil that broke the strength of the warrior.

It is very understandable that, if farmers were liable to be called up for national service as warriors, intensive, personal farming suffered. The farms could not be kept in good condition when many of the men, who worked upon them, were away at the wars.

This drain began with the wars the Romans fought in or about Latium, but it only became critical at the time of the terrific struggle of Rome against Carthage and particularly as the result of the fifteen years of Hannibal's warfare within Italy itself. That led to an immense destruction, not only of the farmer-warriors themselves, but of water-channels, drainage, farm buildings, roads, bridges, trees and other props of intensive farming.

When the war was over, the government of the victorious but exhausted Romans was faced with the question of the reconstruction of the land.

Now at the same time that this question became paramount in Roman Italy, it also became paramount in China. The Chinese Empire of that time was situated in the middle part of the Huang Ho (known to us as the Yellow River) basin and the great territories on either side of it. To protect his empire against the warriors of the Tartars, the famous Chinese Emperor, Chin Chi Huangti, resolved to build a huge, fortified wall. To build it, he had to procure vast numbers of labourers and these he had to take from the land. So he abolished the Tsing Tien system and the inalienability of the land, which was the essential part of it, turned the peasants from their holdings and sold the land to all able and willing to buy. In both the Roman dominion and that of Chin Chi Huangti the land was the chief source of wealth. The rich men, therefore, readily bought the land of the dispossessed peasant families. So, after the second Punic War in Italy and the building of the Great Wall in China, the rulers of Italy and the rulers of China were faced with the same question, a question *the most momentous perhaps of all questions in the final story of mankind upon the earth*: Shall the *common* form of farming be by owners of small holdings or shall it be that of large estates owned by a small class of wealthy men?

The Chinese chose the former method. The great Chin Chi Huangti lived out his day, but immediately after his strong hand had been removed by death, revolt broke out, his son

was slain and the Han Dynasty (202 B.C.-A.D. 220) brought with it the long struggle between the imperial ministers, who aimed at the restoration of the Tsing Tien system of small family holders, and the new aristocracy of large landowners of Chin Chi Huangti. The struggle was long and bitter, but in the end, save for some large estates which the land itself dictated as needful, the Tsing Tien system was restored.

This restored also the Wisdom of the East, for the direct relation of the great majority of Chinese subjects to the creative soil was the ultimate basis of the Wisdom of the East.

In Italy the same struggle occurred. It was also prolonged and bitter, but always, if slowly, success turned away from small family ownership.

In the peace that followed the conflict with Hannibal, the Roman statesmen strove to turn the current back to the traditional ways of their forefathers, but Rome's conquests and the great influx of foreign slaves to work the land in the place of the dispossessed peasants, in addition to the injury to the soil wrought by the war, weighed heavily in favour of the wealthy classes. To all the land was the chief source of wealth. There were, at that time, no large manufacturing towns, and little commerce, for, in the words of Professor Tenny Frank, 'the ancient world has no record of any state of importance so unconcerned about its commerce as was the Roman Republic'. On the other hand, in favour of the small landowners, was the firmly rooted belief that those who worked upon the land were also the finest warriors and the chief strength of Rome's military power.

The great Roman writers were fully aware of this. Cato the Censor (234-149 B.C.) staunchly maintained that it was the farmers and tillers of the soil who made the best citizens and bravest soldiers. Varro (116-27 B.C.) voiced the same conviction that country life in its form of peasant-farming was the chief strength of the State. Cicero eulogized the farmer-citizens, who left the plough to save the State, and used his unequalled art to protect working farmers, whose extinction was threatened by the growth of wealthy proprietors. Virgil used the persuasion of poetry to exalt the culture of the land by the hands which possessed it. Horace, like the greater poet, proclaimed the older type of farming as the best. Columella, at the time of the Emperors Claudius and Nero (A.D. 41-68), declaimed against the poverty of the land, which resulted from handing its cultivation over 'to the unreasoning management of ignorant and unskilful slaves'. Pliny, the Elder, who wrote about the same time as Columella, championed those who worked their own land against the owners of the *latifundia* or great estates, who abandoned the work upon the land to slaves and for their own part only lived in their country houses when they could entertain house parties of their friends. How was it, he asked, there was so great a fertility of the soil in the past that seven *jugera* (a little over four acres) were held to be sufficient for a farmer and his family? His answer was that in those days the lands were tilled by the hands of generals and soldiers. 'Whether', he questioned, 'it was that they tended the seed with the same care that they had displayed in the conduct of wars and manifested the same diligent attention to their fields that they had done in the arrangement of their camp, or whether it is that under the hand of honest men everything prospers the

better by being attended to with scrupulous exactness?' The conception lasted up to the time of Vegetius, in the fourth century, who bitterly regretted the abandonment of the ancestral ways, when he saw the poor quality of the military recruits.

The great Roman writers of the latter part of the Republic and the early part of the Empire, then, had a passion and a hope for the reconstruction of the family ownership of the land not only because the farmers were the healthiest, most honest, and most diligent members of the State, as well as its best farmers, but because in times of danger they made the best soldiers.

The military leaders of the late republic were equally convinced of the value in character and physique of the farming class. When the supply of farmer-warriors failed, there seemed to be only one alternative and that was to start with warriors and, as a reward for their services, to give them land to farm. Marius was the first to give the twist from farmer-warriors to warrior-farmers. He overthrew the tradition that only the propertied classes were worthy to fight for their country, enlisted the proletariat, especially those who were living on the land, and rewarded their services with a gift of land. Slaves were never enlisted. Their grievances were too great and their numbers too many for any Roman to dare or even dream of such a dangerous experiment.

When the change to empire brought its long years of peace, its good government, its roads, its reliable civil servants, its self-governing city states served by an unequalled zeal on the part of public-minded citizens, its greater humanity towards slaves, and such prosperity that, of the best part of these first two centuries (from the death of Domitian in A.D. 96 to the ascension of Commodus in A.D. 180), Gibbon could write, 'If a man were called to fix the period in the history of the world during which the condition of the human race was most happy and prosperous, he could without hesitation name' that between these two dates, even then, the emperors, almost without exception, strove to revive the small family holdings. Augustus and his successors planted colonists on the land; Nerva spent millions in purchasing land for small farmers; generous laws dealt with the food of the agricultural classes; veterans were given free allotments; and Pertinax allowed squatters to occupy uncultivated fields even upon imperial estates, and to possess full ownership if they brought them into cultivation.

Nevertheless, in spite of these desperate endeavours to reconstruct personal farming, the power of money prevailed. The small farming class continuously and literally lost ground and the wealthy class as continuously gained it. In the place of the generous laws of the first two centuries of the empire, there came the restrictive laws of the last two centuries. Agricultural slaves were bound to the land. Heavy impositions and innumerable duties or liturgies were loaded upon the large class of *curiales*, or members of the senates of the city-states and large villages. This class of *curiales* included the landowners. As the demands of revenue became more exacting, membership of the *curiae* was made hereditary. The *curiales*, harassed by innumerable officials, duties that could not be fulfilled, poverty which withheld money from the land and forced them more and more to

exploit their deteriorating soils, sought by every means to escape from their ruinous property and its duties. 'Many of them', wrote Abbott and Johnson in *Municipal Administration in the Roman Empire*, 1926, 'abandoned their property and fled. Others sought to enter some vocation which would give them exemption from municipal charges. The emperors strove to check this movement by binding the *curiales* to their place of origin, and by forbidding them to enter any of the privileged professions.'

These measures failing, laws were then passed under which all the property of the *curiae*, whose members managed to escape, was made liable for the accustomed dues, the burden then falling on the less fortunate owners. Failure in payment led to the confiscation of property and its transference to the imperial estates which rapidly increased in all parts of the empire, and the tenants of which were exempted from municipal liabilities. Some also fell to the owners of the great *latifundia*, who were strong enough to resist the demands of the tax-gatherer or to hand on the burden of taxation to their tenants, who had originally sought their patronage as the only way of escape. The *coloni* or voluntary tenants were also bound to the soil and in the fourth century were reduced almost 'to the level of agricultural slaves'. 'The only class in the municipalities not affected by imperial legislation was the proletariat. The practice of Rome in maintaining this parasitic element by private charity was unfortunately widely copied, and imposed a serious charge on the civic budget. Not only that but the glamour of ancient urban life attracted labour from the farms and other industries where a bare living was gained by arduous toil. In the city one could be fed at the expense of the State, and when the *capitatio plebeia*' (a tax imposed by Diocletian on the working power of a man in good health) 'was removed from the residents of the towns, we cannot wonder that the urban movement went on apace' (Abbott and Johnson).

All this downward career was both accompanied and caused by the continuous depletion of soil-fertility. To this Italy, the imperial mother-country, was the most exposed, and upon her soil the story of its effect was most mournfully unfolded. In the early days of Rome seven *jugera* (4-1/4 acres) were found sufficient for a family, and this was the original assignment given to the *coloni* as tenants of the state. Gracchus found it advisable to increase the assignments to thirty *jugera*. The fall in fertility due to the war against Hannibal forced upon much Italian land the necessity of large ranches devoted to the raising and feeding of domestic animals or to orchards, and this necessity justified economically the brutality of the 'Enclosures' of that time, under which land that had previously grown good crops of grain was taken from evicted small farmers by the wealthy classes and cultivated as ranches. This, in its turn, confirmed the dependence of the masses upon imported corn. Caesar, as an evidence of the soil's further depletion, raised the assignments to sixty *jugera*, and Columella, writing about A.D. 60, asserted that a fourfold return of grain was unknown on Italian farms. Finally, in the third and fourth centuries the debasement of the soil completed itself. Much of Latium, once the parent of the sturdy strength of the Latin fathers, became a pestilential swamp. Provinces, which had once been the native land of formidable legions, were almost bereft of the human

species. Flourishing towns dwindled to villages and disappeared. The proletariat of Rome ceased to exist.

The capitalists of the western capital did not await the complete degradation of Italy. They transferred their capital at the call of Constantine the Great (A.D. 288-337) to a new capital city on the shores of the Bosphorus, a city situated midway between the rich wheat lands that ringed the Black Sea and the inexhaustible fertility brought annually in the Nile flood. Abandoned Italy fell to Odoacer in A.D. 476.

Now this story will be found to be fraught with meaning to those conversant with or, by a perusal of these pages, about to become conversant with the past story of agriculture in England and the present state of agriculture throughout the British Empire and other countries of Western civilization. Amongst other things, they will also see the perilous significance of the attempt of the Nazis to conquer the world and bind subject peoples to slavery upon the land. This subjection of the land, against which so many of the great Romans vainly strove, advanced steadily and irresistibly as an inevitability of a civilization which valued the soil as a commodity producing money, not as the very creator of the life and health of man.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 3

The Roman Foods

In the previous chapter, we have not proved the point that it was the intensive personal agriculture in a favourable soil and climate, which gave to the early Romans their physiological vigour and virile character. We have not proved it for it is not susceptible of proof as a separate entity. It can only be brought forward as an example of the reasonable supposition that the quality of the food and the animal that eats it must be interwoven. All, therefore, that we have been able to do has been to bring forward certain facts bearing upon early Latium which to some readers will at least link up with the tradition of the exceptional character of its inhabitants.

Let us now review, as far as we are able, the foods themselves from which this physiology derived.

At the beginning we are forced to realize that in history generally it is difficult to find out about the quality and character of the food of a people, and to this the early Romans afford no exception. Dr. K. Hintze, however, has in his invaluable *Geographie und Geschichte der Ernährung* collected such knowledge as persistent scholarship can reveal.

What Hintze is able to tell us about the foods of the early Romans is not copious, but nevertheless it is fully in accordance with that of some of the most virile people at present upon the earth. It has already been shown what care was given to its cultivation. That is of primary importance. One may presume that with such skilled and laborious cultivation, the soil, itself of excellent natural gifts, rendered healthy and well-growing vegetable and animal food.

There is no contemporary information, says Hintze, about the foods of early Latium; there are only the traditions, supported by the influences of modern research, of what it had

been.

Of grains, there was barley, wheat (emmer) and millet. There were no mills, but the grains were crushed in a mortar and the husk removed. The grain was then made into a porridge and eaten with salt. The grains were often lightly roasted so as to make the removal of the husk easier. Later came the hand mill and the grain was crushed between two millstones.

The student of nutrition and dietetics will at once note that only the husk was removed. The porridge was thus wholemeal porridge and, if flat cakes of bread were made, they too were wholemeal.

This traditional porridge, Hintze surmises, was the staple food of the early Romans, who ate alike as there was little or no food distinction of the classes at that time.

Then came vegetables and fruit. There were cattle, but flesh was seldom eaten, except on the days of religious festivals. The animals were kept for work upon the farm, for the provision of manure, and for milk and cheese. Milk and cheese were an important part of the food.

The grape was cultivated in Italy in pre-Roman times, but in ancient Latium it seems to have been unknown. Its culture, however, reached Latium at some early date and the inhabitants then drank wine. Whether they drank wine made from other juices, as was the later habit of the Romans, is not known. Barley beer, the drink of northern peoples, never found favour in the land of the grape.

The food of the early Latin farmers was, therefore, the lacto-vegetarian, which has won such high praise from Sir Robert McCarrison and other distinguished modern nutritionists, as the food of many of the healthiest and strongest peoples of the present day. If a healthy soil can be granted to these people, then they had in their food all the necessary elements of physiological excellence.

The lacto-vegetarian diet is not the only healthy whole diet. There are other such diets, that of the Polar Eskimos for example in which whole carcass feeding plays almost but not quite as prominent a part as it does in that of the beasts of prey. But the lacto-vegetarian diet of wholemeal grains, fruits, vegetables, milk and its products, as McCarrison has shown, is the basis of the excellent health and physique of the Hunza, the Pathans and the Sikhs of North-western India and, with a more precarious supply of grain and vegetables, of the Arabs and Baggaras.

What proportion milk and its products added to the vegetables and fruit foods of the early Romans is not of course known. Their value was, one would think, firmly established in the tradition of people, some of whose ancestors came from central and eastern central Europe. It was certainly a tradition handed down to and maintained from the early days of the republic. The *latifundia* or large estates of the later republic largely specialized in milk

and milk products, as well as wines and olives, and left the growing of corn in large degree to the provinces. They raised cows, sheep, goats, horses and asses, and the milk and cheeses of the milks of all these animals were consumed with the inner knowledge, which Cossinius, in Varro's work, displays. Cossinius discusses the qualities and differences of these products as connoisseurs discuss those of wine. Nothing perhaps shows more vividly the immense gap that exists between the sophisticated town diets of today and that of early and middle republican Rome than this serious devotion to milk and its products.

It is in this lacto-vegetarian character that the early Roman diet allies itself, as has been said, to that of many of the finest people of the present day. It is in their intensive cultivation of the land as individual farmer-families that they resembled the Chinese, Koreans and pre-modern Japanese. It is in their traditional reverence for the nutritional qualities of milk and its products, however, that they differ from these far-eastern peoples, whose land supports so numerous a population that there is not sufficient for the support of a large number of domesticated animals as well. It is in the combination of the two, intensive cultivation and the culture of dairy products, that the Roman diet most resembled that of the Hunza people of the western Himalayas who are probably unsurpassed in physique and health by any other people of the present times. Moreover, whether by tradition or not cannot be said, but certainly in mid- and later republican times, and therefore possibly in the early Roman period, a great quantity of different fruits were cultivated in Italy, so that Hintze, at one passage, yielding perhaps to hyperbole, declares, that 'at Varro's time all Italy resembled a fruit garden'. In this generous provision of fruit, the diet resembled that of the present-day Hunza, who eat great quantities of fresh and sun-dried fruits. It also has allied to it the great quantities of dates, which those other people of superb physique, the Arabs of Arabia, eat.

As regards early Roman agriculture, the intensity of which has already been indicated, Frank praises its practical efficiency. Professor Whitney, in his great work *Soil and Civilization* (1926), writes of the Roman knowledge of certain principles and practices, such as their recognition of the different types of soil and the crops suitable for them; their recognition of the need of local knowledge of the soil and its preservation by successive generations of families cultivating the soil, where they themselves were born and bred; their use of legumes which allied them to the prolonged agricultural history of the Chinese, as also in their avoidance of any waste upon the farm, all animal and vegetable refuse being returned to the soil as manure, and other technical features of agricultural practice upon which a competent student of practical agriculture like Whitney is qualified to write and to whose book I refer the interested reader.

There is therefore, I think, quite sufficient evidence to presume that the Romans and their neighbours belonged to those people who by long adaptation to a repetitive, well-cultivated, sound diet, seem to have acquired an absolute harmony with their food, and, as a sequential necessity, were themselves a people of exceptional physique and health. The foundations of their western world dominion included their foods and agriculture.

The change in both came with the spread of that dominion.

The change amongst the agricultural Italians was much slower in its ingress than it was amongst the rapidly increasing urban populations. The rural people were necessarily affected by the changes recorded in the previous chapter, but their foods were still locally produced, milk and its products, grains, vegetables, fruit, oil, wine and occasional meat.

It was upon the metropolis and other major urban centres that the chief effect of the change fell. The bread or porridge of the lower classes was now prepared, not from local grains, but from grain imported across the seas from Egypt and northern Africa. 'The sustenance of the Roman people is day by day being tossed about at the caprice of wave and storm', were the words of the Emperor Tiberius to the Senate. But that is almost all that can be said with accuracy about the urban lower classes and their food. Hintze laments that 'unfortunately as concerns the life of the smaller folk, comprising the mass of the population, we can learn practically nothing from the writers of the time'.

It is a very different story as regards the wealthier classes of the later republican and early imperial Rome. Their breakaway from the simplicity of their great ancestors to luxury were frequent themes of the writers of the time. The wealthy Romans were indulgent of their appetites. Taste and the temptations of delicate dishes replaced the satisfaction of robust appetites. Dinner (*cena*), beginning about 3 p.m., became a cult. Individually and socially it occupied by its time alone, which was three or more hours, a considerable part of the day.

Hintze gives a list of the foods in their variety which reached the table at the time of the empire: milk, cheese, honey, wine, wheat, barley, millet, beans, lentils, peas, cabbage and other leafy vegetables, tubers, beets, turnips, radish, salad, onion, cucumber, celery, mushrooms, truffles, dill, mint, garlic, coriander, mustard, pepper, cardamon, olives, grapes, apples, oranges, lemons, dates, pears, plums, cherries, figs, quinces, apricots, peaches, almonds, walnuts, hazelnuts, fruit-wines of apple, pear, pomegranate, mulberry and other juices, mutton, goat, pig, deer, boar, chamois, antelope, hare, spiced meats, smoked meats, hams, goose, chicken, ortolan, bunting, starling, thrush, dove, peacock, flamingo, guineafowl, fish, mussels, crabs, lobsters and oysters. Beef was not much eaten, the bullock being kept for labour and the cow for milk.

There was, therefore, a complete change from the ancestral lacto-vegetarian diet to one drawn from all parts of the available world by the fame and wealth of Rome.

The new diet had what has been termed the virtue of variety. Whether the incentive of variety or the adaptation of familiarity is better for individual men cannot be answered. As far as I know, the question is one of those which has had little attention paid to it.

One can only repeat facts. This very varied diet is essentially one of wealthy urban or

urbanized classes, and it entails gradations downwards to the masses of the urban population. Immediately below the upper class which gets the pick of the food, there is a grade which gets the foods that are in excess of those required by the rich or those slightly spoiled for the fastidious palates of the wealthy. So the diet passes downwards, contracts, and changes to that of the lower classes, who, in the case of Rome, depended for their staple food on distant countries.

It is most important, however, here to realize that the defects due to poor food are acquired defects and therefore they are not, in the commonly accepted view of modern science, inheritable or inherited defects. Any poor Roman, who by wisdom or fortune, received a good diet from conception onwards, would show the better physique and health which that diet ensured. As to the rich, their varied diet judiciously used clearly gave opportunity for health and fine bodily quality, for the rich mostly had estates and other means of access to good milk, cheese, oil, fruit, vegetables and corn.

The rural population, like the wealthy, had access to fresh food. The growing of wheat in Italy did not come to an end. 'In Nero's day,' writes Frank, 'Egypt sent about five million bushels of wheat to Rome annually while Africa sent about twice as much. That would suffice for the capital alone, and reveals why cereal-culture could be neglected in the vicinity of the city. But the rest of Italy had a population of about fifteen millions and they would require more than 150 million bushels a year ... We must conclude therefore that wheat was very extensively and successfully raised during the first century.'

The foods of Rome of the period of dominion may then be summed up broadly as four.

Firstly, there were the small farm home-produced foods to the Italian countrymen. These approached most closely of the four groups to the traditional foods of their ancestry. To what degree they did so it is impossible to relate, for as Mr. H. Stuart Jones says in *Companion to Roman History*, 1912, though 'there is good evidence in the literature and inscriptions of the early Empire that the small holding was far from extinct in A.D. 100 and later, we know so little of its working that we can only describe the *fundus* of the capitalistic landowner as Cato and Varro picture it.'

Secondly, there were the home-produced foods of the slave-worked *latifundia*. Under the late republic the condition of the slaves was wretched in the extreme. Under the empire their lot was gradually ameliorated. Their foods were presumably not the equal of the first group. Moreover, the specialization of the estate limited the number of foods compared to that produced on the general farm.

Thirdly, there was the varied diet of the wealthy classes comprised of fresh foods from their own or neighbouring farms and estates, fish from the seas and rivers, and luxury foods imported from abroad.

Lastly, there was the food of the lower urban classes. Of this Mr. F. H. Marshall, in Sir

John Sandys' *A Companion to Latin Studies*, 1921, writes: a kind of porridge of wheat, like that eaten in early republican times 'even in imperial times continued to be eaten by the classes ... with green vegetables, seldom meat'. The grain was still consumed as a wholemeal grain. As to its quality, there is no means of comparing it with the wheat or emmer and other grains of early Latium. But its wholemeal character was certainly preserved.

This is about the only fact of importance one can gather from what is known of the food of the urban lower classes. One knows little or nothing about their access to dairy foods. As already quoted, Hintze states that 'unfortunately as concerns the life of the smaller folk, comprising the mass of the population, we can learn practically nothing from the writers of the time'.

Summing up one may assert that compared to the foods produced by the farmers of early Latium, that of the first group approached, but owing to the increasing difficulties of the farmers, cannot have reached that of the early period.

The food of the second class of the agricultural slaves was certainly inferior.

The food of the third class, the wealthy, is less comparable. It is not possible to state, but it is possible to imagine that it produced a greater variety of human qualities. That it also brought with it the deterioration of over-luxurious and over-gross feeding is certain. Nevertheless, the daily life of its eaters, their gymnastics, games, and bathing proves the persistence of the ideal of bodily health and physique.

The food of the fourth class, the poorer urban class, was certainly inferior.

With the degeneration of Italian agriculture, there came a degeneration of foods and their quality, and a degeneration of the eaters of these foods. To whatever other causes the decline and fall of the Western Empire was due, this of its foods was assuredly amongst the primary ones. It suggests that no empire can endure with its centre in the motherland, if the agriculture of the motherland deteriorates. The process is naturally a slow one and as such was not mentally impressed upon the Romans as a people, though realized by many of its thoughtful and prominent men.

Chapter 4

The Roman Family

The human group, by which the farming of early Latium was carried out, was the family. A slave of that time was one of the family and took his part in the general work and domestic life without degradation.

The human family and the cultivated soil were indissolubly connected; the family was pledged and wedded to the soil. The very type of marriage, that of monogamy, was dictated by the soil.

The farm provided the family group with food, clothing, shelter, fuel and an overflow of produce for exchange for goods produced by others. It gave security to the children and old people, and the security was continuous so long as the soil was well-husbanded. The peculiar knowledge of the family and of their ancestry was that of their farm and all that affected it.

To the family its land with its particularities was as living and particular as were their own particularities. The creation of children to continue the family was, as it were, an aspect or relation of the creative quality of the soil. The blended intimacy was an intimacy formed within the mystery of the recurrent creation of both. The farming family was inevitably religious; it was so near in its life to the abundant life in which it was itself the agent of creation; in death it was so near to the inevitability of the resurrection of that which is apparently dead but which, mixed with the soil, again joins the regions of life.

Every schoolboy, recalling his Roman history, carries in his mind the grim figure of the *pater familias*, the head of a Roman family, who preserved the form of the family and punished any member of it who endangered its corporative existence, and did not in extreme cases hesitate to inflict death upon his own flesh and blood.

Ordinarily, one may presume, as member of a family he was not grim, but the fact that he had those traditional powers showed that the family was cultivated with as great an intensity as the land; and his summoning of the family at the awakening of day to the worship of the household gods showed that that, which man ultimately does not reach but which by intimacy he can approach, was a deeper interpretation of the common life upon the farm.

The family was the large or joint family, which is the form of family particularly correlated with the intensive hereditary cultivation of small farms. It was the large or joint family consisting of the father and mother, their sons and grandsons with their wives and children, and their unmarried daughters. The men worked upon the land and for the State, the women worked for the family. Outside the family woman had no recognized place. She inherited her portion of the family land, but that was for her security and not to give her individual scope for agricultural skill or toil.

She was the mother and the housewife. But in the relation of her children to the State and family, she was subordinate to the *pater familias*. It was he who had an absolute legal right to decide whether a child born to him or in his family should be reared or not. It was he who ordained the death of a defective child or one threatening the family unit by overpopulation. 'The maxim was not suggested by indifference to the possession of a family,' is Mommsen's comment. 'On the contrary, the conviction that the founding of a house and

the begetting of children were a moral necessity and a public duty had a deep and earnest hold of the Roman mind.'

But the family had to be strong in its individual units and in itself as a unit of the State. It had to be strong because the proper service of the soil demanded physiological strength, and the strong State, the State that could successfully defend itself against invaders and aggressive neighbours, had to be compounded of strong family units. The family was, indeed, the very essence of the State. 'Of all Roman institutions marriage was the most sacred,' wrote Mr. Romaine Patterson in *The Nemesis of Nations*, 1907. 'The family altar, transmitted from one generation to another and holding a fire which had been lit by ancestors who had been dead for centuries, was the central and most impressive fact in the life of a Roman burgess.'

The economy which was attached to this sanctity of the family has been called a 'natural economy'. After the Punic Wars, there arose as its rival and supplementer a 'money economy'. The new rich, in the main, were new men, the Equites. The older landed aristocracy, as was to be seen later in other nations, were not a match for the new men. It was the Equites who made and controlled the money economy in its various forms. *They* farmed rents, taxes, customs, excise and other duties. They controlled the import of food, the slave trade, and the creation and circulation of money. The most certain path to wealth was the profession of banking. Only exceptional cleverness or luck in speculation built up wealth more rapidly than did banking, and this very speculation was supported by the bankers. Almost all, who laid claim to credit, fell into the bankers' debt. The successful politicians depended upon the backing given to them by the bankers. Capital, labour and competition, under the money economy, became commonplaces, though unknown under natural economy. In the growing ascendancy of money economy, the bankers necessarily became indispensable, and eventually the whole State became an exhibition of their indispensability. Everything hung from them as the staples of the State. Property concentrated. The tribune, Philippas, quoted by Cicero, stated that there were only 2,000 property and landowners in the whole Commonwealth.

The effect upon the family and marriage was profound; they both began to lose their meaning, and indeed did lose the greater part of their meaning. As the sacredness of marriage and the family fell, it is in the women of the upper class -- the class which, as in the case of food, practically monopolized the pens of the great Roman writers from which we get our information -- that the change of values is most vividly illustrated.

The Roman matrons now became figures of tradition. The object of the fashionable ladies was the *reverse* of that of the displaced *domina* or mistress of the home and family. Their desire was to avoid by all possible means the appearance of being matronly. To conceal all appearances of advancing years, to look young, attractive and ripe for adventure, that was, in particular the object of the society women. Their culture was beauty culture, their scarcely concealed convention was to occupy themselves with love affairs without fruition. As, perhaps, a form of revenge for the secret desolation of their wifhood and

motherhood, they wasted the imperial resources with lavish prodigality. Fashion and beauty cost so much that thousands of slaves throughout the empire were necessary to support them. The passion for personal freedom, in the sense of untrammelled desire, divided them from the few children which they had. The younger folk, on their part, freed themselves from the shackles of parental authority. The *pater familias* vanished into the past with the *domina*. The family elders, once honoured as the store-house of experience and wisdom and links with the past, were unreverenced and made to feel the uselessness of old age.

I cannot better substantiate the accuracy of the picture of the upper class Roman women than quote Theodor Mommsen's account in his *History of Rome*. He is describing the time when society had first erected itself to a great height of luxury upon the wealth that accrued from the exploitation of Rome's widespread provinces and the great number of slaves, which filled the place in the Roman world that machines were to fill in the Industrial Era. Amongst society, he wrote: 'Morality and family life were treated as antiquated things amongst the ranks of society. To be poor was not merely the saddest disgrace and the worst crime, but the only disgrace and the only crime.' The effect upon society women, he described in these words: 'Liaisons in the first houses had become so frequent, that only a scandal altogether exceptional could make them the subject of special talk; a judicial interference seemed now almost ridiculous. An unparalleled scandal, such as Publius Clodius produced in 61 B.C. at the women's festival in the house of the Pontifex Maximus, although a thousand times worse than the occurrences which fifty years before had led to a series of capital sentences, passed almost without investigation and wholly without punishment. The watering-place season -- in April, when business was suspended and the world of quality congregated in Baiae and Puteoli -- derived its chief charm from the relations licit and illicit which, along with music and song and elegant breakfasts on board or on shore, enlivened the gondola voyages. There the ladies held absolute sway; but they were by no means content with this domain which rightfully belonged to them; but also acted as politicians, appeared in party conferences and took part with their money and their intrigues in the wild coterie-proceedings of the time.' 'Celibacy and childlessness became common, especially amongst the upper classes,' and it was held to be the duty of 'a citizen to keep great wealth together and therefore not to beget too many children'.

Childlessness, indeed, had further advantages. Men and women who had children were debarred from the joys of society and were omitted from invitations to social gatherings. Hence Seneca (5 B.C. - A.D. 65), himself a man of great wealth, whose strange attachment to Stoic philosophy led him, with his colleague Burrus, to the wise and humane government of the first five years of Nero's reign, did not think it ill, in a manner that would have outraged the farmer-Romans, to console a mother who had lost her only son by pointing out that she would now be free to enjoy the pleasures and prestige of society.

Nothing could better than this convey the gulf that formed between the position of the

women of 'natural economy' and the dominant women of 'money economy'. But it is juster to regard this great change as an example of relativity than to condemn it on the grounds of morality. The conduct of the first women was relative to the pre-eminence of the soil, that of the second to the pre-eminence of money. The first economy was preservative of life and the soil, the second was destructive. How destructive it was will be seen in the next chapter.

Chapter 5

Roman Soil Erosion

The best summary of this aspect of Roman history which I have read is that of Professor Simkhovitch, in an essay published in the *Political Science Quarterly* of the Columbia University, 1916, under the title of 'Rome's Fall Reconsidered'.

Simkhovitch began with quotations from Roman writers, Pliny, Horace, Varro, Columella and others, who were fully aware of Rome's progressive degradation at the roots. The process was a slow, progressive exhaustion of soil fertility. It was not due to lack of knowledge of good farming, for, 'nothing could be more startling than the Roman knowledge of rational and intensive agriculture'. Nor, I think, could it be said to be due to debt, for debt did not begin its devastating career until the fertility of the soil became impoverished. Debt was not necessary as long as the farming families were able to give their time to intensive cultivation.

The spread of the degradation of the soil was centrifugal from Latium itself outwards. Varro noted abandoned fields in Latium, and two centuries later Columella, about A.D. 60, referred to all Latium as a country where the people would have died of starvation, but for their share of Rome's imported corn. The Roman armies moved outwards from Latium demanding land; victory gave more land to the farmers; excessive demands again brought exhaustion of fertility; again the armies moved outwards.

'Province after province was turned by Rome into a desert,' wrote Simkhovitch, 'for Rome's exactions naturally compelled greater exploitation of the conquered soil and its more rapid exhaustion. Province after province was conquered by Rome to feed the growing proletariat with its corn and to enrich the prosperous with its loot. The devastation of war abroad and at home helped the process along. The only exception to the rule of spoliation and exhaustion was Egypt, because of the overflow of the Nile. For this reason Egypt played a unique role in the empire. It was the emperor's personal possession, and neither senators nor knights could visit it without special permission, for even a small force, as Tacitus stated, might "block up the plentiful corn country and reduce all Italy to submission".'

Latium, Campania, Sardinia, Sicily, Spain, Northern Africa, as Roman granaries, were

successively reduced to exhaustion. Abandoned land in Latium and Campania turned into swamps, in Northern Africa into desert. The forest-clad hills were denuded. 'The decline of the Roman Empire is a story of deforestation, soil exhaustion and erosion,' wrote Mr. G. V. Jaks in *The Rape of the Earth*. 'From Spain to Palestine there are no forests left on the Mediterranean littoral, the region is pronouncedly arid instead of having the mild humid character of forest-clad land, and most of its former bounteously rich top-soil is lying at the bottom of the sea.'

The same fate at a later date fell upon Asia Minor, the decline of the Eastern repeating that of the Western Empire in its soil-aspects. Sir William Ramsay, in *The National Geographical Magazine* of November, 1922, wrote one of those articles which almost stagger one with the super-eminence of the treatment of the soil in the story of mankind. The Province of Asia 'in Roman times was highly populated and therefore highly cultivated ... It is difficult to give by statistics any conception of the great wealth and the numerous population of Asia Minor in the Roman period. In the single province of "Asia", to use the Roman name for the western part of the peninsula, which was the richest and most highly educated of the whole country, there were 230 cities which each struck its own special coinage, under its own name and its own magistrates, each proud of its individuality and character as a self-governing unit in the great Empire.'

Sir William carried out a careful exploration of some of the areas of high cultivation, which he regarded as the necessary basis of this wealthy province. What he found was what is found elsewhere, namely, hills denuded of forest and swept by heavy seasonal rains, and what he further found was the relics of the extensive terraced engineering by which the nourishing water had once been conserved and distributed: 'In older time', he wrote, 'the numerous terraces would have detained the water from point to point up the mountain side, preventing it from ever acquiring a sufficient volume to sweep down in a destroying flood.' Against this fertile land came invaders. First came the least destructive, the Arabs, least destructive because they observed in war the sanctity of trees. The Arabs could under the rules of war destroy the crops and produce of the enemy, but only exceptionally the tree, which conserved the soil. 'It was left to the Crusaders under the command of German, Norman and Frankish nobles and bishops, to inaugurate the era of total destruction of a country by cutting down the trees ... These broke the strength of an organized society by reducing a great part of the country from the agricultural to the nomadic stage. The supply of food diminished accordingly, and with the waning of the food-supply the population necessarily decreased.

'A decreasing population', continued this masterly account, 'in its turn was unable to supply the labour necessary to maintain the old standard of water engineering, on which prosperity rested. Gradually industries languished and died in the towns as well as the agriculture in the country. The Sultans did what they could. Neither the Seljuk Turks nor the Ottoman Turks were actuated by fanaticism. They wished to preserve the old social system so far as it was consistent with the dominance of a conquering caste; but they could not maintain the education which was necessary in the old Roman system ... Thus

the whole basis of prosperity was wrecked, not by intention, but by steady decay. A number of causes co-operated and each cause intensified the others. Can the prosperity of this derelict land be restored?'

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 6

Farmers and Nomads

I. The Land

Physical maps, showing the different elevations of land, have always had an irresistible attraction for me, and none is more attractive than that of the vast continent of Asia with its European appendage, pushed out like a tongue between the Mediterranean and Northern Seas. What a huge playground of history this map presents! There has been nothing like it in the other continents of the world, Africa Australia and the Americas. They are, excepting Egypt, almost without history, compared to the Eurasiatic Continent.

The map which I possess has five colours to denote different heights, dark green to show land below sea-level, light green from sea-level to 500 feet, yellow 500 to 2,000 feet, light brown 2,000 to 5,000 feet, and dark brown over 5,000 feet.

Asia begins with the beaches of the Arctic Ocean. Then comes a vast light green band or belt with a few yellow areas within it. It stretches right across Asia and Europe. In Asia it is the Siberian Plain; in Europe the Great Lowland Plain.

Except for an extreme northern band of Arctic vegetation, called *tundra*, this light green belt is forest land with great rivers passing through it to the Arctic Ocean. It is Belt No. 1. It has played very little part in Asiatic history.

Yellow-tinted is the land between this green belt and the mountains to the south of it. It has less rainfall than the green land north of it, and is subject to seasons of aridity. It is grass land, the land of the Steppes. This is Belt No. 2. It has played a great part in Asiatic history.

Belonging to Belt No. 2 as Steppe land, there is a patch of light green near the Caspian Sea. It is a part of the Kirghiz Steppes and it passes directly to the Steppes of south-eastern European Russia; when north of the Caspian, it is actually tinted dark green or below sea-level. This is the Caspian Tract, through which so many hordes of Asiatics passed into Europe in prehistoric and historic times.

The third belt begins with light brown almost from the northeastern tip of Asia. It then shows a dark brown series of mountain ranges. From east to west these are, the long thin line of the Yablonoï Mountains, the much greater mass of the Sayan and Altai Mountains, and the lofty Tianshan, which ends at the seventieth longitude in the Pamir or Roof of the World.

Belt No. 4 is a light brown belt between Belts 3 and 5. It includes Mongolia, the Gobi Desert and Turkestan. It comes to an end at the Pamir. Mongolia is Steppe country and its inhabitants have played a large part in history, not only of Asia but also of eastern Europe. The name Mongol, or Tartar of the Chinese historians, however, has become attached to other peoples of the Steppes as well as to the people of Mongolia.

The fifth belt constitutes the largest mass of elevated land in the world. In the east it rises almost abruptly above the light green of the lowland of China, and then forms the most extensive elevation, that of Tibet, 11,000 feet and over, which is inhabited by man. Tibet's southern border is formed by the highest mountains of the world, the range of the Himalaya. The Himalaya pass on westwards, forming the northern barrier of India and join the lofty Tianshan of the third belt in the Pamir.

From the Pamir the conjoint Tianshan and Himalaya continue westwards as the Hindu Kush Range; thence reaching across northern Afghanistan and Persia to arrive at Ararat in the east of Asia Minor. Ranges of lesser height pass from the Hindu Kush southwards to form the eastern border of Afghanistan and then pass west and north-west to the east of the Persian Gulf as the mountains of west Persia and so reach Ararat. They, and the northern ranges, enclose a smaller and much lower plateau than that of Tibet, the Iranian Plateau. Finally from Ararat, mountains continue westwards in Asia Minor, and appear in Europe as the Balkans, the Alps and the Pyrenees.

Belt No. 6 is the land of the Farmers. For our purpose it is the light green land about the great rivers, the Huang Ho or Yellow River and Yangtse Kiang of China, the Brahmaputra, Ganges, and Indus of India, the Euphrates and Tigris of Irak.

Such, in brief, is the physical map of Asia. Its fascination lies in the fact that one can read from it some of the vast progeny of history upon the huge stage of the continent of Asia.

II. The Nomads

The Nomads are the inhabitants of Belt 2, the Steppe country. They are defined in *Annandale's Concise English Dictionary* as 'those people whose chief occupation consists of feeding their flocks, and who shift their residence according to the state of the pasture'.

The Nomads, according to this definition, present a picture to the mind's eye of wandering shepherds and peaceful pastoralists passing from pasture to pasture to the sound of tinkling cow bells. They would erect their tents of oxhide at new pastures and enjoy the comfort of a home and resting place, until their experienced eyes told them that the pasture was insufficient for their cattle and it was time to move on.

Probably in the earliest historical times, the Nomads had horses. The horse is an Asiatic animal and the only wild horse now known is found in Western Mongolia, as a natural denizen of its dry, open steppes. Certainly the Nomads had horses before 2000 B.C., for horses appeared in Babylonia at that time and two centuries or so later the Hyksos, who conquered Egypt, introduced horses into that country. So we can add the horse to a company of Nomads. But the horse was to them a noble animal and was ridden only. It was not used as a beast of burden as it is to-day; it was the oxen who drew the heavy wagons of the Nomads when they trekked. The horse was loved for its speed. It was the swiftest animal of the steppes and it was this which made it loved by the Nomads.

The picture of the Nomads is a pleasant one and their life was peaceful and pleasant as long as the pasture was good. But, when the rain was scanty and the pasture poor, they were in trouble, Then they had to move frequently and, sometimes, faced by the loss of their cattle by starvation and themselves feeling the pinch of hunger, they would move quickly and their warriors, mounted on their loved steeds and armed with bows and arrows, would fling themselves upon peaceful people, either more fortunate pastoralists like themselves or farmers, slay many and take possession of their land. With their incredible swiftness on the march and an unprecedented speed of encircling attack, with their deadly accuracy of arrows shot from the saddle, with their horrific cries to terrorize their slow-moving victims, they must have seemed like a horde of winged insects, whose sting was death, and whose capture and destruction were impossible.

The cause of this disturbing loss of food was at one time believed to be an increasing dryness of the climate in historical times. This hypothesis was propounded by Prince Kropotkin in an article in the *Royal Geographical Journal* of 1904 in which he stated that it was quite certain that Belt No. 4 was more populated than it is now; it was quite certain, for example, that within historical times Eastern Turkestan and the adjacent part of Mongolia 'were not deserts as they are now. They had a numerous population, advanced in civilization, which stood in lively intercourse with different parts of Asia'. Many of them were successful farmers dependent on irrigation from rivers flowing from their enclosing mountains. This, Sir Aurel Stein, in his monumental work *The Desert Cities of Cathay*, 1912, has convincingly proved beyond further discussion. Kropotkin continued: 'All this is now gone, and it must have been the rapid desiccation of this region which compelled its inhabitants to rush down to the Jungarian Gate' (Jungaria was a name of Western

Mongolia) 'to the lowlands of Balkash and the Obi.' Mr. Huntingdon Ellsworth skilfully developed this hypothesis in *The Pulse of Asia*.

The hypothesis gave rise to very widespread investigation, with the result that, though fluctuations of climate undoubtedly occurred, as shown, for example, by the rise and fall of the level of the Caspian Sea, nevertheless a continuous decline in humidity in historical times could not be accepted. Drives through the Jungarian Gate were, however, accepted.

Another reason had to be found. *It was found in the particular character of the treatment of the soil by the Nomads.*

The first statement of this other reason, which I have been able to find, is that by Monsieur Rorit in the Royal Geographical Journal of 1870. Rorit wrote: 'The nakedness of Arabia and the vast tracts of Asia in the north and west, the sterility, which extends over Persia, cannot be traced to any other cause than the pastoral habits of the inhabitants. The people inhabiting them are locusts; they destroy all woodland and vegetation, modifying even the climate -- whence the necessity of migrations. Had the invasions of the barbarians any other cause? A study of the question in this sense would perhaps give us the key to the great migrations of mankind.'

Monsieur Rorit's reason is pungently expressed, but it is now accepted. It could not well be otherwise, for, to confirm it, the same process is going on in many parts of the world under our eyes today.

In the countries in which Nomads fed their flocks and herds and grew temporary crops of grain, there was, as is usual in uninterfered with nature, a balance between animal and vegetable life. Animals feed upon the land and manure it, but they do not ravage it. When human pastoralists entered these countries, there entered with them an altogether new danger, namely a form of terrene animals so advantaged by their upright position, their hands and their large brains, that they have the capacity to *override the natural law of balance*. They could breed more animals than the land could permanently support; they could break up the natural life-cycle of a district by using all that the soil produced, and then, when exhaustion of the soil came, move on to another district. With weapons forged from the iron of the Altai Mountains, these Nomads could cut down trees and shrubs and, with their ability to create fire from flint or friction, they could burn as well as cut down. The ash of the burnt trees and shrubs gave the manure of their substance to the land and enabled the Nomads to grow good temporary crops for a number of seasons. They, in short, as men, had power; *and power in this sense may be defined as the ability to exceed the limitations set by nature.*

Nature followed the rule of return, and the Nomads, unlike the true farmers, failed to follow the, rule of return. Indirectly, by cutting down trees and shrubs for fuel and for ash, they made the soil drier. Rain fell and was by nature broken into a fine spray by trees, shrubs and thick grass and was thus evenly and widely spread in the topsoil. The topsoil,

sheltered from sun and rain, stored the water. By slow evaporation from the vegetation, the water was returned to the air. But where excess of cattle fed upon the land and where trees and shrubs were widely burnt, the soil was exposed, dried and powdered, and then blown away by the winds or washed away by the rain. So a district of desert was formed, which forced the Nomads to move on. Nature then returned and in many cases restored the ravage. But if the destruction of fertility had been too great or if the half-recovered soil was again used for crops and grazing, permanent deterioration was the result.

The Nomads, then, lived a life of ill-balance by not following the rule of return, which is *the only stable rule of living*. They were, therefore, forced to live a life of *chance*. They depended on the seasons and, as the seasons varied, they themselves were necessarily *speculative*. In this character, indeed, they were like to other kinds of speculators, many prominent at the present time. Speculators disregard the rule of return. They strive to gain without giving; they disregard future generations; they are indifferent to the sufferings of others, provided they themselves can escape suffering. Yet eventually there is no escape from the effects of these actions, because ultimately their values are destructive and not conservative.

As long as the Nomads failed to use settled agriculture and limit their cattle-breeding, life was sometimes generous to them, sometimes even-handed, sometimes, at seasons of drought, harsh. At times of harshness, mounted on their horses they organized wide-sweeping hunts of wild animals for their food. If further pressed, they were forced to move on and this sometimes entailed making raids into the lands of their neighbours, who, in their turn might raid or join with them in raiding. Then, with increasing numbers, they might successfully, make themselves masters of the land of settled farmers and the food and wealth, which they had not the wit to get by their own skill and toil. Hence they praised war, not as a means of defence in the way in which a sturdy peasantry has so often successfully defended itself and its soil, but as a means to mastery and wealth. To them life was not only a struggle for existence, but a will to power over their enemies, an assertion of the right of the better-armed and of the more savage nature over what they regarded as possible, and if possible legitimate, prey. They terrorized when they attacked, and, when they conquered, they were successful owing to the speed of their attack, the terror they aroused, and the human slaughter they effected. All these characters of theirs ultimately, therefore, arose from their attitude to the soil. *The soil was something to be exploited and even plundered for their gain*. This attitude was in the sharpest possible contrast to the tenet of the Babylonians, that the soil belonged to their god, or to the sanctity with which the soil was endowed by the followers of Zoroaster. *These faiths of the holiness or wholeness of the soil were, as we shall see, faiths of the farmers*; the very word cultivate is derived from the Latin verb *colere*, of the two-fold meaning of tilling and worship.

Yet the Nomads were not by any means always wild horsemen, as when they presented themselves to their enemies, the farmers. They had within them the gentler character of humanity. Professor Keane, in *Man, Past and Present*, said of the Tartars or Mongols of

Mongolia: 'They are all brave, warlike, even fierce, and capable of great atrocities, though not normally cruel.' The invention of the gun has now robbed them of their power and, in consequence, they have 'almost everywhere undergone a marked change from a rude and ferocious to a milder and more humane disposition.'

The Nomads have been *the great human desert-makers*, and the deserts of the Gobi, the Lop Nor, the Taklamakan, the Registan, the Great Salt Desert, the Syrian Desert, and even the Arabian Desert and the Sahara of Africa are due to their treatment of the soil. Nor is this desert-making by men at an end. It is going on at the present, as future chapters will show, in North and South America, in Russia, in Asia, in North and South Africa, in Australia, and even in the islands of New Zealand and the West Indies, with a speed that outstrips that of the Asiatic Nomads, so much so that it may even be said that man, in this proud scientific era, has paid for his all-too-swift advance by the loss of terrene capital, of the fertility of the soil. He has become the great transferrer of this capital to other fields than those of the soil, and, by his destruction of the soil, has foredoomed himself to God knows what impending calamities, exceeding those brought about by the Asiatic Nomads, unless he calls a halt.

It is this fact which gives this dissertation on the Nomadic character its present significance.

III. The Farmers

Belt No. 6 of Asia is the belt of the Farmers. From the mountains of Belt No. 5 great rivers run southwards into the Persian Gulf, the Indian Ocean and the Pacific Ocean, and along these rivers the Farmers built up their civilizations. The first civilization we shall take will be the one that is believed to be the oldest of them with the doubtful exception of that of China. It is that of Iraq.

This civilization was, *par excellence*, the civilization of irrigated farming. The rivers upon which it built itself were three, the Euphrates, the Tigris and the Karun. All three rivers, throughout its duration, discharged their waters separately into the head of the Persian Gulf. To-day the Karun joins the Tigris, and the Euphrates and Tigris have one joint mouth 140 miles to the south of where the three mouths then met the sea.

The first river of the three to form a basis of civilization was the shortest and the most eastern, the Karun, with its important tributary, the Ab-i-Diz. These two rivers ran through flat alluvial country before they reached the sea. Their courses in the flat land were brief compared to those of the Euphrates and the Tigris, their major lengths being amidst the mountains, through which they dashed down. Elam, as was the name of this country, therefore, resembled Latium, having a plain near the sea, and a great capital, Susa, situated on the plain within thirty miles of the hills. The civilization of the farmers and hillsmen of Elam preceded that of the Latins by some three thousand years. Elam showed much of the

tenacity of Rome, for mostly it kept its independence and played a considerable part in the riverine civilization of Iraq for a period of some 2,000 years.

The riverine civilization was further developed by Sumer, Akkad, and Babylonia, with their City-States watered by the sluggish Euphrates. The Tigris was swifter and more steeply banked and, therefore, less used. The Akkadians and Babylonians were men of the Semitic Race. The Sumerians were of doubtful origin. They were believed to have preceded the Semites, and to have been the inventors, about 3500 B.C., of the cuneiform writing later adopted by the Semites and found upon the baked clay tablets, the excavation and deciphering of which have enabled scholars to extract from the sites of the City-States the history of this artistic, flourishing, powerful and very ancient civilization of irrigated farming.

The City-States consisted of the cities and the pastures of the cattle, together surrounded by walls, and of the farmed land outside the walls. The life of the land depended solely on irrigation and it was the ambition of good rulers of the City-States to cut out a new canal and clean out the old ones. The early history of the tablets records such work, the building of temples and the wars carried out by the cities against each other, wars to establish suzerainty, but not in any way to injure the farming of the soil, upon which all depended for their existence. Eventually Babylon became paramount. Babylon's first dynasty is given as beginning about 2400 B.C. Babylon was conquered by the Persians under Cyrus in 538 B.C.

Lastly in the accumulated centuries of this riverine civilization came the Assyrians, also a Semitic people, appearing in the thirteenth century. They inhabited the land of the middle reaches of the Tigris.

From the level of Hit on the Euphrates, a little to the north of the modern Bagdad on the Tigris, the land for 550 miles to the Persian Gulf is purely alluvial, with all the advantages of alluvial soil, such as lower Egypt enjoys from the Nile, Bengal from the Ganges and the Brahmaputra, and the Chinese in the lower reaches of the Huang Ho and Yangtse Kiang. Above Hit there is a reef of hard rock from which to the north the land continues to be rocky. For this reason the Assyrians, with their capital at Kalaat Shirgat on the Tigris about 200 miles to the north of Babylon, were not so favoured as the southern alluvial peoples, and therefore exhibited what Sir Percy Sykes, in his *History of Persia*, calls a predatory character. Their initial strength, says Sykes, lay in the formidable fighting quality of a free agricultural class. When this class became exhausted, the Assyrian rulers moved their capital to Nineveh on the opposite bank to the modern Mosul, near where the Tigris enters Iraq from the mountains of the south-eastern corner of Asia Minor. This gave them the control and use of sturdy hillsmen as mercenaries. The Assyrians, as northerners, became masters of the southerners of Babylonia in 745 B.C. and remained so until 606 B.C., the brief period of about a century and a half which is so constant in the case of inferior conquerors. In 606 B.C. the Medes, with the assistance of the revolting Babylonians, sacked Nineveh. So great had been the cruelty and barbarity of the

northerners compared to the southerners of Babylon, that Sykes declares: Assyria 'shone only as a great predatory power, and when she fell, passed away into utter and well-merited oblivion'.

Assyria's predatory character introduces us to the Aryans, for the Medes were Aryans, living in the valleys of the Zagros Mountains, and the adjacent Iranian plateau in the north-west of Persia.

The Aryans entered the north of Persia about 2400 B.C. and the Medes about 2000 B.C. They were steppe dwellers, as their language, in its omission to speak of forests and mountains, discloses. They came as Nomads with flocks and herds, moving their habitation from place to place with the help of large wagons.

The Medes, at the time of Assyria's ascendancy, were subject to predatory raids by the armed Assyrian forces; and the results of these raids show the Medes as a more settled people than were their nomadic ancestors. 'From the frequency with which these expeditions raided the Iranian plateau', writes Sykes -- the plateau that is to-day so desolate -- 'and from the number of towns they destroyed, it was then a distinctly fertile and well-populated country. The inference is confirmed by the number of prisoners and the thousands of horses, cattle and sheep that were captured.' Thus in one raid in 744 B.C. 'the success of the campaign may be estimated from the fact that 60,500 prisoners and enormous herds of oxen, sheep, mules and dromedaries were led back in triumph to Calah', near Nineveh.

These afflictions brought about a desire for vengeance in the Medes. They were sturdy hillsmen and unexcelled horsemen. Under Cyaxares, their great leader, they circled round the Assyrian soldiers just beyond the range of their weapons, and poured a ceaseless shower of arrows into their midst. With the help of the Babylonians, they destroyed the Assyrian Empire in 606 B.C.

The Persians entered eastern Persia from the steppes to the north of Khorasan in what is now Russian Turkestan and, traversing the south-eastern Persian province of Kerman, reached Fars, with the Persian Gulf as its western limit and Elam and the Medes to the north. At this time a notable event happened, which illustrates the soil character of the Medes and Persians. They both adopted the religion of Zoroaster, who was born 'about 660 B.C. or perhaps a few generations earlier' (Sykes), and therefore some half a century or more before the destruction of the Assyrians. Zoroaster raised the use of the soil to the first place in the three chief tenets of his religion. His first tenet was: '*That agriculture and cattle-breeding are the noble callings.*' 'He who sows the ground with care and diligence', he announced, 'acquires a greater stock of religious merit than he would gain by the repetition of ten thousand prayers.'

A further illustration of the character of these farming and pastoral peoples in the highland of Western Persia is shown by the remarkable fact that Cyaxares and his Medes did not

take possession of the wonderful riverine civilizations of Iraq after the sack of Nineveh. They were content to hand it over to their allies, the Babylonians, who then erected the brief but brilliant Tenth Dynasty. Cyaxares, however, did not cease from his conquests, but confined them to the uplands of Persia, Armenia, the upper reaches of the Tigris and western Cappadocia.

One of the greatest of Aryan leaders, the Persian, Cyrus, defeated the son of Cyaxares by taking Ecbatana, the modern Hamadan, and the capital of the Medes, in 550 B.C. Cyrus became the first king of all Persia and proceeded to make himself master of the most extensive empire the world had then seen. From 500 B.C. to A.D. 600 Persia must have denoted an area more than half the size of Europe. The Medes were not made the subjects of Cyrus, but his brethren in religion and status. He overthrew Croesus in 546 B.C. and became master of the Greek colonies in Asia Minor. He took Babylon in 538 B.C. So the early Persian conquests, it seems, were not based on the strength in food of Iraq. By becoming the master of Iraq, Cyrus brought the independence of its riverine civilizations to an end.

Now, this long story of the riverine civilizations, enduring as it did for thirty centuries and only surpassed by the forty centuries of China, illustrates the *extraordinary stability of a civilization founded upon the soil as its first principle*. The City-States of Babylonia regarded the land as sacred. Each state had its god and, writes Mr. C. H. W. Johns, in *Ancient Babylonia*, 1913, 'the god was the owner of all the city land, its *belu*, or "Lord".' The priests acted as his agents. Sykes terms it 'a feudal, ecclesiastical system', but the fact remains that *the soil was regarded as sacred*. This sanctity was revived by the followers of Mohammed, when they became masters of Iraq.

A second notable fact of the thirty centuries of the civilization founded on farming was *its freedom from destruction by the Nomads*. Only once, in Sykes's record, did Nomads threaten its independence. That was the invasion of Iraq by the Semitic Aramaean hordes from Arabia. They apparently took the whole of Assyria, and brought the Eighth Dynasty of Babylonia to its end. They were eventually subdued by the Assyrians. With this exception and a brief raid by Scythians, sent against the Medes by the failing Assyrians, *the factor of the invasions and conquests of Farmers by Nomads*, which played so large a part in history, did not greatly affect the strength of the organized societies of the Farmers. It is to its vast effects on history that we must now turn.

IV. Nomadic Migrations and Farmers

The first great migrations of the Nomads occurred between 2500 and 2000 B.C. During that time Aryans, as we have seen, reached the Iranian Plateau. It was the time of the First and Second Dynasties of Babylon, and apparently had no effect upon the highly organized riverine civilizations.

The second migratory period was about 1500 B.C. It was the time of the overthrow of the early Minoan civilization of Crete by the Dorians, the conquest of Egypt by the Hyksos and the disturbances of the first dynasty of China, the Shang, 1750-1122 B.C., by the Mongolian, Hiung-wu.

The third migratory period was about 1200 B.C. It was the time of the invasion of Greece by the Dorians and their destruction of the later Minoan civilization, and the end of the Shang Dynasty of China brought about by the Hiung-wu.

Neither of these two periods of nomadic migration affected the riverine civilization of Babylonia. The Kassites, who formed the Third Dynasty of Babylonia (1700-1170 B.C.) and came from the Zagros Mountains though originally, perhaps, nomadic Aryans, were not at this time nomadic, but a settled people like those of Elam, their southern neighbour amidst the hills.

The fourth migratory period witnessed the virtual fall of the Chow Dynasty in China in 659 B.C. The same movement brought the Sesunaga to India in 620 B.C. They established the Magadha Kingdom in the central and eastern Gangetic Plain. Possibly contemporaneous movements in Europe were those of the Celts into the middle valley of the Danube, and from there at a later date into France, Spain and Northern Italy.

The remarkable fact, then, about these four great migratory periods of the Nomads is that they had little or no effect upon the first and perhaps greatest Asiatic farming civilization, though they were so destructive to other lands and peoples. The Persians who succeeded the Babylonians, in 538 B.C., were no less strong. They were Zoroastrians and Zoroaster taught the high significance of farming. From the time of Cyrus and for a long period later, Persia offered an almost invincible obstacle to these movements of the Nomads of Asia, diverting them to India to the south and northwards to Central Turkestan and Europe. Persia fell to Alexander of Macedon and after his death the Seleucids reigned. They were replaced by their pupils the Parthians of Khorasan, like the Persians an Iranian people, the words of Arya and Iran having the same derivation. The Parthians, in their turn, gave way to the Persian Sassanian Dynasty, and the Sassanians to a people who rapidly became great farmers, the Arabs of Islam. The significance of this barrier-power of Farmers against Nomads is very great indeed. It began with Babylon's first dynasty, nearly 2400 B.C., and it endured until the overthrow of the Arabs by the nomadic Mongols in A.D. 1258, a total of some four thousand years.

The next great farming people of Asia were the Chinese, and they can also claim a history of four thousand years. Professor F. H. King, who quite recently wrote his famous book on their agriculture, called it truly *Farmers of Forty Centuries*. The first location of the Chinese was along the Huang Ho or Yellow River, which arises in the highlands of Tibet, as does their second great river, the Yangtse Kiang. They settled upon the lands along the Huang Ho after it makes its right-angled bend from east to south in the fortieth latitude. The Nomads, who so frequently threatened this otherwise peaceful people were called by

them the Tartars, and by us the Mongols and their country Mongolia. The Chinese are historically-minded. They begin their history with the Emperor Fuhi (2852-2738 B.C.), who is said to have founded the large or patriarchal family system. In the reign of the Emperor Huang-ti (2704 or 2491 B.C.), the northern Mongols receive their first mention under the name of Hun-yu. The date of the first definite dynasty, the Shang, is given as 1766-1122 B.C. In their time, Chinese history was mainly one of peace, but towards the end of their period, the Mongols, known now as Hiung-wu, appeared, and it is said that it was with their help that the Shang Dynasty was overthrown by its successor, the Chow (1122-659 B.C.). The Chow and the Shang Dynasties together reigned for a thousand years. In this length of time, they resembled the Babylonians.

When the Chow Dynasty came to an end, a general unity ended with it. Various states, especially the border states, asserted their independence and fought together for suzerainty. It was in the period of Contending States, as the Chinese historians call it that, from 551 to 479 B.C., the most famous of the Chinese, Confucius, lived.

Another very famous Chinaman changed the complexion of the Contending States. He was the Emperor Chin Chi Huang-ti, who ruled from 249-210 B.C. This Emperor united the Chinese, and to shut off the invasions of their troublesome neighbours, the Mongols, he built perhaps the most prodigious Maginot Line mankind has ever witnessed. This immense fortified Great Wall stretched from the sea to the north of Pekin for 1,500 miles. Nor did the Emperor's energy exhaust itself in this brobdingnagian undertaking. He drove the Mongols out of Inner Mongolia, on the borders of China, into Outer Mongolia, and the Early Han Dynasty (206 B.C. to A.D. 23) continued the aggression. Then occurred one of those remarkable shunting-train movements which the Chinese in an aggressive imperial mood originated. The driven Mongols and Turki-Mongols retreated westwards, forcing other peoples before them. Some of these peoples, continuing westwards, conquered the Greek Kingdom of Bactria-Sogdiana between the Hindu Kush and the Sea of Aral; others turned south and eventually passed through the Bolan Pass and invaded the land of Five Rivers, the Punjab. The Early Hans annexed Mongolia and Eastern Turkestan, and Bactria and Sogdiana were compelled to acknowledge their supremacy. Any further conquest was then stopped by the barrier of organized Persia.

The Hans, early and late (A.D. 23-230), bring us to the Mongol or Nomadic movements of our own era. A great Mongol movement brought about the downfall of the Western Tsin Dynasty in China in A.D. 419. The Gupta Dynasty in India was overcome by the White Huns in A.D. 450. These White Huns also for many years harassed the Persians, but were eventually destroyed by the power of the Sassanian Dynasty. The date of the movement under Attila the Hun, who reached Rome, is given as A.D. 445-453, and caused the Slavs to push the Teutons into Britain, France, Austria and Lombardy.

The Chinese, under the short Suy Dynasty (A.D. 590-618), and the Tang Dynasty (A.D. 618-907), in its early period, launched an imperial recoil movement and by A.D. 640 had again conquered Eastern Turkestan and extended their influence as far as Persia and the

Caspian. The Arabs in Persia checked their threat to Persia about A.D. 650.

A further Mongol movement brought the Tang Dynasty to an end in A.D. 907 and sent the Turki-Mongol Ghazni Dynasty into North-western India. The Magyars entered Europe and divided the Slavs into northern and southern Slavs.

The vast Mongol and Turki-Mongol movements under Genghiz Khan and his successors occupied the thirteenth century. China was conquered. Northern India was conquered. The Arab power was broken in A.D. 1258. Assaults were made on the Byzantine Empire, and southern Russia was conquered and occupied.

The latter half of the fourteenth century witnessed the peculiarly personal achievements of the greatest of Asiatic conquerors, Tamerlane (A.D. 1335-1405), the Turk. No ruler of the time was able to oppose his supreme genius with success. He was not destructive and murderous as were Genghiz Khan and his successors, but supplanted the established rulers by conquest. He was, wrote Sykes, 'profoundly sagacious, generous, experienced and persevering ... In *The Institutes* it is laid down that every soldier surrendering should be treated with honour and regard, a rule which, in striking contrast with the customs prevailing at the period, is remarkable for its humane spirit.' As a consequence no marked change occurred in the habitation of peoples.

The last two Mongol movements were conquests and changes of dynasty without any general effect. The first was the Moghul conquest of most of India (Akbar, A.D. 1556-1605); the second that of the Manchu conquest of China in A.D. 1644.

Such, in outline, was the historical effect of the Nomads of Asia. A full account of these movements, the history caused by them, and the numerous dynasties founded by them in Asia and in Europe, mostly to endure only about a century and a half, will be found in my *Causes of Peace and War* (Heinemann, 1926).

Here let us close the physical atlas, and this long chapter, which it is hoped will convince readers of a dependence of much war and history upon men's attitude to the soil. At present it is a subject mostly ignored by the historians, but I hope that soon some great modern scholar will deal with the subject more adequately than I have been able to do. Perhaps it will give rise to a greater knowledge of the causes of devastating wars and their prevention. Perhaps it will show that home-farming establishes in each nation a class strong in its desire for peace, and that, as in the past the Nomads were the chief enemies of peace, so the nomadic type is still prevalent and powerful, and still sees in war the means of its advantage. The social elimination of these advantages and a true valuation of the soil may then prove powerful factors in the maintenance of peace.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 7

Contrasting Pictures

In order to get a clear idea of the modern valuation of the soil and its effects, it is well to begin with the opposite of the unavoidable sketchiness of a trans-continental survey, such as that of the last chapter, and to concentrate upon self-contained examples on a small scale. Small islands offer themselves at once as the opposite to great continents. By nature they are self-contained. Their inhabitants get food from the sea, a source with which they are unable to interfere as they can with the soil. Sea-food, therefore, has the natural quality of wholeness. Health, therefore, should be found in such islands.

It is never vain to ask health from nature, and small islands still preserve to a large extent this gift, or certainly did until trade intervened. The health of the few inhabitants of that most isolated island, Tristan da Cunha, was described by a medical visitor in the *British Medical Journal*, March 1938, as 'vastly superior to that of the civilized world'. Similar health distinguished the inhabitants of the once isolated Iceland and the Faroe Islands. The health of uninterfered-with South Sea islanders affords further examples.

This whole health is shared by all forms of life and is preserved whilst the island is a self-contained life-cycle and the rule of return is followed automatically. But, when trade enters and breaks the rule of return, then a deterioration of life sets in. This has happened in the Falkland Islands in the South Atlantic. There are many islands, but only two of any size. They run parallel to each other and are some 100 miles long. These islands came into the hands of the British over a century ago. Bleak and almost treeless, they nevertheless possessed vegetation upon which sheep and cattle could feed. So these animals were imported and bred for the British market. The venture was a success, but in course of time there came evidence that the way in which the trade was conducted was inimical to the life-creating soil of the islands. Sir John Orr, in *Minerals in Pasture*, described what this

was: 'Munro reports that in the Falkland Islands sheep have been reared and exported for forty years without any return to the soil to replace the minerals removed. During the last twenty years it has become increasingly difficult to rear lambs. The other animals are also deteriorating.'

The sequence or story is a very simple one.. There are these two islands, which have their own life-cycle. They became British and Britons imported sheep and other domestic animals to the islands. These animals were not predatory. They belonged to the grazing animals, which all over the world feed on grass and other herbage and do the soil no harm. Presumably, then, they could have been added to and supported in the Falkland life-cycle without doing it any harm, if, as just part of that cycle, they grazed and at the same time returned to the soil again what they took from it in life and finally after death. The story does not, however, run this good and happy way; it, like so many primitive stories of life, has its demon. In this case the demon quite probably lives in Liverpool, and he shows his demoniac quality in buying the Falkland sheep, having them shipped to Britain for the Britons to eat their flesh and spin their wool. He is not a demon of commission but of omission. This is what he and his like effect in the words of Sir John Orr: 'The process of depletion and the resulting deterioration which shows itself in decreased rate of growth and production, and in extreme cases by the appearance of disease, is proceeding on all pastures from which the milk, carcasses and other animal products are taken off without a corresponding replacement being made.' In Britain itself domestic animals are reared and then sent off to industrial areas without replacement. 'In our own country this process of depletion has been going on for many years, especially in hill pastures, and it is probable that the recognized decrease in the value of hill pastures in certain areas, owing to the increase in the diseases and mortality of sheep, is associated with the gradual process of the impoverishment of the pasture and its soil.'

The sheep want to get their full share in the life-cycle, but they cannot. The minerals are not there, for they left the life-cycle when the sheep's ancestors were deported to industrial areas. Precisely the same has happened in the Falkland Islands in the distant South Atlantic; and in both places it happens for the same reason, that the men, who own both, put money before life.

This is known with the half-conviction and half-knowledge, which are part of the famous facility for compromise of the trading race which owns them. In certain grazing areas, a form of return is given, which again forms a trade. The pastoralists or their employers buy the chief minerals, which the soil loses, from other men who mine and excavate them, and these imported minerals are put into the depleted soil. It is something to the gain of the soil for the time being and maybe this is being done to the Falklands. I have no information on the subject, but it is possible that phosphates from the South Sea island of Nauru eventually reach the soil of the Falklands.

Such a return would occur, and does occur in a great number of places, *not as a following out of the rule of return, but from an almost absolute necessity because the rule has not*

been followed. Were it followed, there would be no need of any reconstruction of the treatment of the Falkland Islands, nor to state how it would have to be carried out as a reconstruction based on the soil.

The herds kept by the British in the Falkland Islands constitute the biggest animal feeders upon the herbage. The herbage draws its minerals from the soil, and these minerals pass into the bodies of the cattle. When those bodies, either alive or as carcasses, are taken out of the islands, then so much of the minerals of the soil as they contain are taken out of the islands. They arrive in Britain and there these minerals enter into the bodies of the British, who eat the meat of the animals. The British are, in brief, eating up the soil of the Falkland Islands. To fulfil the rule of return, when ships take the animals to Liverpool or London, ships should take back their equivalent in food for the Falkland Islands to Port Stanley. This is no more impossible than it is for iron to float upon the water and form the ships in which the food travels. It is only a question of values. If the *condition of the soil were the valuer*, this would be done. If health were the valuer it would be done. If the *economy of health and quality* were the valuer, it would be done. It is not done, because under present values, a number of people actually profit from the ill health of a far greater number, their methods of business being inseparably involved in the breaking of life-cycles and consequent ill health and its social complications. The buyer buys the products of the small islands, but he gives back only something abstract, namely money; he has no duty to give back anything more than his money. Further, the owners of the Falkland products exchange them for money and they also have no duty to life in the form of the rule of return. They may be forced to buy some sort of manure for the land, but they do this under pressure of the land's depreciation. But as long as they can sell the minerals or stored fertility of the Falklands to Britain for money, they do so without any pricks of conscience as regards the effect of their deeds upon the quality of life. It is, in short, an astonishing anomaly that they who ship this life to Britain, in doing so, each time actually commit murder on a certain quality of life in the Falklands. They become ultimately as dangerous to the pastureland as the pastoralists of the last chapter, and, indeed, being more powerful in means than they, correspondingly more dangerous.

What could be ensured if the rule of return were followed? This can be answered by a consideration of a contrasting picture to the Falklands, a yet smaller microcosm than the islands, actually a dairy farm. The one I propose to review suits my purpose well because it was a deliberate reconstruction based largely on the rule of return.

The farm of 165 acres only is situated within a hundred miles of the southern shore of the Baltic Sea, in a land of heath and pinewoods and an unfavourable climate of heavy wind and low rainfall. Its story starts with failure. In spite of importing sound cattle and feeding stuffs from outside at considerable expense, the farm fell, where sick farms and industries do fall, namely, into the hands of a bank. But the bank failed to make it flourish and eventually it came into the hands of a farmer who believed that to get a sound and healthy farm it must be a self-contained unit within the countryside itself. The beasts had to get their health from the soil on which they lived and not from outside, and they had to give

back what they took from it. He proposed, as it were, to put a circle round it and that circle was to be a magic circle. Its magic was to be the aboriginal strength of the soil. A self-contained world of plants, animals and insects was to be brought into being and the balance that nature produces allowed to give its wholeness or health. The faith of the farmer was that only when the cattle bind their whole nature with the soil that nourishes them can they and the soil unitedly reach their full strength.

Everything was planned as a whole, but for the purposes of description the parts will be taken separately. Firstly comes the soil, Its chief needs were water, protection against wind, and food. Water depended upon the annual rainfall and this was some thirteen to seventeen inches yearly. More rain could not be got, but shelter helped to prevent evaporation, as shown in the woods and heaths, which were the uninterfered-with vegetative cover of the land. So the growing of trees and hedges with their double use of protecting soil by their above-ground growth and connecting soil and subsoil by their below-ground growth. Trees also gave a homeland to birds, and hedges to flowers, hedgehogs, lizards, hens, hares and a varied world of insects, all of which were neither encouraged nor suppressed, but allowed by the knowledge that in free instinct each form of life seeks its sustenance from and gives its quota to the whole, which in natural balance is health.

Then came the cultivated plants and these were chosen for the food of the animals, a smaller part for the humans and a larger part for the domestic animals. The plants for the animals were so chosen that food from the soil was available all the year round. Where special protection for finer foodstuffs was necessary, a terraced garden was devised for their growth. When use had been made of the edible part of these plants, the rest was rotted into manure by a process of composting with the dung of the animals and so returned to the soil. Nothing went off the farm except the milk and the occasional sale of a young animal in later years, when their vigour became celebrated.

We can now form a picture of what this farm became. It became, in its having as far as possible a setting in the original nature of the land, an aboriginal farm. But added to this was the skill and knowledge of specially trained men. It was a farm which deliberately reintroduced the methods of nature in uncultivated lands so as to regain nature's health and strength. It was a declaration that *it is never vain to ask nature to give health to the work of those who know what health is.*

The results were termed miraculous. The healing brought about certainly makes one think that the miracle is not in nature being able to create health, but that so few westerners know it. Here are the conditions before and after the miracle. When the dairy farm was started on the new lines, the herd of cattle suffered from contagious abortion, and were strongly tuberculous. A number of the animals had to be destroyed owing to tuberculosis, and it was even debated whether it would not be better to destroy the whole herd to get rid of tuberculosis, contagious abortion and other diseases once and for all, and buy a new herd. But the faith that works miracles was present. Out of the sandy floor came a fount of

animal health. The one-time sick herd acquired a new health. The new methods required understanding, hard and sacrificing work. But the result was that on this new shut-off and self-contained farm the soil revealed its surprising gifts.

The young plants took upon themselves a new being. They now were healthy and reproduced abundantly. The seeds that they bore were seeds which the sandy soil welcomed; they were just the right seeds being in the same cycle as the soil itself. The plants looked well and the fodder straw preserved its beautiful golden colour. The plants grown for human use yielded foods notably rich in taste. The animals in their qualities accompanied the plants. They became healthy and fertile instead of sick and infertile. The cows gave more abundant milk and the young cows born on the farm doubled the output of the past milkers. The milk itself was rich in taste and acquired a special market amongst invalids, who enjoyed its taste and experienced its nourishment. Particularly noticeable, because of the eternal charm that belongs to healthy youth, were the generation that were born into this life-cycle on the farm. At birth the calves at once sprang up and showed a lively temperament. They grew strong limbs and glossy coats. Rather surprisingly they contradicted the dictum that soils poor in chalk produce poor bones. These calves built notably strong bones upon their chalk-poor soil. That other weird fact, which in itself seems to partake of the miraculous, that rays from the sun upon the skin of beasts assist powerfully in the use of chalk, came into its full operation so that such chalk as the soil had was economically excellent chalk. Every particle of it fell into its right place in the cycle, and, as an outward and visible sign of it, owners of neighbouring farms came to inspect the calves, felt their strong limbs, admired their vivacity and delight in life and readily bought them when for sale to increase the strength of their own herds according to the accustomed manner, which the farm itself had been able to abandon.

So we have these two contrasting pictures, the picture of the Falkland Islands, where the cattle showed such marked deterioration and where they were difficult to rear, and that of the sick farm which became a fount of animal health. The similarity of health and wholeness of the farm is unmistakable. Health is a positive quality and I do not know how else it can be obtained or maintained except by wholeness in the cycle of life. Nutrition diets, vitamins, protective foods are not wholes. They are only selections of one factor of a cycle, the factor of human food. If they are given the claim to produce health, which is a whole, it is a claim which will lead men, or mislead men, to further disappointment. Health is now being particularly pursued by a nutritional avenue as well as by the anti-microbic sanitation avenue. But when the whole is the aim, the fragmentations which are sought by these avenues, the specific microbes, the antiseptics, the sera, the vaccines, the great chemical remedies which now compel the admiration of all, the vitamins, the minerals of food, the protective foods, the hormones -- all become unessentials, being absorbed by the positive whole, in which even the microbic world loses its negative and dangerous character and becomes positive and beneficial. Negatives vanish and positives take their place. The world, as fashioned by men, undergoes an enormous simplification. The scores of diseases of men and the animals and vegetables they farm constitute an

immense mass of negatives, the elimination of which would alter the very aspect of life. At present we are pushed to a host of discoveries, inventions, and health, and even life-destroying creations, because the simple contrasting pictures, which figure in this chapter, have not been seen at all by the vast majority and not seen with lively vision by the few. We shall now review further happenings in the wide world brought about by the alienation of men's minds from the creative power of the soil.

Chapter 8

Banks for the Soil

The traders of England take living matter in the form of cattle from the soil of the Falkland Islands, pay money for it to the Falkland farmers, but pay nothing at all to the living soil itself. The reason for this is that there are no banks in Britain for the soil of the Empire, though there are plenty of them for the farmers of the Empire.

What the soil needs as payment for its share in the production and feeding of the cattle is not, of course, money. It does not want *symbols of reality; it needs reality itself*. Unless it has this reality, it becomes less and less able to carry out its part of the partnership between it and the Falkland farmers. So it must have a payment in its own currency, that of soil-food-substances, and not in the currency of men.

It is true that the currency in which the farmers are paid could be turned into one factor of soil-food by means of a further trading transaction. The farmers, for example, could with the help of their banks buy phosphates from the island of Nauru in the Pacific Ocean and give it to the Falkland soil to make up for the phosphates that were taken out of it in the bodies of the exported cattle. But this transaction, being carried out by traders' money-banks, would not prevent the final loss of the phosphates of the Falkland' soil. These phosphates would, in the absence of banks for the soil in Britain, just go down the drain; in other words, they would first be eaten as a part of beef or mutton by some people in Britain, made use of by them, be passed by them as excreta into the drainage system and, through it, eventually reach some part of Britain's Atlantic girdle. So, from the world of terrene men, these phosphates would be dispersed into the vast, dark world of the waters of the sea.

With banks for the soil in Britain, however, the story would be very different. Not only the phosphates, but all the life substances of the Falkland soil would be collected by the banks for the soil and paid back to it, just as the farmers' banks collect the money due to the farmers and pay it back to them. The banks for the soil would, in brief, follow the rule of return. They would do for the Falklands, what they would also do for all exporting countries, the products of whose living soils were imported into Britain. They would collect all forms of imported soil substances after use, make them into soil-food and return

them to the exporting countries. Thus the balance of life, which is far more important ultimately than is the balance of trade, would be preserved. As it is, in this age of commercial values, nothing at all is done; the benefits of trade are split off from life itself as a whole, and, quite unconsciously, the traders become the enemies of that life. They actually destroy that upon which their own very wealth depends. They impoverish the soils and in the end will so degrade them that trade will come to an end. Even the soil of the huge cattle estates of the Argentine, which send far more animal food than the little Falklands to Britain, is known to be deteriorating.

It is, then, where traders and other business men are most concentrated that the need of banks for the soil is most urgent; it is there that the wastage of the currency of life substances is most colossal; it is there that the knowledge of this wastage is so meagre as almost to be entirely absent. Britain, as an importing country in particular, takes large quantities of raw material for food, clothing and manufacture from foreign soils. The towns of many other countries do likewise. The result is that export trade in terms of the life-cycles, entails a great transfer of the elements of life from one country to another without return, or, in other words, a slow bleeding of the exporting countries. The importing countries are seen as leeches or other blood-sucking parasites harboured, all too willingly, by the exporting countries. With vast territories the exporting countries will enjoy a long spell of prosperity founded upon a primal high fertility of the soil, but the end is inevitable, a loss of the wholeness of its life-cycles, partial or complete spoiling of the land, erosion, flood, swamp, even barren hills and desert, degenerate plant and animal life, human depopulation and poverty, disease, and other sequels of the loss of soil fertility.

In reconstruction, this loss of the fertility of the soil, due to the wrongful values of commercial dominance, can only be met by banks for the soil. It is not a question only of whether life can be healthily carried on without them, but of *whether it can be carried on at all*. In 1896 Professor Shaler of Harvard gave a very clear and ominous reply to this question of questions: 'If mankind', he said, 'cannot design and enforce ways of dealing with the earth which will preserve the sources of life, we must look forward to a time -- remote it may be, but clearly discernible -- when our kind, having wasted its great inheritance, will fade from the earth because of the ruin it has accomplished.' That is the startling fact, with which the neglect of banks for the soil faces the peoples of the era of progress.

The Falkland Islands are very small and very distant. Their loss to the modern world would make little difference. They do but present an infinitesimal part of a wastage that is going on on a truly enormous scale. Of this wastage, let us now take one of its chief examples, that of the wastage of human sewage.

Everyone knows that manure can be turned into food by the soil, and in nature is returned to the soil. Yet the waste of potential manure is prodigious. The dictionary definition of waste is 'resembling a desert'. Yet what is called waste does not resemble, but is the opposite of the desert. The desert is *out* of life. It is modern water-carriage sanitation that

takes the elements essential to human life and puts them *out of life*, and then calls them waste.

A vast picture of this waste is given by Professor F. H. King in his classic, *Farmers of Forty Centuries*: 'On the basis of the data of Wolff, Kellner and Carpenter, or of Hall, the people of the United States and Europe are pouring into the sea, lakes or rivers, and into the underground waters, from 5,794,300 to 12,000,000 pounds of nitrogen, 1,881,900 to 4,151,000 pounds of potassium, and 777,200 to 3,057,600 pounds of phosphorus per million of adult population annually, and this waste we esteem one of the greatest achievements of our civilization.'

The loss of such quantities of the three elements is but a partial measure of the total loss, into the sea and other waters, of elements of the human life-cycle, a loss which could be avoided by the banking of these elements and returning them to the soil. To supply, by contrast, a picture of banking, Mr. King quotes Dr. Arthur Stanley, when Health Officer of the city of Shanghai, in his annual report of 1899: 'Regarding the bearing on the sanitation of Shanghai of the relationship between Eastern and Western hygiene, it may be said, that if prolonged national life is indicative of sound sanitation, the Chinese are a race worthy of study by all who concern themselves with Public Health. While the ultra-civilized Western elaborates destructors for burning garbage at a financial loss and turns sewage into the sea, the Chinaman uses both for manure. He wastes nothing while the sacred duty of agriculture is uppermost in his mind.' Banking for the soil, therefore, captures Dr. Stanley's decision. He was no advocate of sanitary progress for Shanghai in the form of destructors for garbage and the water-carriage system.

There are in Europe, however, towns which, like those of the Far East, bank in the interests of the soil. There are towns which have actually gone back to this banking after trying out the water-carriage system. The beautiful capital of Sweden is one, and its transfer back to use in place of wastage must have been just completed when the war broke out. In German towns banking was ordered by the Government in 1937, not as a part of the soil basis of civilization, but as a war measure amongst other war measures, an application of knowledge about life-creation to assist at life destruction.

In Britain, the Ministry of Agriculture in 1923 published a leaflet, No. 398, advocating this banking, but again not for the obvious reasons of the rule of return. Motor-cars, buses and lorries had greatly reduced the number of horses and the amount of stable manure. Among the various substitutes for this loss, one which had thereby gained a financial farming value, declared the department, was ashpit refuse. There was plenty of it, but it was unfortunately very little used. 'Incineration of this refuse is costly and is sheer waste. More up-to-date town authorities are now making an effort to dispose of their refuse in a better and more useful way, and some are adding other wastes and crushing the whole for use as a fertilizer.'

There follows an account of what some of these towns were doing: London, Glasgow,

Dundee, Perth, Aberdeen, Rochdale, Warrington, Halifax and in particular Gateshead, where 80 per cent of the houses had 'mixed pail' or ash closets, and hence the 'home refuse contains a considerable proportion of human excreta'. This was crushed with ordinary town and slaughter-house refuse, and made into a manure at the low price of two shillings and sixpence per ton, at which price it was eagerly bought by local farmers. Tested in the field, it showed itself a valuable substitute for farmyard manure. Night-soil in dried form was prepared and sold by the Rochdale, Warrington and other corporations, a method, which if generally adopted, said the leaflet, would solve the problem of the wastage of sewage and 'the shortage of organic manures on the farm would be greatly relieved; but we must expect these methods of conservancy to be superseded'. Fifty years ago even London was a town from which farmers could take night-soil for their fields. But the excessive convenience and niceness of the water-carriage system have given it the approval, not only of the urban peoples, but of many of the country folk also, so that now something surreptitious has become attached to any other method of disposal. One must expect these other forms of conservancy to supersede any form which recognizes sewage and garbage as merely latent forms of life. That, however, is unquestionably what they are; and a hygiene which destroys them and drives them out of the human life-cycle, has no real title to its name. In this it is the opposite of the name it bears.

The waste substances themselves show their avidity for life when put together. In the making of manure from the various town wastes, the materials, when mixed together, cook themselves by fermentation. A heap of compost, for example, gets so hot that, if an iron rod is thrust into it, when withdrawn it is too hot to grip and hold. The final result of this cooking is like the leaf-mould that forms on the floor of a forest. The rotting of vegetable and animal matter in a forest is a cleanly process and that done in a town with town wastes can be as clean, and as free from flies and smell. It can, indeed, and should be the replica of the method of the forest, except that the pace of the urban method is rapid and makes good, sweet humus in three months, whereas the making of humus in the forest is a slower process. But in both cases there is evidence of active life. The heat is one evidence, and the growth of fungus is so active that it can be seen like smears of whitewash both on the floor of the forest and in the urban heap.

This waste then announces, in a really emphatic manner for something supposed to be dead and done for, that it is very much alive and that it is just as much a part of the life-cycle as a whole as it is when it pulses in the hot blood of a Derby winner. It is also hot life, indeed, for during the greater part of its activity it is considerably hotter than is an animal's blood. Then, when its heat and activity die down, it has become the pleasant-smelling and crumbling humus, which is a starting point of the rich green growth of healthy vegetation.

Such is one result of banks for the soil. The shamefully misnamed waste becomes the beautiful, soft, crumbling humus, which is the very substance of healthy life. It needs, perhaps, a poet to realize what beauty it contains. A poet can see in it the great, positive Yea, which is the unchangeable token of healthy life and of all that gives strength, grace,

swiftness, endurance, cheerfulness, agility, elegance and beauty to mankind. It is the universal parent of the excellencies of life.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 9

Economics of the Soil

The link which connects towns and country in such a matter as the use of town waste is a money link, or cash nexus. Under present values one would be unable to find a municipality that turned its wastes into humus *for* the good of the soil, but only because, *as* good for the soil, the farmers bought it. By selling that which once had been waste, it is converted into cash, and this, in present values, is, the *good* result from the municipal point of view.

Leaflet No. 398, of course, had to accept the dominance of this way of valuing. It wished to persuade the farmers to make use of prepared waste, because thereby the great loss to the land of organic manure, which had resulted from the diminution of stable manure, would be mitigated, if not compensated. It was true that money, in the form of railway costs in particular, prevented farms distant from towns being able to get the manure, but those in their vicinity were urged to its use. As things were, the leaflet found that some 10,000,000 tons of ashpit refuse was produced annually in England and Wales, and that towns were spending £6,000,000 a year on collection and disposal. This was unquestionably waste.

The cash nexus, therefore, overrode more vital reasons. Twelve years after the issue of the leaflet of 1923, Sir George Stapledon gave out the ominous information that sixteen and a half million acres of England and Wales, or 43 per cent of the total of cultivable lands, had fallen into 'a more or less neglected condition'. They were, however, 'capable of radical improvement'. The Earl of Portsmouth, about the same time, summed up another aspect of the same question in these words: 'It is a staggering commentary on our present attitude to health and agriculture that, excluding all accident, all patent medicines and private medical cases, the bill for sickness in this country amounts to £276,000,000 a year, while

the farmer receives for his gross output barely £250,000,000.,

Putting the two together, there was a great deal of wastage of wastes and of land itself. The wastage of land was very great indeed and the more surprising in that it occurred in a country threatened by war on a greater scale than that recently experienced in 1914-18, in which it was nearly brought to its knees by the lack of well-cultivated homeland, a war in which also the blockade of its enemies and their consequent shortage of food was a large factor in their collapse. The need of good soil had been emphasized by world events in such high tones that it would be almost incredible that it was not regarded as a paramount national and popular need, were it not that, for a prolonged period, a thought-barrier had practically and intellectually shut out the people from the soil.

So one of the strangest things happened. In spite of the great danger of the neglect of soil being written large in letters of blood, the people were blind. They were also deaf, for they did not hearken to the warnings of such authorities as Sir George Stapledon, the Earl of Portsmouth, and many other leaders of the countryside. 'It takes two to speak the truth,' said Thoreau. 'One to speak and one to hear.' They were unable to hear.

The barrier was the paramountcy of money, of the cash nexus. As long as that was paramount, the creative power of life and all that pertained to it was inextricably fettered.

Only the rare man could himself escape from the entanglement and see things in their proper proportion. Such a rare man was the late Oswald Spengler, author of *The Decline of the West*, and his account is so clear that it must here be given in his own words. Spengler's German is very difficult. My quotations are from the two-volumed English translation of his work.

He begins his analysis at the time when civilization was purely agrarian. The life of the population is purely that of the peasant on the open land. The experience of the town has not yet come. All that elevates itself from amongst the villages, castles, palaces, monasteries, temple-closes, is not a city, but a *market*, a mere meeting place of yeomen's interests, which also acquired, and at once, a certain religious and political meaning, but certainly cannot be said to have any special life of its own. The inhabitants, even though they might be artisans or traders, would still *feel* as peasants, and even in one way or another work as such.

'That which separates out from a life in which everyone is alike producer and consumer is *goods*, and traffic in goods is the mark of all early intercourse, whether the object be brought from the far distance or merely shifted about within the limits of the village or even the farm. A piece of goods is that which adheres by some quiet threads of its essence to the life that has produced it or the life that uses it. A peasant drives "his" cow to market, a woman puts away "her" finery in the cupboard. We say a man is endowed with this world's "goods"; the word "*possession*" takes us back right into the plant-like origin of property, into which this particular being -- no other -- has grown, from the roots up.

Exchange in these periods is a process whereby goods pass from one circle of life into another. They are valued with reference to life, according to a sliding-scale of *felt* relation at the moment. There is neither a conception of value nor a kind or amount of goods that constitutes a general measure -- for gold and coins are goods too, whose rarity and indestructibility cause them to be highly prized.

'Into the rhythm and course of this barter the dealer comes only as an intervener. In the market the acquisitive and creative economics encounter one another, but even at places where fleets and caravans unload, trade only appears as an *organ* of countryside traffic. It is the "eternal" form of economy, and it is even to-day seen in the immemorially ancient figure of the pedlar of the country districts remote from towns, and in the out-of-the-way suburban lanes where small barter-circles form naturally, and in the private economy of savants, officials, and in general everyone not actively part of the daily economic life of the great city.

'With the soul of the town a quite other kind of life awakens. As soon as the market has become the town, it is no longer a question of mere centres for goods-streams traversing a purely peasant landscape, but of a second world within walls, for which the merely producing life "out there" is nothing but object and means, and out of which another stream begins to circle. The decisive point is this -- the true urban is not a producer in the prime terrene sense. He has not the inward linkage with the soil or with the goods that pass through his hands. He does not live with these, but looks at them from outside and appraises them in relation to his own life-upkeep.

'With this goods become wares, exchange turnover, *and in place of thinking in goods we have thinking in money.*

'With this a purely extensional something, a form of limit-defining, is abstracted from the visible objects of economics, just as mathematical thought abstracts something from the mechanistically conceived environment. Abstract money corresponds exactly to abstract number. Both are entirely inorganic. The economic picture is reduced exclusively to quantities, whereas the important point about "goods" had been their quality. For the early-period peasant "his" cow is, first of all, just what it is, a unit being, and only secondarily an object of exchange; but for the economic outlook of the true townsman the only thing that exists is an abstract money-value which at the moment happens to be in the shape of a cow that can always be transferred into that of, say, a bank-note. Even so the genuine engineer sees in a famous waterfall not a unique natural spectacle, but just a calculable quantum of unexploited energy.

'It is an error of all modern money-theories that they start from the value token or even the material of the payment-token, instead of from the form of economic thought. In reality money, like number or law, *is a category of thought.*'

Here is clarity joined with profundity, a feat only to be executed by genius. The initial

picture of the agrarian world, in which production primarily from the soil, gives the products a reality because of the quality or life that is within them. They become man's possessions, something near him, placed or sitting by him, and valued with reference to life. But with the soul of the town a quite other kind of life arises, one in which something intervenes between 'goods' and man. The result, in its essence, is contained in the change from creative goods-thinking to abstracted money-thinking, expressed in phrases italicized by Spengler himself: 'With this goods become wares' (things of the warehouse not of the personal home), 'exchange turnover' (not as a mere inter-change of goods for other goods), '*and in place of thinking in goods we have thinking in money*', and 'in reality money, like number and law, *is a category of thought*'.

Let us look closely at this differentiation, particularly in its relation to those 'goods', which are most nearly related to life and without which life could not be, the food-products of the soil. The vegetable food-products are seeds, roots, leaves and fruits, and early men made the observation that when seeds were put in the ground, a plant grew up which produced a greater number of seeds than were put into the ground. These men did not worry about whether or not the production of a great number of seeds from a few revealed a rather gloomy and even brutal design on the part of nature to make the few seeds successful in becoming plants and so proving their superiority to the rest as the fittest to survive in a struggle for existence. They did not regard the few and the many as being due to a rather snobbish, if divine, order of precedence, serving as the explanation of the exuberance of the creative power. They were more simply bound to the facts that these extra seeds, tubers, fruits and foliage provided them with food, and they saw themselves dependent upon the manifold character of re-creation. All they understood was what they saw, namely, the generous outpouring of abundance, in response to their efforts, by a mystical power, which in its working was beyond them, but in its revelation to them aroused their awe, their reverence, their gratitude. So they served nature to the best of their ability, drew their share from the cornucopia of abundance and humbly thanked a God in this revelation of paternal love and superhuman magnanimity.

The abundance, as the result of their labours, enabled the work of a group of families to supply food not only for themselves, but for others. A certain part of their produce was, therefore, set aside for the non-working members of the families, for craftsmen who gave them possessions in return for food, and for the men of government in the form of taxes. So much of their produce had to go to government. They did not pay government for its services in money, but in produce.

Now the great significance of the tax in kind is that it is, of course, completely related to the basis of human life, the soil. The soil yields so much grain. The grain is mixed, spread out and a portion, say a fourth, is taken by an official for government. Taxation, therefore, receives the stability of the soil, and nothing really is so stable in human life as the well-cultivated soil. There is, when products are many in character, a fairly steady average return in response to a traditional agriculture, if that agriculture is not wasteful. There *must* be some such steady relation of the soil to men, for human life to continue without

violent fluctuations. There are, of course, good seasons and bad seasons. There are times of drought, there are times of flood, but a settled and capable form of agriculture does produce prolonged national life.

Payment of taxes in kind is a payment in terms of that which is primary to national life. It is factual and real in a whole national sense. It is terrenely genuine and sufficient, and has no foreign, extraneous and unlimited character, such as life dependent on conquests, on the wreck of weaker nations or, through the agency of money, on the well- or over-fed condition of the few and the underfed condition, or malnutrition, of the many. It, in fact, liberates the soil and keeps it free from money, the one real and essential freedom for a whole national life.

In the old conception the peasants paid the king for national protection. That was the service he rendered to them and for which they returned reciprocal service. That is the doctrine to be found in the classics of the past, such as the Smriti or law-books of ancient India. The land of the country was not the king's property, but *the common property of all who work on that land, and enjoy therefrom the fruits of their labour*, as Professor Dvijadas Datta insists in *Peasant-Proprietorship in India*, 1924. Taxes were to protect the living land and the land of the living, and not as they have now become, under the priority of money, for things so anomalous as, for example, the payment of interest on money lent by the privileged class for wars that were fought and decided over a century ago. The peasants did not pay the king to protect the land against enemies, whose dead bodies had for long been dissolved into soil-fertility. They paid for the protection of the land on which they were living and by which their nation was living.

No one can juggle with the soil as acquisitive men have learnt to juggle with money. The soil is reality; it has its own dominant character: it is more powerful than man, for it has that infinite mystery of power to turn death into life, and so not to remain as death. But money is purely man's invention and he can fashion it of what he likes, from the ponderous blocks of iron of the honest Lycurgus to the book-entries of modern bankers or manufacturers of credit. It can take every form of transubstantiation that dominant men choose to put upon it. It permeates everything that they dominate. It is only upon the land that men will ever be able to get free of it. It is only there that they will be able to see clearly what life really is.

And life is something that starts from the health of the soil in a way that, if it is to be successful, the principle of life must direct. Soil, in conservative and whole life, directs and rules money, not money the soil. Soil is the first primary thing and in reconstruction its needs must be provided for apart from the assumption of priority by money.

Money acts rather as a balance, as a subservant to the soil. So it acted at least amongst Indian and other peasantries. That is why it was denoted by metal and why it was recognized as a possession because, being metal, *it had durability* as the land had durability. It could act as a substitute of the land. When there was scarcity in local soil-

products, coins came into existence to make stored food and second-class food available by assisting poor land to be cultivated. When famine threatened or existed, then the silver bangles of Indian women were taken and handed to the *sowcar* and weighed by him and turned into an equivalent weight of silver coins. So coin became more plentiful at times of distress.

This is the *exact opposite* of urban banking. When distress threatens, bankers call in their loans. As distress increases, money in circulation becomes less, not more -- more distress less local money, not more distress more local money. In very great distress, according to the sages, it was right for the king not only to forgo the taxes in kind, but to give money, not loan it, in order to lighten the distress by enabling the suffering people to buy food and assistance from outside their locality.

The right economics of the soil do not exist under thinking in terms of money. If the soil is lined up with other productive agents of saleable goods, then its intrinsic character vanishes. It is essentially different to goods manufactured for sale, for it is as much property of life as is the air. Neither soil nor air have market value because they are necessary means of life. There is no market value yet for air, there should not be one for soil. City air, burdened with petrol, is not bad economics but bad life. The soil, that is burdened with money, is not bad economics, but bad life. That is why the right human partnership with the soil is an essential of human life, if it is to endure.

With the right conservation and service, the soil responds with something that is as certainly stable as the human virtue which, through the continuity of family service, provides this protection. It responds with its repetitive, but limited, gifts with a regularity, which is entirely different to the violent fluctuations in national and personal life which have occurred from the output of the precious metals, and owing to which the most profound effects in modern civilization have followed upon the discovery of Potosi silver, Californian gold and improved chemical processes for extracting gold. Nothing, one feels, could be more fantastic than to try to stabilize human life -- and it must be stabilized if catastrophe (or change in the crust of the earth which is one of its dictionary definitions) is to be avoided -- while measures of such inconstancy are permitted to dominate.

Let us now, then, in the midst of our inconstancies and the great catastrophes in which we have our present being, in this our reconstruction review this great virtue of *constancy* in terms of the creative power of the soil. Here we have for our enlightenment Professor F. H. King's book, *Farmers of Forty Centuries*.

His introduction of ten pages is one of contrast pictures of the thorough and profound relation of men to the soil in China and its pupillary countries, of the conditions of social constancy that result therefrom, and of the undeveloped relation to the soil of men in the West. He took as a striking example the meticulous care with which water is preserved and used for the land in China. 'To anyone who studies the agricultural methods of the Far East in the field', he wrote, 'it is evident that these people, centuries ago, came to

appreciate the value of water in crop production as no other nations have. They have adapted conditions to crops and crops to conditions to such a pitch that in rice they have produced a cereal which permits the most intense fertilization and at the same time ensures the maximum yields against both drought and flood. With the practice of Western nations in all humid climates, no matter how completely and highly we fertilize, in more years than not, yields are reduced by a deficiency or an excess of water.'

He went on to summarize the magnitude of the systems of canalization in China, a conservative estimate of which would place the miles of canals at 200,000. China has as many acres in rice each year as the United States has in wheat, yet the rice does not bear rice alone, but 'produces at least one and sometimes two other crops each year'.

When and where water is not available for irrigation, the people cultivate 'quick-maturing, drought-resisting millets as the great staple food crops', and for them the water is preserved by 'almost universal planting in hills or drills, and so making possible the utilization of earth mulches in conserving soil moisture'. Thus 'these people have with rare wisdom combined both irrigation and dry farming methods to an extent and with an intensity far beyond anything our people have ever dreamed of, in order that they might maintain these dense populations'.

The canals, moreover, render not only water, but a refreshment of soil itself comparable to that of the overflow of the Nile or of the warping of the Isle of Axholme. 'In China enormous quantities of canal mud are applied to the fields, sometimes at the rate of even seventy or more tons per acre.' And where this mud is not available, they yet refresh the soil in a manner again rivalling the autochthonous renewal of Egypt. 'So, too, where there are no canals, both soil and subsoil are carried into villages and there they are, at the expense of great labour, composted with organic refuse, then dried and pulverized, and finally carried back to the fields to be used as home-made fertilizers.'

Finally, on page 241, he asserted that 'China, Korea and Japan long ago struck the keynote of permanent agriculture ... In selecting rice as their staple crop; in developing and maintaining their systems of combined irrigation and drainage, notwithstanding that they have a large summer rainfall; in their systems of multiple cropping; in their extensive and persistent use of legumes; in their rotations for green manure to maintain the humus of their soils and for composting; and in the almost religious fidelity with which they have returned to their fields. every form of waste which can replace plant food removed by the crops, these nations have demonstrated a grasp of essentials and of fundamental principles which may well cause Western nations to pause and reflect.'

Without much reflection, it must be quite clear that in these works and actions of the Chinese, all the factors which promote the fertility of the soil are brought together so as to ensure and preserve its highest creative power. This is done 'at the expense of great labour' as the true character of the economics of the soil. By such great labour a fair constancy of return from the soil can be assured, a constancy which has no parallel in the dominant

money system of our time, a constancy which depends upon the fact that if all the factors of fertility in a locality are brought into the action of cultivation, the results will reach a certain degree which they cannot surpass.

The whole conception of dominant money is, on the other hand, foreign to the soil. When money is lent, it expects to get not itself but more than itself in return. Omitting the speculative hopes of capital improvement, money lent expects an addition of itself called interest.

But in good agriculture, fertility is fully used in producing a crop. It is not and cannot be called upon to create an extra quantity of itself so as to produce an extra crop or interest. Only something parasitical could add itself as an *extra growth on decadent vitality* and that does not occur in whole farming. In farming dominated by money, however, parasitism is as abundant as debt, like breeding like. If one reads a book on modern farming one cannot help being struck by the number of parasites that take their share in it. There are warble flies, scabs, lice, fleas, maggot flies, bollworms, eelworms, wireworms, fruit flies, fungi, leaf roll, blackscab, blight, mosaic, rust, bunt, smut, leaf stripe, black leg and so on. The more complex scientific farming becomes says Mr. D. H. Robinson, the greater 'the spread of complaints which formerly were unknown or of little importance'.

There is clearly quite a definite difference between a farm carried on for the preservation of a high fertility and one for the immediate production of money-crops, enforced to this by the dominance of money and credit-debt. Once a farm is involved in the credit-debt dominance, once this credit-debt is looked upon as a first need or chief claimant, then agriculture becomes inextricably involved in a huge system, with its owners and managers, and its local, national and international debts. These debts affect everyone within the system. Modern men, therefore, in facing the problem of life, find themselves loaded and hampered by the dead weight of debt. The size and pace of enhancement of these debts are so extreme that there is no hope of their being balanced by the creative power of life. The only reply to them is to use up without replacement the stored fertility of the past. Even this fails. It does not abolish, but extends debts and debtors on the land. The whole position is so utterly beyond any balance that only men with minds split from the reality of creative life could possibly acquiesce in the hypotheses and creeds which have arisen to fortify it and to make it appear rational and sane, hypotheses which were eventually forced to raise the sleek speculator and the barrel-bellied millionaire to the status of darlings of nature; her selections in the survival of the fittest!

The stark fact that appears now, and which wrote itself across the Roman Empire, is that debt and taxation increase as the soil declines. The one is a counterpart of the other. The huge, unpayable debts are the measures of the death of reality; step by step they are matched by the loss of soil-fertility. In coming chapters we shall see how remarkably the greater money dominance of the present era is matched by the greater ill of the soil. The money dominance and its vast debts, personal, local, national and international, are on the side of death and against the creative power of life.

Nature, it must be remembered, has no interest in maintaining a more highly organized form of life such as man is. If he takes a harmonious place in a life-cycle, he will continue; if not, he will be replaced by some other form of organic life, as bracken replaces grass. Survival is not a matter of struggling to be fittest, it is not a matter of the modern boast of the conquest and exploitation of nature. *It is a matter of reverence.*

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 10

The English Peasant and Agricultural Labourer

The English peasant first appears in Engleland as an individual with a strong bent for independence. Engleland was the southern part of the thumb of land that projects itself between the North and the Baltic Seas, the northern part being the land of the Jutes or Jutland.

The dwellers in Engleland, writes Mr. John Richard Green, in his *Short History of the English People*, 'seem to have been merely an out-lying fragment of what was the Engle or English folk, the bulk of whom lay probably along the middle Elbe and on the Weser', and he adds that they were allied to peoples occupying a wide tract reaching to the Rhine and collectively known as Saxons.

Mr. Green does not, however, speak of the fascinating theory of Henri de Tourville, who gives the name of 'particularist' to these Nordic peoples, because they were people of the small or particularist families of husband, wife, and children as opposed to the large joint families of fathers, their sons and grandsons and their wives and children. Henri de Tourville, in his *Histoire de la Formation Particulariste*, believes this small family came into being in the following way: some Teutonic or Nordic people reached the plains of Sweden and in their search for undisturbed homes, passed on over the mountains and settled along the fiords of Norway.

Anyone who has voyaged up these fiords must have been struck by the patches of bright green cultivation that are set between the precipitous mountains and the sea water of the fiords. They are like unequally spaced gems of emerald. He will also have been struck by the smallness of the greater number of them. Nevertheless, what is grown on them and the fish of the fiords still form the food of isolated families.

These families were small or particularist owing to the sheer limitation of vegetable food. When the families of a fiord grew too large, the younger members gathered together, stocked a few ships and voyaged southwards, seeking land for themselves in fiords farther south, in the projecting thumb of Denmark, in the northwestern river-lands of Germany, and finally in the island of Britain. In the new settlements, the love of independence led to the persistence of the small family system.

However this system actually arose, it has been of great significance in the world's history. It is the oddity as opposed to the customary large or joint family; it is independent individuality as opposed to dependence on joint opinion; and a very strong oddity it has proved to be. However rude and rough these early Engles may have been, there are few Englishmen now who will not be thrilled, when they read how Tacitus, coming from the great city-world of Rome, was struck by the jealous independence of each farmer and his family in their settlements. 'They live apart,' he wrote, 'each by himself, as woodside, plain or fresh spring attracts him.'

They could not, however, be quite independent. Dangers from other peoples sometimes threatened them and they then joined together, chose a chief and took to arms. They were fierce fighters and, when they arrived in Britain under their captains, they drove the Britons westwards or slew them, and took their land, until once more they were independent farmers at peace. They were the forerunners of similar settlers in America, Australia and New Zealand.

But, before the coming of the Norman Conqueror, these farmers, says Green, lost most of their peace and much of their independence. They had so many wars that warrior-kings and their military subordinates had become a standing feature of their society. For greater protection against invaders, like themselves in race, they had to submit to larger associations, and eventually one kingdom. They lost their spontaneity of action and had, as a condition of existence, to attach themselves to a lord or thegn of the King's party. 'The ravages of the long insecurity of the Danish wars aided to drive the free farmer to seek protection from the thegn,' wrote Green. 'His freehold was surrendered to be received back as a fief, laden with service to its lord. Gradually the "lordless man" became a sort of outlaw in the realm. The free churl sank into the villein, and changed from the freeholder who knew no superior but God and the law, to the tenant bound to do service to his lord, to follow him in the field, to look to his court for justice and render days of service in his demesne.'

The coming of the Conqueror, William of Normandy, increased and confirmed the subordinate position of the English farmers, by giving them foreign conquerors as their lords. The tendency to the establishment of the authority of the aristocrat 'was quickened by the conquest', wrote Green; 'the desperate and universal resistance of his English subjects forced William to hold by the sword what the sword had won, and an army strong enough to crush at any moment a national revolt was necessary for the preservation of his throne. Such an army could only be maintained by a vast confiscation of the soil. The

failure of the English risings cleared the way for its establishment; the greater part of the higher nobility fell in battle or fled into exile, while the lower thegnhood either forfeited the whole of their lands or redeemed a portion of them by the surrender of the rest.' Land became the property of the King, who rewarded his followers and bound them in their interests to his, by gifts of land as private property. The Norman aristocracy received many estates, scattered so that they could not constitute a dangerously strong local power, but even 'the meanest Norman rose to wealth and power in the new dominion of his lord'.

So William initiated land as the private property of an aristocratic caste of landowners, and the peasants became bound to the land as serfs.

England was, humanly speaking, a very small country at that time. The population was some two million at the time of the Conqueror and two and a half million at the time of Edward III. The total area of cultivated soil was small, the greater part of the land being forest and therefore possessing undisturbed its primal vegetative cover. The farming was backward as the slow growth of the population reveals, and, compared to that of more enterprising countries on the Continent, it remained backward for many centuries. Nevertheless, it produced a life-cycle which, though of low grade, preserved within itself a certain stability and was free from pronounced waste.

When a balance between the English and their Norman conquerors was brought about by time, the features of an association based upon the soil, with which readers are now largely acquainted, came into being. The farming was carried out by a method of large estates. These estates were called manors and the heads of the estates were the lords of the manor. Under them the people worked, with various grades of right to the land, by which one and all got their food and home directly from the land. The country as a whole was in a condition of 'Natural Economy', not 'Money Economy', and such commonplaces of the country of to-day as are capital, labour, competition, employee, had no meaning. The family or associative method was everywhere. A man might employ labour, but he worked himself with those he employed and he ate the same foods as they did. The manor was, indeed, like a large family. It was a self-contained community and the land itself was the father and mother of the community. The lord of the manor represented a personal government, but he was not able then to do with the land what he wished. His position was that of chief functionary, and not that of slave-owner as in post-Punic Italy.

The land was worked on a common plan. There were no separate fields, but one large open space marked off into strips by balks. The lord of the manor would often have his strips amongst those of the villagers. In such cases the community was a true community, in which the land was alike to all. But in other cases the personal land of the lord of the manor was not amongst but separated from that of the villagers. The community was then almost, but not quite, a true community based upon the soil.

In addition to farming by the manor system, the most or only educated section of the people, the monks of the Church, contributed to the national farming the benefits of their

devotion, learning and art.

William Cobbett has given an account of the special character and quality of the monasteries and their meaning in an agricultural civilization, in *The History of the Protestant Reformation*, written over a hundred years ago. He said: 'Nor must we by any means overlook the effects of these institutions on the mere face of the country. That man must be low and mean of soul who is insensible to all feeling of pride in the noble edifices of his country. The monastics built as well as wrote for posterity. The never-dying nature of their institutions set aside in all their undertakings every calculation as to time and age. Whether they built or planted, they set the generous example of providing for the pleasure, the honour, the wealth and the greatness of generations upon generations unborn. They executed everything in the very best manner: their gardens, fishponds, farms, were as near perfection as they could make them; in the whole of their economy they set an example tending to make the country beautiful, to make it an object of pride with the people, and to make the nation truly and permanently great. Go into any county and survey, even at this day, the ruins of its, perhaps, twenty abbeys and priories and then ask yourself, "What have we in exchange for these?"'

To their practical farming, the monks brought the help of the classic writers of Rome, of Cato, Varro, Columella and others, whose works in Latin they were able to read. They were *cultured* farmers, to whom the spiritual side of creation appealed with especial significance. It was they who instituted improvements and preserved a standard in medieval farming. It was they who harboured that endeavour to do well, without which the work of the mass of men tends to decline. It was they who built roads and bridges, and maintained traffic by opening their monasteries as places of temporary rest and hospitality to all travellers, rich or poor; they who drained marshes, reclaimed wastes, and improved livestock. It was they who filled in what one might call the full composition of a soil-based civilization by giving it the vision of religion, the art of the temple, and the culture of studentship. They also defended, as far as they could, the independence of the peasants, and supported them in their efforts to rise out of serfdom.

The lords of the manor were the worldly heads of the people. They supervised and directed the division of the land, saw to the upkeep of cottages and buildings, presided over schooling and apprenticeship, arranged marriages, punished slovenly work, dealt with quarrels and crimes, checked short weights and the adulteration of grain and beer, arranged for the exchange of goods, and directed the relations of the villagers with the outer world which began on the farther side of the forest that bounded the manor.

We now come to the introduction of 'Money Economy' to the land.

At the time when the manor system flourished best, the lords of the manor were the paternal chiefs of the villagers. But they also had a number of rights which belonged to a conquest and were, in fact, derived from the Norman Conquest. It was these rights that made their precedence in the village something different from that of the village assembly,

which is the common form of village rule and which constitutes the true freedom and independence of the partners of the soil. The lords of the manor had the right to exact a varying amount of enforced work from the villagers; they exacted fees for the services of the manorial court; they had the right to sell timber from the estate, to permit strangers to take up land, to mill and even bake the people's bread; and, their class being the lawmakers of the country, they were able to pass such laws as the Statute of Merton in A. D. 1236, which gave them a right to enclose certain lands of the villagers for their own use. In brief, they were indisputable masters; they prolonged the Conquest indefinitely and thereby prevented the villagers of England from getting complete freedom of property in the land they cultivated.

There was one other privilege of the lords of the manor which was a direct contradiction of the freedom of the soil to terrene man. It was this. They had the right to fold, not only their own cattle, but also those of the villagers, on their land. They became the manorial, as well as the manorial lords of the estates, and everyone in the village, of course, knew that their lords robbed them of food, when they took the manure.

The lords of the manor, judged from the basis of the soil, became thereby *life-robbers in the midst of the village*. They were manorial robbers long before they became open robbers and pillagers under Henry VIII. By their theft or privilege, whichever it be called, their land received a greater and the villagers a less fertility and, *in accordance with this change in the soil, there came into being a change in the human beings*. A difference in quality entered. The rich, fed by a more fertile soil, were better in physical quality. The level of the people generally was degraded. Rich and poor became not only a thing of measurement by money, but a visible physical condition.

There is nothing perhaps that has to be made more clear than this: that the first separation leading to the divided classes of employers and employed, of rich and poor, with the poor dependent not on the soil but on the rich, was a separation of farm dung. It was a personal sequestration of life-elements. It was not a crime in English law, but in terms of the soil, a lethal type of crime eventually to lead to disasters for the robbed. Immediately, owing to it, the life-cycle of the lord's demesne was improved, that of the peasants' land was diminished. 'On land which was inadequately manured,' wrote the late Lord Ernle, in *English Farming, Past and Present*, 1922, 'and on which neither field-turnips nor clovers were known till centuries later, there was no middle course between the exhaustion of continuous cropping and the rest-cure of barrenness.' Much of the land had to lie fallow, unused and uncultivated until it recovered its strength, a natural part of which the lords of the manor had taken from it. The aristocracy needed the extra wealth which this sequestration of life-elements brought them. The crime was forced upon them by their luxury and expenses as courtiers and as warriors in the Crusades and French wars. They became, consequently, exactors, not protectors, of the soil, and they displaced the old Natural Economy of the manor for the new Money Economy.

The more enterprising and frugal villeins of the manor, supported by the Church, saw in

this need of their lords the opportunity to satisfy their cravings for independence. With the surplus they achieved by their ability, they won their freedom from service to their lords and they became tenants by the payment of rent. They took over land, too, from the least efficient of the manor's farmers and worked it with the previous owners as labourers, thereby becoming in the manor the *Kulaks in the Mir*, to speak in Russian terms.

Thus, during the slow break-up of the manor system owing to the introduction of the new Money Economy, the people of the manor came to be divided into four classes; the first was the lords and their families and personal dependants; the second the tenant farmers; the third the villeins, who did not become tenants; and the fourth those who failed to support themselves upon the land that had been allotted to them, and who now worked for their more successful brethren for a wage paid in kind or in money. This fourth class are often spoken of as the class of *free labourers*, because they were to some extent free to sell their labour. Their freedom was very limited, being due to their poverty, which compelled them to use it, as labour uses its freedom to-day, in binding itself to this or that master. They lost their right to the land and to the stock which had been their capital. Their value was relative to their abundance or their shortage. Only when there was a great shortage of labour, such as that which followed for many scores of years the destructive Black Death of the middle of the fourteenth century, did their wages exceed the cost of their necessities. Thorold Rogers called the fifteenth century the golden age of the English labourers or farm-workers measured by the relation of their wages to the prices of their necessities.

The freedom that these relatively high wages brought was defeated by the continuous decline of the soil of the land in the early Tudor period. Lord Ernle wrote: 'Land had depreciated in value; rents had declined; farming had deteriorated; useful practices had discontinued; cattle were dwindling in size and weight; the common pastures had become infected with "murrain"; the arable area of open fields had grown less productive, and without manure its fertility could not be restored.'

Desperate measures were required to save the land and the measures undertaken were those dictated by the ascendant Money Economy. In Roman Italy, after the Punic Wars, the deterioration in fertility of the soil led to the substitution of family-owned farming by large estates, the *latifundia*, and large landowners. In Tudor England the same substitution of *latifundia* for small family farming also took place. In post-Punic Italy, acquisitive men seized the lands of weakened farmers with complete disregard of the law. 'The whole system', Mommsen tells us, 'was pervaded by the utterly unscrupulous spirit characteristic of the power of capital. ... Roman capital was gradually absorbing the intermediate and small landed estates in Italy as well as in the provinces, as the sun absorbs drops of rain.' In Italy, the large number of slaves acquired by Rome's conquests, hastened the process, for it was easy for large landowners to break right away from their own fellow-countrymen, and, leaving them to their fate, to engage foreign slaves for the service of the Italian soil. In England the process of the eviction of peasant family farming was not completed until the industrial era itself.

In both cases, as on similar occasions elsewhere in history, the social change was in the nature of a conquest. A group of acquisitive men, who had got money by other ways than those of direct agriculture, acted as conquerors. They overthrew the peasants' customary rights in the soil as the basis of the State and made land a commodity to be purchased by the richest bidder. In Italy these acquisitive men were the Equites or Knights, who had acquired great wealth by acting as middlemen in the newly acquired realm of Rome, and who were to form the chief part of the aristocracy of the eventual empire. In England the acquisitive men, who overthrew the agricultural basis of the State and with it the Church and the monks, became the new aristocracy of Tudor England. In both cases also there were statesmen and other leading men, who set themselves against the 'terrible measures' under which the independence and rights of the farmers and of the free labourers were to succumb. Such were Wolsey, More, Latimer, and Queen Elizabeth and her Ministers amongst the English. Nevertheless, in spite of all such efforts the great living fact about a soil remained and that fact was expressed by Ernle in the words: 'Without manure its fertility could not be restored.' Dung had to save the soil, and the quickest way to dung the land was to enclose it with hedges and breed and put upon the fields sheep and cattle. Fortunately, the acquisitive men were attracted to this method by the price that British wool fetched upon the Continent. It was this opportunity for more wealth that made them seize the land of the small men and of the monasteries and with the expenditure of their capital turn it into sheep farms. It was unquestionably good for the soil, but it entailed a brutal punishment to the small farmers, and farm labourers, whose only sin had been that they had submitted originally to the enclosing of the lord's demesne upon the manor and the robbery of the dung of their animals for the land of the manor's lord. So, a new aristocracy arose upon the human relics of a system that had failed and the brilliant later Tudor period of English history followed.

From that time the proletariat and pauperism became the familiars of social England. No appreciation of the value of the small holdings appeared. There was no Prince Kropotkin at that time to make what would have seemed an insanely preposterous statement that, with the intensive farming of small holders, the British soil might support a hundred million inhabitants. Nothing was known of the rich results of the Chinese peasants, who were so skilled in the use of water and who followed the rule of return with such meticulous care. Nothing was known of the agriculture of the fallen Arabic Empire. The Tudor world was deeply stirred by what Green calls the New Learning, but the New Learning did not bend down to the humble giver of life, the soil.

For the further story of the English agricultural labourer, the -only authoritative history in English that I have been able to find is *A History of the English Agricultural Labourer*, by Dr. W. Hasbach of the University of Kiel. It was first published in 1894, translated into English in 1908 and reprinted in 1920.

Where enclosure occurred, Hasbach says, a proletarian class appeared. English agriculture from the fifteenth century, when rich commercial men began to buy out owners living on

their land, was 'sacrificed to the interests of industry'.

He gives a full account of the second great period of enclosures, that of the eighteenth century. It was in the latter part of this century that the genius of the English and Scotch brought in a new epoch, that of the machine. The power of the machines effected a revolution. Manufacturing towns grew up and multiplied, and the demand for food put a premium on the land. The Tudor enclosures had only affected a limited area, but now there was a far greater cry for new and undeveloped land and for the deteriorated land, on which the poor crops and poorer cattle revealed the need for capital and manure. In the pre-machine part of the eighteenth century, Enclosure Acts were few; in Anne's reign two, in George I sixteen, in George II two hundred and twenty, but in the latter part of the century, when George III reigned, there were three thousand five hundred and fifty-four. In the fifty years before George III 337,876 acres were enclosed; at the end of his reign 5,686,000 acres had been enclosed.

As in the times of the Tudor, there was a great improvement of the soil enclosed. Robert Bakewell (1725-95) transformed raw-boned cattle and lean sheep into animals twice the size; from 1776 on, Thomas Coke of Norfolk proved the capacity of capitalistic mixed farming to carry treble the livestock and to produce rich crops of wheat in place of scanty rye. Turnips were grown for winter feed of the cattle and clover for the improved feeding of the soil. Earnest farmers followed these great examples. Nevertheless, the main impulse to the enforcement of enclosures was the opportunity of acquisitive men to rise quickly to great wealth. It was this that gave the movement its brutality and the character of a civil war between one section of the people and another. Though the swords of the fortune hunters were sheathed in legality, they were none the less keen when unsheathed and so, says Hasbach, enclosures were 'not seldom changed into a national curse'. It was the better class of inhabitants of rural areas who appreciated local opportunities of seizure, and it was therefore 'squires, parsons and lawyers who were the chief owners and benefitters'.

Though peasant-ownership-farming survived in some few parts of England, in general 'yeomen farmers and peasant proprietors ceased to exist; they drifted to the towns and sank into workers at a daily wage. Not only small holdings but the lesser tenancies gradually vanished in a universal system of large estates and farms.' This quotation is from Richard Green.

The agricultural labourers in this period reached the nadir of their fate. They had no protection from the Church and the monasteries, as they had when Catholicism was the religion of England; their cottage industries had been supplanted by the new machines of the towns; the days of an agricultural labourer trades union were yet to come. They were utterly helpless and hopeless. They were not even slaves, ensured by their masters as regards board and bed. The landowners ceased to pay wages in kind, in other words in food, because food fetched higher prices in the towns and the yeomen who had once filled the village markets, were no more. Their food was almost confined to wheaten bread, which, being wholemeal, supported life. Their wages were miserably small, so small that

the parishes often had to add to its pittance an allowance from the rates. Because of this the parish authorities hired out the labourers, and sometimes, says Ernle, 'the paupers were paraded by the overseers on a Monday morning, and the week's labour of each individual was offered at auction to the highest bidder'.

The labourers presented heart-rending pictures to their bravest champion, William Cobbett. Here is one taken from his *Rural Rides* in 1821. 'The labourers are miserably poor. Their dwellings are little better than pig-beds, and their looks indicate that their food is not nearly equal to that of a pig ... The land all along here is good. Fine fields and pastures all around; and yet the cultivators of these fields are so miserable ... When I see their poor faces present as nothing but skin and bone, while they are toiling to get the wheat and the meat ready to be carried away to be devoured by the tax-eaters; I am ashamed to look at these poor souls and to reflect that they are my countrymen, and particularly to reflect that we are descended from those amongst whom beef, mutton, pork and veal were the food of the poorer sort of people.'

This degradation of labourers on the land was essentially English. It did not happen in England's neighbour, the Netherlands. Nathaniel Kent travelled in the Netherlands, and, in his *Hints to Gentlemen of Landed Property*, A.D. 1775, tried to awaken the said gentlemen to this fact. In the Netherlands, he wrote, there was an astonishing quantity of provisions, and as one of his broad hints to the Gentlemen of Property, he recorded that *the holdings were all small and the cultivators on equality*. This degradation, therefore, only happened in England. And even then, strangely enough, it was not inevitable everywhere in England itself. That indefatigable traveller on behalf of agriculture, Arthur Young, at one time the zealous champion of Enclosures, but later of the opposite opinion, discovered 'with great delight the life of the small proprietors of Axholme' (*Report on the Agriculture of Lincoln*, A.D. 1799)

Now the singular fact about these small proprietors of the Isle of Axholme was that they were *not English but Dutch*. They were a bit of the Netherlands transplanted to England. Their ancestors had been transplanted in the Isle of Axholme more than a century before Young visited them. The Isle was a swampy property of 46,000 acres between three rivers in Lincolnshire, and had the good fortune of belonging to one of the most cultured and educated men of his time in England, Charles I. Charles had knowledge of the small holders of the Netherlands, and he called some of their families over to England to drain the Isle of Axholme and cultivate it. They were true intensive peasant-family farmers, who, as Hasbach wrote, took every small advantage, cultivated every corner, had the help of their wives, brought up their sons in their footsteps, and 'serve the land in the way it should be served, never stinting themselves and as absorbed in their service as any priest in his religion'. So these peasant-families caused Axholme to flourish, and it was flourishing when it delighted the eyes of Arthur Young at the time of the degradation of the small English proprietors and their expulsion by the Enclosures.

Axholme is still flourishing. Sir Rider Haggard in his *Rural England*, 1906, welcomed its

'almost inexhaustible richness ... it will produce magnificent crops of wheat, potatoes, celery, or whatever it may be desired to grow'. Mr. Gilbert Slater, yet later, in the *Making of Modern England*, 1934, seeing heavier crops in the Isle than he ever saw elsewhere, drew the conclusion that the men of the Isle of Axholme had abundantly justified their stout refusal to submit to enclosure in the eighteenth century. 'Not only are the open fields of the Isle of Axholme exceptionally well cultivated at the present time, but the island serves as a training ground in practical and effective farming, and men who begin as labourers there frequently become large farmers elsewhere.'

These skilled, independent men met with strong resistance from the English farmers who tried to expel them, but they inherited a tradition of soil-protection and feeding, which gave them great faith in their own work. They knew its superiority and they have not changed. Their ancestry 'affects the physical appearance and accent of the inhabitants of the present day' (*Encyclopaedia Britannica*, 14th edition).

The English labourers, in the early part of the nineteenth century, on the other hand, had lost all courage. They were an unprotected proletariat. In the times of their prosperity and independence, says Hasbach, 'they had avoided early marriages and abstained from multiplying as a mere proletariat does; whereas now all such evils appeared'. This, he goes on to say, with great significance to all narrow-visioned reformers who wish to increase a population, this is the answer to Malthus, who failed to recognize the psychological elements (despair of the future and of freedom) in the rapid increase of population. 'The error was immense.'

Hasbach places the beginning of the slight recovery of the English agricultural labourer at 1834, in which year a Poor Law stopped the parish allowance to advantage the farmers and made them, the farmers, pay the whole of the labourer's wage. Actual paupers were put in the workhouse. But the real betterment, he found, was in two things, allotments and trade unions.

About this time certain kindly farmers gave allotments of land to their labourers for their own use and were glad to find that, instead of making them work worse on the farmers' lands, they worked better. The eternal truth that everyone likes to be able to pride himself on his own work glimmered into being again and, from being proud of the crops they raised on their own land, these humble men and their wives and children took pride in the crops they raised on their masters' land. They did so well on their private land that when a Government Report in 1843 pressed for the extension of allotments by law, the farmers complained that they had difficulty in getting enough cheap manure as the labourers wanted it for themselves. The labourers in a very small way were, in fact, turning the scales against the old lords of the manor who had started their troubles by stealing their soil-food.

In 1872 the labourers, under Joseph Arch, started a trade union, and 'considering the character of the labourers and their natural isolation they were at first very successful'. But

their efforts to get better wages were defeated by the farmers, who summoned unemployed workers from the towns and impoverished Irishmen for harvesting, hop-picking and other unskilled work in the busy seasons.

'After a long period of depression the unions sprang into life again in the year 1890.' We find them going to the root of the matter in their attempts to free land from the dominance of money. They supported the Land Restoration League, which wished to put a tax upon rent and increase it progressively until it absorbed and eventually abolished rent, and thus achieve the aim of Henry George. Agricultural and urban unions began to work together to prevent town labourers frustrating rural strikes and vice versa. Though poverty, ignorance and isolation of their members kept the rural unions back, they always 'gave expression to the labourers' desire for land'.

Allotments remained the most recognized form of relief. In 1889 a Parliamentary Committee on Small Holdings, with Joe Chamberlain as Chairman, reported, with 'farsightedness and objectivity', that a well-to-do peasantry was beneficial to any country, nationally, socially, and economically, and this was supported by the Central Chamber of Agriculture maintaining that, whereas large farming was suitable to sheep and corn, small holders were suitable to other types of farming.

'The theory that the agricultural population in general was unconquerably attracted by the towns cannot be seriously maintained.' 'The labourers did not depart where allotments could be obtained, where good houses could be had at a fair price,' and where some independence thereby was theirs. They preferred to live in villages to having cottages on farms. Yet, with the village life, the younger generation began to show themselves discontented. 'The old semi-feudal relationships of the English village were no longer quite pleasing to the younger generation,' who were more willing to migrate to towns, chiefly, or even solely, because on the land there was so little chance to raise themselves socially.

Hasbach ends with a review of the labourer from 1894-1906, and in these last pages the light of hope is dulled. The prospects of betterment did not mature. The generation that was content with allotments, good wages and decent cottages almost died out. The new generation 'altogether despises the position of an agricultural labourer'. 'He is at the bottom of the social scale,' and knows it; whereas in a town a man can lose identity among the masses of the inhabitants'.

As a result of his study, Hasbach came to the belief that little or no permanent betterment in the lot of the labourer had been attained. He could not avoid the impression 'that, in spite of the talk of better wages, the lot of the agricultural labourer in many parts of the midlands, south, south-east and south-west, where often the houses are wretched and both allotments and small holdings are wanting, is such that he is strongly induced to turn his back on the land, even though his sense of self-respect is comparatively undeveloped'. While the labourer strives for a humble independence, it is definitely the end of many

people 'to place a proletarian class at the disposal of the farmer, believing such a step was in the interest of the employers'. No statesman had arisen capable of viewing the picture as a whole or of 'estimating the total probable result of any measure'. 'Hitherto failure has attended all attempts to apply to the problems of agricultural labour the principles which have been effective in the realm of industrial labour.' The consequence has been the demoralization and depopulation of the countryside. Facts show that the system of the large farm cannot meet the crisis. Hasbach's final advice is the greatest possible extension of small and middling holdings.

So ends this most instructive and unique book.

Between 1906, when Hasbach ended his story, and the present day, England has fought in two Great Wars; in both her people have been aroused to the perilous state of their food supply; in both they might and almost certainly would have been starved into submission, had it not been for supplies sent to them by the people of the U.S.A. In the first war there was a wise increase of allotments to increase food. Powers were given to local authorities to acquire land by compulsion for allotments, and their number leaped from 130,536 acres to 1,330,000 acres. In the interval of peace that followed, much land went out of cultivation. The great efforts to increase the production of food before and during the second Great War are too well known to be recounted here. How far we are from the knowledge of how to feed our soil, and how it can best be cultivated, these two great crises have revealed. In no country is a reconstruction by way of the soil more needed than in our island. We have a large population; we need a large fertility of the soil to render our population safe and healthy. We need to free ourselves from robbery of the soil.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 11

Primitive Farmers

The word primitive is defined by *Annandale's Concise Dictionary* as 'characterized by the simplicity of the old times'. The lexicographer, with this definition, hits off with happy ease an exact description of the primitive peoples of this chapter and of the two that follow it. 'The simplicity of old times' just fits, for the lexicographer informs us under the word 'simple' that it derives 'from a root meaning one or unity'. We can now paraphrase our heading of Primitive Farmers, as Farmers characterized by unity. We must do this quickly before going on to read other definitions of 'simple', for we shall find that one of them is 'easily intelligible', and farmers characterized by unity are not a bit easily understood by modern peoples. It is because they have so rarely been understood that so many troubles have come to them from the moderns.

The primitive people here to be considered are the Kikuyu of East Africa, for about these same Kikuyu a very rare kind of book has been written. Its authoress, in the beautiful phrase of Robert Louis Stevenson, eavesdrops at the door of the hearts of the people she describes. She is Mrs. Elspeth Huxley; her book, *The Red Strangers*. She tells her story from the mind and heart of the Kikuyu, to whom the British were the Red Strangers.

Before the coming of the British, the Kikuyu were a family of people, who cultivated the land by family ownership. The land was cleared from forest and cultivated. When its fertility was exhausted, a new clearing was made, and the old one allowed a long rest and return to jungly conditions for its recovery. This farming is known as that of shifting cultivation.

The Kikuyu grew fruits, beans, peas, millets, sweet potatoes and other food crops. They kept goats and cattle. The fields were worked by the women; the men protected the fields against the inroads of wild animals, tended and protected their domestic animals, acted as

warriors when young and as councillors when old. They fitted their life-cycle into conditions, which they modified to their own advantage, but to which they did no permanent destructive harm.

An important feature of the tribe in regard to its eventual meeting with Western civilization, was that it had no metal money. Nor did it have any other form of durable money. Its currency was formed by domestic animals; the smaller currency being provided by goats, the larger by cows. In this matter of currency, therefore, they reached back to that of the early ancestors of Western civilization, whose word for money, pecunia, was derived from pecu, cattle. This character is very useful to our contrast picture. In looking at the rather hearty and cheerful Kikuyu, as they first showed themselves, Westerners saw a people who still possessed characteristics of the original Latins, from whom their own civilization itself had derived. They thus looked over a Great Rift Valley of time.

Goats, then, were the pecuniary units of the Kikuyu. A poor man had a few goats, a little land and one wife; a rich man many goats and fields, together with more than one wife to work the larger possession and more sons to tend the more numerous animals. Cows also were symbols of wealth. A cow was valued at about a dozen goats. If a man procured the consent of a maid to marriage, he had to pay some such sum as thirty-five goats, or two cows and ten goats to her father, and sometimes rams and brews of beer made a part of the payment. A field was valued at so many goats. A crime was expiated in a payment of goats to the injured party, or, in the case of murder, a fine of over one hundred goats paid by the clan of the slayer to the clan of the slain.

Goats possessed a second quality of money, over and above their general distribution; they helped a family at times of hardship. Goats are distinguished amongst domestic animals as those most able to feed themselves under adverse circumstances. In a drought, when other animals perish, goats manage to survive. They tend, it is true, to survive at the expense of the reduced herbage. They are, amongst animals, those most calculated to strip the vegetative cover and promote erosion and desert-making, for not only do they bite close, but they are nimble climbers; they can denude a hillside and find sustenance in its coarse, weedy vegetation. So they increase and perpetuate the disaster of drought, as does money when, as debt, it adds to and perpetuates seasonal disasters of Western farmers.

In, 1898 the Kikuyu of Mrs. Huxley's story were first visited by the Red Strangers, as they called the Britons, and in 1902, their elders or councillors at Nyeri surrendered their freedom to the Red Strangers. They were forced to this by magic. The magic of the strangers was beyond all that they had imagined. Under it a mere noise could kill a man many fields away. The Kikuyu magicians strove to oppose it, but they were as feeble against it as were the prophets of Baal against Elijah. The story itself is, indeed, not a little magical, in that an established wisdom, that which had fitted the people so well into a cycle of life, should be at once dispersed because of a mixture of saltpetre, sulphur and charcoal. Neither Kikuyu nor Britain can answer the question why wisdom gets no

immediate support from nature, so that these magics at times do struggle for the survival of the most powerful. What is sure is that *nature in her own time does write her verdict* and she writes it upon the soil. Then she makes herself the measure of wisdom and gives her verdict in its favour.

The Kikuyu cultivated the southern slopes of Mount Kenya at an elevation of 4,000 feet, with a climate in which the northern peoples could make their homes. So, with scarcely any preliminaries beyond the display of magic, the Red Strangers announced that the land which the Kikuyu regarded as theirs, really belonged to a distant king.

The Kikuyu, upon the ridges of the hills, had their enemies, the Masai of the plains. They and the Masai had fought mainly so that the victors could seize the cattle of the defeated. The first thing that the strangers brought about was peace between the Kikuyu and Masai. But it was not a peace that was the counterpart of war, that is to say, a peace between plumed warriors. Like most that was happening, it was so odd as to be inexplicable. The men of Kikuyu were commanded by the strangers to go amongst the Masai peacefully and to carry the possessions of the Masai, while the Masai themselves, men, women, children and beasts were ejected from the land of their fathers and sent to a new land. Under the aegis of the peace, the two peoples met and mingled in humiliation.

As the younger men were deprived of the pride and privilege as warriors, so also their elders found their dignity stripped from them. It was their right as councillors to dispense justice and compel the guilty to pay fines to the injured. But now it was a Red Stranger who took over the dispensation of justice and imposed fines. These fines now had to be paid not in goats, but in round metal coins and when paid by the guilty to the Red Stranger, he did not give them to the injured, but kept them himself. This clearly was not justice but theft. There was no effecting of a balance by means of compensation. The Red Stranger alone benefited, not only by keeping the coins, but by forcing the guilty to do paid work, which the Red Stranger required, so that they might get the coins for paying the fine.

Later came new and terrible demands. The men of Kikuyu were taken from their homes and brought down to the sea, which they saw for the first time. They were put into a wagon that rested on the sea and locked into a room with iron walls, the floor of which, when the wagon moved, rocked under their feet. They were overwhelmed with fear; it was like being in the belly of an animal. They were brought to a strange land, where again they carried loads as porters and served the Red Strangers, whose king was engaged in a very big war. They endured hardships so severe, that those who eventually returned to their home could not speak of them for many years. Such grim memories were the ghosts of great fear.

On their return, some of them did not go back to their original homes, but went to take up new land at some distance from the old, where the Red Strangers were installed. Now they were free and happy to be free upon farms of their own making. But, after a while, quite

unexpectedly, a Red Stranger arrived and told them he had given coins to the Serkali or Government, and because of this all the land and even their farms were his. But he did not, he said, intend to take away their farms or their animals. These they could continue to cultivate, but the men must also work for him. They would work one month for him and get six coins or rupees for the work, and then one month for themselves, and so on, through the year. By this arrangement large fields of maize were grown and many beasts were pastured for the stranger, and the Kikuyu kept their farms in cultivation and received coins.

The early result was surprisingly good. They got their silver coins every second month and what was more, the Red Stranger knew of markets where they could, for more coins, sell the surplus products which the virgin land produced abundantly. So coins began to accumulate. One odd thing, however, happened. It was the Serkali who gave out the coins. Nevertheless, the Serkali would not let them keep all the coins they got, but asked for some of them back. As the Serkali themselves made the coins, this was another insoluble puzzle. But, though some were given back, there was still a goodly number left, either to be buried in the floor of the hut, or to be put in the post office to be spent, when opportunity occurred, on taking up more land and a second wife to work upon it, and more goats for pasture. So, under the leadership of the Red Stranger, who now became in some sort a friend, riches, that is to say land, wives, and goats became more plentiful and the future held out hands of promise as never before.

Then something happened that neither the old nor the new magic with its new coins could avert. There were two years of drought, terminating with locusts and famine. The Serkali sent food from outside to the people, whereby they were saved from actual starvation. There followed a season which seemed to concentrate its own rain with that which should have fallen in the two previous years. The crops were now not burnt up but drowned. Further, in spite of the great shortage brought about by the drought, when any surplus product was now taken to the market, instead of many coins being given for it, for some reason inexplicable, so few were given that they did not balance the cost of cultivation.

The Red Stranger, who had taken their freedom from them, nevertheless had helped them and become their friend. He was now filled with sorrow, and in sorrow he dismissed some of those who worked upon his big fields and paid fewer coins to those that remained. There followed a further season of drought, when the unclouded sun beat day after day upon the land. The lake in the valley shrank to a lowness unrecorded in living memory. The pastures, stripped by locusts, turned to powdered earth, and dust-devils whirled across the valley like wild dancers. Erosion had begun. It was as if the new treatment of the old earth made the soil become something ghoulish and caused it to tear itself from its home and flee in towering columns with the wind. So it escaped from the Red Strangers, which the Kikuyu could not do.

As has been said, something had gone wrong with the coins of the new currency and it was now found necessary to contract or cut down the currency of the Kikuyu. The Red

Stranger, whom the Kikuyu had had to obey and had come to trust, issued an order to them to limit the goats, first to ten goats for each married woman, and then five. But this too failed, and the stranger, having no coins left, gathered his family together, bid a sad farewell to his sorrowing Kikuyu friends and was no more there.

In his place came another and with him an officer of the Serkali. Then fell the final blow. All the goats, which in their hunger were eating down to the very roots, were expelled from the stranger's pastures. The Kikuyu, who worked on the large fields, were allowed to continue their work, but they must have no goats. If they wished to keep goats, they and their animals must go elsewhere.

In this way the traditional currency of the Kikuyu peasants, that which had been to them what the coins had been to the kindly Red Stranger, was as effectively destroyed, as was that of the peasants of India by Act No. 8 of 1893. It was replaced by a currency which had no relation to the local returns of the soil, as had the goats, but was something quite outside the humble fortune or misfortune, which work and the seasons brought to the Kikuyu. The new currency, it is true, brought with it certain advantages. In times of actual famine, it was able to relate the Kikuyu to better conditions far distant from their locality. With it came trade, education and the creation and improvement of towns as means of livelihood. But it took away something that was an essential part of the life-cycle, an automatic animal factor upon the farms, which rose and fell according to the creative capacity of the soil. When severe adversity came, the animal life was diminished; it was only extreme and rare disaster that had a like effect upon human life. Being a part of the life-cycle itself, the currency moved up and down with the favourable or unfavourable condition of the soil. The new coins, on the other hand, had no relation whatever to the soil, local or otherwise. They were completely dissevered from it. They had, indeed, the agricultural impossibility of having nothing at all local about them and of having an existence entirely apart from the life-cycle. They were related not to the soil, but to world finance, the first modern attempt by a group of men to be masters of the world.

Without their goats the Kikuyu were like the friendly stranger without his coins, and they, too, in their despair, followed his example. They packed up and left the land of their adventure to return to the land of their forefathers.

In the further narration of the fortunes of this family, Mrs. Huxley skilfully contrives to give an epitome of the Kikuyu people, as a whole, in their transition from a subsistence to a capitalistic farming basis, which with its ancillaries occupied in years as many decades, as it took centuries in England, so swift was the tempo. Nevertheless, all the main features reappear in the Kikuyu story. The large estate and the extrinsic money system have already been described.

The family returned back to their homeland, confident that, according to tribal custom, they would have a right to the land, which the father, when young, had cleared at the side of a forest glade. But, on their arrival, they found changes even more varied than those

they had experienced in the land of their adventure. A cousin had taken over both the land and the glade. The glade had been turned into a pasture, and it had something unknown in the past, in a fence which enclosed it. Previously all pasture had been open and the common ground of the villagers. Fields in the past had had temporary fences to protect crops from wild pigs and other animals, but the fencing they now saw was substantially made and not the temporary fence of custom. The cultivation of the fenced-in fields was also different to that which they had expected. The native method of hoeing by hand had been supplanted by a plough with oxen to draw it, and they soon discovered that there were other new ways of cultivation, such as a rotation of crops. Still more surprising was a square house built of stone, with windows, a veranda and a shining iron roof, and about the house was a garden with flowers and with fruit trees planted in rows.

The family looked about for goats, but saw none at all. That animal, once the currency and also the victim of religious sacrifice and so in two aspects closely interwoven with men, they later found had, under British advice, been entirely discarded. There were some other measures of wealth, and then they realized that what they had seen of the home of the Red Stranger in the land they had left, was here repeated. They were looking, not at communal or tribal land any longer, but at something more like to the estate of the Red Stranger. So they saw and, asking many questions, they learnt that the cousin himself had become as the Red Stranger, one who, by the right of the Serkali, claimed that the land was his. They were looking on *private property*.

Certainly this cousin had benefited greatly by means of the Serkali and by listening obediently and intelligently to its agricultural officers. As a progressive man, the Serkali had made him something new to the Kikuyu, though not, had they known it, strange to the English Red Strangers, something derived from the lord of the manor. They had made him the local land-chief and he had become so rich that he had no less than twenty-two wives to serve him. Even the form of the wives' service was strange, for it was they and not the cousin's men who tended the cattle. There were sons enough for the work, but they had all of them been to the schools of the Serkali and this placed them above tending cattle. Education was something which turned the young men from the land to the town, where they became clerks or teachers or policemen or took other forms of subordinate service to the Serkali. In these services there lay a greater safety, a prior claim it seemed upon the Serkali, for in Nairobi, the capital town, during the long drought and famine, these younger people had still had enough to eat, still travelled comfortably in omnibuses to their work, still dressed in European clothes and danced in European fashion. The great affliction of the countryside was fended from the town.

The returning family saw and heard all this. Particularly, of course, did they note what concerned them most, the stone house, the rows of fruit trees, the cattle, the fencing and other changes upon the land that according to custom was theirs. On the one hand, then, was their traditional right, on the other the robust facts of private ownership. The father, now an old man nearing his end, wished to bow before the power of the new, the son was unwilling and prevailed. And so a claim for the land was lodged by the family.

The case aroused the keen interest of the whole locality. It staged the conflict that was everywhere diffused between the old and the new. The elders stood firmly for the tribal laws of inheritance and the safe living upon the land which they gave to each family, and opposed the new rights, which made men dependent upon the will or whim of so-called owners of the land. The younger generation stood as firmly for the cousin, because of the improvements he had made under the guidance of the Serkali's experts. This, they said, made the land his. As to the family, if dispossessed, there were other ways of getting a living open to them, such as by becoming labourers upon the roads or railway or in house-building, or portage, or even in Nairobi, by acquiring dignity as taxi or bus drivers. They could even stay on the land in the humble form of hired labourers, receiving wages from the new owners.

As the claimants could not afford to pay compensation for the improvements, the land was finally awarded to the cousin. But the claim of the family was also acknowledged and land, belonging to the clan, was awarded of equal size and excellence to the original clearing by the forest glade.

So, after many experiences of sudden and quite unpredictable changes of fortune, the family attained once more to the traditional security of the homeland. But even here they had to submit to the fringes of what was to become by far the most dangerous change of all.

The old father died and he left behind him one legacy. It was a prophetic pronouncement of his not long deceased friend, Irumu, who had been the seer of the tribe: 'When women walk all day to seek firewood and when cultivation lies naked under the sun, then shall evil come. On the days when trees again darken the ridges and bring shelter to the weary, then shall good fortune return.'

From the deep, inward oneness with the local life-cycle, which such tribal wise men have, had arisen a vision of the coming of the Great Erosion. Where the new greed for land as property caused too many trees to be felled along the ridges of the hills upon which the Kikuyu had their homes, there the torrential rains would be unchecked by these umbrageous ramparts. The watery bullets would pound some of the top-soil into mud, which escaped in turbid runnels down the slopes of the hills. This was the beginning of water-erosion, which as it spreads causes women to walk all day in search of firewood. And when the fields were broken open by the plough in place of being lightly stirred by the native digging-knives, and when they were made to grow one crop in place of several plants of different heights, foliage and roots, then the cultivation lay naked under the sun. A dry season made the surface of the soil dusty and some was blown away by strong winds. This was the beginning of wind erosion.

These two erosions form the last phase of the present story of the entry of the Kikuyu peasantry into modern civilization. Due to this civilization, there was a greater call upon

the fertility of the soil and in some strange way a similar call on the fertility of its partners, for a native proletarian population increases under the early rule of the Westerners. Many new ways of earning the new coins were opened up. The colonial governments called for more coffee, more sugar, more cotton, more hides, more maize, more sisal and so on for export. More land was exposed for cultivation, its fertility taken up by the crops and the rule of return neglected.

Here is an account of the last phase of this process as it is affecting the Kikuyu, written by Messrs. Jacks and Whyte in *The Rape of the Earth*, 1939. This account completes the story so brilliantly told by Mrs. Huxley.

Erosion, they write in their world review, has attacked the lands of the Kikuyu, and it is due to agriculture being forced to too speedy a pace in 'the increased desire to obtain cash through the sale of crops' and in the need for more food crops by the increasing population, much of which migrated to the growing towns.

The original mixed farming for sustenance succumbs to the new commercial farming, *it does not everywhere form the basis for the new*. One farmer will concentrate on the growing of maize, another will stock or overstock the land as pasture; both practise thereby a rape of the earth. They farm for cash, and, not heeding the rule of return, they take more fertility than the soil can recurrently yield. They treat the soil as conquerors and not as partners.

In the general demand for more crops, the peasants cultivate not only the ridges upon which they had their homes, but also the easier slopes of the hills. There comes a loss in the quality of the soil, a loss of that wonderful air-containing, loose adhesiveness of the soil due to good humus, and with this degeneration the great natural elements of rain, wind and sun, once friends and partners, now, at the times of their especial strength, become enemies. The Serkali has taken no proper measures to prevent this. There is a 'lack of conservation measures in general', say Messrs. Jacks and Whyte.

The European owners mostly exhaust their estates by the same disregard of the precepts of nature. They override nature before the fall. 'In the European areas erosion is caused by exhaustion of the soil through long continuous cropping without the adoption of methods to prevent erosion and maintain the humus content of the soil. The results of land misuse are only now becoming apparent in a grave form, as much of the land in the settled areas has only been cultivated for fifteen to twenty-five years. Some areas of Kenya have already reached such a state of devastation that nothing short of the expenditure of enormous and quite impossible sums of money could restore the land for human use above a bare and precarious subsistence standard ... Generally speaking, erosion has become serious only during the past five years. In addition to the causes enumerated above, the invasions of locusts of 1929-31 and the drought of 1931-5 greatly accelerated the process and were largely responsible for making it so apparent in the space of a few years.'

The Red Strangers came to the land of the Kikuyu in Kenya, because, though situated upon the Equator, it is highland and has a climate in which they can live and farm. They make their homes there, but to maintain their accustomed standard of living and to save money, they concentrate on farming for profit and in this they do but follow the common lines of modern farming. The facts that the fertility of soil is exhaustible and that methods, under which in the cool, wet climate of Britain the soil is slowly depleted will, in Kenya, deplete it with rapid momentum; that sun, wind, rain, goats and cattle, all fitting into the old life-cycle, will thereby be turned from partners into enemies -- these are foreign to their experience and knowledge. In their own land the rule of return and the conservation of humus are not axiomatic.

So they farm and so, wishing the Kikuyu to share in the wealth from the new methods, they induce them to adopt the new values.

The intention is good. Both white men and black shall profit by progress and science. Though the Red Strangers, with their greater magic, claim the land as belonging to the distant king, any further exploitation of the Kikuyu is not the king's wish. In July 1923, His Majesty's Government itself decreed that the interest of the natives must be paramount over those of all immigrants, including the British, and that on no account were the black men to be sacrificed to the white. The Red Stranger, who announced to our Kikuyu family that the land had become his by the payment of coins, nevertheless, as befitted this good intent, soon became their beneficial friend. 'They understood then that they, the black, were not to be sacrificed to the white.' But both black and white depended upon the soil and it was the soil that was sacrificed. It was stripped of its sheltering cover with eager haste and a tragic lack of understanding. The final result is not yet known, but what is known is sufficient. In some parts, in very truth, the words of Irumu are no longer words but facts: the women walk all day to seek firewood and the cultivation lies naked under the sun. Can the days, of which he spoke, cease to be words and too become facts: 'On the days when trees again darken the ridges and bring shelter to the weary, then shall good fortune return.'

Money, that has been the root of this evil, is *unable to save*. The authorities quoted say that only enormous and quite impossible sums of money could restore the land. And before money, representing effort, there must be again the change of values, a change of outlook and a change of faith.

Nature is very careful, but men are careless. In some of the species of acacia trees in Australia, the leaves are suppressed, and the leaf-stalks or petioles are vertically flattened to take upon themselves the function of leaves. It seems that the vertical position of these petioles prevent injury from excessive sunlight, as, with their edges to the sky and earth, the petioles are not so exposed to the light as are the horizontal leaves. Scientific theorists explain how this comes about, but to the thinker, it is an exquisite example of nature's care, and should impress farmers, telling them: 'Do likewise. Exquisite care is necessary in

the preservation and adjustment of the details of life-cycles, and that is what farming should be.'

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 12

Nyasa

Here is the story of another primitive farming people of East Africa, about 1,000 miles south of the Kikuyu and occupying highlands of lesser elevation at about the same distance from the sea.

In 1935 the Government of Nyasaland became perturbed by the increasing exodus of able-bodied peasants from the homeland. The Governor appointed a committee of inquiry. How alarming the exodus and its far-reaching consequences were was revealed to the members of this committee. As they travelled and saw and questioned, vista after vista of the tragedy of native life was disclosed.

This is what they reported: 'We must confess that, six months ago, there was not one of us who realized the seriousness of the situation; as our investigations proceeded we became more and more aware that this uncontrolled and growing emigration brought misery and poverty to hundreds and thousands of families, and that the waste of life, happiness, health and wealth was colossal.'

Now this statement of a well-intentioned committee is worthy of the closest attention. At the outset it should be noted that there was not a rural native upon the committee. It was assumed that wisdom lay outside the land. The committee men were not terrene men, measured by the axioms of the soil, but super-terrene men with very little knowledge of the terrene men of the land of Nyasa. Consequently, within six months, they found themselves astonished, even overwhelmed, by the disruption of a terrene life-cycle, involving many humble people, for whom they and their kind were responsible. The wealth, of which they wrote, was the wealth of the land, and they laid down their belief about it in these words: 'We consider it essential that the whole Protectorate should be surveyed by local agriculturists with the idea of discovering the best uses to which the

land can be put, regarding the land not as something to be exploited piecemeal, but as the sole capital of the Protectorate.'

The language, one will note, is that of money-minded men; the land is called the *capital* of the Protectorate; as capital it must not be exploited for industrial profit, but put to the best uses as the only means of livelihood for the people of the Protectorate. How this was to be done was to be decided by local agriculturists. This term did not include native farmers, because they would not be capable of surveys with an accumulation of facts and figures from which to draw conclusions. The committee men did not seek a renovation of the indigenous social and farming life, from which improvements could eventually develop, but advised the consideration of the question from the up-to-date Western agriculturists' outlook. In that way it could be decided how to put this particular *capital* to its best uses.

The indigenous methods by which the natives of Nyasaland farmed had general resemblances to those of the Kikuyu. They cleared a part of the forest and cultivated it as long as it gave good results. Then they abandoned it for a number of years, in which, by encroachments from the neighbouring forests, it reverted to the natural plants and conditions of the country. This is called shifting cultivation.

'Shifting cultivation,' write Messrs. Jacks and Whyte, 'although it kept men as unimportant servants of wild nature, maintained soil fertility indefinitely, since the forest drove the cultivator out and re-assumed its beneficent control as soon as any sign of soil exhaustion occurred.' The indigenous method, therefore, included as a practice, if not as an intellectual precept, the indefinite maintenance of soil-fertility. The Western agricultural, money-making land-owners only awoke to the devastating effects of the loss of soil-fertility after it had markedly occurred, and then devised methods of preservation.

This is because dominant money falsifies conservative farming. The whole conception of money plus interest is foreign to the soil. When money is lent, it is in the expectation of getting not itself, but more than itself in return, an additional creation called interest. But a crop does not reproduce more than the substances it gets from the soil and the air. *The creative power never creates anything extra.* It changes forms. In nature there is only transition, not addition. The conception, then, that money can produce extra money, something over and above itself, is not one derived from the creative power of the soil or the character of nature, and that no doubt is the ultimate reason why interest has been so strongly condemned by religions and philosophies. Peasants feel it to be wrong and the poets, who in Dante's definition are 'those who know the secrets of nature', the 'makers' of the Greeks, know it to be against nature and unreal and therefore inimical to the intellect and morally wrong.

For these reasons money-directed farming, however scientific, cannot create the honest constancy of equivalent return. It strives to get more than it gives, and thereby brings about a difficulty in actual survival. It is this which constitutes the story of Nyasa. Money-directed farming was expected from a primitive people by a government belonging to the

money system. The primitive people belonged to a completed life-cycle, in which surplus crops were exchanged for other human needs. There was no space in their work or habits for anything over and above this completed life-cycle, nothing, that is to say, which could be stored away as dead capital or discarded as not wanted. It would be turned immediately into wealth, which meant cattle or other such visible 'goods' of the native. It certainly could not be symbolized and banked. Consequently when the Nyasa Government demanded a hut-tax to be paid in money, it drew the peasants into the money system without any preparation or aptitude for it and without defence.

They could have paid the tax in goods or kind according to their custom. But they had not the coins which the Government demanded, and their own elder men, in their own urgent need for the coin commanded by government, ordered the younger men to pay the bride-price in coin, not the conventional cattle.

The cash asked for by Government through taxation, wrote the committee in their Report, was considerable. It was more than a farming district, after providing for subsistence, earned. The committee gave, as examples, five districts, which had to pay taxes of £18,000, though earning but £14,000, made up of market earnings £1,000 and wages £13,000. In response to these urban infiltrations amongst primitive farmers, therefore, none of them proved to be 'the fittest to survive' upon the land of their fathers. There was only one thing to be done, as was done in England by many of the harassed Tudor and Georgian peasantry; they had to evict themselves and seek employment in the modern, Westerners' mining, towns of Tanganyika, Rhodesia and the Transvaal, all of which could be reached on foot. Hence, out of a total population of 1,600,000, there were 120,000 farmers continuously out of the country, 50 to 60 per cent of the able-bodied population. Basutoland and Swaziland, farther south, had almost the same percentage of young workers absent from the land. The workers, partners of the soil, were disintegrated and blown, as it were, like eroded soil, to regions where they were made to take from the earth, not crops, but the gold that was then the god of the money system. 50 to 60 per cent left their farms; yet the Government of the Belgian Congo had been advised by one of their committees that even the absence of 5 per cent of young able-bodied men from an African village upsets the whole economic and social balance of the community.

There is scarcely need to give a picture of the state of the peasant families who remained; of the women, the old men and the elder children, who strove to carry on the cultivation of the land; the fields overgrown with weeds and jungle invasion; the huts falling to pieces; abandoned fields and crumbling villages, as if the Tudor period flung a long reflection of itself upon Nyasa and the neighbouring lands.

A partial remedy came through the unchastity of the married women. Wearied by the unequal battle and the increasing illnesses of themselves and their families which accompanied it, they gave up the attempt to remain chaste for their husbands' return from the mining towns with the cash and the venereal disease they had there acquired. So, when natives of Portuguese East Africa discovered that there were women and land across the

border, they seized their opportunity. At the present time, it is said, there are as many, or even more, such male cuckoos resident in Nyasaland as there are Nyasa men.

The story of Nyasaland tells that 'waste of life, happiness, health and wealth was colossal'. It is a tale of the misery of a shattered life-cycle. It is not a tale for the heart only, but for the brain. It is an expected tale. History does repeat itself over and over again. Post-Punic history and Tudor history, with their evictions and brilliancy, are repeated in the story of Nyasaland and its neighbours. Distances are greater and the brilliance was to be found distantly amidst the wealthy of London and other cities, and those who derived something from them.

But the modern story was debased by its being one caused by naked gold itself, to mine which the peasants went from their farms to earn cash, for the taxation by coin that was put upon them. It is a tale of the immediate contact of the raw material of the money-system itself with primitive farmers. The foes were face to face.

Some readers may sometimes have wondered why primitive peoples seem to die out with the 'advance of civilization'. Here is one way. It shows directly how the money-system acts. It is the system, which elsewhere is represented by high explosives, bombs, tanks and the rest. But against the soil its weapons are not known as weapons. Nevertheless, through them, the money-system is far more widely and more permanently lethal than it is by the destructive efficiency of its machines. It kills at the source. It kills the partnership of the soil and the peasants. Wherever it is in action, it produces an eventual desolation of death; peasants and soil vanish and with their loss, what was a source of healthy creative power is given over to death.

Chapter 13

Tanganyika

Between Kenya and Nyasaland lies the great, sparsely-inhabited territory of Tanganyika. In this territory, there is a life-cycle of a very remarkable character, which contains within it, as a part of its ecology, an insect, the tsetse fly. This fly has come to play the part which the lions of Judah once played as defenders of the natural forest against the intrusions of man. Palestine no longer has its lions and the consequence is that, when one flies over it in an aeroplane, one looks down upon the watershed to see barren rock where there should be forest.

The tsetse's method of defending its forested life-cycle is more subtle than the terror by which the lion once kept men from his home. There is nothing regal about the tsetse, but its part in its life-cycle forms one of the most remarkable in nature. It feeds like the mosquito, upon blood, biting both animal and human. Tsetse is also a host of the microscopic trypanosome; consequently when it bites it may inject the trypanosome into

the blood of the bitten animal. When it injects animals in its own life-cycle, the animals live. The trypanosomes do not harm them more than a number of microbes, which live in men, harm their hosts.

But if man's domestic animals and man himself invade the tsetse area, it is a very different story. On the expedition to Tanganyika, to which the Kikuyu peasants were taken as porters and endured such miseries, none of the animals imported into Tanganyika in the service of the British Forces survived. Practically all that were not killed accidentally succumbed to the fly. It is destructive too, to men. The first trypanosomes were brought by cattle driven across the watershed between West and East Africa. In parts of Uganda the tsetse lived. They became the hosts of the trypanosomes, and 200,000 out of 300,000 people died in six years.

Men, therefore, have a very great fear of the localities of this insect, a great fear like that of past Palestinians for the lions of their forests. The tsetse evicted them and their cattle from its forest areas. It is said that in the full 365,000 square miles of Tanganyika, two-thirds of the five million inhabitants have to confine themselves to one-tenth of the total territory. Then came scientific white men determined not to be evicted by, but to evict the insect. So they cut down the trees and bushes near the streams, lakes and pools, in the shade of which the tsetse lives. The result has been an erosion, not so threatening and extensive as in Kenya, because the area that is cultivated is so limited, but so serious as to call a halt. It was clear that trees must be left to protect the soil against the heavy rain of tropical East Africa; otherwise the forest became savanna, then coarse grassland and, eventually, if this poor pasture was over-stocked with cattle, barren waste.

The hydrological or water-cycle, in which vegetative cover plays an absolute part, had to be preserved, and consequently the wholesale destruction of the haunts of the tsetse along river and around pools and lakes had to be abandoned. In its place very cautious ablation of bushes and trees favoured by the fly, is being tried. Indeed, in no part of Africa probably has the value of distribution and conservation of the water supply been more thoroughly grasped than in present Tanganyika. In the Kilimanjaro Native Co-operative Union, which claims 24,000 members out of the 36,000 farmers on the slopes of Kilimanjaro, there are 26 societies, and the reason of this number is that it corresponds to 26 streams, which take their origin in the great mountain and water its slopes. Under the guidance of Sir Donald Cameron, geologists, plant ecologists and water surveyors have been linked together to fit farmers in an understanding manner to the local character of the water supply as a whole. They have marked out the catchment areas of the 26 streams. Each catchment area with the river to which it gives rise has been made into a separate entity and is presided over by a native chief, and the 26 entities united in the Co-operative Union; 26 catchment areas, 26 rivers, 26 cultivated areas, 26 chiefs, 26 communes, and one Union. It is a real association of communes and the assembly of the Union a real House of Communes or Commons, people of a common source of life and not the mixed mockery which the Assemblies of Communes have elsewhere become.

So in the strange way in which nature replies to human acts, man has been shown that the tsetse, which has been such a prolific killer of him and his animals, has nevertheless proved a great saviour of the source of terrene life, the soil. Had it not been for the tsetse, the rich soil fed by the greatest mountains of Africa under an Equatorial sun, would have been greedily seized upon and its stored fertility turned into cash, until an irrevocable erosion stayed further ravages. But, owing to the tsetse, this swift onslaught could not be made. The tsetse has prevented it; in the words of Mr. R. O. Whyte 'the presence of the tsetse in many parts may be a blessing in disguise, as it can be regarded as the trustee of the land for future generations'.

The tsetse is a pest to man, but man, greedily eager to make his fortune from stored soil fertility, is a pest to life itself. So the strange story of Tanganyika ends with the little tsetses still defending their waterways against the lords of the earth, so giving time for nature in her own ways to tell these lords that, masterful though they may be, if they claim to be *masters of nature*, they are doomed. They themselves must re-learn with humility that they are the *creatures* of nature, and, this time, a little insect shall teach them.

Chapter 14

'Earth Thou Art'

Before continuing the story of the present misfortunes of the, soil, it is well to recall again how earthly we ourselves are. This may be done by a meditation, in which one concentrates the mind on some one thing of those so common to us that normally we never trouble ourselves about them. We concentrate and allow our minds constantly to widen the circle of thought that arises from this concentration. We are accustomed to give a good deal of time thinking out our problems, but we rarely meditate, we rarely make ourselves strange to the familiar. We accept the air as air, the sun as sun, the earth as earth without at any time making ourselves strange to them until we comprehend both them and ourselves in relation to them.

'Earth we are and to earth we return' is a sage and familiar saying upon which we may well widen our reflection. It seems that this earth now under our feet is in some way us. To it and its darkness we and so much else in the world of light belong. The interchange from the visible to the invisible and from the invisible back into the light, is continuous. We ourselves, as part of the visible, are largely concerned with the invisible. The great majority of men trouble little about it, but since man is, it seems, the sole creature of the soil that is endowed with meditative thought, he has gathered a good deal of knowledge of the crust of his planet. Deeper than the crust of the earth he can scarcely reach, but in it he searches from a wide generality of instinct, which tells him that, though he has spirituality, he is nevertheless essentially terrene, and when he searches into the earth, he searches for a further understanding of his own being.

Living in the visible world, he is destined to return to the earth. As electricity can be separated by him from the earth and made to run trains, drive ships, bathe night cities in radiance, and draw great clouds together over thirsty lands, yet like man it has its earthy phase and to the earth it must return.

Similarly man, in his farming, separates land from its natural state of forest and prairie. There he grows products for his use, but in the end they too are destined to return to the earth.

So also it is with water. Water rises invisibly from the ocean and ascends to the skies there to take visible form as clouds. Thence it descends again to the earth and takes visible form upon it as brooks, rivers, lakes, ponds and dew. Man, too, separates some of it for his purposes. By irrigation he waters his fields, by conduits he waters his cities, by tanks and reservoirs he waters himself. But eventually these waters return to the invisible, they sink into the earth or the depths of the ocean, from which once again they come back to the visible world.

We human beings, whose substance plays its part in these transitions, are conceived by the sparks that set our being in motion and spring from the mystery of creation. But from the very moment after the two sparks, male and female, unite, we are in growth of the earth earthy. Heredity, in all its variety, comes from two cells so small that they need the microscope to make them visible. In these two cells for us and other beings of the earth, there is the magic of predestination. It is they that determine the launching of man or animal or plant. In man, they determine sex, colour, character. Though only two specks, they have within them a multiplicity of destiny that is quite beyond our understanding. We know there are so many *genes* in each cell, but to know such mathematical details, though most acceptable, is not to understand its mysteries.

In this early stage, as in later ones, we receive the means of growth from the earth and from those things which also have their earthy phase, the air and water. These means of growth are made up of substances, many of which have been separated as entities, by the knowledge of man and called by him elements. There are only ninety known elements, but they occur in so many combinations, that we should be entirely lost if we had to manage them ourselves. It is nature that manages them and their interchange. This we know, that otherwise there would be no life. Nevertheless, we boldly again isolate elements and certain combinations, identify them by tests, weigh them and give our names to them and try, as it were, to come to some stable and positive relation towards them, calling a halt, for the time of our own being, to their constant transitions.

These are the elements that have been found to be a part of human bodies: nitrogen, oxygen, carbon, hydrogen, sodium, potassium, sulphur, iodine, fluorine, manganese, silicon, cobalt, copper, iron, zinc, lead, arsenic, lithium, magnesium, aluminium, boron, chromium, strontium, cadmium, barium, tin, vanadium, titanium. Some of these twenty-

by the chemists in formations more regular, but nevertheless as wondrous as when nitrogen takes so vital a share. Here is a common sugar, dextrose, $\text{CH}_2\text{OH} \cdot \text{CHOH} \cdot \text{CHOH} \cdot \text{CHOH} \cdot \text{CHO}$. Were this form placed amidst a number of surrounding mirrors, there would be an equivalent number of reflections. There are actually sixteen of those reflections to the above sugar, dextrose, four of which are found in nature, twelve prepared synthetically by Emil Fischer and others, but not yet found in nature.

There is something sober and shapely about the carbohydrates; for the majority of them are so many atoms of carbon in combination with so much hydrogen and oxygen, combined as they are in water or H_2O . This cannot be said of these three elements, when nature with her marvellous jugglery uses them to make the fats. Here for example is an arrangement which makes a fat: $\text{C}_3\text{H}_5 (\text{O} \cdot \text{CO} \cdot \text{C}_{15}\text{H}_{31}) (\text{O} \cdot \text{CO} \cdot \text{C}_{17}\text{H}_{33}) (\text{O} \cdot \text{CO} \cdot \text{C}_{17} \cdot \text{H}_{35})$. Even with this jugglery with the three elements in the making of food substance known as carbohydrates and fats, nature is not content, but from them she fashions certain hormones, which have a governing power within the body, such as the hormones of the testes and ovaries and also one of the adrenal glands which in excess can give a beard to a woman with other qualities of masculinity. Some of the popular vitamins are so made. By adding nitrogen there result one or two other hormones and vitamins, and yet again with the addition of iodine and nitrogen the hormone of that very dominant gland, the thyroid, and, with nitrogen, sulphur and chlorine, the well-known vitamin B.

When one reverently meditates upon these four marvellous aerial elements, is it strange that man, who derives so much of his vitality and the fabric of his spirituality from them, should not almost from the beginning have felt his intimate unity with the pellucid heavens above him? Truly it seems that he has a heavenly, as well as an earthly body. Yet, in his murky worship of money, in his manufacturing cities, he shuts himself off no less from the clean air than he does from the clean earth. We know that in consequence he is less whole and healthy. We know that he has to go to the sea side or the country to recover some of his aerial factors. We know that authorities have to plan camps for children and adolescents to go under the open sky. We know that we have to install plants of artificial sunlight in the cities as a treatment for the most obvious cases of deprivation of natural sunlight. We do not know how wide, subtle or deep is the total extent of deprivation, because our wholeness within the life-cycle is unknown to us and, at the most, only the subject of fragmentary research. How then dare we to proclaim ourselves the masters of nature and the lords of creation, we who have broken our own life-cycle, divided ourselves from its earthly and heavenly elements and look to mortal men of mediocre health and physique, sitting in their laboratories, for guidance in these immortal truths that are clearly evident in our inward feelings and written upon the open face of the great sphere where we live?

There are other aerial elements, argon, krypton, neon, xenon and helium, of the relation of which to life we know little or nothing. We will return then to the terrene elements. How many of the twenty-eight already named in this chapter are essential has not been determined, but it has been discovered that mere traces of some of them are essential.

Thus, in the case of the black rot of sugar beet, it has been found that this disease occurs if there is lacking a necessary trace of boron in the soil. Similarly, a trace of manganese protects oats from black speck. A fatal disease of sheep in parts of Australia and New Zealand is made curable if a little cobalt is added to the soil. In Florida cattle were found to die until a trace of copper was put in the fields, in which they pastured. It is probable, then, that all these twenty-eight elements are workers and that none are drones in the cycle of life.

There is, then, a procession of the elements and, though there is no pause in it, it may be said to start in the microbic and fungoid stage in the soil. In man's cycle, the procession starts in man himself, for the breaking down of waste substances by microbes begins in the lower bowel. Microbes in health are friendly microbes. Their hostility only appears when living matter seems to lack what we call quality. Then they set about hastening the return of the living matter which lacks quality to the soil. By far the greater part of the microbic world is, then, not only friendly, but it is merely ourselves in a different form. Our elements are their elements. They make us and we make them. Therefore, when we concern ourselves about them, we concern ourselves with what we ourselves are. This is a secret of healthy food. If we take elements out of the cycle and disperse them in the sea, we are robbing ourselves. The microbes then take measures, as it were, to save themselves. Unfriendly microbes multiply. One witnesses, in fact, a break in the *mores*, the morality, of the microbic world. The microbes start exploiting the weak for their own benefit, they become aggressive, bring the weak to the ground and become emboldened to attack the strong. But it is the *original weakness that brings about this break in morality and turns one phase of the procession of the elements to become the enemy of another phase*. The microbic theory and money-dominance are certainly no strangers to each other.

It can all be so different. These marvellous elements are like the notes of the piano, which under skilled and reverent treatment produce an infinite number of melodies and harmonies. In the rhythm and the completeness of the forms they make in the natural world, one can indeed see a wider picture of that music to which the ancient Greeks gave the highest place in human culture. Misplaced they make cacophony, the hideous cacophony that now roars throughout the inhabited globe.

Man must revere and respect these elements. He must lose none, he must spoil none. He must consider them wherever and however he meets them as a part of a great being and becoming in which he has his share. Whether as non-farmer or farmer, *it should be his wisdom to understand his life-cycle and keep to it*. He should know that, as man, he tends to be so anthropomorphic, so self-centred, that he interprets food from his own point of view only. He thinks of it as things of the day, the market and the shop, as bread, vegetables, meat, eggs, fruits and milk, or as things of the factory, processed, preserved, tinned, bottled, dried or dehydrated, or as things of the field, as growing grains and vegetables and fruits upon the tree. He thinks of them as things in themselves, as indeed he must do in the daily traffic of life. But to preserve quality in them and to maintain quality, he must also think of them as transitional parts of a whole. This he has failed to

do. *It is a failure in thought and observation.* With that failure he has become, in the words of the great seer, F. H. King: 'the most extravagant accelerator of waste the world has ever endured. His withering blight has fallen upon every living thing within his reach, himself not excepted.' He pursues the path of race-suicide, while he chants the hymn of progress.

He is terrene and everything that is terrene is of importance to him. He is of and for the earth. As the sugar-beet gets black rot without its trace of boron, oats get black speck without their trace of manganese, and sheep, 'pine-sickness' without their trace of cobalt, so he also requires such final sculptural touches for the perfection of his physical and mental health. If he depletes his life-cycle, he is himself depleted. In the intelligent United States, the depletion of the soil has awakened alarm, and scientists now make statements which seem extreme but may well be true. Such statements are that 99 per cent of the American people show some lack of minerals. Dr. Sherman, of California, has said of his people, what Sir John Orr has said of his, that above half the people suffer from calcium deficiency. Dr. Northen, of Alabama, added a number of minerals to the soil and found that, though vegetables and milk produced by it had the accustomed appearance, they had a very different mineral content. Quite new standards are, therefore, needed.

Textbook analyses, once made, stand. But often they are standards set by a soil that has been injured by faulty practices. So they are faulty value standards. We need the standards of the perfectly healthy soil.

Man's bodily substance, when not lost to the sea, returns to the earth many times in the course of his life. The grim saying, 'Earth thou art and to earth thou shalt return', said of his dead, is no less true of his living body. He is a terrene animal, of the earth earthy. That he cannot escape, and so he lives as a product of the soil to conserve it or deplete it. At present he depletes it. The story of this depletion is in its way mystical and inexplicable. It is one of retributive justice. The old doctrine that sickness and wars were the punishments of God appears again as truth. It seems that, in non-recognition of it, man acts with a perversity little short of insanity, for the insane are those who irrationally endanger both others and themselves.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 15

Sind and Egypt

According to a famous saying, the greatest benefactor of mankind is he who makes two blades grow where formerly one grew. This is an especial motto of perennial irrigation.

This chapter is written mainly about a land where the largest or one of the largest schemes of perennial irrigation is in action, the province of Sind, India. The Lloyd or Sukkur Barrage, which controls this scheme, was opened in 1932.

The making of soils from the weathering of rock is a process which takes a very long time. The geologist, Mr. T. C. Chamberlin, in an address given at a Conference of the State Governors of the United States of America, held in 1908, wishing to impress upon his authoritative hearers the tremendous importance of the conservation of the soil, did so in the following words: 'We have no accurate measure of the rate of soil production. We know it is very slow. It varies with the kind of rock ... Without any pretensions to a close estimate, I should be unwilling to name a mean rate of soil formation greater than one foot in 10,000 years on the basis of observation since the glacial period. I suspect that if we could positively determine the time taken in the formation of the four feet of soil over our average domain, where such depth obtains, it would be found to be above rather than below 40,000 years. Under such an estimate, to preserve a good working depth, surface wastage should not exceed such a rate as one inch in a thousand years. If one chose to indulge in a more liberal estimate of the soil-forming rate, it will still appear, under any intelligent estimate, that surface wastage is a serious menace to the retention of our soils under our present management. Historical evidence enforces this danger. In the Orient there are large tracts almost absolutely bare of soil, on which stand ruins implying former flourishing populations. Other long-tilled land bears similar testimony. It must be noted that more than the loss of fertility is here menaced. It is the loss of the soil body itself, a

loss almost beyond repair. When our soils are gone, we too must go, unless we shall find some way to feed on raw rock, or its equivalent.'

This is a very succinct description of the final danger of unwise cultivation of stationary weathered soils. But the soil of the Indus Valley in the alluvial plain of Sind has not been formed from the rock beneath it. It is soil which has been formed at varying, and, mostly at great, distances. The greater part of the preliminary weathering has been done in the Himalaya, the Karakoram and the Hindu Kush Mountains. These mountains have crumbled under the action of frost, heat, ice, snow and rain, and the crumbled stuff has been carried by innumerable streams and rivers, uniting near the border of Sind into one great river some three hundred miles from the sea. The alluvial plain of Sind is the result of this river's annual floods.

Sind, therefore, has *not* to fear the dangers of surface wastage, of which Mr. Chamberlin spoke. Contributions to her soil have been made on a far more generous scale. To her the highest mountains of the world have paid their annual tribute for countless years, in the thin layer of silt, which is spread out by the flooding Indus. The soil of Sind is, therefore, very deep compared to weathered soils; in place of the four feet of weathered soil, of which Mr. Chamberlin spoke, there is as much as forty feet formed by waferlike sheets of mud.

Further, in contrast to stationary soils, there is not any sharp distinction between soil and subsoil. An alluvial soil, seen in the cutting of an embankment, is featureless, but it also lacks uniformity, for it is the result of a series of irregular floods carrying their silt hither and thither in no regimented way. The two soils, stationary and alluvial, are quite distinct. Here, then, there is ample opportunity for the objectivity of man -- different soils, different treatment. Or if subjective, here lies a trap -- different soils, similar treatment. Has man avoided the trap or has he let himself be caught in it? Let us see.

Let us here again quote Mr. T. C. Chamberlin, with his neat, succinct way of saying things: 'Some of the soluble substances ... formed at the base of soils are necessary plant foods, while some are harmful; but what is more to the point, all are harmful if too concentrated. There is need therefore that enough water pass through the forming soil, and on down to the ground-water and out through the under-drainage, to carry away the excess of these products. An essential part of the best adjustment is thus seen to lie in *a proper apportionment of the amount of water which goes through the soils*. If this be not enough, the plants will suffer from saline excess.'

I have myself been able to examine alluvial soil in Sind, not as an expert but as an humble observer. I have been able to observe it in a cutting ten feet deep, above which the surface was soaked by irrigation. After the surface-irrigation, the water sank through the whole ten feet and disappeared into the earth at the foot of the cutting.

Just at the edge of my cutting there grew a border of stunted grass and a low ericaceous

plant. Farther from the edge was the irrigated crop. When the irrigation ceased, the upper layers of soil, wetted by a transverse spreading of water, began to dry owing to sun and wind. Eventually the upper two or three feet became quite dry and when I scraped it powdered off as fine, pale sand. But below this dry surface the layers down to the foot of the cutting remained moist for months after a good soaking, as I discovered when I scooped out small tunnels into its interior. The lower layers, then, have a notable capacity of storing water and, with it, soluble plant foods.

The humble desert plants, the stunted grass and ericaceous shrub, knew this, for they sent slender roots straight through the upper dry layers down to the moist layers. Some of the roots traversed the whole ten feet of the cutting and disappeared into the earth at its foot. These astonishingly long, fine roots, in places where they are numerous, look like combed hair. They show quite clearly that they only rely for a short time upon the upper layers of the alluvial soil for their food and water. *It is upon the lower layers that they rely for their continued sustenance.*

The character of an upper dry, and lower moist, area after a soaking with water appears to be similar in all deep, river-made soils in arid climates, such as those of Sind, Egypt, Iraq and the like. This character was described in 1906 by Professor Hilgard, as found by him in the San Joaquin Valley in California. He found also a third, dry, airy area, below the moist area, due to the soaking water pushing the air in the soil in front of it through smaller and smaller channels, until it could no longer bubble up. The compressed air in this third area prevents the further fall of water, except in cracks through which it finds its way to the ground water.

This third area not only holds up the water in the middle area and prevents further loss downwards, but it also supplies that area with oxygen, which helps the microbes in it to prepare soil-foods for the plants. The arrangement, in short, is a strikingly perfect one, as one might expect, for how else could vegetative life be possible in these climates? It is possible because of the storage of water and foods and air in the voluminous middle layers, which are themselves protected against evaporation by the upper dry layers. It is, indeed, just another example of the usual, that where there is life under unusual and difficult conditions, there will be found so appropriate and delicate an arrangement that men used to declare they saw in it the revelation of a higher intelligence.

And they might well in all reverence take that view now. Certainly when they separated out the acres of Sind for themselves under the Sukkur Barrage and Canals System, they placed their own intelligence in immediate relation to this higher intelligence. That the Sukkur System can be acclaimed great, there is no question. It is great. The making of it is indisputable testimony to great technical intelligence. But is the planning and execution also testimony to higher intelligence? Here one may hazard that, from the point of view of the soil itself, the lack of higher intelligence so characterizes the industrial age, that its existence in this planning would be exceptional. The Sukkur Barrage in its aims has not been exceptional. It has been sponsored by modern, practical, money-making men, who

have made such tragic blunders in the agricultural world elsewhere.

Nature's way of *soaking* these soils in arid countries is precisely the same as that by which she *forms* them, namely, by an *annual* overflow of the river. When men originally brought in irrigation to direct the overflow to their own advantage, they did so by putting embankments to enclose large areas or basins of flat land and then sending the water into them by water-channels. During the period of the flood, water passed on from higher basins to lower basins on the way to the sea, and in each basin silt was deposited. This form of irrigation is known as basin-irrigation. Its chief exponents have been the Egyptians. The waters of the Nile were enclosed in the embanked basins for fifty days or so, some movement occurring all the time as water passed from the higher to the lower basins, eventually to be drained back to the river. In that fifty days the soil of each basin got a continuous soaking and upon it a certain amount of rich silt settled. The soil of each basin was cropped each year and, after the harvest, was left uncropped until the next season of flood.

Now, if this method of irrigation is carefully considered it will be seen that it is an adaptation of the natural cycle of events to the Egyptians' use. The water lay upon the land for the same fifty days or so of the natural flood of the Nile and received the same deposit of mud. Throughout their long history, the Egyptians did not alter the natural cycle. It was only in the last half-century that perennial began substantially to replace basin irrigation, and the reason was that perennial irrigation permitted two crops in place of one. It earned, therefore, the blessing given to *those who make two blades grow in place of one*.

This advantage of perennial irrigation is brought about by a *permanent* high level of the river above a dam or barrage placed in its course. Main canals lead off the heightened water from above the dam and minor canals distribute it. It makes constant use of the artificial high level of the river, and, using the water that flows in the river all the year round, it is obviously not wasteful but conservative. But there is one daring thing about perennial irrigation; *it alters the age-long habit of river-made soils in arid countries*. What it is made to do is, in fact, to treat these arid soils as if they were soils dependent upon frequent rain, for by means of locks and gates there is a giving of water every ten to twenty days.

The system increases the products of the soil not only by putting more land more frequently into use, but also through more frequent crops it makes greater demands on the stored plant-foods; at the same time it does not cater for an annual settlement of silt as does the basin method. It gets its results by an exploitation of the alluvial plain and not by an application of its natural habit; thereby issuing as it were a challenge to nature. It might, therefore, call forth a retaliation from nature. Actually it does do so and the retaliation takes the form of an accumulation of salines in the soil. These alkaline salts lead to a deterioration of the soil and, when advanced, prevent the growth of crops altogether.

'The Egyptians, writes Mr. G. V. Jacks in *The Rape of the Earth*, during the long period in which they used basin irrigation, 'lived on the soil's income and won lasting security against natural hazards at the expense of progress. With the introduction of a more efficient technique into Egyptian agriculture, the soils have steadily deteriorated. "Soil alkali" has become a serious and growing menace, cotton yields are falling. The deterioration has been due in the main to the substitution of perennial for basin irrigation.' Basin irrigation suits the soil and is akin to it. Perennial irrigation, on the other hand, is not akin to it. But, at a time of the unchallenged dominance of money, the perennial form was unavoidable as 'a substitution indispensable for the cotton growing, by which Egypt has advanced and enriched itself' (Jacks). Nevertheless, in its very success, it has staged once more the drama of money versus the soil, with money in the role of victor. But nature will not be gainsaid. The very source of Egypt's life suffers, and though the present generations gain the future ones will lose. 'Egypt's advance to modern civilization is being bought with soil fertility,' is the conclusion of Mr. Jacks.

That great agricultural genius, the late Professor F. H. King, who became Chief of the Division of Soil Management, United States Department of Agriculture, in his book, *Irrigation and Drainage*, 1898, reflecting upon 'the fields of the Nile kept free from alkalis for thousands of years', and upon the present increase of salts 'to so serious an extent that many acres have been abandoned', was struck by the thought, which like a flash in the dark illumines the brain of genius, that these great irrigators must have *tried out* so obvious a modification of basin irrigation as is the perennial. 'The probabilities', he wrote, 'are that long long ago the more rational methods (?) now being practised had been tried and found inadequate or inapplicable, on account of the accumulation of alkalis which they permitted, and the old irrigators learnt to be content with a system which, although more wasteful in some ways, still kept the dread alkalis under control ... It is a noteworthy fact that the excessive development of alkalis in India, as well as in Egypt and California, are the results of irrigation practices, modern in their origin and modes, and instituted by people lacking in the traditions of the ancient irrigators, who had worked these lands for thousands of years before. The alkali lands of to-day, in their intense form, are of modern origin, due to practices which are evidently inadmissible, and which, in all probability, were known to be so by the peoples whom our modern civilization has supplanted.'

In India the adjacent provinces of the Punjab and Sind have both been widely developed by perennial irrigation, and both have reacted, even in a brief span of years, by increasing alkali. In *The Summary of Results*, published in 1940 by the Agricultural Department of the Punjab States, one reads: 'In the Punjab vast areas of alkali soils have come into existence.' In Sind there have been but a few years of perennial irrigation, for the Barrage was only opened in 1932. Nevertheless, in the 1937-8 Report of the Department of Agriculture, it is stated: 'This constant application of irrigation water, for raising crops in such intensity, has brought in complex soil problems, the solution of which is necessary to the success of the projected agricultural progress of the Province ... Though precise

information is not available, it is known that there are thousands of acres of *kalai* (the local name for alkali) land where no crops would grow. Besides these large stretches, there are scattered all over the Province, almost in every holding, small pieces of *kalai* land where crop either does not grow or grows very poorly.' Since the opening of the Barrage, as is above stated, precise information is not available. A few researches made, where it was possible to contrast pre-Barrage with post-Barrage conditions, show that the warning of Mr. T. F. Main, Director of Agriculture in 1929, that 'under perennial irrigation one must look forward to vast areas more or less infected with salt' is a prophecy likely to be fulfilled. Alkali is already the most urgent problem in Sind, and the most effective remedy that has been found, is, says the Report, to put large quantities of irrigation water, 16-32 inches, depending upon the salinity,' to soak the soil. In other words, *the most effective remedy is a temporary return to basin irrigation.*

When the soil is capricious and tends to deteriorate, more is involved than a diminution of crops. The whole life-cycle deteriorates too. In reading the Report one is impressed by the great amount of disease, not only of the soil, that there is in the Barrage area. It is true that at present no immediate linkage between disease and alkali has been investigated, but then nowhere is the relation of the soil to the disease of the life-cycle it supports properly recognized. It is not put in the foreground of official agricultural reports anywhere and only appears more or less by chance.

Cotton is the crop to which the Barrage System is particularly suited, yet in Sind this fluffy beauty is as delicate as a Brighton invalid. Here are some of its enemies and diseases: jassids, white ants, pink and spotted boll worm, black-headed cricket, dusky cotton bug, lucerne caterpillar, red pumpkin beetle, root rot, boll rot, red leaf. So it is officially stated: 'There is no doubt that the losses suffered annually by the cotton growers of Sind, on account of damage to their crops by insect pests or fungoid and bacterial diseases, are immense, and scientific research work on these pests and diseases is most urgently required.'

Re the animal phase of the cycle, the system was not designed for Sind's famous red cattle, as is evidenced by the fact that 'since the commencement of perennial irrigation, the yield and quality of the *jowar* crop in Sind have deteriorated in many tracts'. *Jowar* is a common food of cattle and with its deterioration 'there is a general deterioration in the breed'. A 'heavy toll' in animals is taken by such diseases as liver fluke, rinderpest, parasitic gastritis, haemorrhagic septicaemia, and so on.

Lastly comes the human phase. The chief disease, which affects the countrymen of Sind is malaria, and, *re* malaria, the Public Health Report of 1938 states: 'Its incidence has increased with the inauguration of the Lloyd Barrage and Canal Construction Scheme.' It is not possible to compile accurate statistics in rural Sind, but the prevalence of malaria is brought home to landowners, because its weakening effect on the labourers is produced when there is the greatest call for their labour. Some harvesting actually has been abandoned because of the shortage malaria produces.

The increase of malaria is connected up with the System in the following way: the System brings more water; more water brings more pools; more pools bring more mosquitoes, and the bite of mosquitoes leads to the infection of malaria. But this quite possibly is not the whole story. The Sind soils tend to be alkaline, with, in the language of science, a pH of over 7. Low degrees of alkalinity can be neutralized by the carbonic acid which the roots secrete, but, if alkalinity increases, the water of the soil cannot hold iron and manganese to the same degree as it can when it is neutral, and these two are the chief metals of the red matter of the blood.

Under the Barrage System only a small investigation of pH values has been made, when it was found that the pH had risen from an average between 7 to 8.5 in pre-Barrage days to an average between 8 and 9.5 in post-Barrage. If this were generally true, then the plants in the post-Barrage period as eaten by the Sindhis would have less of the metals that form the strength of human blood. Malaria in particular, is due to parasites in the blood itself. The weaker blood favours the parasites of malaria and so malaria is increased for subtle reasons of the life-cycle and not merely from more pools and more mosquitoes.

Whether this sequence will be found or recognized to be a further example of how we humans must be thought of as part of a life-cycle or whether it is rejected, there can be no question that the growing of two blades where one grew in Sind has ushered in a cycle of sicker soil, sicker plants, sicker animals and sicker humans. Were there a definite measure of character and morals, it is possible that even now these would be found to have deteriorated. In the general opinion of those with knowledge of Sind, there has been a notable deterioration, but this is not attributed by them to a slackening of efficiency and authority under provincial self-government.

Mr. Jacks proclaims that alkali is not as dangerous as erosion, because it can be remedied. The most effective remedy in Sind and elsewhere is the soaking of the soil. Rice growing is also effective, for in the growing of rice, the soil is covered with water and thoroughly soaked. Both processes are of the nature of the basin irrigation, which in Egypt for so many centuries completely protected that wonderful land against alkali.

What will be the end in Sind? Will the stubbornness of nature and her dominion over all terrene life once again either force men to comprehend, or will it make their habitations barren? Is an old, old story in the East again to be repeated? Sind, like Egypt, is buying her way into a money-ruled civilization with her soil-fertility. Will the agricultural scientists, obedient not to the soil but to their urban masters, enable this money-dominance to hold its position against the affronted land? Will they, by their fragmented methods, be able to go further and establish a stable, healthy life-cycle in Sind? Will they fail?

For myself, I look for an answer to the man, who of all men seems to me to have had the widest and wisest vision in these great matters, the late Professor F. H. King, and return to his words: "The alkali lands of to-day, in their intense form, are of modern origin, due to

practices which are evidently inadmissible, and which, in all probability, were known to be so by the people whom our modern civilization has supplanted.'

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 16

Fragmentation

When, in the first half of the industrial era, the call upon the soil for food and raw material became urgent, certain scientists set themselves to study the means by which the soil was enabled to create more life. They did not do this by a wide observation of nature in the forest, prairie or elsewhere, nor by a study of successful farming, past and present, but they did what is typical of scientists, they selected one aspect of the question and concentrated on it. They selected plant-food, not in its entirety, but in the fragmentary aspect of a particular character of it, its chemical character. They acted as simplicists, split off a part of a whole problem, and attempted by an intense study to make the part solve the whole. Thereby they eventually made the part greater than the whole. However, the story tells itself.

The men who set out to solve this problem, or, in other words, to put a scientific theory and practice of plant-feeding in the place of the traditional, observational knowledge and practice, were not farmers. They were chemists, allied, therefore, to the chemists who then were making factories so successful.

The three leading men in this venture of the human mind were Theodore de Saussure, Justus von Liebig and J. B. Lawes. Liebig (1803-73), with whose name the venture became chiefly connected, had already won a wide recognition as one of the greatest chemists of his time. In 1832 he, with Wöhler, published a memoir called *Researches on the Radical in Benzoic Acid*, in which he showed that the radical benzoyl might be regarded as forming an unchanging constituent of a long series of compounds. By this great work, he opened out a new era of organic chemistry, and made possible the elucidation of the numberless combinations of a few elements, such as those which figured in Chapter 14.

It was, therefore, with a great prestige and unavoidable recognition on his part of his own pre-eminence as a chemist, that in 1838 he turned his powers to a subject that was urgent and immediate, the subject of the production of more food. It was a time known in England as the 'Hungry Forties' and in Germany one of grave social unrest amongst the growing industrial population. Liebig became drawn to the nature of food, vegetable and animal, and such was his forceful intelligence that he was sure to make out a very strong case for the chemist with regard to it. He did so. In this vital matter, he made out the claim that the chemist should be the supreme arbiter.

He rejected the farmers' knowledge that the plants derived their chief nourishment from humus, formed by the decay of dead animal and vegetable matter. He taught that plants took their nitrogen and carbon from the air and eventually returned them to the air by the agencies of putrefaction and fermentation. There was no loss of either carbon or nitrogen in this cycle. But it was a different matter with the minerals that plants required, such as phosphorus, potash, soda, sulphur and lime. These came from the superficial earth, in which they were limited and could become exhausted. What the farmers had to do was to make good the loss by giving back the required amount to the soil. To affect this, they had to put themselves in the hands of the chemists. The chemists would take some of the crops to the laboratory and there burn away the organic matter and analyse the minerals of the ash that was left. They would, then, discover whether phosphates, potash, sulphates, lime, and also nitrates since nitrogen was not supplied speedily enough by the air, were defective in quantity. By mining the deficient salts or by manufacturing them in factories, they would supply those that were required. The ones particularly required were grouped under nitrogen, phosphorus and potash, with lime which had long been given to fields in the form of marl or chalk. These chemicals became known by the term of 'artificial' manures in contrast to natural, farmyard manures.

At no time could circumstances have been more favourable to artificials than at the time of their introduction. The overthrow of the conception of men's partnership with the soil, which is embodied in a free peasantry, had been completed as has already been told. The old feeling for the land as something living and creative had disappeared with the peasantry. The land had become something to be owned and worked for money. Large, new populations were awaiting food and also other raw materials of plant growth. Fortunes were won through ownership of land as quickly as through that of factories. The land of England had, therefore, been seized by wealthy and ambitious men, and the peasants had been turned off their holdings and their commons. The peasants were subjugated by the rich, as if they were a conquered people and not fellow-countrymen.

Urban areas, too, were rapidly ceasing to have the character of country-towns and were differentiating themselves as almost purely industrial. The leading industrialists, on their part, had also defeated the countryside. They had destroyed the rural cottage industries and thereby had forced the young and able-bodied country folk to serve their factories. Whether on the land or in factories and mines, the new order was rich men and,

completely subservient to them, the proletarians. This was the rural condition which constituted the parentage of 'artificials', and, from the point of view of life-cycles, it was bad.

On the other hand, it may be claimed that these chemical fertilizers made a big contribution to the difficulty of feeding the new, urban populations. Apart from exceptional farmers, the soil had for long been indifferently manured. The elements which artificials supplied were needed, and larger crops followed their use. Healthier and better results could have been effected by the systematized collection of great quantities of urban and rural waste and the manufacture of it into manure. But there were difficulties. Firstly, the roads were bad. Even the best of roads were such that royalty sometimes could not get from Kensington Palace to Richmond owing to the mud. If this were so where royalty passed, collection and distribution of stuff needed by farms and villages were not likely to be systematized, a word that did not apply to the farming of that day. Secondly, the making of manure from wastes requires planning and labour, and there was a lack of both in the English countryside.

Artificials had many advantages over natural manure. They were either mined or manufactured. They were much less bulky to transport, and they were very easy to spread upon the fields. They were, indeed, almost too practical and convenient; they offered the allurements of ease, and, as they gave quick results, landowners and large farmers were satisfied. Science thus came to the rescue and scored a triumph. Artificials did great service in a period when the altogether unprecedented increase of population and new towns enforced an exploitation of the soil in a country of backward agriculture. They provided a partial and artificial fulfilment of the rule of return. They singled out the most important elements of plant food and replaced them, even if distant islands had to be sought to get the required substance. This feeding to the land was certainly superior in its results to no feeding at all. It was planned and conducted under skilled guidance. It increased yields, strengthened weakling crops in their growth, filled in gaps when the introduction of motors and tractors led to losses of organic manure by displacing horses and oxen. In consequence, artificials came to be used in large quantities in many parts of the world.

Nevertheless, they were and they remain fragmentary; they are not a full return of all that is taken from the soil. Is there evidence that in results they have not had a whole effect, such as their partial character would indicate? At the very outset there is something which, in a sense, is so fantastic and yet so in keeping with the spirit of that exuberant time, when the first burst of wonder was aroused by the many triumphs of the scientific method, that it seems almost logical. It is this: *the life-cycle was not used as a test of artificials*.

There is the justly famous small plot of ground of Broadbalk, Rothamsted, the experimental station founded by Mr. J. B. Lawes, where for a century wheat has been grown yearly on soil with a full complement of artificials next to a similar plot, where farmyard manure has been used. The wheat on both plots looks well and yields well. But

all tests of this century of experiment have stopped with the crop itself and its quantity. The crop has been watched as a thing in itself by the close, careful, fragmentary, watch of science. It has just been a market test, the quantity of wheat yielded by a plot of such a size. No animal phase of the wheat as a food has been tested, nor has its vegetable factor been complete, *for the seed of the plots has been imported from outside*, bringing in qualities of life-cycles not belonging to the plot. So the whole century-old experiment has been without any life-cycle tests, *has indeed belonged to no life-cycle. It has been individualized, separated, specialized. But in nature nothing is like that.*

This fragmentary method in agriculture, as elsewhere, became the standardized method of test. It has not, even now, reached the stage of the life-cycle, in which observant peasants and the health of themselves and their products enter as a part of it. Scientists, it is true, do test out crops and foods on animals, but in a fragmentary and apparently inexhaustible manner, and, except the estate planned by Lady Eve Balfour in Suffolk before the outbreak of war, there was in Britain no experimental farm, in which the life-cycle was the standard of test.

There seems to be, then, only one way to get an answer to the life-cycle results of artificials and that is to take a general view of the results of agriculture in the period, in which artificials have played a prominent part.

Firstly, we will take quality as denoted by taste. That great farmer, Mr. F. A. Secrett, at the Royal Society of Arts in 1935, spoke of taste and quality in this practical manner: 'I notice that in Covent Garden and the larger provincial markets, those stands are favoured where the produce has come from farms which have received organic manure. Although higher prices are charged for this produce, it is sold out first.'

Taste and choice are, of course, natural measures of food, but they are not scientific ones. People are so subject to the statements 'proved scientifically', 'measured scientifically', that they fail to realize that the excellencies are not measurable and therefore have to be disregarded by science. The customer, who likes the look of a basket of gooseberries and takes one to taste, is a sound measurer, but he is not a scientist. A scientist, as scientist, cannot measure appearance and taste. (A very great and honest scientist, Charles Darwin, said that his work had spoiled his appreciation of music.) But people can still judge by taste, and it has been noted by those who grow vegetables and fruits upon land where full return is practised, that customers give a sudden expression of surprised delight when they first bite into these products. They have come to expect almost a savourlessness in market-garden produce. Anyone who has tried out foods grown from full return and those from artificials, immediately recognizes the distinction. One is inviting, the other insipid. Market-gardeners themselves know it, but now that motor-cars and vans have driven out the huge horse population which once belonged to the towns the gardeners served, they have been left mostly helpless. Animals, too, know that taste is a safe guide to good food. Mice have been tried out by giving them two troughs, the one filled with grain grown by the bio-dynamic methods, which is a 'whole' method, and one with grain grown by

artificial. The mice invariably chose the first trough and finished its grain before they went to the second. Similarly cattle, let into a field equally divided into 'artificial' and 'whole return' areas, collect and graze upon the whole return.

Nevertheless, in searching around it is surprising how few are the examples of choice. The curious fact emerges that *the taste of fresh foods is no longer regarded as a guide*. The great majority of modern foods are scarcely expected to taste of themselves by the mass of their consumers. Tastes, as condiments, sauces, curries, and so on, have to be added to them.

The next test of quality is health. Can it be said that the products are healthy under modern farming, in which artificials have come to play a dominant part?

To answer this question by personal observation, one would have to go on a tour like those of Arthur Young, William Cobbett and Rider Haggard, and see for oneself. We have to find a less laborious journey, and this is readily achieved by going through a textbook on modern farming, which gives one, as it were, a guidebook to a country one does not know. As the majority of people do not know the farming world, such a book will form a guide to what is to the reader virtually a foreign country. I have such a book before me, written with the excellent technical skill which one expects in such instructive books. I have read through it several times, with the spirit of a traveller seeking to know what this new farming world is like, and each time I have wondered the more at what I read.

There is first the soil. In this new country one soon comes to realize that the soil is not a bit like the soil in nature, a part of a general life-cycle. It is *a thing in itself*, the composition of which is understood by scientists as something that they can manipulate, compound into its several parts and dispense to farmers as compounders dispense medicines. What the soil did in the past and still does where left to nature, what it did under the cultivation of past farmers, these are things of the Dark Ages before the light of modern science came to the world. As principles or assistants to knowledge, they are not even mentioned. Previous knowledge and tradition of the land are treated as the previous knowledge of, say, radiology and wireless, as not worth mentioning. But the soil is something very different to new scientific subjects or discoveries in technique such as that of Marconi. The scientists, however, seem to see no difference between technique and vitality.

The manipulated soil gets a number of diseases, so the wise modern farmer will get his soil overhauled by a soil-scientist, as the townsman gets himself overhauled by his local doctor. But with these numerous complaints and their treatments we will not deal. The spontaneity of the soil, by which it has done its job of life-supporting for endless vistas of time, is lost in this new country. So, even though one knows the language, one has also to know the exact meaning the scientist gives to his words. One wonders what exactly he thinks of the soil. Is it a vigorous re-creator of life or a cantankerous invalid? Is it the peasant's partner or the scientist's patient? It is really confusing, but let us go on with our

journey.

We now enter another province, that at which the scientist is at his happiest technically, manipulating the breeding of plants and animals in ways so quietly discovered by the monk, Mendel. In this province, wonderful varieties of life have been fashioned. Here, for example, are pigs so fat that to their progenitors they would appear nightmares rather than pigs. They have been conjured into masses of streaky bacon such as a public has been taught especially to value. Sometimes the public taste in bacon is changed, and with it the pigs are changed, the scientists being able to switch their fat and lean about so as to make a change practical. These pigs are bred, fed in special ways, stalled and slaughtered, and often never go under the open sky, until they are taken to the market. They are, of course, delicate, but they are bulky. They are tasty, too, when they reach the table, so that here public taste itself seems faulty as a guide, and this would be so, were it not that the taste is directed not so much by the consumers as by the retailers.

Still they are tasty, especially to those who have not or care not for the powerful crunch of orthodontic teeth.

Here, too, are cows specially bred for milk. They also see very little of the open sky during their useful life. They become mothers and their udders fill with milk. Their calves are almost at once taken from them and the mothers are transferred for service to long and very clean buildings near large towns, where each one has her stall. Antiseptic chemicals are requisitioned to cleanse the teats of microbes and then a machine is attached to the teats, which sucks out the milk into sterile receptacles. Extreme watchfulness and care is taken. Above all the scientists have to test and examine for tuberculosis, for there is probably no group of living animals so prone to a grave infection as are these unnatural cows to tuberculosis. I have not with me nor can I recall the percentage of cows in Britain that have tuberculosis, but it is surprisingly large. Our guide to this new farming country, however, comes to our assistance. The best way of preventing the spread of tuberculosis in dairy herds, it says, is to test the cows by the tuberculin test and to destroy those with a positive reaction. The objection to this practical man's treatment of an invited disease is that it means a capital loss to farmers, which they cannot afford. The scheme, though declared to be *scientifically sound*, is not carried out in practice. It is a good example of the language of this new country being so topsy turvy as to distort the meaning of words. *Sound may be so allied with science, but it certainly cannot be so allied with nature. To be sound in nature is to be healthy.*

We have now had a sight of some of the animals in the new country. We will direct ourselves to some of its crops. It does not really matter which crops we choose. We will, therefore, select two of the commonest forms of human food, wheat and potatoes.

What is wanted is a wheat of the best quality. There we all agree, but the word quality in the new country has a different meaning to that which it had in the old one, when it meant a wheat that gave a health-giving and tasty loaf. Quality is now milling quality, the

capacity to make large loaves. Imported wheat is better quality in this respect than British wheat, for a two-pound British loaf is only two-thirds as big as a two-pound loaf of imported flour. For this reason the British flour is called weak and the imported strong.

The science of plant-breeding is recent; it belongs to the present century, and one of its early triumphs was in the making of British wheat strong. This was accomplished by breeding on Mendel's principles. 'Yeoman' and other wheats show that strong wheat could be grown in Britain. But, though these wheats were strong in the baker's sense of the word, they were not strong in health. They were, like the so-called soft wheats, subject to many diseases, of which certain 'rusts' are particularly destructive. A wheat, called 'Ghurka', was fetched from Russia because it resists rust and it was bred with British wheats, and finally there emerged 'Little Joss', which was immune to Yellow Rust. Its baker-quality was not so good as that of 'Yeoman', but its health was better; so by better health it lost one quality in gaining another.

There are many other diseases of wheat; there is, for instance, one with the unpleasant name of stinking smut. To avoid stinking smut the seeds of wheat before sowing are soaked or dusted with chemical antiseptics, so strong that those who handle the seed have to guard themselves against being poisoned. Some of the poisons were too dangerous for common use, so the scientists set to work to find safer poisons. Coated with these poisons, wheats of good quality can emerge into life.

Now those who can remember the cottage loaf, as made by hand in the countryside before these changes were begun, will recall the delicious flavour of the bread. But a delicious flavour is not a measure in this new country. See, for example, what has been done with our second choice, the potato. The potato is an American plant with its original home in Peru, when that country was itself the home of a very great agricultural civilization. Our guide to the new country, however, tells us what a poor-quality thing the potato was before being taken in hand by the scientists. Potatoes of the present day, the guide-book, declares, are much superior to the small 'highly flavoured' potato of the last century. Nowadays a hygienic public, trained to associate the colour white with cleanliness, demand what in the new country is a quality-potato. It must be of medium size, thin-skinned, with few eyes, and above all, it must be white. It must have a 'good' appearance, it must be a 'shop-window' potato, though its flavour is poor compared to its yellow-fleshed, highly-flavoured and more nutritious ancestor. But this yellow colour is not 'quality'; it is, a 'discoloration'; merchants will not buy such potatoes and the public will not eat them. How is it that the public rejected flavour and nutritiousness in favour of bulk and appearance? Is the answer not clear to my readers? Bulk, if it means ultimately less to the consumer, means more gain to the seller. Money scores. And appearance, is that not a second falsity of money, the eye displacing the tongue, where the tongue should serve the whole in the supreme matter of vitality? Or, to discard the serious for the humorous, how many times have I not read and laughed at Alice in the Looking-Glass, until, following my guide-book, I realized that I too was living in such a wrong-way-round country.

Of course the potato has a number of diseases. We read of them, in the guide-book. It is really delicate, so delicate in fact that in many countries, including Britain, certificates are issued by special inspectors that seed-potatoes are free of virus, and, in consequence, that their offspring will not be killed out to an extent of more than 50 per cent by virus diseases. There are, of course, fungus diseases as well. There is, for example, wart disease, which is so dangerous that in 1923, Government made its occurrence notifiable to the police.

So one travels in the new country, to hear the same tale again and again repeated. Finally the traveller comes to the opinion that *the modern scientific farm, and especially the experimental farm, is a mixture of forcing house and hospital*. It fragments the life-cycle. It is the offspring of a defect of thought, the splitting or departmentalizing of the mind, which disables it from seeing wholeness and that men, animals, plants and soil are inseparably united.

Under this fragmentation, insects and other pests have assumed a dominion, which assuredly they have not got in nature, frit flies, aphides, moths, cut worms, wireworms, leather-jackets, warble flies, maggot flies and the rest. But, through these misfortunes of the new farming, the balance of nature is once again emerging under the term ecology. How different is the tale of ecologists to that of scientific money-farms. Here is the evidence of one of them, taken from the Bio-dynamic Agricultural News Sheet of April 1938:

'We have found it possible to prevent the plants from suffering damage from insects simply by means of suitable biological measures, and without taking steps to kill them. In vegetable culture proper we have mostly to do with plants whose flowering impulse is held back, as, for example, all kinds of cabbage, carrots, radish, chicory, leek, celery, beetroot, turnip, etc. Or we have to do with plants whose flowers are not very prominent, such as beans, tomatoes and similar plants. From this repressed impulse to bloom there results a certain one-sidedness. True flowering plants are not amongst them. A close study of the relationships in nature makes it clear that the insect and plant worlds are complementary to and dependent upon one another, and moreover that certain insects and certain plants are sympathetic to each other. Vegetables enable insects to develop their larvae and flowers offer food to countless fully-developed insects. And there are many small creatures which prey on each other, such as the spiders, ichneumon-fly, ladybirds, etc. If we provide as large a variety of insects as possible with the means of living, most of them will in time live harmoniously together, and the harm done by this or that one will be practically negligible. That is why it is so important to have flowering plants near vegetables. The aromatic herbs are especially valuable for this purpose, e.g. borage, lavender, hyssop, sage, thyme, marjoram, dill and fennel ...

'At first the grubs of the cabbage-fly were very destructive. Now we do not mind them at all. If on, warm days, at the end of April or May, the fly lays her eggs on the cabbage plant, the red mites find them and suck the eggs before the larvae emerge. There are many

such compensatory adjustments. The sand-fly drags many caterpillars away to bury them for its larvae. In springtime ants seek among grass and plants for the larvae of the daddy-long-legs and kill them. Even the wireworm made itself useful by preferring pre-digested plant-stuff and destroying the larvae of a cabbage-fly.

'Not only do insects balance amongst themselves, but toads, frogs, moles, shrew-mice and lizards take part in this adjustment.'

Men, animals, plants and the soil are balanced and united. That is the clear meaning of the above close observer and follower of nature. It is the answer to all that strange, new country, through which we have travelled. It is also the answer to that particular part of it called 'artificials'. Men separate and fragment. They separate a science from nature as chemistry. Then the common thing, which bad thought permits, happens. The new specialists, the chemists, look at the vital processes chemically and lay claim to be its guides and masters. Being scientists they get the support of other scientists, and that of the scientific method, the method of experiments, which can be repeated by any properly trained individuals. Thereby they fragment, isolate and simplify questions, and make them readily 'comprehensible' and 'controlled'. By 'artificials' not only do they reduce the feeding of the soil to a purely chemical process, not only do they omit the secrecy, delicacy and variety of nature's own methods, but they limit the very chemistry itself. They fragment and simplify it to three or four minerals, those of nitrogen, phosphorus, potassium and calcium. But there are more minerals in the soil than are dreamt of in their philosophy; for example, those that accompany the growth of sugar-beet by the sea constitute, as Dr. Pfeiffer calls it in *Bio-dynamic Farming*, 1938, a 'small pharmacy of sodium, lithium, manganese, titanium, vanadium, strontium, caesium, copper, rubidium', some of which elements are as rare as their names are beautiful.

As to these rare and common metals, do we know what tone and quality we miss, if we lack our share of them? We already know from Chapter 14 of grave defects from small omissions, but the mind need not get confused contemplating their possibilities. We have just read of the wonderful balance of nature's adjustment between insects, flowers and other small forms of life. Will not nature effect the same balance within us, if she is allowed her way, and we follow and do not fragment her method of life-cycles? Will not each element harmonize with the others and so express health? How then can we expect health, when that harmony is broken in the soil itself? That is the answer to 'artificials'.

I could give other answers and show how, when the whole is followed, health must necessarily accompany it, but I will not do so, as I have already made this the subject of my book, *The Wheel of Health* (1938). But I prefer to end this chapter not with minerals but men. The intelligence department of our agriculture is wrongly based; it is an intelligence largely directed to cure the evils which it itself brings into being. It is the countrymen's wisdom we need now, that of the countrymen who have built up long-lasting agriculture and whose wisdom lies in tradition. They have fashioned it by muscular and bodily work and by a close and immediate observation, by a personal intimacy with

nature, which we have come to associate with the poet. And, in fact, peasantries are poetical and are so because of this intimacy. The music, dances and songs of the peasantries are *characteristic* of their countries; they are the creative expression of their own lives. Nothing collective or characteristic, as their life is, originates from people separated from the soil as are townfolk. The poems and essays that played a notable part in the country life of the Chinese, the Tibetan art which finds its way into every home, the sylvan setting of the modern Japanese villages, of the Balinese and Burmese, the vocal harmony of Swiss peasants returning from their fields, the reproduction of floral beauty and colour in festive dress of so many countries, these betoken the unvoiced poet that lies in every peasant's heart. It is this intimacy that becomes creative in the poet, as the great Greek people recognized in their use of their word poet, namely, a 'maker' or creator, and which Dante voiced in the *Divine Comedy*, when he declared that the poet was not the disciple of the imagination, but he who knows the secrets of nature.

It is this intimacy which reveals to the cultureless or self-cultured countrymen the complete, inter-dependent character of all the varying forms of life, and the health, goodness and beauty which come from it. Its all-pervading quality is something known by being seen, felt, lived with and realized, and not told to the ear. It constitutes that mystical unity, about which all the most meditative religious thought and all the most sublime art have gathered. The most famous temples of the world, the noblest poems, the loveliest pictures, the most transcendent music, have acclaimed it. They are all works of balance and beauty, created by the unity of realization on the part of artists, who know the secrets of nature. It is to their company that the knowledge and arts of the peasantries belong. They are, both great and humble, of like origin. But modern, urban civilization, split off from the creative power of the soil, has forsworn this great heritage. In its place there has spread a nihilism that year by year has been destroying art, truth and beauty, and, at the same time, in an immeasurable degree, the soil itself, to be consummated in a holocaust of men and nations.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 17

East and West Indies

The Dutch began their career as empire-makers in the East almost at the same time as the British, the British actually having the small start of ten years. Both peoples came to the East to trade and both became imperialists almost as an accident of their being traders. But there was a notable difference between the two peoples, close neighbours though they were in Europe. It lay in their attitude to their own soils, and this difference they carried with them to their eastern possessions.

The consequence was that the Dutch, in their island government, left the cultivation of the acquired lands to the native cultivators, without interference other than that of the payment of taxes in kind, by which they got the tropical products they needed for sale in the markets of Europe. All that was concerned with the native agriculture, subsistence farming, the village system, and native rule, were left undisturbed. It was a method of rule, like to that which the British now follow in some of their West African Colonies and which that great colonial statesman, Lord Lugard, described as *The Dual Mandate*.

In the latter part of the last century, the Dutch Government of the islands gave up acting itself as trader. But it had become so firmly convinced of the value of the Javanese and other peasantries, that it protected them by the absolute prohibition of the sale and purchase of land.

Mr. Boys, of the Bengal Civil Service, visited Java in 1892, and he summed up the preservation of the Javanese peasantry in this remarkable passage: 'The Javans have escaped the fatal gift of proprietary right, which has been the ruin of so many tens of thousands of our peasantry in India, and with which, while striving to bless, we have so effectually cursed the soil of India. It is not too much to say that the many benefits which would have been conferred on Java by the substitution of the English for the Dutch rule,

were not too high a price to escape from the many evils of the unrestrained power to alienate private property. Under their present Government, the Javans according to our English ideas ought to be the most miserable people. That they are not so, but that, on the contrary, they are the most prosperous of Oriental peasantry, is mainly due to one cause -- the inability of the Javan to raise a single florin on the security of his fields, and the protection thus gained against the moneylender and himself. Nature is bountiful in Java, and undoubtedly the abundant fertility of the soil enables the Javan to stand up against many ills to which he is subject; but were her fecundity doubled, were she able to pour her gifts as from a cornucopia into his lap, nothing would ultimately save him from the moneylender and from the consequent eviction from his fields and his home, if he were able to pledge the one or the other as a security for an advance.'

The Javans carry out a very skilled peasant-agriculture and 'have got erosion under as complete control as has been achieved anywhere in the world,' writes Mr. G. V. Jacks, and continues: 'The Dutch Government in Java has carefully preserved and encouraged native anti-erosion agriculture, and the same principles are applied to European-controlled estates. There are no social barriers between European and natives in Java. The primary object of agriculture is to feed the people; the food supply of the community as a whole must be maintained on a permanent and secure basis before rubber, tobacco, coffee, etc., can be produced for export.'

Here, in this island picture, everything has been favourable to the soil. The traditional cultivation and anti-erosion measures of the Javanese are excellent; the early Dutch Government, as trader, was able to get what it required through taxes in kind without other interference; with knowledge, the Government came to value the peasants' skill so highly that it did everything to support it. And, in order to support it, the Dutch encouraged a rightly ordered agriculture, *the primary object of which was to feed the people*. By the absence of social barriers, both peoples, Dutch and Javans, were able to base themselves on the soil. By both the soil is, one can say, *vitally* valued. In Java, writes Mr. Jacks, they 'give every acre of land a national value that may be out of all proportion to its money-making power'.

This high valuation of the soil was indigenous. But one can well understand how highly it itself was appreciated by such a people as the Dutch. When they came to Java, the Dutch were themselves the best cultivators in Europe. But they were something in addition. Of all peoples in Europe, they had waged the greatest and most unceasing fight for the preservation of the soil; they, above all people had given land a national value. They had for centuries won land from the sea and flood and guarded it by dykes, which were their perpetual care. In knowledge of the use of water and drainage, in the rotation of crops, in the use of clover, in the full art of cultivation, the Dutch invaders in the Indies were greatly the superiors of their British contemporaries. The very improvements in agriculture in England, which were first adumbrated at the time of Elizabeth, were due to Dutch and Flemish influence and infiltration. It was Charles the First who brought Dutch

experts in dyke and drainage to make his estate of the Isle of Axholme the best worked in England. Of all Western peoples, therefore, appreciatively to take over Java and its sister-islands -- if such were destined to occur -- none could have been better chosen than these skilled and soil-revering farmers of north-western Europe.

So, in this respect, the Dutch East Indian islands had the advantage over the British West Indian Islands. Of the quality of the Eastern cultivators themselves, there is no better account than that of Mr. C. R. Wallace in his famous book *The Malay Archipelago*, firstly, because he was a great observer, and secondly, because he visited the islands seventy years ago and, in the island to be described, saw its agriculture as something entirely its own. It was a most felicitous combination of observer and observed. The resulting almost paradisaical picture is one of enthusiasm, but at the same time of unexaggerated verity. The island is that of Lombock, separated from Java by the island of Bali. It has at present some 600,000 inhabitants. Its capital is Mataram.

'Soon after passing Mataram', wrote Mr. Wallace, 'the country began gradually to rise in gentle undulations, swelling occasionally into low hills towards the two mountainous tracts in the northern and southern parts of the island. It was now that I first obtained an adequate idea of one of the most wonderful systems of cultivation in the world, equalling all that is related of Chinese industry, and as far as I know surpassing in the labour bestowed upon it any tract of equal extent in the most civilized countries of Europe. I rode through this strange garden utterly amazed, and hardly able to realize the fact, that in this remote and little-known island, from which all Europeans except a few traders are jealously excluded, many hundreds of square miles of irregularly undulating country has been so skilfully terraced and levelled, and so permeated by artificial channels, that every portion of it can be irrigated and dried at pleasure. According as the slope of the ground is more or less rapid, each terraced plot consists in some places of many acres, in others of a few square yards. We saw them in every state of cultivation; some in stubble, some being ploughed, some with rice crops in various stages of growth. Here were luxuriant patches of tobacco; there, cucumbers, sweet potatoes, yams, beans or Indian corn, varied the scene. In some places the ditches were dry, in others little streams crossed our road and were distributed over lands about to be sown or planted. The banks which bordered every terrace rose regularly in horizontal lines above each other, sometimes rounding an abrupt knoll and looking like a fortification, or sweeping round some deep hollow and forming on a gigantic scale the seats of an amphitheatre. Every brook and rivulet had been diverted from its bed, and instead of flowing along the lowest ground were to be found crossing our road half-way up an ascent, yet bordered by ancient trees and moss-grown stones so as to have all the appearance of a natural channel, and bearing testimony to the remote period at which the work has been done. As we advanced farther into the country, the scene was diversified by abrupt rocky hills, by steep ravines, and by clumps of bamboos and palm trees near houses and villages; while in the distance the fine range of mountains of which Lombock peak, eight thousand feet high, is the culminating point, formed a fit background to a view scarcely to be surpassed in human interest or picturesque beauty.'

This great naturalist and observer, it will be noted, is struck by 'one of the most wonderful systems of cultivation in the world'; 'in a remote and little-known island, from which all Europeans except a few traders are jealously excluded'; a cultivation due to assiduous labour; a skilled and complete use of water including every rivulet and brook; the roads themselves are made subject to the water channels; the levelling of every plot of land, large and small, so that the water could be equally distributed; and he is able to end his description with a true and happy association of 'picturesque beauty' and 'human interest'.

The British in the West Indies met with no great indigenous cultivators like those of Java, Bali and Lombok. The British pioneer invaders of the West Indian Islands were themselves men of adventure. They were buccaneers, the bold buccaneers, who at their own personal risk and for their own personal gain set out upon the high seas to dispute the Pope's fiat that the New World, known and unknown, belonged to the Spanish King. They and the French took many of the islands from the Spaniards, and made them their own.

The early history of Jamaica is typical of these happenings. The island was discovered by Columbus in 1494, and taken over by the Spaniards. With a criminality towards indigenous peoples, which seems to have been peculiarly their own, the Spaniards annihilated its gentle and peaceful inhabitants. When the British took the island from them, the total of Spanish masters and their slaves did not exceed three thousand. So the British, who had left their homeland for love of adventure, and others who had left for fear of the law, now found fortune before them. In 1672 the Royal African Company was formed and Jamaica became one of the busiest slave marts of the New World. The cultivation of sugar was then introduced. Pepper, coffee, cocoa, ginger and indigo, products sent from Java to Holland by the Dutch, were now sent from Jamaica to Britain. When slavery was abolished in 1838, the prosperity of Jamaica was at its zenith.

In Java, as we have seen, the management of trade was undertaken by the Government itself, and the work was carried out by the people on their traditional lines. In Jamaica, the work was carried out by Negro slaves owned by planters, whose object was to enrich themselves, with or without the enrichment of partners in Britain. Though buccaneers no longer, the personal motive of the buccaneer remained with them, namely, that of using their property primarily for their own personal advantage. Soil and labour were both their slaves.

But slavery, while it endured, carried with it the obligation of the planter to feed and house his slaves upon the estate. So, the first function of the soil, to feed the people who work upon it, was fulfilled. There was a direct relationship between the workers and the soil upon which they worked. The planters, as slave-owners, had also a direct relation with their workers, a position that in the case of many of them, possessing the innate moderation and humanity of the British, amounted to a guardian, paternal chieftainship. They stood in a parental relationship, such as is so movingly described in a recent best-seller, the novel *Gone with the Wind*, a relationship which, indeed, in its wide dimensions,

has constituted the main human binding power of the British Empire, and which acted as a drag-anchor to the endangering selfishness of the increasing money-power.

'Slavery', writes Mr. W. M. Macmillan, in his *Warning from the West Indies*, 1936, 'was not, as some maintain, wholly evil in its effect on the slave-owner's character. It not only fostered a proprietary sense of responsibility; slaves made possible a spacious leisure ... Many fine planters in the West Indies and the Southern States, like some Cape farmers, have a delicacy of culture associated only with the choicest traditions of old Europe.' Such culture made good masters. The prosperity of the planters overflowed in a generosity to their dependants. One may say that, in terms of happiness, the West Indies were well off in the eighteenth century.

Anomalous as it may seem, the change was brought about by the emancipation of the slaves in 1838. This emancipation was an act of liberalism. But there is something greater than liberalism, and that is soil-wisdom. And in the light of soil-wisdom, this emancipation was superficial and unreal ... It was an apparent release of the slaves from compulsion; it was no less a release of the planter from certain responsibilities. The overruling factor in an agricultural island is not slavery or freedom, but direct subsistence-farming and craftsmanship for the peasants, their families and their kinsfolk.

And it is because of this that there are only two human relations of agricultural workers to the soil. The first is that of slaves, when they are assured of their subsistence from the soil and are valued by their owners and kept in health and happiness, because the estates are then well-worked and conserved and the human feelings of the family-owners give to the estates the quality of a home. A certain easy and ready acceptance of life, with the rich flavour of a landed aristocracy, comes into being, and places the whole art of life on a plane which stands above that of land as a mere agency for the market and for profit. The buccaneer becomes a gentleman and the slave a devotee.

Nevertheless, the money-purpose will become paramount, when the freedom and wealth of the landed gentry becomes shackled by the middlemen of the town. Money takes command. Moreover, the highly skilled, soil-conserving agriculture is not acquired by slaves, because they have not the sense of property. The meticulous care of the soil, which is required for it, seems to be the possession only of the second form of a human relationship of agriculture, that of the peasant-family ownership. The self-dependence of free peasants produces qualities of a grade necessarily superior to those of slaves.

The emancipation of slaves converts them into supposedly and so-called free, individual labourers. This change presented itself upon the West Indian arena in 1838. It has existed now a hundred years and recently celebrated its centenary. This it did, logically enough as we shall see, by riots and revolts.

Mr. Harold Stannard, in *The Times* in 1938, described the dwellings of the humble agrarians in Jamaica: 'The first time I saw one of these hovels, I could hardly believe that

it was intended for human habitation. Strands of dried bamboo are woven round a framework of stakes and the "room" thus formed is covered with palm thatch. There is no furniture except sacking on the earth and some sort of table for the oil-stove ... Urban conditions are, if anything, worse.' Royal Commissioners declared the slums of Port of Spain, Trinidad, to be 'indescribable in their lack of elementary needs of decency'. Conditions of labour sometimes find the Commissioners equally wordless: 'It would be hardly possible to find terms strong enough' to express their disapproval. The expression is but a part of the general chorus, which accompanies the imperial achievements of the time and which finds its full harmony in Royal Commission reports on labour in India, Basutoland and elsewhere.

Here is Mr. Stannard's statement with regard to nutrition and subsistence, the primary test of a right of property in the soil: 'Under the stimulus of a circular dispatch from the Colonial Office, inquiries have been conducted in the islands and have yielded disquieting results. Even to a non-medical eye the frequency of bad teeth among a population whose diet could and should contain a large proportion of fresh fruit and vegetables, gives cause for misgiving. Indeed, it is not necessary to look into the islanders' mouths. It is enough to glance inside the shops where they buy their food. Every Chinese-kept store exhibits, from floor to ceiling, shelf after shelf of tinned goods. These superbly productive islands, living mostly by the export of food, cannot feed themselves. It is estimated that Trinidad imports four-fifths of what it eats.'

This, then, is the condition of the islands, which Britain cherishes as the oldest of her colonies. Throughout their career of 'freedom', *she has never adopted, as an unalterable principle, the right of the people to support from their soil.* She brought Africans as slaves to the islands. In the ascendancy of the money power, even the subsistence of the slaves from the soil has been taken from them, and under the cover of apparent freedom, she has made their condition more subtly oppressive than it was in the past. The words of that great pope, Leo XIII: 'For every man has by nature the right to possess property as his own. Hence man should possess the fruits of the earth, but also the very soil', do not apply. They apply neither as to the soil nor as to the fruits of this very fertile island earth. The money power once again emerges as the enemy of the people's source of life.

We will continue with Mr. Stannard's words: 'Only by a reversal of the policy which prefers money crops to food crops can the native labourer be assured of the conditions which make a civilized life possible. Apparently the evil has increased in recent years. The Barbadian report is definite on this point. "In the old days plantation-proprietors planted a fairly large acreage in food crops, some of which were sold to labourers at preferential rates. But in recent years the cultivation of food crops has been so curtailed that the price of locally grown vegetables is so high as to be beyond the modest means of the labourer ... The absence of fresh vegetables and proteins in the diet of the labourer is, we gather, having a deleterious effect on his health and physique. In short, the modern methods, which have tended to divorce the field from the sugar factory and make of them distinct and separate entities of plantation economy, have worked to the detriment of the

field labourer". The quoted Barbadian report, it will be noted, uses emollient phraseology, such as 'we gather', 'in short', 'have tended', 'the detriment', to blur the stark reality. Mr. Stannard, however, is in no doubt about the reversal of the policy, *re* money and food crops. 'In the Dutch East Indies', he writes, 'land sufficient to meet the needs of the whole population is earmarked for food crops before any money crops are allowed to be grown.' Therein is the difference between the British West Indies and the Dutch East Indies.

Our fertile islands now exhibit the stigmata, which, under urban conditions in Britain, have come to be known under the slogan of Scarcity amidst Plenty. Here are plentiful soils in a plenteous climate, and the stigmata which the British have incurred by their values are those of extreme poverty in the homes and malnutrition of the mass of the people. From cold, of course, the people cannot suffer and so their hovels have not to take upon themselves the protective character of northern homes. But, with this sole advantage over the northern island to which they belong, the people seem to be as far from plenty and as near destitution as a people can be. Mr. Macmillan, from his personal investigations, states that the spending power of the average citizen is so low that it is scarcely above that of the people of one of our more recent colonies, Nyasaland. But in many ways the islanders are what is considered advanced. The Barbadians, so many of whom cannot afford fresh vegetables, apparently take pride in calling their island 'Little England', since, though it is smaller than the Isle of Man, it supports, if not available vegetables, an Established Church, two Chambers, a Court of Grand Sessions, eleven Parish Vestries for local government, and probably the best educational system in the West Indies.

Agriculturally, the Barbadians are careful and skilled cultivators of cane. Their fields are clean and well tilled, and 'a respectable tradition demands a serious effort to find and make work for as many hands as possible ... for an abnormally dense population of more than 1,000 to the square mile by intensive island-wide cultivation of the sugar-cane'. Out of 176,000 inhabitants, some 18,000 are said to be small holders of a total of 14,000 acres, so 77 per cent of the small holders have less than an acre. Moreover, the land which the peasants do get for themselves is 'only the poorest soil. Quite often it is the land of some estate ruined by its European owner's bad and indifferent cultivation; but European critics are quick to point a finger and judge peasant possibilities by failure in such conditions ... Barbados, however, in face of a most serious population problem is in fact dead set against the peasant solution. Peasants, it is held, have failed to maintain the output, which has so far kept the island going, and so long as cane is the only industry nothing but the highest possible output will suffice. The peasants, however, have had their chance only on poorer soil, without organization or even sympathetic direction. The Barbadians, moreover, have no experience as peasants, little tradition but of supervised plantation labour. Though intelligent workers under direction they would not be at their best as individual cultivators. In the long run the only alternatives for Barbados would seem to be great industries absorbing much labour and making the island more like one town -- or a steady flow of emigration' (Macmillan).

Barbados and Antigua lack the range of mountains of most other islands in the West Indies. They have, therefore, been given over to mono-culture, that of sugar and, as Macmillan states, have no experience as peasants and little tradition but of supervised plantation work. They are, therefore, the most widely separated of all agricultural labourers from the families of the East Indian island of Lombok.

The other islands, in this, have great advantages over them. Let us take Jamaica, the largest island of the British West Indies with its 4,550 square miles and nearly a million inhabitants, as the chief example of an island with a central range of mountains.

Mr. Macmillan writes: 'The Jamaica peasant tradition is due not to any special aptitude of the slaves imported, but rather to the fortunate juxtaposition of ample valleys and less accessible but still fertile and attractively habitable hill country; this accident gradually led the estate owners, as seldom elsewhere, to leave some of the slaves to grow their own food supplies. Thus a strong agricultural tradition was established and has persisted. After Emancipation many freedmen became independent cultivators and the Jamaicans, though they may be less disciplined, to some extent escaped the routine work characteristic of the sugar islands.'

It has been said that there are no less than 150,000 smallholders. Mr. Macmillan, however, doubts this and declares that 'peasant lots are now obviously too few and too small to provide an adequate living for any sufficient number of Jamaica's million inhabitants'.

Some few are successful and have saved money from their farming. But they do not use their money to improve their land, but to buy up more land. They buy up the land of their weaker brethren, who then become their tenants. They are no careful partners of the soil. The values under which they live are those of private property and individuals, the survival of the fittest, and not of the controlled, recurrent creation of the well-farmed soil. So the successful peasants imitate the white landowners. Frequently they overreach themselves by taking too much land, while the white landowners, on their part, continue to hold only partially used estates in the hope that fortune will change and bring a better market. The final human stigma of an ill-founded agriculture then appears: 'Control if not ownership passing into the hands of banks or business firms ... the almost unseen change of control from private landlords to outside mortgagors.'

So peasant ownership as a policy languishes in the mountainous islands of the West Indies, as it does in England. 'In enlightened circles of widely different views', writes Mr. Macmillan, 'the approved policy, so far as there is a policy, is to offer opportunities of rising to peasant-status to as many as possible of this heterogeneous mass of small tenants -- a few of whom originally set the fashion without help. Official encouragement has been strongly pressed by individuals -- especially by Sir Henry Norman, ex-Governor, head of the West Indian Commission of 1897, and following him, by Sir Sydney (Lord) Olivier in his Governorship of Jamaica; but it is still only an aim, not an achievement. Even the aim

has usually been hesitant. It is not quite clear whether peasants are to be relied on for the main agricultural production of the country, or whether peasant-ownership is only a means of relieving unemployment.'

The final terminus of ill-founded agriculture also now shows itself in these naturally luxuriant islands. Erosion of the soil is at work ... 'Different factors are concerned with the erosion which is occurring in many of the islands of the West Indies,' writes Mr. R. O. Whyte. 'In Jamaica, small tenant farmers have practised shifting cultivation, paying rent for, say, one acre but burning and destroying forest over a very much larger area. In addition, accessible areas of forest have been heavily over-exploited, and there are insufficient Forest Reserves. In the plantation districts all land fit for this type of cropping has been cleared, but in addition, excessively steep slopes have been disposed of to petty settlers, for the production of foodstuffs ... Deforestation has also been excessive on some of the Windward and Leeward Islands. For example, a critical stage has been reached on the island of St. Vincent ... In Trinidad, felling of protection forests and shifting cultivation have caused serious denudation, erosion and severe flooding in the Maracas Valley and the Caroni plain.' Particularly valuable is the result of a reconnaissance survey of the United States island of Puerto Rico. It was found that 'there is slight erosion on 19 per cent of the island, mostly on cultivated parts of the coastal plains and alluvial valleys or on gently rolling pasture lands; moderate erosion was found on 29 per cent and severe erosion of about 39 per cent on the area. Most of the severe erosion occurs in the rough mountainous interior. Sheet erosion is the most common type, with gullies occurring on a little less than 22 per cent of the area.'

The same author elsewhere in his book writes of two British islands, scarcely less fertile than Puerto Rico and Jamaica, where a similar wanton disregard of the soil 'threatens to leave the country like an emaciated skeleton'. It seems that this haunting vision of the South Pacific now reaches the lovely-bodied islands of the Caribbean Sea.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 18

German Colonies: The Mandates

The Germans were the last Europeans to colonize. They were also the people most imbued with the faith of modern science, and this taught them, with a clear conscience, to pursue the rights of the fittest to its extreme, logical conclusion. Armed with this faith, they conquered three areas in Africa: South-west Africa, the Cameroons, Tanganyika.

The Germans date their colonial empire from 1884, when Lüderitz hoisted the German flag at Angra Pequena, a port of South-west Africa, Nachtigal did the same at Duala, a port of the Cameroons, and Karl Peters and his companions landed at Zanzibar. So began their part in the exploitation of the Dark Continent.

Many countries had preceded them, Portugal, Britain, France and Belgium and, in their exploitation of their new territories, had not always refrained from cruelty. One of them, Belgium, under the influence of its king, was in the nineties to give an example of cruelty on such a large scale and so pitiless that, when knowledge of it became public, it projected a widening wave of horror through the United States, Britain, France, and Belgium itself. The period of harsh treatment of natives had come to an end as far as the great publics of Western Europe and America were concerned.

With this equal start in the three colonies in the year 1884, the German version of the policy of exploitation began.

As regards South-west Africa, a dry land and chiefly of agricultural value because of its pasture land, Paul von Rohrbach defined the policy in the *Deutsche Kolonialwirtschaft*, in these words, as quoted by Mr. G. L. Steer in his book of convincing thoroughness, *Judgment on German Africa*, 1939: "The decision to colonize South-west Africa could after all mean nothing less than this: that the native tribes would have to give up their

lands on which they had previously grazed their stock in order that the white men should have the land for foraging their own.'

The Hereros and Hottentots were the chief peoples concerned in this appropriation. It was begun with a harsh oppression of both peoples, particularly of the prouder and more warlike of the two, the Hereros.

One of their chieftains described the German methods in words, again quoted from Mr. Steer's book, which is my guide in this chapter: 'Our people were being robbed and deceived right and left by German traders. Their cattle were taken by force. They were flogged and ill-treated and got no redress. In fact, the German police assisted the traders instead of protecting us. Very often one man's cattle were taken to pay other people's debts. If we objected and tried to resist, the police would be sent for and, what with floggings and threats of shooting, it was useless for our poor people to resist. If the traders had been fair and reasonable, like the old English traders, we would never have complained. But this was not trading at all. It was only theft and robbery.'

The Hereros rebelled in 1904, and fought according to their savage code, calculated to call for reprisals. They were defeated and, to finish the work, General von Trotha issued an order of total extermination, the Vernichtungs-Befehl. This is how it ran:

'I, the great general of the German soldiers, send this letter to the Herero nation. The Hereros are no longer German subjects. They have murdered and robbed, they have cut off the ears and noses and privy parts of wounded soldiers, and they are now too cowardly to fight ... The Herero nation must now leave the country. If they do it not I will compel them with the big tube. Within the German frontier every Herero, with or without a rifle, with or without cattle, will be shot. I will not take over any more women and children, but I will either drive them back to your people or have them fired on. These are my words to the nation of the Hereros. The great General of the Mighty Emperor, von Trotha.' By the end of 1905 official extermination had reduced the Herero people from 90,000 to 15,000.

In October 1904 the Hottentots also rebelled and were partly exterminated. As to the *human* result upon the Protectorate of the policy, Leutwein, the German historian of the south-west, declared: 'At the cost of several hundreds of millions of marks and several thousand German soldiers we have, of the three business assets of the Protectorate, mining, farming and native labour, destroyed the second entirely, and the last as to two-thirds.'

Before the Germans were themselves conquered in the Great War, the condition of the natives is thus summed up by Mr. Steer: 'Officially still, the native was a State serf, guilty of serf-like offences. Out of 4,356 convictions against natives, in the Protectorate between 1 January 1913 and 31 March 1914, 3,167 were for desertion, negligence, vagrancy, disobedience, insolence, laziness and contravention of the Pass laws; crimes not of man against man, but of the slave against his boss.' This did not include the punishments of

'Väterliche Züchtigung', or paternal punishment, allowed to the German master over their serfs, which led Governor Seitz, in order to avoid a further native revolt, to threaten in 1912 'to withdraw labour supplies from those "who rage in mad brutality against the native, and consider their white skin a charter of indemnity from punishment for the most brutal crimes".'

After the Great War, South-west Africa was allotted as a Mandated Territory to the Union Government of South Africa.

In the Cameroons the Germans adopted the same policy, but it did not lead to any rebellion and annihilation such as that of the Hereros. The policy was to hand over the land and the natives, as and when required, to great German commercial companies. Governor Jasko von Puttkamer was the chief support of these companies and he carried out the government with German efficiency in their interests. 'Administrative recruitment' was the name under which the natives were used precisely and only as the planters and traders needed them. At first rubber was the chief source of wealth, but when the energetic Puttkamer in 1895 saw the coffee, cocoa and banana plantations on the neighbouring Spanish island of Fernando Po, he initiated estates for these products upon the lower lands of the lofty peak of Kamerun. Concessions were given by Puttkamer to German companies, and plantations were opened out on land taken from the Africans in possession, who were induced to work for the planters by being left sufficient plots on which to grow their own food.

The demand for portage now increased to carry the products of the new plantations, as well as the rubber, to the coastal ports. Men were taken from their farms and families by 'administrative recruitment', to carry loads on ceaseless journeys, the police acting, as in South-west Africa, on behalf of the planters and in no way protecting the natives. For the sake of the planters, 10 per cent of the population were forced to be their serfs.

Puttkamer's exactions, financial machinations and private life were rooted out by the Social Democrats in Germany. He was disgraced and dismissed in 1907, but so wealthy and influential had the planters become that his policy continued to dominate in order to keep the labour market full, which the disease and hardship due to portage in particular depleted. A better spirit prevailed or was enforced upon the German Colonial Ministry. A German medical service was organized to check the loss of labour due to diseases, the most feared of which was sleeping sickness. Some little official attention was also paid to education. One thousand children were to be found in government schools in 1914 and there were 40,000 in German and American missionary schools. There were reforms but minor reforms. As far as they went, they were for the good of the natives, but 'administrative recruitment' remained. The natives were still the serfs of their masters and discipline was enforced by severe paternal punishments. Planters were accused of the 'physical and moral annihilation' of the native, and it was not until the fatal year of 1914 that the Colonial Minister, Dr. Solf, was able to announce a doctrine new to the Germans: 'The colonies will prosper with the natives and for the natives, not in spite of them and

against them.'

After the Great War the Mandate for the government of the German Cameroons was divided into two. The greater share was given to the French, the lesser to the British. The French now ruled a population of 2,400,000; the British one of 800,000.

The conquest of the third colony, Tanganyika, was due to Dr. Karl Peters. Of Dr. Peters, Mr. Steer writes: 'Of all the German pioneers Hangman Peters was the most unprincipled and bloody. I have not written of his cruelties, because I do not regard him as typical of the old German colonists; none but Trotha was as foul as the merciless doctor. But evidently the Nazis of 1934 held him to be typical; nay more, a prototype. Their propaganda has pursued him with praise in the five years since they gummed a memorial to him on their envelopes,' for his portrait figures on a stamp, which celebrated Germany's Colonial jubilee in 1934, and is placed as the frontispiece of Mr. Steer's book.

In 1888 Dr. Peters acquired Tanganyika by what Mr. Steer calls 'a novel piece of international theft, to which all civilized powers were parties'.

For ten years Peters conquered and enjoyed his power sadistically. Then his hangings and shootings of natives and the flogging of his concubines became known to the Social Democrats of the Reichstag. In 1897 he was brought to trial before the German Colonial Disciplinary Court. He was dismissed from the governorship and took refuge in England. Nevertheless, the hatred which he had aroused amongst the natives did not subside. Too many German bullies remained behind; too many native chiefs had been robbed. One called Mkwawa rebelled; and was defeated. His German conquerors cut off his head and actually sent it as a trophy to Berlin. A special clause was inserted in the Treaty of Versailles which ordered its return to his tribe.

A more serious rebellion, that of the Maji-Maji, of the combined tribes of the south, raged for two years. The Germans, failing to overcome the Africans in the field, destroyed their villages and crops by fire. Thousands of Africans died of starvation and the entire south of Tanganyika was devastated. Money became frightened and so, in 1907, Dr. Dernburg, an able business man and banker, who had been given the new appointment of first Secretary of the Colonies, left for East Africa to institute reforms and to endeavour to turn the hatred of the Africans into their natural tolerance, if not affection. Very shortly after his arrival, he announced publicly: 'I saw too many whips in the hands and on the tables of the planters and colonizers.' He attempted to permit the natives to be free producers, as well as to free those who were in German employment, limiting forced labour to public works and paying it for its work. The planters were rendered bitterly hostile by these humanities, and succeeded in enforcing Dernburg's resignation. In practice, therefore, the seizure of land, forced labour, floggings and imprisonment continued until the Great War.

After the Great War, the Mandate for Tanganyika was allotted to Britain.

The Permanent Mandates Commission of the League of Nations brought a redemptive spirit into governance. Under the first clause of their charter, they were to be *the trustees of the material and moral well-being of the natives*. Each Mandatory Power had to present an annual report for acceptance and suggestions by the Commission. Reports and comments were made public. The old-time secrecy which was able to screen offences was made impossible. Mr. Steer, in his chapter on 'Mandates' Work', gives a most moving account of the improvement of the lot of the sons of the soil, which had once formed the territories of the German northerners.

Of South-west Africa, he states: 'It has multiplied by ten, the amount of land in the hands of the native in German days, and it has enabled him to keep herds of cattle and sheep again, a tribal necessity of which Germany cruelly deprived him.' The mandated natives are even better off in the south-west than are the natives in the Union; the former, for example, have to pay no poll-tax which often forces the Africans into industry where their wages never rise; their tribal institutions have been restored and the chiefs in the far north actually share in the responsibility of government. The white men, who now direct the country, are men of the Union and, therefore, versed by experience in the type of land of the south-west as also in the native character. No gross cruelties now occur, and, did they do so, they would be reported in the annual reports to the Permanent Mandates Commission. The general result has been a notable increase in prosperity.

In the Cameroons under the French Mandate there has been a similar new spirit of humanity, carried out in the way that is especial to the French. Everything local, social services, State services, the construction of the wonderful French roads, education, public health, co-operative agriculture, emanate from the top. The French have no faith in ancient systems and traditions; that they have destroyed in their great French Revolution of 1789. They have not therefore set about strengthening the tribal chiefs and restoring tribal institutions. 'Governors sack chiefs on any pretext,' says Mr. Steer. 'Tradition to them is a thing that clogs.' With the network of roads which the French build, they introduce speed of communication, enabling them to establish centralization in place of the old local administration. Within these limits, they give the Africans freedom, public service, instruction and medical aid.

Under the Mandate, French authorities have to publish, for all who wish to read, their annual report to the Mandate Commission, and it is due to this, says Mr. Steer, that the French Cameroons have the advantage of their neighbour, the non-Mandated French Equatorial Africa, whose reports are seldom read outside the Colonial Ministry. The officials of the former are spurred by the knowledge of the coming publicity. The consequence is that, whereas the Cameroons grow in strength and population, Equatorial Africa wanes in both. Under eager but careful officials, the freed natives are themselves infused with energy and zeal, and take a growing part in production. 'Production', writes Mr. Steer, 'is balanced nicely between white and black ... Some crops, such as cocoa, which were exclusively European, are now exclusively African ... Production has become so popular a pastime that the sources of white labour have dried up.' This energetic spirit

has advanced hand in hand with prosperity, with the result that 'the French Cameroons balance their own budget; they have only in the 'thirties borrowed money from France, and their total debt is infinitesimal. Neighbour Equatorial is one of the territories which promotes most gloom in the French Colonial Ministry. There is always a colossal deficit. Sometimes it amounts to 30 per cent of the total receipts. There is always a crushing debt.'

The British in Tanganyika have worked in the opposite way to the French. Sir Donald Cameron, who knew, as no one else, where, how and to what degree self-government could be developed, gave this succinct account of his British methods: 'We built from the bottom, from the common people upwards on a purely democratic basis, in distinction from other countries, where the tendency has been to invert the pyramid and build from the top.' The spirit of the Mandates was most acceptable to his humane and understanding heart. Mr. Steer's words on this are so nobly eloquent that they will be quoted in full: 'The Mandate for Tanganyika, as for the Cameroons, destroyed the system of forced labour set up by Germany; it has assured the native primary rights in the land of his fathers, and a paramountcy of his interests where they conflict with those of European settlers -- where the German policy was diametrically opposite; it has constructed a peaceful native peasantry where none existed before; it has given peace for armed repression; impartial for rough justice.

'Above all it has established the natural foundations of native society where these had been hammered out of sight by the German machine. It found an oppressive and foreign rule in Tanganyika twenty years ago; in that brief time-period it has not only restored the native system, but given it responsibilities of which it never dreamed before. The native authorities, suitably democratized, spend their own money, hold their own courts, carry out their own measures of education, hygiene, and all other forms of local government.

'There is no need to compare Tanganyika with Kenya or Nyasaland on her northern and south-western frontiers. Through the breadth of Africa south of the Sahara you will not find a territory where the native African has such freedom of self-expression as in Tanganyika; or such grand responsibility; or responsibility so faithfully borne. When one lifts the veil of wishful thinking and asks, in a clearer atmosphere, what is the purpose of colonial government, clarity demands no stupid answer such as raw materials for the mother country (seeing that all the colonies of the world produce only 3 per cent of the world's raw materials), or pockets for European investment (seeing that the beneficiaries can only be the few), or strategic power (seeing that if war is permanent life is not worth living). No; the light shines too hard to-day to admit evasion. If we are to remain in tropical Africa we are there for the benefit of the people whom we rule; and their benefit is not only to learn and be healthy, have peace and produce; the greatest gift we can offer them is the opportunity to manage their affairs. That is why Cameron justly said, "We have given back their soul to the people".'

The Mandates in the three countries have been carried out in three varying ways by the Union of South Africa, the French and the British, but each method has been inspired by

the new spirit. It is this that has led to their success and prosperity, for Tanganyika too is prosperous, 'the richest of the former German Colonies'. The, Mandates, indeed, have worked like a *miracle of social benefit* and civilization in these three countries, especially in Tanganyika. It is very impressive and will become yet more so to the reader of Chapters 21 and 22 in which similar miracles on a grander scale of civilization will be described.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 19

Russia, South Africa, Australia

Russia

The land of European Russia is not complicated. It is the direct extension of Belt No. 1 of Asia, described in Chapter 6. Its sea-coasts are too limited and removed from the open ocean to alter its essential character, which, with its situation between Asia and Europe, directed the history of the Russians.

Its physical map is, therefore, mostly tinted green, indicating an elevation up to five hundred feet. It has two irregular areas of yellow, of elevation up to two thousand feet running north and south; one to the west, the second to the east. The eastern is intersected by a thin strip of light brown, of elevation up to five thousand feet, the Ural Mountains. These west and east areas are in latitude 60 degrees joined by a transverse yellow band. The three areas form the watersheds of Russia's rivers. Two considerable rivers, the Dwina and the Petchora, open into the Arctic Ocean, but the largest Russian rivers, unlike those of Siberia, run south. The Volga rises from all three watersheds, west, east and transverse, and runs into the Caspian, its last section in the Caspian Tract being actually below sea level. The Don rises from the eastern side of the west yellow area, and the Dnieper from its western side, and also by its big tributary, the Pripet, from the northern Carpathian Mountains outside Russia. Both flow into the Black Sea. The Dniester, also entering the Black Sea, forms the south-western boundary of Russia.

Russia is thus an extension of the Siberian Plain, made European by the Ural Mountains. South-east Russia, with the Caspian Tract, is the European extension of the Asiatic Kirghiz Steppes. Through the Steppe country many Nomads of Asia passed into Europe and, at a later time, Russians passed into Asia.

At the time of the last Glacial Age, nearly all European Russia was covered with ice. As the ice receded, Russia emerged in a sodden condition of boggy lands and lakes, the abundant waters of which were drained away by the great rivers.

In the drying up of the Post-Glacial epoch, Russia slowly attained to the condition of being habitable to men. European Russia is now divided into three belts.

Firstly there is the northern belt, with its Arctic tundra cap, with a long winter, a brief summer and a saturated, boggy soil. It offers only the most limited opportunities for farming.

The central belt has a more equable climate than the other two. Its soil is capable of receiving and storing water to a considerable depth, and it gets an abundance of water in the spring from the melting of the snows. Its surface then becomes a sea of mud, but five or six months of open season follows; the surface dries, and so becomes cultivable by men. This central belt, which contains the capital and other manufacturing towns, constitutes the farmed, but food-deficient area of Russia.

For these two deficient belts, Russia is compensated by the third or southern belt, the food-surplus area. Here the season of freedom from snow lasts up to nine months. Here also the extremes of heat and cold are greater than are those of the central belt. So dry is it at times, from the heat and the hot winds which sweep into it from Central Asia, that it is subject to drought. But its soil is rich, and that of the Black Earth Zone, immediately south of the middle belt, is the granary of Russia.

Russian agriculture began in the middle belt, the belt of forests. It was not until the reign of Ivan IV (A.D. 1533-84) that the grain land was reached. Sir Bernard Pares in his most instructive *A History of Russia*, 1944, states that the Russian peasants were peaceful men, seeking to cultivate land without interference. They would clean a piece of land along the bank of a river, burning down the trees and digging out the stumps. They would erect a colony of a few houses, keeping close to the river for fishing and transport. In the north they met the Finns, then entirely unorganized, and they established friendly relations, with them. 'The Russian peasant', says Pares, 'was a man of peace and he did not come to start new conflicts, but to avoid them.'

But they were not left at peace by their rulers at Kiev and Moscow for the reason that they were the source of the greater part of the wealth of a poor country and, secondly, because the army was recruited from them.

The chief enemies of the Russian people from about A.D. 1130 to the reign of Ivan IV were the Nomadic Mongols from Asia, who passed into Russia through the Caspian Tract. To preserve themselves and their peoples from the Mongols, the Russian rulers relied on the strength of the land and its peasants. When Kiev was the capital, the near land was in

the hands of a landed aristocracy, the far in the hands of pioneer peasants themselves. When Moscow became the centre of the eventual Emperor, land was given to a second class of superior landowners, who were allotted it for their lifetime on condition of rendering military and other service to the State. 'The conditions of tenure', writes Pares, 'stated precisely the number of recruits who had to be placed in line. The allotment of land corresponded to this number and was graded carefully according to class, which was practically synonymous with military rank'; and he adds that military service was also demanded from the hereditary landowners: 'the patrimonies themselves were put under the same obligation of military service, and, in fact, all land in Russia came to be held only by the title of service to the Tsar'.

'As a system of agriculture', continues Pares, 'nothing could be more unsound. The squire was firstly a fighter, only secondly a squire. His absences were frequent. His efficiency was rated only by his military service;' and, as regards the landowners of the second class, they could be moved at will, which prevented them from acquiring any permanent interest in their peasants.

The peasants were bound to the soil, for the aggression of the Mongols was 'such as to convince the dullest of peasants of the necessity of national defence and of national sacrifices'. Nevertheless, some peasants were bold enough to seek freedom from the oppression of their rulers and moved eastwards and to the south and south-east. 'Flitters', Sir John Maynard calls them in his fascinating *The Russian Peasant*, 1943, and it was the flitters who came to constitute the Cossacks, or border peasantry, who were so powerful a factor in the eventual repulsion and conquest of the Mongols. The Cossacks came to possess, writes Pares, 'wonderful military resource and were masters at taking cover. They practically never parted with their horses and were trained riders from childhood. Their scouting tactics were those of the Russian army of to-day. Tall lonely trees were used as observation posts; different points at some distance from each other were garrisoned, and between them relays of individual Cossacks patrolled, never dismounting'. Such men, therefore, enjoyed a freedom not given to the more central peasants.

Even when the Mongols were subdued by Ivan IV, the heavy burdens of the Russian peasants were not lifted. The danger to the Russian kingdom then shifted from the south and east to the west, as Europe advanced in civilization and military strength. The virtual serfdom of the peasants, severe according to their relative proximity to Moscow, was continued, and, in 1649, a code of laws was issued which 'finally confirms the establishment of serfdom, which henceforth becomes a state institution'.

Not even Peter the Great (A.D. 1682-1721), who in physical strength, will, genius and energy was perhaps the greatest of all European rulers, could relax the oppression of the peasants. It was he, above all, who realized that Russia was lost in the struggle against European aggression, unless her backward people were Europeanized. So, though 'Peter was far closer to the Russian peasant than any Tsar before him or since', his vast expenses forced him to increase the weight of the peasants' chains. Flitters to the freer south and

south-east increased greatly in numbers, and some passed over the Urals into the land, familiar in character, of the Siberian Plain. As time passed, the freeing of the peasants from serfdom in order to promote the advancement of by far the largest number of the Russians became more and more urgent, and eventually an Act of Emancipation was passed in 1861. It was in many ways ineffective, and the final stage of release came with the Soviet Revolution and the Collective Farms of Lenin and Stalin. Under the Collective Farms the medieval tempo of farming was transformed into modern farming of an advanced kind. Sir John Maynard, in his sixteenth chapter, gives a full account of these collective farms, with their advantages and difficulties, their tractor machines, their economics, their lack of sufficient manure, their associated work on the large farms, their personal work on their private farms.

From this account of the soils and their ownership it will be seen that two forms of erosion could have been witnessed in European Russia. The first would occur from the destruction, without afforestation, of the forests upon the slopes and watersheds of the higher land, if the land itself was owned by men who were anxious to get the most wealth from the soil without adequate return. When the forest had been destroyed on the slopes and watersheds, sheet and gully erosion would occur owing to heavy rain or melting snow. The rivers would, in the wet periods, then be in flood and bear top-soil to the sea; later on, in the summer season, their profitable streams would dwindle.

Such a dominance of money did, indeed, occur in historical Russia, particularly in the seventeenth, eighteenth and nineteenth centuries. Mr. Jacks' pronouncement, in *The Rape of the Earth*, on this cause of erosion is one with which we are already familiar. The peasants of Russia were serfs; all the profits of farming went to enrich a landed aristocracy. We are told: 'The landowners' aim was to get the maximum out of the soil in the shortest time with the least expenditure of labour and improvements. Sheet erosion was extreme, though generally unnoticed and not associated with the new gullies that continued to break up the land.'

Fortunately for Russia, the primitive farming of the serfs was very slow in extension. Though marshes and lakes dried up and the streams of great rivers flooded and dwindled, there was a tempo very much less than that of the United States under the era of the machine. Consequently, loss of the Russian soil was far from reaching the disastrous magnitude of that of the American soil.

When the serfs of Russia were emancipated in 1861 and became possessors of much of its soil, there was no halt in this form of erosion. The peasants were given the poorest eroded land and they, therefore, set to work to extend the cultivation of the slopes. Their method of ploughing was in long strips up and down the slopes to the tops of the watersheds; the hollows between the ridges became first water courses and then gullies and so erosion was increased. Even under the Soviets, no halt was called to the destruction of forests owing to the need of timber in exchange for the machines from foreign countries which the new manufacturing towns of the U.S.S.R. required.

So much for the first form of erosion, namely, sheet and gully erosion. The second form of erosion is wind erosion. This would affect the third or southern belt of Russia, both the rich Black Soil Zone and the land of the Steppes. Here is what Major Law, Commercial Attache in St. Petersburg in 1892, reported upon this belt, once protected by belts of forests: 'It is certain that those forests do not now exist, and that the black soil country is often scourged by devastating blasts from the Steppes, and not infrequently baked by prolonged droughts.' Wind erosion and floods work their havoc and 'smite the soil with perpetual barrenness'.

This erosion at length aroused alarm in the Russian aristocracy and, in the eighteen-nineties, many shelter belts of trees were planted to break the force of the hot winds upon the top-soil 'on such a spectacular scale and with such excellent results that a special government commission was appointed to study afforestation' (Whyte, in *The Rape of the Earth*).

The sudden stride of the U.S.S.R. into the modern era, with its reliance upon machines, made the tractor-plough in particular a symbol of modernization. It became the visible image of the inner belief in the machine as a saviour, and wherever the tractor went it was heralded as a propagandist. Nevertheless, it had its intrinsic dangers. Messrs Jacks and Whyte, in the *Technical Communication No. 36 of the Imperial Bureau of Soil Science*, 1938, discussed this danger and quoted the Russian Professor Kornev as saying, with regard to both forms of erosion: 'At the present day there are huge areas in the U.S.S.R. where, owing to the excessive breaking up of the topography, whole territories, formerly under profitable agriculture, are now occupied by immense ravines and infertile wastes.' To this the two authors added: 'The tractor-plough is the enemy of the grass land in dry areas, but is indispensable to the propagandist of Russian agriculture. Though forewarned by the experience of other countries, it is difficult to ascertain if the authorities are aware of the danger of mechanization.'

Certainly, by the year 1938, the Soviet authorities had put tractors upon the land on a very vast scale. Whereas, according to Appendix III of the Trade Unions of the U.S.S.R. (quoted in the Fabian Essay on *Our Soviet Ally*, 1943), in 1913 no tractors were in use in the Russias; in 1938 there were used, upon the scientific, mechanized, collective farms, no less than four hundred and eighty-three thousand tractors. The potential threat of erosion in such numbers is enormous, as the consideration of the other three of the four great examples of modern erosion, South Africa, Australia and the United States, will show. The war and its demands have concealed the threat and even made it one that had to be concealed. No account of the degree of new erosion can, therefore, be given.

South Africa

South Africa is described by Mr. Whyte, in *The Rape of the Earth*, under the italicized sub-

heading of *The Transformation of South Africa into Semi-desert in the Twentieth Century*. The agricultural wealth of South Africa is chiefly pastoral. The natural veld and the Karroo provide animal fodder, though in favoured localities special grasses and foreign crops are grown. But this natural vegetative cover has deteriorated and erosion has already transformed parts of the richest pastoral areas in the country into semi-desert. Considering that the luxuriance and excessive wetness of the veld in the Orange Free State were previously an obstacle to pastoral farming, the rapid appearance of the disastrous consequences of erosion is very remarkable. It occurs in all parts of the Union, either as an actual or probable menace, and is predominantly a pastoral problem.'

He then continued with this important paragraph: 'The great uncertainties of the South African climate, and the suddenness with which the country was opened up after the discovery of gold, have contributed largely to the rapid acceleration of erosion. Towards the end of the nineteenth century it was realized that serious overstocking was taking place, but public attention was not focused on the danger until the Drought Investigation Committee issued its final report in 1923. Until then the opinion had been gaining ground that the climate was becoming drier and the rains more torrential. The report pointed out that there was no proof of a definite and recent climatic change, but that erosion would account for the drying up of rivers and waterholes, the falling watertable and the increasingly disastrous effects of droughts and heavy rains. The Commission concluded that the erosion was caused chiefly by deterioration of the vegetative cover brought about by incorrect veld management, and that all efforts to improve the latter would have a beneficial effect on the former.'

South Africa was taken from the Dutch by the British in 1812.

Australia

In the speed with which fertility of the soil is being lost, Australia is believed to surpass even the United States. This is the opinion of Mr. E. S. Clayton of the Department of Agriculture, New South Wales, who was sent to study erosion and anti-erosion measures in the United States for the better defence of his own country. In *Investigations Overseas*, 1937, he writes: 'There is no doubt that we Australians are in a process of transforming the semi-arid areas into desert at a more rapid rate than in the U.S.A.'

Australia is, in short, being threatened with becoming to the British Empire what Libya became to the Romans. The loss of soil from rapid deforestation and burning of vegetative cover and from overgrazing is severe. 'Approximately two-thirds of the area covered by the Alpine woody shrub type has been completely cleared by the action of fire,' writes Mr. R. V. Byles of the catchment area of Australia's greatest river, the Murray, in *Bulletin 13 of the Commonwealth Bureau of Forestry*. He continues: 'The organic layer, with no cover to protect it and no live roots to hold it, dries up and is blown away; the loose sandy soil is in its turn blown away, leaving the final product, bare granite rocks and stones with no

vegetative cover.' The once constant river has become inconstant and its water is intermittently turbid in place of the original constant clarity. 'In thirty years the land about it has become desert, according to the testimony of men who have nurtured cattle there all their lives.'

The eagerness for wealth in a country that does not nestle to the heart as does the homeland destroys the permanence of its gifts to men. There is no real ecological link between the white man and its nature, nor habit and tradition which expresses it. They do not feel that when they burn or tear its verdure they are tearing at their own home fields, at something which is an eternal associate of their own, and their ancestors' and their descendants' lives. It is land and land can give wealth, but it is not *motherland*, and, until that human term and what it implies in the fullest sense becomes bred in the bone, it will not be real, and *the land will not be properly treated*. It is the heart, faith, sentiment that ultimately prompt action.

So in the drier parts of Australia there are thousands of acres of lightly stocked pastoral country, which are suffering from erosion and where men, like fifth columnists, have helped the central desert to advance. Not only is the fertility of these undulating lands being depleted at an alarming rate, but the wetter, riverine districts near the sea are also in many parts gravely affected by erosion, due to the same eager speed to clear the land, as has already done so much harm to the riverine area of the great Murray River.

Finally, there are the rabbits, introduced from Britain to this, to the white man and rabbits, new world. In *Pamphlet No. 64 of the Commonwealth of Australia* there is an incomparably vivid picture of these pests given by Mr. F. N. Ratcliffe. In a way, the four-legged immigrants from Britain behave like the two-legged from the same country. When the going is good and there is abundant pasture, the rabbits do not act as if they were part of a country in balanced equilibrium, but as pitiless ravagers of its soil fertility. They revel in the rich harvest and they multiply out of all counting, as if the future must be a repetition of the past. In numbers they eat up the pasture and drive the hungry sheep to devour saltbush. They overreach their good fortune. Then come the hard times of a drier season. They are hungry, so hungry that they eventually eat all and any food within reach and even beyond the ordinary reach of their kind. They eat the surface plants. They climb. They burrow into the earth and get at the roots of the hardy acacia scrub. They take all that is above and below the soil and give it no chance of regeneration. Then comes a drought, and the rabbits die in heaps under the very eaves of the settlers' houses or wherever man-made shade can shelter them from the pitiless sun. So the rabbits, too, fail to fit into the balanced life which nature had long established in Australia, before they were brought out with the intention of providing food, not destroying it, for the white settlers.

The British first settled in Australia a century and a half ago.

The British annexed New Zealand, the islands of the 'emaciated skeleton' threat mentioned at the end of Chapter 17, in 1840, just over a century ago.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 20

The United States of America

Of all countries in the world, that which is most typical of modern progress; that which, at its initiation, announced the gift of liberty to every man to pursue wealth within the limit of the law and has permitted the greatest liberty of thought and action on the part of its inhabitants of all ranks; that which has encouraged genius or avidity to develop themselves most freely in the belief that the accretions of knowledge and wealth, which would accrue, would be of ultimate benefit to the community and to humanity as a whole; that which has produced the greatest business achievements and made itself the nation with the widest scientific equipment and the most skilful practical technique; that which rushed forward into the new with such speed and eagerness that the old has been forgotten; that upon which nature has now written most broadly and definitely her grim judgment in terms of erosion of the soil; that which, with its accustomed, heroic practicality, is now surpassing all nations similarly stricken in the vigour and thoroughness of its measures to oppose this life-destroying menace; is the United States of America.

In April 1928, the Agricultural Department of the U.S.A. published Circular No. 33, by Messrs. H. H. Bennett and W. R. Chapline. The circular bore the title of *Soil Erosion: A National Menace*. It is divided into two parts, a general consideration of the loss of soil due to erosion by the first author, and of the erosion of grazing lands by the second. It consists of thirty-five pages and contains thirty-five photographs, and he who looks and reads, especially if it is his first intimate meeting with the question, finds a graphic revelation of the greatest rebellion of our time, the rebellion of the earth itself. The figures of destruction given are colossal, and when one looks at the photographs and sees these figures embodied in visual reality, the effect is so impressive that one understands how it is that this short pamphlet in particular assembled the voices crying in the wilderness and

made them startle into attention the governments of the world.

Mr. Bennett, after a few preliminary remarks, gives an exposition of the *Figures on Soil Wastage*: 'The amount of plant food in this minimum estimate of soil wastage by erosion (1,500,000,000 tons of solid matter annually) amounts to 126,000,000,000 pounds, on the basis of the average compositions of the soils of the country as computed from chemical analyses of 389 samples of surface soil collected by the Bureau of Soils. This is more than twenty-one times the annual net loss due to crops removed. The amount of phosphoric acid, nitrogen and potash alone in this annually removed soil material equals 54,000,000,000 pounds. Not all of this wasted plant food is immediately available, of course; but it comes principally from the soil layer, the main feeding reservoir of plants, and for this and for other reasons it is justifiable, doubtless, to consider the bulk of it as essentially representing lost plant food, without any quibbling about part of it having potential value only.'

It is impossible to get a succinct method of thinking out the meaning of figures so colossal. One can put them before oneself in some such way as this: There are 120,000,000,000 pounds of plant food lost by 120,000,000 people. The permanent loss of plant food, therefore, is at the rate of 1,000 pounds per person in the U.S.A. As each person eats about 1,000 pounds of food a year as plant substance or as animal substance derived from plant substances, one can get some sort of equivalent conception as to what this means. Nor is this all. The destruction is proceeding at an 'ever-increasing rate' as we shall see in the next quotation from Mr. Bennett. Clearly such a system of treatment of land cannot indefinitely continue. One recalls again here the prophetic words of Professor Shaler of Harvard uttered thirty years before the publication of this pamphlet: 'If mankind cannot design and enforce ways of dealing with the earth which will preserve the sources of life, we must look forward to a time -- remote it may be, but clearly discernible -- when our kind, having wasted its great inheritance, will fade from the earth because of the ruin it has accomplished.'

There is something, too, paradoxical about these millions and thousands of millions of figures, attached to something so general to man as the soil, that allies them to those of the money system of the same period. Farmers create what men eat, but in doing so create life-strangling erosion and deserts. In the money system, financiers create money for men's livelihoods, but in doing so they also create life-strangling debts and financial deserts. The vast accumulation of negative money, as national and municipal debts, runs into figures comparable to those concerned with negative soil. The two seem to have a definite kinship. Yet urban peoples still view both their food methods and their money methods with a scarcely shaken trust. Again the split mind gives evidence of itself.

There are further figures. The loss of phosphorus, potash and nitrogen alone, without reckoning other soil foods, is estimated at 2,000,000,000 dollars a year, which is the better portion of the British national revenue before the war of 1914-18. Mr. Bennett, writing in 1928, which he denotes as a time of meagreness of fundamental data of 'what is going on

at an ever-increasing rate', states: 'That some 15,000,000 acres or more of formerly tilled land has been utterly destroyed by erosion in this country is but an insignificant part of the story, for it is the less violent form of erosional wastage, sheet erosion, that is doing the bulk of the damage to the land. Land depreciation by this slow process of planing off the surface is of almost incalculable extent and seriousness, and since the denudation does not cease when the subsoil is reached, there must be in the near future, unless methods of land usage are very radically changed, an enormous increase in the abandonment of farm lands.' Nine years later Mr. E. S. Clayton of the Agricultural Department of New South Wales, after his study of erosion in the U.S.A., came back with the momentous figures: 50,000,000 acres of cultivated land destroyed, 50,000,000 acres seriously eroded and about to be abandoned, 100,000,000 acres with loss of much of the topsoil, out of 987,000,000 acres, the total of agricultural land in the States. Finally the United States Department of Soil Conservation Service published a map with various shading to show the areas of slight and severe wind erosion, and slight and severe sheet erosion due to widespread movement of thin sheets of water. The unshaded non-eroded areas contrast with a widespread prevalence of shade. The above figures of Mr. Clayton are certainly not belied by the map.

The figures of loss in the U.S.A. are, indeed, incredible, in that the mind cannot grasp that a country of incalculable national wealth and fertility, almost within a century can be thrust into such danger. This is but a paraphrase of Mr. Bennett's own summary: 'To visualize the full enormity of land impairment and devastation brought about by this ruthless agent is beyond the possibility of the mind ... Any American of live imagination knows that the people of the United States would willingly spend 20,000,000,000 dollars to redress the wrong', had it been due to a foreign foe. But because it is an inner fault of American thought, because the sun, the wind and the rain, the natural conditions of earthly life, are concerned, the people scarcely heed it. So Mr. Bennett ends his part of Circular 33 with the words: 'A little is being done here and there to check the loss -- an infinitesimal part of what should be done.'

Then comes the visual evidence, the photographs from many of the States. In the first photograph one sees a sloping cotton field showing shallow channels caused by rain between the rows of plants. When heavy rains came and the extensive field had only a light cover of young plants, then more water ran along these channels between the plants than where the soil was held by the roots of the plants. This is sheet erosion; some water sinks into the soil, but some runs away without sinking in. The runnels collect together and form a gully. The next photograph shows the result of gullies, which have collected together to one channel in the Greenville fine sandy loam. The channel is a chasm 100 feet deep, with precipitous sides, fringed by forest trees. Where it now is, there stood a school-house forty years ago.

There follow further pictures of erosion due to rain and melting snow. There is one of a wide, laterally extending gorge in the Mississippi Valley; one of cornfields covered with a blanket of coarse sand deposited on it by the erosional waters of heavy rain; arable land in

Kansas so cut up by gullies that it could no longer be ploughed and was given over to pasture; bald patches on the rich, black soil of Iowa, washed away by sheet erosion and showing the clay beneath; smooth fields in Texas split by gullies as a flat glacier is split by crevasses; rolling, hilly country of Northern California, once forested but now complete desert, with no topsoil and what is left of subsoil slashed by gullies; a spacious hilly area in California left desolate of growth by fire and water; in Virginia erosion following a few drops on slopes which should never have been cleared; in Colorado, farm buildings caught and undermined by a wide stream, the natural obstructions to the free flow of which the owners of the buildings had themselves removed; wagon tracks starting eroding streams, which will eventually lead to the loss of a valley full of rich soil; driftwood and other debris from hills made barren by fire and deposited by flood upon a young orchard; wind erosion due to trampling of an excess of cattle in dry New Mexico; vegetation destroyed by smelter fumes over thousands of acres in Arizona. The last picture of all is one that cheers the heart after so much witness of destruction. It is one of 'abundant and excellent feed and a maximum of watershed protection', in Montana. It shows a well-watered, hilly country bearing tall fir trees, bordering upon spaces of rich grass, and in the foreground, a flock of feeding sheep. The land and its cover are good and man himself joins in its life-cycle with his good flock.

Nevertheless, Montana takes its share of the famous grazing grounds of the North-West, where it is said that 58,000,000 acres are now only able to feed one-fifth of the number of animals they were once able to support. But it is in Montana's neighbour, the Pacific North-West, that something very positive has arisen, an action of new values in keeping with the awakening of Americans to the primal value of a sheltered soil, protected by a continuous ownership of those who will care for it on small-sized farms. Once again the land is to be the centre of homes, a homeland.

In the Pacific North-West flows the great Columbia River, across which have been placed two dams, the Bonneville and the Grand Coulee. These two huge dams will produce more electric power than the 14,082,282,000 kilowatt-hours turned out by the two hundred and sixty electric plants in the State of New York.

What to do with this enormous amount of energy? There enters into this question something strange and new to accustomed industrialists. They wanted a vast factory community near the Bonneville Dam itself. But there were eyes of a great leader looking upon this mighty dam before him and looking also beyond it with the vision that extends what is seen into the realms of the future. In September 1937, it was this leader, President Roosevelt, who delivered a speech of dedication beneath the dark crags of the Columbia Gorge, the river of which in its change now foretold a change for the mighty stream of the American people.

The North-West, consisting of the States of Washington, Oregon, Idaho and the section of Montana west of the crest of the Rockies, offers an opportunity, said the President, 'to avoid some of the mistakes and wasteful exploitation of resources that have caused such

serious problems in other parts of the country'. The North-West should not be a land of new 'Pittsburgs'. The President continued: 'It is because I am thinking of the nation and the region fifty years from now that I venture the further prophecy that as the time passes we will do everything to encourage the building up of smaller communities of the United States. To-day many people are beginning to realize that there is an inherent weakness in cities which become too large, and inherent strength in a wider geographical distribution of the population.'

The Grand Coulee, now nearing completion, in addition to providing power, will irrigate 1,200,000 acres. These acres are to be given to families and small cultivators. They are being protected against combines and other large-scale operations. These types of land-ownership are forbidden. Land, held in defiance of this limitation, will get no water from government canals. Families, who have been driven by erosion from the western grazing lands and migrated from the now famous Desert Bowl, will here find land. Some are doing so now. The amount of land allowed to be held is limited to eighty acres for a family and forty acres for a single man. The purpose of the Grand Coulee is to take care of as many families as possible. The partnership of family and soil is to be revived. But there is to be something more on this irrigated land. There are to be small industries served by electric power. Men and women, who work at these industries, will also be able to have kitchen gardens, and thereby will carry out what Mr. Stuart Chase proposed several years ago for the North-West, small farms which will act as 'anchors to windward', if at any time industry fails.

Everyone in this area will have the opportunity to gain soil-sense. The land as food producer will be the basis of society and will be its associate. Many small industries dotted about the North-West will serve the countryside as once did village crafts. Other industries will develop for industrial purposes the raw materials of the local farms. Industry will be truly distributed; it will administer to the comfort and happiness of the people on the land as its primary object, and act as the means of external trade as its secondary object. The dicta, indeed, of the North-West, will be those so concisely expressed by Napoleon at St. Helena: 'Agriculture is the soul, the foundation of the Kingdom; industry ministers to the comfort and happiness of the population; foreign trade is the superabundance; it allows the due exchange of the surplus of agriculture and industry ... Foreign trade, which in its results is infinitely inferior to agriculture, was an object of secondary importance to my mind. Foreign trade ought to be the servant of agriculture and home industry; these last ought never to be subordinated to foreign trade.'

The cost of the electric power of the Bonneville Dam is governed by 'postage-stamp rates' all along its transmission line of 275 miles; the industry farthest from the dam pays for its power at the same rate as the industry that is nearest. This mandate was not directed against industries and factories as such, but against industries and factories compounded into places like Pittsburg, Chicago and Detroit. The fear of the great metropolitan city is so ingrained in the thought of the people, writes Mr. Richard Neuberger in *Free America*, August 1940, in a quite triumphant article from which I have taken my information, that

during the struggle over the Bonneville power rates, the words of President Jefferson (1743-1820) appeared in many local papers: 'I view great cities as pestilential to the health, the morals and the liberty of mankind.' That saying was directed against financial and industrial magnates, ambitious politicians and demagogues, who arise in cities and only by cities are made possible. The logical end of metropolitan civilization, and its most complete, one-piece form, is totalitarianism which is confessedly and in action 'pestilential to the liberties of mankind'. In this scheme in the Pacific North-West, men and women have now the opportunity to combine manufacture with a home partnership with the soil. The soil, once again now, and yet more in the future, will be their associate and instructor. There is a grandeur about the scheme, which belongs to a great country that can still revive its epic character.

There is another illustration of the redemptive spirit in the U.S.A. which stirs hope and admiration no less than the story of the Grand Coulee. It is the story of a complete education of the children and people in the local soil.

It was called forth in an area of the United States by the great catastrophes of the Dust Bowl and the floods in the basin of the Mississippi River and eventually united all classes of the inhabitants. It is described in a pamphlet issued by the U.S. Department of Agriculture in October 1940. Pupils and teachers used their own local land as text-book. They walked over the land and with their eyes learned to recognize the symptoms of misuse, to discover the causes, and to work out the principles of good use. A miniature whirl of dust led to the study of wind erosion and the Dust Bowl. The results of a flood and the loss of valuable cotton land led to the study of the watershed, its inter-relationships and the delivery of water from a forested area to the irrigated land below.

Owing to the war I have not as yet been able to procure the pamphlet itself, but I have read a review in *Indian Farming*, January 1942, which quotes verbatim from the pamphlet. It is so important and encouraging that I am reproducing the quotation in full.

'Basic concepts and bodies of subject matter were needed -- an understanding of the water cycle, the behaviour of the soil and water, the growth of vegetation. These were observed and understood and related to the daily life of human beings. Children gained some understanding of the hydrologic cycle in the simple story of the raindrop. Grass as a necessary food for livestock was known to even the smallest child in the south-west. How grass grew, how it reproduced, how over-grazing and trampling destroyed it, led quite logically to such statements as: "The cowboys should not let the cattle eat in one place too long." Sustained use of timber on forest land was expressed as the necessity for large trees, middle-sized trees, and little trees. Human use, human needs, human plans and solutions, were the core of each study.

'Children have a way of talking about matters that really interest them. Visits by pupils to demonstration areas have led to visits by parents. Parents have written letters to schools expressing their interest and pleasure upon learning that the children are studying land

use. In sections where this type of education was going on, the technical men reported an added interest in the districts and a great facility in obtaining agreements' (presumably for the better use of land and water by farmers and local authorities).

'The educational superintendents, supervisors, departments of education lent every facility, advised, took over where possible. The technical staff of the Soil Conservation Service conducted tours, learned to adapt their language to children's understanding, frequently wrote for us expositions in lucid, simple language. The material on human surveys, from our section of conservation economics, supplied information about the population, its use of land, its economic and social problems. Teachers, recognizing that soil conservation was of great interest to their community, that it helped in the vitalizing and socializing of the whole school programme, threw themselves into the programme with originality and eagerness.

'Our brief experiment has shown that land planning and use has an immediate interest for every school, and that teachers, pupils, parents, and State officials are eager to have a part in it. It is one of the great problems before us to-day. It has to do with subsistence, with food, clothing, shelter, taxes, and with many other problems which are a daily part of the home, community and the nation.'

Everyone concerned, it must be noted, becomes interested. It is a call to all from their very origin itself, and each man, woman and child, all creatures of the earth, eagerly respond to it. *It is a construction of the children's minds and a reconstruction of their elders' minds in terms of the soil.*

Mr. Bennett sums up his survey of the soil of the United States with these fateful words:

'After 4,000 years of building dykes and digging great systems of canals, the Yellow River broke over its banks and brought death to a million human beings during a single great flood. During one flood that great river, known in China as "the scourge of the sons of Han", changed its channel to enter the sea 400 miles from its former mouth.

'No one, of course, wants anything remotely like this to take place in this country, but "coming events cast their shadows before". That the greatest flood of which we have reliable records came down the Mississippi in 1927 was a prophetic event. G. E. Martin's statement about erosion as an enemy to agriculture -- "It is very unlikely that any other industry could suffer such losses and survive" -- is prophetic. That bare land, at the Missouri Agricultural Experiment Station, was found to be wasting 137 times faster than land covered with blue grass on a slope less than 4 per cent gradient is prophetic. That many millions of acres of cut-over land lie bare and desolate and exposed to the ravages of fire and erosion, with but pitifully little done towards reforestation, is prophetic. That minimum estimates show that the rate of plant-food wastage by erosion is twenty-one times faster than the rate at which it is being lost in crops removed, is prophetic.

'These shadows are portents of evil conditions that will be acutely felt by posterity. Shall we not proceed immediately to help the present generation of farmers and to conserve the heritage of posterity?'

'The writer, after twenty-four years spent in studying the soils of the United States, is of the opinion that soil erosion is the biggest problem confronting the farmers of the nation over a tremendous part of its agricultural lands. It seems scarcely necessary to state the perfectly obvious fact that a very large part of this impoverishment and wastage has taken place since the clearing of forests, the breaking of the prairie sod, and the over-grazing of pasture lands. A little is being done here and there to check the loss -- an infinitesimal part of what should be done.'

These words did not fall on deaf ears. The President and Congress were deeply stirred and five years after the publication of Circular No. 33, the Tennessee Valley Authority took control of the valley of the Tennessee River and its tributaries, an area belonging to seven different States and of no less size than that of England and Scotland. This was the first answer of the Government of the United States to the question of the Circular: 'Shall we not proceed immediately to help the present generation of farmers and to conserve the heritage of posterity?' It was the first radical attack on the 'little that is being done here and there to check the loss -- an infinitesimal part of what should be done'.

To help the understanding of this great project, it is advisable to recall how in Tanganyika, under the guidance of Sir Donald Cameron, in order to avoid the erosion following upon the wholesale destruction of forests harbouring the tsetse fly, geologists, plant ecologists and water surveyors were called together to fit farmers in a manner understood by them to *the local character of the water supply as a whole*. Each river with its catchment area was made into a native-governed entity, and twenty-six such entities combined in one Union.

What the tsetse fly forced upon the discerning mind of Sir Donald Cameron, the devastation and poverty of the Tennessee River area forced upon the mind of the great President of the U.S.A., Mr. Roosevelt, and a strong following of members of Congress. The story has been told with a comprehensiveness worthy of the theme by the Chairman of the T.V.A., Mr. David Lilienthal, in his book, *The Tennessee Valley Authority*, 1944.

The story begins with the natural unity of the Tennessee Valley area, with its forested catchment areas of mountains and valleys, and the varied and interlocking animal and vegetable life they maintained. The forest-covering protected the soil against heavy rainfall, let the rain-water filter through the soil and return by the clear Tennessee River to the Mississippi and the sea.

Then came the White Men, lords of creation and of the negroes, who accompanied them. They surveyed the land and found it suitable for two good money crops, cotton and tobacco. There were also many fine, saleable timber trees upon the mountainous ridges and slopes; there were minerals worth smelting; there were swift, clear rivers, which, if

harnessed by dams, would yield electric power for the machines of the manufactories. These primeval mountains and valleys were full of promise in a land of promise. Men set to work, each individual or group for their several purposes, and so the primal unity of the valley was destroyed.

At first, the land lived up to the title, land of promise, but little by little, the land was abused and rebelled. The time came when the hill-farmers found their land scored with gullies, the farmers on the plains their fields coated with silt from floods. The exploiters of timber, neglecting afforestation, saw their stock depleted and barrenness take its place. Hard-wood fuel no longer was enough to serve the furnaces of the smelters of ore, and the fumes of their ovens killed even the thin vegetation which attempted to cover the deforested land. Finally, the owners of dams found their pipes blocked by the silt of murky floods, and electricity no longer leaping from the dynamos which the piped water drove. The river itself was thick with silt, local navigation upon it was destroyed and, in flood, farmland washed away. Each was an enemy to the other, and, before the Tennessee Valley Authority took over the whole valley, the inhabitants were the most poverty-stricken and backward of any people in the U.S.A. They were in the front rank of the eroders and devastators, to whom Mr. Bennett attributed the results of his twenty-four years' study of the soils of the U.S.A. The outlook was as ominous as it could well be. The sole hope was to alter the very principles and methods of the usage of the valley as a whole and reintroduce those of the unity of nature, which had been ignored and fragmented. This was the work which Congress allotted to the Tennessee Valley Authority on that momentous date, 18 May 1933.

In the brief space of ten years, the T.V.A. have erected sixteen dams, some of them amongst the biggest in the world, and taken over and modified the five existing dams, and made them into one system of regulation of the rivers under their central control. They have now become masters of the rivers and their floods, and in 1942, when torrents came raging down a large part of the catchment area of the mountains, they conducted them safely into controlled channels. They protected the Tennessee Valley as a whole and its 4,500,000 inhabitants. They have planted a million trees grown in their nurseries and locally suitable to the soil. They have introduced contour ploughing, terraced cultivation, farmers' woodland and a balanced economy of legumes, clover, rotations, pigs, poultry and cattle upon 20,000 demonstration farms, in the midst of the 225,000 farms with 1,350,000 people living upon them in family farms averaging 75 acres. They manufacture phosphates, discovered by their experts as the present-needed artificial manure, and Mr. Lilienthal calls it in results 'the almost magic phosphate'. They have, with their mighty dams, created cheap electric power which gives each person 2,400 kilowatt hours compared to the average of the U.S.A. of 1,530 kilowatt hours, or 120,000,000,000 man hours for a single region. This has increased heavy and light industries, and, as a war consequence, it was largely because of this power that, in 1943, the U.S.A. was able to build its huge fleet of bombers for use in Europe and the South Pacific. They have made a stretch of 464 miles of the river navigable with a depth of six feet and they will soon have

a stretch of 650 miles with a depth of nine feet. Lastly, the number of fish in the river and its reserves has been increased fifteen times.

To effect these great harmonizing practices, the T.V.A. had to possess new harmonizing principles. They had to regard the inter-relation and independence of the different factors of nature in place of seeing nature as a battle in which each living type is set in open and secret enmity to other types in the bitter struggle for survival and priority.

Mr. Lilienthal illustrates and discusses, in a variety of aspects, the change which was necessary, not only in Congress itself, but in every sentient inhabitant of the Tennessee Valley. Here are some few of his words:

'Congress in creating the T.V.A. broke with the past. No single agency had in this way ever been assigned the unitary task of developing a river so as to release the total benefit from its waters for the people ... The T.V.A. Act was nothing inadvertent or impromptu. It was rather the deliberate and well-considered creation of a new national policy. For the first time in the history of the nation, the resources of a river were only to be "envisioned in their entirety"; they were to be developed *in that unity with which nature herself regards her resources* -- the waters, the land, the forests together, a "seamless web" -- just as Maitland saw "the unity of all history", of which one strand cannot be touched without affecting every other strand for good or ill.

'Under this new policy, the opportunity of creating wealth for the people from the resources of this valley was to be faced as a single problem. To integrate the many parts of that problem into a unified whole was to be the responsibility of one agency. The Tennessee Valley's resources were not to be dissected into separate bits that would fit into the jurisdictional pigeon-holes into which the instrumentalities of government had by custom become divided. It was not conceded that at the hour of creation the Lord had divided and classified natural resources to conform to the organization chart of the federal government. The particular and limited concerns of private individuals or agencies in the development of this or that resource were disregarded and rejected in favour of the principle of unity. What God had made one, man was to develop as one.'

The T.V.A. controls and bears the responsibility of the dams, the electric power, advice to the farmers, the fitting of industry to the whole, and general supervision and planning. Otherwise the greatest possible share has been given to the people of the valley by decentralization. 'A man wants to feel that he is important' is the maxim that directs this. 'The very essence of the T.V.A.'s method in the undertaking was at every hand to use directly, and to encourage and stimulate, the broadest possible *coalition* of all forces. Private funds and private efforts, on farms and in factories; state funds and state activities; local communities, clubs, schools, associations, co-operatives -- all have had major roles. Moreover, scores of federal agencies have co-operated' -- here a list of twenty is given -- 'the list, if complete, would include most national agencies.' The farmers themselves decide as to which farms shall be demonstration farms. The distribution of electric power

is directed by the farmers, the industries, the municipalities, the States. The experts live amongst the people and are one with them. Labour is take primarily from the people of the valley; others chosen by merit are directed to expert work. No inducements are allowed to industries located in other regions to move to the Tennessee Valley.

Responsibility is distributed. The T.V.A. management is responsible to Congress, yet it is a separate authority, and its separation underlined in that neither its management nor its staff are permitted any share in politics except that of voting. The same separation is aimed at between the management and the staff; its members are encouraged to act and take responsibilities and not worry about mistakes. A like relation exists between T.V.A. and local bodies and associations, who are given and readily accept action and responsibility for their localities. Mr. Lilienthal himself terms it *Democracy on the March*.

The results have awakened the keenest interest, not only in the United States itself, but in other countries of the world, An impoverished and fear-stricken people in ten years have become prosperous, confident, well fed, well clothed. They are happier and better citizens.

One principle of service to the soil is missing from Mr. Lilienthal's book, the rule of the return of what is taken from the soil, after use, to the soil, by which, in particular, the Chinese have maintained their soil for so many centuries. There is one oblique reference to it in the statement that, if cotton-seed oil-mills made money, Tennessee cattle could be fed with the cotton-meal cakes they now export for sale. If they did this, 'as much as 80 per cent of the fertilizing value of the meal would be returned to the soil rather than continuously drained by export'.

Otherwise, the T.V.A. is a wonderful re-discovery of almost forgotten laws. How great this re-discovery may become, we shall now see in the story of a kingdom in Europe, which was, one might say, except for electric power, all Tennessee Valley and more.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 21

A Kingdom of Agricultural Art in Europe

It is refreshing -- and an essential restoration of the mind -- to turn from the dismal tale of farming under modern civilization and to review in its place a kingdom of agricultural art in western Europe. Such a kingdom can be found, but one has to go back a thousand years to find it. Further, apart from this long interval of time, there are other distances between this great agricultural society and the society of modern Europe. The race which directed this society is no longer to be found in Europe. Moreover, the religious faith which directed it is now only to be found in a few mountainous areas of eastern Europe. In its racial and religious characteristics, then, this society was strange to Europe, yet, in spite of this strangeness, perhaps because of it, it did for a period *attain to a fullness of civilization not reached by any other European people.*

This kingdom was that of the Arabs in Spain, which began with their invasion under Tarick in A.D. 711 and came to an end with the fall of Granada in 1472. Its period of harmony by no means extended for the whole of this term of seven and a half centuries.

The story of its achievements has been related by Mr. S. P. Scott in the three large volumes of his *History of the Moorish Empire in Spain*, published in Philadelphia in 1904, with a wealth of detail collected during a period of 'more than twenty years' in which 'this work engaged the attention of the author'. Particularly notable is the account in the thirtieth chapter of the agriculture on which this flourishing empire was based, and by which it supported a population believed greatly to exceed that of the united populations of England, France, Germany and Italy of that time. The figures given are some 15,000,000 to 20,000,000 for the four countries compared to some 30,000,000 in Arabic Spain.

The account of this wonderful agriculture existing in the Dark Ages of the rest of Europe

will be so strange to many readers, that they may feel that it is beyond the range of their credibility. The reason of this is that in English education the influence of Arabic culture is entirely left out. We are taught a lot about the Greeks and Romans, but nothing about the Arabs, as intellectual leaders of Europe.

Mr. Scott himself is well aware of the special educational default with which we are now concerned. He begins his thirtieth chapter with some bitter words, to show that he anticipated the incredulity with which his account would be met. 'In all the vast domain of historical inquiry', he wrote, 'there is probably no subject which has been treated with such studied neglect, with such flagrant injustice, as the civilization of the Arabs in the Spanish Peninsula. Its story has been written in the majority of instances by the implacable enemies of those who founded and promoted it. Theological hatred has lent its potent aid to the prejudice of race and the envy arising from conscious inferiority to deny or belittle its achievements.' Of how bitter this theological hatred could be a single example must suffice. Eulogius, a learned Spanish priest, discovered by his studies or invented the knowledge that Mohammed announced to his followers that three days after his death he would be raised by the angels to heaven; 'instead of this, dogs devoured his rotting corpse'. This example is taken from the well-known book of S. Khuda Baksh on *Islamic Culture*, 1905. When one thinks of the reverence with which Mohammed spoke of Jesus in the Koran and the same reverence which he transmitted to his followers, one can see on which side the bitter religious hatred lay.

Consequently, in view of this neglect and prejudice, Mr. Scott, in a list of 'Authorities consulted in the Preparation of this Work', gives no less than seven hundred and three, covering fourteen different languages.

Some of these numerous books are concerned with the Arabic culture and history as a whole. In the sphere of science and thought for example, William Lecky, in his *History of Rationalism*, 1865, paid this tribute to the Arabs: 'Not till the education of Europe passed from the monasteries to the universities, not till Mohammedan Science broke the sceptre of the Church did the intellectual revival of Europe begin.' Mr. John William Draper, in *A History of the Intellectual Development of Europe*, 1875, wrote in the same strain. A more recent writer than Mr. Scott, Mr. Robert Briffault, in *The Making of Humanity*, 1919, finally summed up the relation of the Arabic Sciences to those of Europe in the following words: 'The debt of our science to that of the Arabs does not exist in startling discoveries or revolutionary theories ... Science owes a good deal more to Arab culture, it owes its existence ... What we call science arose in Europe as a spirit of inquiry, of new methods of investigation, of the method of experiment, observation, measurement, of the development of mathematics in a form unknown to the Greeks. That spirit and these methods were introduced into the European world by the Arabs.'

One need not, therefore, be surprised that these same Arabs produced in the homeland of Irak, in Spain and elsewhere a great system of farming on which to support their brilliant civilization. Many of the books quoted in Mr. Scott's list bear testimony to their farming

art. I will confine myself, however, to coupling the quotations from two well-known French authors in his list. One is from Monsieur Gustav le Bon's *La Civilisation des Arabes*, 1884, 'The Arabs had even a greater aptitude for agriculture than for letters and arts. What means of irrigation are now found in Andalusia were made by them'; the other from Monsieur Sédillot's *Histoire Générale des Arabes*, 1877: 'In short they had irrigated and cultivated the land so excellently that it was befitting to call Andalusia a garden.' Mr. Martin Hume, writing three years before Mr. Scott and not quoted by him, summarized the farming art of the Spanish Arabs in these words: 'Agriculture and horticulture were developed to an extent never heard of before.'

Mr. Scott also gives in his list original works on Spanish farming. One of these works that escaped the attempted total destruction of the literature of the Arabs by their fanatical conquerors is *The Book of Farming*, by Ibn-Al-Awam, or to give him his full Arab name, Abu Zackaria Yahya Bin Mohammed Bin Ahmed Ibn Awam, who lived in Seville in the sixth century of the Mohammedan era. Mr. Scott quotes him in his list under the French translation of his work, *Le Livre de l'Agriculture*, 2 vols., Paris, 1866. This book was also translated into Spanish in 1802, and into Urdu in 1927, in two volumes in each case. It was not translated into English at the time of Mr. Scott, nor, as far as I know, has this grave omission in English scholarship yet been corrected. The Arabic MSS., however, repose in the British Museum Library, as well as in the libraries of Leyden, Paris and the Escorial.

Ibn-Al-Awam also has his list of one hundred and seven authorities upon the varied aspects of farming, and, since the Arabs were great translators, he quotes freely not only from Arabic writers, but from Greek, Latin, Persian, Nabathean and other agricultural experts, as well as experts on the allied subjects, botany, zoology, chemistry, mechanics and meteorology, etc. His translator into Urdu, moreover, emphasizes that he was a very cautious student, a true scientist, in short. This is what his translator writes: 'The peculiar quality of this book is that, whenever the author quotes the statement of an expert, he first tests it by personal experiment. Where he had not the opportunity to verify a statement by experimentation, he tells his readers that, though he has been unable to do so, he has such faith in the veracity of his informant, that he has copied his statements into his book. This precaution which is absent in other books, has greatly increased the value of the work of Ibn-Al-Awam.' A very reliable man, then, is this Spanish-Arabic scholar.

Mr. Scott himself gives the following epitome of *The Book of Farming*: 'The great work of Ibn-Al-Awam, of Seville, a vast monument of industry and erudition embracing every conceivable branch of the subject, shows to what extraordinary perfection the science of agriculture had been carried in the twelfth century by the Spanish Mohammedans. It treats, in a comprehensive and exhaustive manner, not only of the methods found by the experience of centuries to be the best adapted to the sowing and harvesting of grain, to the planting and cultivation of orchards, to the propagation of edible and aromatic plants; but it also, with infinite minuteness of detail, describes the breeding and care of every species of domestic animals, their qualities, their relative excellence, their defects, their habits,

their diseases. It discourses at length upon the different breeds of horses and upon the rearing of that useful animal so prized by the Arab. It explains the details of artificial incubation, a process borrowed from Egypt. It directs how to produce in geese the abnormal hepatic conditions which induce the *foie gras*, that artificial delicacy so dear to the epicure, and a thousand years ago, as to-day, an invaluable adjunct to fashionable gluttony. It teaches the different methods of cooking and the preparation of various confections, jellies, syrups and sweetmeats of every description. The manufacture of wine, so rigidly forbidden to the Moslem, and whose immense consumption had already, in the time of the Khalifate, scandalized the pious, is detailed in all its stages in this remarkable book. In it are given recipes for cordials of many kinds, cooling beverages and hydromel. It also prescribes the rules by which the household of the farmer should be governed, and defines the reciprocal duties of employer and employee. In every operation of rural life and domestic economy, it enforces by repeated admonition the necessity for cleanliness, system and order.'

I have dealt at some length with the credibility of Mr. Scott's account of the Arabic agricultural system in Spain, because, though in the Industrial Era, which began some hundred and seventy years ago, we have made vast strides in the sciences and have far outstripped their initiators the Arabs, we have, at the same time, not advanced but dangerously receded in the recognition that our complicated civilization must for our safety and prosperity be founded upon the soil and its preservation. Where the Arabs accomplished a success and brilliancy in all the factors of social life, we have changed our agriculture into a Rape of the Earth. It has lost its national meaning and the love and reverence of the people it supports. To convert readers in this contention, I saw no better way than to acquaint them with A Kingdom of Agricultural Art in Europe and An Historical Reconstruction, and convince them of their reality.

The agricultural system of the Moors in Spain was, writes Mr. Scott: 'the most complex, the most scientific, the most perfect, ever devised by the ingenuity of man. Its principles were derived from the extreme Orient, from the plains of Mesopotamia, and from the valley of the Nile -- those gardens of the ancient world where, centuries before the dawn of authentic history, the cultivation of the earth had been carried to a state of extraordinary excellence. To the knowledge thus appropriated were added the results obtained from investigation and experiment, from the introduction of foreign plants; from the adoption of fertilizing substances; from the close and intelligent observation of the geographical distribution and climatic influence.'

No cultivators had a more profound knowledge than this people of the value of water. They, like the great riverine peoples, from whom they derived so much knowledge, realized that *the proper use of water was civilization. Without its just and conservative distribution, the true justice and magnanimity of civilization do not really exist.* By the art of distributing water 'a considerable portion of the country which had never been subjected to tillage because of its aridity became suddenly metamorphosed, as if by the wand of an enchanter. Barren valleys were transformed into flourishing orchards of olives,

oranges, figs and pomegranates. Rocky slopes were covered with verdant terraces. In districts where, according to ancient tradition, no water had even been seen, now flowed noisy rivulets and broad canals. Where marshes existed, the rich lands they concealed were drained, reclaimed and placed under thorough cultivation. On all sides were visible the works of the hydraulic engineer -- which supplied the necessary moisture to the fields by every device then known to human skill -- the reservoir, the well, the sluice, the tunnel, the siphon, the aqueduct.'

Water was lifted to higher levels by Persian wheels, of which in a few square leagues there might be five hundred, some with diameters of seventy feet. Grades were ascertained by the use of the astrolabe. 'The public works constructed for irrigating purposes were on a gigantic scale. The artificial basin near Alicante, elliptical in shape, is three miles in circumference and fifty feet deep; the dam at Elche is two hundred and sixty-four feet long, fifty-two feet high, and a hundred and fifty feet wide at the bottom; that over the Segura, near Murcia, is seven hundred and sixty feet long and thirty-six feet in height. The aqueduct at Manesis, in Valencia, is seven hundred and twenty feet long, and is supported by twenty-eight arches. The principle of the siphon, familiar to the Arabs eight hundred years before it was known in France, was utilized to a remarkable degree in the Moorish hydraulic system. The length of the curve in the great siphon at Almonora is five hundred and seventy feet; the diameter of the latter is six feet, and it passes ninety feet under the bed of a mountain stream. The subterranean aqueduct at Maravilla, which waters the plain of Urgel, is a mile long and thirty feet in diameter; that of Crevillenta, north of Orkuela, is fifty-five hundred and sixty-five feet long and thirty-six feet in diameter. All of these underground conduits are cut through the solid rock. The masonry of the reservoirs is of the finest description, and the cement made use of has become harder than stone itself. Contingencies are provided for with some skill and foresight that no overflow occurs, and no damage ever results, even in the time of the greatest inundations. The excellence of construction of these massive works of Arab engineering is demonstrated by the fact that they have needed practically no repairs in a thousand years.'

The distribution of the water was governed by a peculiar code of laws, perfect familiarity with which was only to be obtained by those working for their livelihood under its direction. With a wise trust in local government, the execution of these laws was presided over by a Tribunal of the Waters, the members of which were chosen by the farmers themselves. This Tribunal saw that there was no waste; theft was heavily punished; disputes and violations of the regulations came under its jurisdiction. 'Judgment was rendered after consultation, and from it there was no appeal. The most exalted rank, the greatest wealth, the most distinguished public service, did not confer exemption from the jurisdiction of the court or affect the impartiality of its decrees. The noble was summoned to its bar with little more ceremony than the slave ... The wisdom of these regulations is demonstrated by their longevity.

'In the distribution of water the measurement was by volume, a certain quantity being

allotted to a stated area during a given period of the day or night at intervals of ten to fifteen days. The sides of the canals were provided with flood gates, kept under lock and key, by which the adjoining fields could be submerged at the proper time. Drains carried the surplus back into the original channels, so that there was the least possible loss.'

Such was the way in which water was used so as to make a great society of people possible and durable. It is of profound significance, but it is seldom known by modern men of even wide education. Yet there is no knowledge more entirely needed by modern Europe. What is the use of a glutted treasury of knowledge, while it is, at the same time, *defective in the vital knowledge* which the Arabs possessed.

In the second great precept of the art of agriculture, the rule of return, the Arabs were as effective as they were in the knowledge of water. The same care and economy were observed in fertilizing the soil, which the requirements of a dense population never permitted to rest, writes Mr. Scott, and continues: 'Manure and dust were collected from the highways. The contents of sewers and vaults were preserved, desiccated, and, mingled with less powerful substances, were used to supply the impairment consequent upon incessant cultivation. Ashes, the burned and pulverized seeds of fruits, the blood and bones of slaughtered animals, all played an important part in the intelligent and systematic treatment of the rich and productive valleys of the south, whose surface, resting on an impenetrable subsoil of clay, required continued renovation. The curious and minute investigations of the skilled agriculturist had determined the best composts, the most advantageous modes of applying them, the kind of vegetation to which they were especially adapted.

'Manures were deposited in stone reservoirs contrived to prevent evaporation or leakage. Nothing was wasted; every substance available for the fertilization of crops was carefully preserved, the different varieties being separated and applied to such soils as experience had taught were most productive under their use.'

The third great precept of the art of agriculture was followed by the Arabs in the preference for independent small holdings. 'Unlike the policy adopted under the Roman and Gothic dominations, there were few large estates. The land was divided into small tracts, and for that reason was much more thoroughly tilled ... Every indulgence and encouragement was afforded by the laws to the Moorish cultivator. The independence so necessary to the successful prosecution of agricultural pursuits, he enjoyed to the utmost degree compatible with the social order. For the most part, he himself instituted the regulations of husbandry, which were enforced by magistrates taken from his class and of his own selection. His taxes were not oppressive. The productiveness of the soil, the equability of the climate, never permitted his labours to go unrewarded.'

A fourth was the use of terraced cultivation. 'In localities unfavourable to cultivation the deficiencies of the soil were supplied by untiring industry. Walls of ponderous masonry supported terraces where the very cliffs were made productive, and where only a bush or

vine could be planted the narrow space was utilized. Not only water, but loam and fertilizing materials were brought from great distances.'

The cultivators were also encouraged to adventure upon new paths. 'The unrivalled excellence of the agricultural methods employed by the Spanish Mohammedans was, in large measure, due to their profound botanical knowledge.' Botanists were dispatched to Egypt, Mesopotamia, India, the East and every quarter of the globe, to collect seeds of useful plants and fruits for experimental cultivation. 'Gardens for the propagation of both native plants and exotics were established in the environs of all the great cities, and the results of intelligent observers were regularly tabulated for the public benefit ... In all the multifarious duties of his occupation the Moorish horticulturist possessed expert knowledge.' Owing to this scientific knowledge and the keen adventure of the naturalists, the Arabs introduced into Europe the strawberry, lemon, date, quince, fig, mulberry, banana, pistachio, almond, rice, sesame, buckwheat, spinach, asparagus, mace, nutmeg, pepper, caper, saffron, coffee, cotton, sugar-cane, though according to Dr. H. Hintze, in his book, *Geographie und Geschichte der Ernährung*, some few, such as lemons, quince, almonds and mulberries, appeared on the tables, if not on the fields, of the Romans at the time of the Empire.

Botanical knowledge and widespread education, shortly to be described, therefore combined to promote these excellent results. The treatises on agriculture and horticulture dealt with every aspect of cultivation. The cultivators were, thereby, made familiar with the movement of the sap, the difference of sex in plants, and the process of artificial fecundation. They invested plants with the conditions of activity and repose, of motion and sleep. They followed no less than eight methods of grafting and protected the grafts by ingenious devices from the injurious effects of the sun. They knew how to preserve fruits and grains in subterranean chambers hewn out of the rock. In all agricultural matters, in brief, knowledge was strengthened and widened by skilled agricultural literature.

There was the same skill and knowledge in the rearing of cattle and horses, in the breeding of sheep and the culture of bees, which attained to the highest degree of proficiency. The Arab horse lost none of its speed and endurance for being bred and reared in Spain. The abundant, silky fleece of the merino sheep was due to a peculiar method by which flocks were tended. Immense flocks were driven twice a year between the slopes of the Pyrenees and the plains of Estremadura, by which means they secured both fresh and continual pasturage and freedom from the droughts of summer and the storms of winter.

Lastly the love of flowers was a passion among the Spanish Muslims. Mr. Scott writes: 'As they were the greatest botanists in the world, so no other nation approached them in the perfection of their floriculture and the ardour with which they pursued it.' Whether they were cultivated solely for their beauty and perfume or whether they also cultivated them, because, as has been seen in Chapter 16, they help in their especial way to preserve the cultivation of the soil, Mr. Scott does not say.

By this fine farming, the food of the people was provided, but, owing to varieties of climate and in spite of the great system of irrigation, bad years would occur. To secure the people against hunger at such times, the export of grain was forbidden -- as laid down in the Koran -- and the surplus of good harvests was deposited in granaries hewn in the rock. Forests of oak were also carefully preserved for the sake of their acorns, which furnished a coarse but nutritious diet at time of extremity, when famine otherwise threatened.

Such a wide and complete agricultural factor of a human life-cycle, as the Arabs of Spain created, must necessarily give a wholeness and health to the other factors of civilization. Consequently, in every other art, there occurred the same prosperity and excellence as those which distinguished the art of the soil.

Of their other arts, Mr. Scott writes with a fervour no less inspired by their adequacy than it is by the adequacy of the cultivation of the soil. He describes the organization of the traffic of commerce by land and by sea; the markets and fairs; the principles of equitable dealing in business transactions and in dealing with other nations, as laid down by Islamic law; the ports and the great centres of manufacturing and mercantile activity situated on the Mediterranean Sea; the silk factories and the factories of iron and copper utensils of Almeria; the potteries of Andalusia; the leather work of Cordova, the capital; the silks of Seville; the paper of Xativa; the steel of Toledo; the textile fabrics of Lusitania and Andalusia; the glass-work at Almeria, which was the teacher of later glass-work in Venice; the jewellers of Granada; the mats and basket work of Alicante; the mills of Murcia and Saragossa; the linens of Salamanca; the musical instruments of Seville; and the wines, the use of which scandalized the orthodox Moslem, to whom intoxicants of any kind were forbidden.

Above all these accomplishments of labour was the passion for literature and knowledge. The great monarchs of the great period, from A.D. 755, when Abd-al-Rahman I founded the Ommeyade Dynasty in Spain, to the death of Al-Hakem II in A.D. 976, were not only patrons of literature, but were themselves personally distinguished as authors. Abd-al-Rahman I himself, amidst a life of inexhaustible adventure, from prince to beggared outcast and from outcast eventually to king, was a real lover of literature and art, and a poet of unusual ability. He cultivated the public taste by periodical literary contests, and attracted the most accomplished scholars and poets to his side, not only by material rewards, but by his friendship and the engaging versatility of his comprehensive genius. Had Leonardo da Vinci lived in his time, he would have found the royal friend, worthy of his consummate genius, whom he sought for in vain in Italy and France.

The successors of this great man were worthy successors, indeed, one can hardly believe how there came into being a series of monarchs, not of education only, but of that high degree of culture which alone can be promoted and nourished by an inward passion for it. Such men have filled thrones in many lands with great benefit to their peoples. But the Ommeyade Dynasty in Europe certainly was unique in the number of its monarchs of high

culture. It reached its peak in the reign of the monarch regarded as the greatest of the Arab kings of Spain, Abd-al-Rahman III, and his son Al-Hakem II, the monarch who in himself represented the highest personal culture possibly reached by a monarch. 'The prominent features of the character of Al-Hakem', writes Mr. Scott, 'were his love of learning, his profuse but always judicious liberality, and his profound reverence for the doctrines of the Koran and the laws of the Empire. The few military operations he was called upon to direct showed no want of vigour, and suggested that in a less peaceful age he might have obtained the laurels of a successful general. His devotion to literature amounted to a passion. No monarch of whom history makes mention has equalled him in the extent of his knowledge or the number and diversity of his literary accomplishments.' He gathered together an unequalled library, which required forty-four volumes for the catalogue alone. 'With the contents of most of these works Al-Hakem is said to have been familiar, and, indeed, many of them were enriched by notes and comments written by his own hand. The title-page of each volume bore not only the name of the author, but also his genealogy, as well as the date of his birth and his death, all collected and preserved by the indefatigable industry of the royal scholar.' His prodigious memory; his powers of acquisition; his critical acumen; his talent for composition; and the capacity which could abstract from the administration of public affairs of a great monarchy sufficient time for literary undertakings -- that, under ordinary circumstances, could only be accomplished in a lifetime of constant study, are marvellous and incredible. For Al-Hakem was an historian of approved merit, as well as an impartial critic and a voluminous commentator. He wrote a history of Spain, now unhappily lost, which was considered a high authority in its time, and whose reputation was universally admitted to be independent of the prestige which it would naturally derive from the name and rank of its author. Such was his erudition that in knowledge on obscure points of genealogy and biography he was without rival, even in the learned court of Cordova; and his fund of historical information was so profound, and his judgment so accurate, that his opinions were respected and unquestioned by the most accomplished scholars of the Mohammedan world. As may be conjectured, a prodigious impulse was imparted to education by this extraordinary patronage of letters. The accumulated wisdom of Africa, Asia and Europe was to be found at Cordova ... Education was reduced to a system, whose regulations were enforced with military precision.' Linguists exhausted every source of knowledge. Not only did they translate the masterpieces of Greek and Roman literature, but they familiarized themselves with Persian, Chaldaic, Hebrew, Chinese, Hindu and Sanscrit works. This education and 'the absolute intellectual liberty which there existed was, indeed, considered a reproach by ignorant Moslems of less enlightened lands, who could not understand the association with heretics and the toleration of infidels; but in Spain, where a system of universal education had been established, and was enforced as well by law as by the influence of public opinion, this inestimable privilege was thoroughly appreciated'. Encouraged by the patronage of royalty 'the mental development of the masses advanced with gigantic strides'. 'In Cordova alone there were 800 public schools frequented alike by Moslems, Christians and Jews ... There was not a village within the limits of the Empire where the blessing of education could not be enjoyed by the most indigent peasant.' Women joined

in this advance. 'The exalted position occupied by women under the Arab domination in Spain gave them an influence and invested them with an importance, elsewhere unknown in the Mohammedan world.' Chemists, botanists, biologists, astronomers, mathematicians, physicians and surgeons lifted science to a level it had never previously reached in Europe. Engineers covered the land with roads, canals and public works; lastly architects brought into being the exquisite buildings, the palaces, colleges and mosques, which the religious fanaticism of the Christian conquerors later destroyed together with the libraries and their books.

In the education of this great period, the farmers had their full share. In all the principal towns there were schools of agriculture. From them the cultivators learnt to preserve fruits and to protect their fields against noxious insects. They learnt meteorology and could foresee atmospheric changes with effective accuracy. In all the multifarious duties of farming they possessed an expert knowledge. It was in this period and supporting it that 'agriculture was brought to such excellence as seemed to make any further improvement impossible'.

The best indications of Arabic Spain as a pro-life civilization are those of population. 'It has been estimated by competent authorities that the subjects of Abd-al-Rahman III numbered at least thirty millions. Great as was the extent of the metropolis, incredible as was her wealth, superb as were her environs, many of the other cities of the Empire, while they could not rival her power and grandeur, shared the enormously profitable benefits of a civilization in which Cordova enjoyed a well-deserved pre-eminence. The dominions of the Khalif included eighty municipalities of the first rank and three hundred of the second; the smaller towns were innumerable. Along the banks of the Guadalquivir alone stood twelve thousand villages. So thickly was the country settled that the traveller usually passed, in the space of a single day's journey, no less than three large cities in the midst of an unbroken succession of towns and hamlets. Nothing comparable with the opulence and splendour of the great provincial capitals was to be seen outside the Peninsula. Seville contained five hundred thousand inhabitants; Almeria an equal number; Granada four hundred and twenty-five thousand; Malaga three hundred thousand; Valencia two hundred and fifty thousand; Toledo two hundred thousand.'

The effect of the final expulsion in 1609 of the Moriscoes, Muslims who remained in Spain after the Christian conquest and were compelled to become converts to Christianity, is described by Buckle in his classic *History of Civilization in England*, 1861, in these words: 'The effects upon the material prosperity of Spain may be stated in a few words. From nearly every part of the country, large bodies of industrious agriculturists and expert artificers were suddenly withdrawn. The best systems of husbandry then known were practised by the Moriscoes, who tilled with indefatigable labour. The cultivation of rice, cotton and sugar, and the manufacture of silk and paper were almost confined to them. By their expulsion all this was destroyed at a blow, and most of it was destroyed for ever. For the Spanish Christians considered such pursuits beneath their dignity. In their judgment, war and religion were the only two avocations worthy of being followed. When, therefore,

the Moriscoes were thrust out of Spain, there was no one to fill their place; arts and manufactures either degenerated, or were entirely lost, and immense areas of arable land were left uncultivated. Some of the richest parts of Valencia and Granada were so neglected, that means were wanting to feed even the scanty population which remained there. Whole districts were suddenly deserted, and down to the present day have never been re-peopled.'

The population of Madrid, continues Buckle, fell from some 400,000 to 200,000; Seville's population decreased by three-quarters and her 16,000 looms dwindled to under 300; Toledo witnessed the disappearance of her silk manufactory, which employed 40,000 people, and upwards of 50 woollen manufactories shrank to 13; Burgos became deserted and lost everything but its name. In Buckle's grim words, 'Spain, numbed into a death-like torpor, spell-bound and entranced by the accursed superstitions which preyed on her strength, presented to Europe a solitary example of constant decay'.

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*Small
farms*



Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 22

An Historical Reconstruction

The Islamic civilization in Spain, of which an account was given in the previous chapter, formed a significant part of what was, perhaps, the most remarkable reconstruction of mankind in history. An outline of it can best be given, if it is divided into three periods, that of its initiation, that of its institution, and that of its achievement.

The Initiation

The period of initiation was that of the life of its founder, the prophet Mohammed.

Mohammed was born in Mecca in A.D. 570 as a member of the leading tribe of Mecca, the Koraish. His father dying before he was born and his mother when he was six, he came under the tutelage of his grandfather, Abd-al-Muttalib. His grandfather died when he was thirteen, and he was then confided to the family of a poor but affectionate uncle, Abu Talib.

Mohammed grew up to be a quiet, meditative man, taking little or no part in public affairs, but by his humanity and justness earning for himself the name of The Trusty. Then, when over forty, upon a night of meditation, he heard a Voice commanding him: 'Cry: in the name of the Lord.' He obeyed and henceforth became a Messenger crying in the name of the Lord. In Mecca his message was to denounce the idolatry which constituted the religion of the people, and in its place to teach the worship of Allah, the one and only God. This aroused the fury of the Koraish against him and his disciples. The latter escaped to Yathreb, or Medina, the City of the Prophet, as it became named. Mohammed remained behind amongst his enemies. Discovering a joint plan to murder him, he also fled from Mecca to Medina. This Hegira or Flight took place in A.D. 622 and from it dates the

Mohammedan calendar.

In Medina the religion he taught was simple. He preached that there was but one God, the unity of living things, the brotherhood of man, kindness to women and children, gentleness to animals, alms for the poor, and the value of prayer.

His preaching and person won the hearts of the people of Medina. He was made the Chief Magistrate, with power to carry into practice what he taught. At that time, writes Ameer Ali Syed, in *A Short History of the Saracens*, 1900, 'there was no law or order in any city of Arabia'. Medina itself was torn by a feud between two principal tribes. Mohammed reconciled the two tribes, abolished all tribal distinctions, and grouped the inhabitants of Medina under one generic name, Ansar or Helpers. He issued a Charter, by which all blood-feud was abolished and lawlessness repressed. Equal rights were granted to the Jews, of whom there were many in and about Medina, and who, on their part, bound themselves to help the Moslems in defending the city if attacked.

The next step in his mission was to unite the peoples of Arabia, but in this he was hindered by the bitter enmity of his own tribe, the Koraish of Mecca. The Meccans, in the first year of the Hegira, attacked the Moslems and were defeated. In the third year, the Meccans, under the command of Abu Sufian, the son of Ommeya, whose descendants were to become the Ommeyade Caliphs of the early Arabic Empire, were successful, but their losses were so great that they did not venture to attack Medina itself. In the fifth year of the Hegira the Meccans with an army of 10,000 besieged Medina, but, in spite of the treachery of the Jews, who took the side of the Meccans in the siege, the Moslems, owing to the defensive skill of Mohammed, were victorious. This victory freed Mohammed for his work; its fame and the prestige, which Mohammed gained, both as teacher and as general, led to his acknowledgement by tribe after tribe throughout Arabia. In the seventh year of the Hegira, the Meccans attacked one of these tribes. Mohammed gathered together an army of 10,000 men and entered Mecca as a conqueror. Nevertheless, at the sight of the city and of familiar but hostile faces, he treated the Meccans as brothers. Excepting four criminals, all were forgiven and accepted Islam. Mohammed himself shattered the idols of Mecca with the cry: 'Truth is come, darkness departeth'.

The ninth year of the Hegira, known as the Year of Deputations, witnessed the general acceptance of Islam by the tribes of Arabia. Mohammed dealt with them in the same liberal spirit as he had shown to the Meccans. 'A written treaty guaranteeing the privileges of the tribe was often granted,' writes Ameer Ali, but in order to promote the change of heart that was Mohammed's especial mission, 'a teacher invariably accompanied the departing guests to instruct the newly converted people in the duties of Islam, and to see that every evil practice was obliterated in their midst'.

Mohammed had now fulfilled his mission by uniting all Arabia. He died on 8 June A.D. 632, at the age of sixty-two.

The actions, character and teaching of Mohammed made so profound an impression upon his contemporaries that the total effect of his personality formed the basis of the Islamic law and civilization. The chief source of that law was the Koran, but the Koran did not cover all the growing needs of the Arabic Empire that so swiftly followed upon the death of Mohammed. Hence, in addition to the Koran, every detail that could be recalled by contemporaries and especially by those most near and dear to him and with whom it was his habit to consult in questions not actually revealed to him was carefully recorded. In Medina, he had been the final judge, the spiritual leader of religion, and the temporal leader, with the duties and powers of an essential sovereign, given to him, in complete trust in The Trusty, by the people. Hence, in the formation of the Islamic law, his inspired utterances in the Koran, his discourses, his decisions after consultations, his expressed approvals, his tacit agreements by gesture, his judgments, his actions, were all brought into service as guides of conduct for pious Moslems by the Islamic legalists and religious Caliphs. From them were derived the fundamental or fixed laws, fundamental and fixed because they were derived from the Prophet of God.

Islamic law controlled every aspect of the life of a Moslem, but for simplification of this vast subject it was divided into categories, ranging from the few obligatory or prohibited things as determined by the Koran and the *Hadith* or the traditions of the Prophet, to the limited number of the approved or disliked, and the unlimited number, which were left to everybody's common sense. By-laws were made by the legalists to adjust changes and circumstances, which time brought about, but they were kept within the orbit of the fundamental laws. Only in cases of extreme emergency could a fundamental law be abrogated, and then only for the duration of the emergency.

Never, therefore, in history has any man been so intimately identified with a civilization as was Mohammed with that of Islam, which endured as an empire until the sacking of Baghdad by the Tartars six and a quarter centuries after the death of Mohammed. As this civilization produced a truly remarkable reconstruction of mankind in agriculture, manufacture, trade, knowledge, art and other departments of human society, the *spirit* of Mohammed's precepts become peculiarly important at a time such as the present, when a further reconstruction is so urgently needed.

This spirit has been admirably told for readers of English by Ameer Ali Syed, in *The Spirit of Islam*, 1922. Its chief character, to my mind, can be put in homely language: Mohammed was the first statesman to introduce *decency of human conduct in every department of society*. He left no class of human beings out of his thought. He was, I feel, unquestionably the greatest humane, constructive statesman in history.

Ameer Ali, however, does not give a very explicit account of Mohammed's attitude to war, which is of such vital concern to men in these days. So, before taking up his review, it will be well first briefly to consider Mohammed's attitude to war. It has been admirably told by Mr. Marmaduke Pickthall in an article entitled 'War and Religion' in the *Islamic Review Book Series*.

Firstly, Mohammed recognized the necessity of war in the collective life of mankind, for the reason that: 'If it had not been for Allah's repelling some men by others, the world would have gone to badness; but Allah is a lord of kindness in creation' (Koran). To repel bad men was, therefore, the reason for going to war and it was for this reason that every capable Moslem must be prepared to go to war, if called upon to do so. It was not conscription, but a sacred duty, provided that the war was a holy war or *Jihad*. Then 'fighting is enjoined upon you, and it is a thing hateful to you. But it may be that you hate a thing which is good for you, and it may be that you love a thing which is bad for you; God knows best and you do not know,' said the Koran.

War was enjoined against grave injustice, 'to defend the weak man, and for women and for children, those who say: "Our Lord, take us out of this city whose people are oppressors. Oh, send us from Thy presence a befriender; oh, send us one who can help us!"' (Koran). Retaliation against aggressors was commanded. 'Kill them wherever you find them and drive them out of the places from which they drove you out. Persecution is more cruel than killing. And do not fight them round the sacred mosque, unless they attack you there. And if they do attack you, kill them. Such is the reward of graceless people' are the words of the Koran. But on no account were the Moslems to be the aggressors. 'Fight in the way of Allah against those who fight against you, but do not originate hostility. Truly Allah loves not the aggressor.' By the spread of Islam, therefore, Mohammed hoped to abolish the brutality or even existence of war.

Throughout the Koran, writes Mr. Pickthall, 'the word "treaty" means a sacred compact, a solemn covenant, which to break is impious,' and he adds, from a wide knowledge of Islam not possessed by any other Englishman: 'With Islamic nations, treaties have always had this sacred character. I cannot recall a single instance of a Muslim power ever consciously breaking a treaty, though they have the right to throw the treaty back if they fear treachery.' Actual treachery was to be treated with the severest punishment, such as was inflicted upon the Jewish traitors of Medina.

Lastly, Moslem soldiers were forced to observe correct or decent conduct. The sanctity of the soil was to be respected. Moslems, invading a country, were forbidden to destroy fields of corn, or palms, or any fruit trees, or to slaughter cattle except in case of urgent need. 'Destroy not the means of subsistence,' was Mohammed's command. Similarly 'the quiet people', as the old Moslem jurists called the unarmed inhabitants, were to be respected. They were not to be killed; they were not even to be molested; neither they nor their houses were to be plundered. 'Plunder is no better than carrion,' said the Prophet. That, however, which was left on the field of battle, was lawful booty. Finally, enemy combatants were to be respected. 'If they desist (from fighting), then (there should be) no hostility except to evil-doers' (Koran). For the evil-doers, there was the law of retaliation. As they had done, so should it be done to them.

Now, under the guidance of Ameer Ali, we will review Mohammed's relation to conquest.

In this no statesman ever used the quality of clemency to those forced to acknowledge his authority with more effectiveness. To those who accepted Islam, he ordained all the privileges and freedom associated with that sacred name, meaning as it does Surrender to Allah or God. To those who submitted, but wished to keep their own faith other than that of idolatry, he presented the utmost tolerance. They were allowed to pursue their own customs and their religious faith, provided they paid the not onerous taxes and obeyed the other civic duties imposed upon them by their Arabic rulers. They were exempted from military service, paying an especial tax in lieu of it. Their lands were not taken from them. The precedent of this tolerance was set by the Charter, which the Prophet granted to all Christians in the sixth year of the Hegira. The spirit of it was Christian in its best sense, since Mohammed always regarded Jesus as the Teacher most akin to him in time and teaching. 'In this Charter', writes Ameer Ali in his *History of the Saracens*, 1900, 'the Prophet undertook himself, and enjoined on his followers, to protect the Christians, to guard them from all injuries, and to defend their churches, and the residences of their priests. They were not to be unfairly taxed; no bishop was to be driven out of his bishopric; no Christian was to be forced to reject his religion; no monk was to be expelled from his monastery; no pilgrim was to be detained from his pilgrimage; nor were the Christian churches to be pulled down for the sake of building mosques or houses for the Moslems. Christian women married to Moslems were to enjoy their own religion and not be subjected to compulsion or annoyance of any kind on that account. If the Christians should stand in need of assistance for the repair of their churches or monasteries, or any other matter pertaining to their religion, the Moslems were to assist them.'

In pre-Mohammedan Arabia, the women were the chattels of the men. 'In both the Empires, the Persian and the Byzantine', writes Ameer Ali in *The Spirit of Islam*, 'women occupied a very low position in the social scale. Fanatical enthusiasts, whom Christendom in later time canonized as saints, preached against them and denounced their enormities.' Then, when the family, and with it the whole social fabric, was falling to pieces on all sides, Mohammed introduced his reforms and 'enforced, as one of the essential teachings of his creed, "respect for women".'

Mohammed raised women to a legal and economic equality with the stronger sex. His precepts and the eventual fixed laws on divorce were strikingly just to women, though he himself expressed his strong disapproval of divorce, in that it brought evil and hardships upon the children. So also, as regards property, the rights which he gave to woman, in spite of the later deterioration of their status under Persian and Byzantine influence, were and are such as even now have not been fully attained in most Western countries. Mohammed's aim was to enable women to become individuals in the State, and this independence he gave them by allowing them to own property, to possess that which they earned by their own efforts, to have their share in the widely spread inheritances left by their fathers, husbands and other near kinsfolk, to be given marriage settlements from their prospective husbands in their favour, and to possess the right to act in any legal matters concerned with these rights without any intervention on the part of their fathers or their

husbands. To the best of his power -- and his power was great in spite of the opposition of the times -- he was the emancipator of women.

Following his precept of the brotherhood of men, Mohammed strove for the betterment of the slaves. Slaves formed a large part of every society of the time. 'The, Church itself held slaves', writes Ameer Ali of the Christian attitude to slavery, 'and recognized in explicit terms the lawfulness of this baneful institution.' Though Mohammed himself abhorred slavery and taught that no action was more acceptable to Allah than the freeing of a slave, he did not attempt the total abolition of a custom so deeply rooted in the economic life of society. What he did do was to infuse the whole question with the spirit of brotherhood and thereby he entirely altered the character of slavery. He provided funds out of the public treasury to enable slaves to purchase their freedom without interference from their masters; he ordered that they could purchase their liberty by the wages of their service; in many ways he opened up the path of liberty. He ordained decency of conduct to slaves, who were to be treated by their owners with the same kindness that they showed to kindred and neighbours. The slave mother was not to be separated from her child, nor the father from the son, the husband from the wife, the relative from the relative. There was to be *equality of food* between slaves and their owners, and equality of dress. They were only to be addressed in terms of affection and not with words implying a degraded position. 'The whole tenor of Mohammed's teaching', says Ameer Ali, 'made "permanent chattelhood" or caste impossible; and it is simply "an abuse of words" to apply the word slavery, in the English sense, to any status known to the legislation of Islam.' By abolishing all distinctions of race and colour, black and white, citizens and soldiers, subjects and rulers, Mohammed gave an equal humanity to slaves. 'In the field or in the guest-chamber, in the tent or in the palace, in the mosque or in the market, they mingled without reserve and without contempt.' In so far then as slavery continued, Mohammed made it a *social condition within the brotherhood of man*. Moslem slaves could rise to high positions in a state. Many were to become kings; others became governors of provinces, generals, famous men of learning and religion.

Dealing with the chief of economic difficulties, that of the distribution of wealth so as to avoid the extremes of the very rich and the degraded poor, Mohammed displayed the rarest wisdom of statesmanship. This was evidenced in the *Zakat*, the rules of inheritance, and the abolition of usury. The story of that great economic work has recently been retold by Mr. M. Hamidullah, in the second number for 1926 of the quarterly, *Islamic Culture*, in an article entitled 'Islam's Solution of the Basic Economic Problems.'

Mohammed, in the Koran, frequently declared that it is for God to provide a livelihood to every creature: 'We have given you power in the earth and appointed you therein a livelihood.' It was the duty of the State, by means of the *Zakat*, or Growth-tax, to ensure this livelihood. *Zakat* was a tax on all property owned beyond a certain maximum and was meant, as Mohammed said: 'To be taken from the rich among them in order to be given to the poor.' And if the treasury was not sufficient to supply the needs of the poor, the ruler could compel the rich to do so. The poor man he defined as one 'who finds not the

wherewithal to make himself independent'.

Zakat was of two kinds, Sadaqah, or the tax on the growth of capital goods and the Tithe or tax on the surplus produce of the soil. 'The Zakat is only for the poor and needy' was the command of the Koran, 'for those whose hearts are to be reconciled' (men who had become impoverished by accepting Islam) 'and to free the captives and debtors, and for the cause of God, and for the wayfarer; a duty imposed by God.'

Mr. M. Hamidullah points out some of the particular virtues of this tax and the balance it effected between rich and poor. It gave the workers a certain security and thereby increased their productive efficiency, and it justified the prohibition of begging, stealing, and indolence by the Koran. As all superfluous wealth was regarded as productive and was, therefore, taxed, whether it was put to use or left unused, it prevented employers taking unfair advantage of labourers, for, if the latter went on strike, the idle money and property of the employers continued to be taxed. It prevented deliberate or careless hoarding, for the hoard was taxed. 'Let not those who hoard up that which God has bestowed upon them of His bounty think that it is better for them. Nay, it is worse for them,' were the words of the Koran. Hoarding for the sake of the family was likewise forbidden, for the Koran declared: 'Among your wives and your children are enemies for you, therefore beware of them. Let not your wealth nor your children distract you from the remembrance of God.' 'Establish worship and pay the Zakat,' are the constantly repeated dicta of the Koran. No rich man could be a Moslem without paying the Zakat. Finally the Prophet believed that so great would be the prosperity resulting from a greater equalization of wealth that a time would come when people offer Sadaqah and there will be none to take it'.

The second of Mohammed's measures to prevent the large accumulation of wealth in a few hands lay in the principles of inheritance. Private property could be accumulated in a man's lifetime within due restrictions, but at his death it was widely distributed amongst his offspring and kindred, and thus large individual fortunes were dispersed amongst many individuals.

The third measure was the forbiddance of usury or 'interest on money', as the dictionary defines it. So the money of Islam did not come into existence with interest attached to it, which would load the sacred duties of farming and trade with debt at the outset. Only the original sum of a money loan was to be repaid, otherwise the interest on a loan would make it destructive. In one of his most searching and prophetic sayings, Mohammed seized upon this truth: 'Although interest brings increase, yet its end tends to scarcity.'

Money was to assist trade by the method of partnership. It was not to be hoarded nor lent out at interest. It must be used for trade or spent in alms, said the Koran, 'so that the Zakat due on it do not swallow it up'. By means of partnership the ender or partner took his share of the success or failure of the enterprise. 'They say trade is just like interest-taking, whereas God permitteth trading and forbiddeth interest.' Genuine partnerships were

encouraged to further trade, manufacture and farming, but debenture-holders and commercial loans were ruled out as destructive. The imposition of the Zakat and the prohibition of interest forced money into use and into the promotion of a general prosperity which resulted from its use.

Economic ranks and occupations did not affect the general freedom of the individual. Islam destroyed money as a standard of social distinction. A man was wealthy according to the good he did to others. Money-wealth had only a limited value, whereas virtue could not be measured but by the good to mankind that followed from it.

Three taxes were attached to the products of the crust of the earth, the tithe, the *rikaz*, which assigned one-fifth of the products of mines exclusively, like the tithe, to the poor, and the *kharaj*, a levy for the general welfare of about 2-1/2 per cent on the output of the land due irrespective of whether the owner cultivated the land or not. According to Islam, land is a gift to all men, and all men are united by the bond of their terrenity in their dependence for sustenance upon the soil. Yet all could not own land. So the land was not socialized, but its products were socialized by these taxes. Through them the poor were given their measure of independence, and the general welfare was given an economic basis in the land. As the soil depended upon the use of everything that nourished it, so the soil, in its turn, was made to give nourishment to all, and to produce the social balance that belonged to it as an integral factor of the life-cycles of man.

Based on the limitation of the soil's products, the economics of Islam dictated a limitation to the acquisitiveness of individual men. As an outgrowth of this, Mohammed's instructions on leisure were also directed so that people's attention was diverted to other things than the making of individual fortunes. Through learning, service, and the call to prayer five times in the day, people's leisure was directed to self-cultivation, whereas their working hours were directed to the cultivation and distribution of material goods. This was possible, sums up Mr. Hamidullah, because Islam was a religion and not an economic organization.

With this independence that Islam gave to the individual, labour was elevated as a general duty and both commerce and farming were announced to be meritorious in the eyes of the Lord. The pursuit of the cultivation of the soil was regarded by labourers and rulers alike as a sacred duty; Mohammed himself ploughed his own land. The contemptuous sneer, which turned the Latin *paganus* or villager into *pagan*, and the man of the heath or field (Anglo-Saxon *haeth* or heath, Gothic *haithi* or field) into *heathen*, was utterly foreign to the *sanctity*, with which Mohammed and Islam endowed the duties of both.

Having freed women from their traditional subordination to the stronger sex, slaves from their ignominy, the poor from their destitution, and farming and labour from their subordination, Mohammed turned to the liberation of men's minds from ignorance.

He made education incumbent upon every Moslem, male and female, and sought thereby

to influence the minds of all men by the passionate emphasis he laid upon the value of knowledge to humanity. Ameer Ali describes this passion in these noble sayings of the Prophet: 'Acquire knowledge, because he who acquires it in the way of the Lord performs an act of piety; who speaks of it, praises God; who seeks it, adores God; who dispenses instruction in it, bestows alms; and who imparts it to its fitting objects, performs an act of devotion to God. Knowledge enables its possessor to distinguish what is forbidden from what is not; it lights the way to Heaven; it is our friend in the desert, our guide to happiness; it sustains us in misery; it is our ornament in the company of friends; it serves us as an armour against our enemies. With knowledge, the servant of God rises to the heights of goodness and to a noble position, associates with sovereigns in this world, and attains to the perfection of happiness in the next.' He would often say, 'The ink of the scholar is more holy than the blood of the martyr', and he repeatedly impressed on his disciples the necessity of seeking for knowledge 'even unto China'. 'He who leaves his home in search of knowledge walks in the path of God. He who travels in search of knowledge to him God shows the way to paradise.'

Our scholar, Ameer Ali Syed, finally gives this summary of the teaching of Mohammed in Medina: 'Islam gave to the people a code which however archaic in its simplicity, was capable of the greatest development in accordance with the progress of material civilization. It conferred on the State a flexible constitution, based on a just appreciation of human rights and human duty. It limited taxation, it made men equal in the eye of the law, it consecrated the principles of self-government. It established a control over the sovereign power by rendering the executive authority subordinate to the law -- a law based upon religious sanctions and moral obligations. "The excellence and effectiveness of each of these principles", says Urquhart, "(each capable of immortalizing its founder) gave value to the rest; and all combined, endowed the system which they formed with a force and energy exceeding those of any other political system. Within the lifetime of a man, though in the hands of a population wild, ignorant and insignificant, it spread over a greater extent than the dominions of Rome. While it retained its primitive character, it was irresistible!"'

With their personal experience of these and other Islamic precepts in action in the microcosm of Medina, the Arab leaders went forth upon their great reconstruction of many millions of oppressed men.

The Institution

Before telling the story of the institution of this reconstruction, it is, however, essential to give a brief description of the conditions of the masses, in what Ameer Ali, whose words I choose as better than my own, names the West and the East. His East does not include the great farming country of China, which, since it seems mankind tends to be similarly affected at any one period, was also engaged in a reconstruction of the Tsing Tien system under the Tang Dynasty (A.D. 618-905) after a long period of divided States and Tartar

conquests.

'In the West as in the East', writes Ameer Ali, 'the condition of the masses was so miserable as to defy description. They possessed no civil rights or political privileges. They were the monopoly of the rich and the powerful, or of the sacerdotal classes. The law was not the same for the weak and the strong, the rich and the poor, the great and the lowly. In Sassanide Persia, the priests and the landed proprietors, the Dehkans, enjoyed all the power and influence, and the wealth of the country was centred in these hands. The peasantry and the poorer classes generally were ground to the earth under a lawless despotism. In the Byzantine Empire, the clergy and great magnates, courtesans and other nameless ministrants to the vices of Caesar and proconsul, were the happy possessors of wealth, influence and power. The people grovelled in the most abject misery. In the barbaric kingdoms -- in fact, wherever feudalism had established itself -- by far the largest proportion were either serfs or slaves. Villeinage or serfdom was the ordinary status of the peasantry.'

The first thirty years of the story from A.H. 11 to A.H. 40 of the Mohammedan calendar, were occupied with the settlement of Persia, Iraq, Syria, Palestine and Egypt. Under Omar, the second Caliph, in A.H. 21, occurred the *Victory of Victories* at Nehawand, in which the Persians, who outnumbered the Arabs by six to one, were totally defeated. Egypt, too, was conquered. Owing to these victories, the precepts of Mohammed affected the fate of many millions of people. By the fire which Mohammed lighted, masses of lowly and oppressed men, as well as men of power and wealth, were warmed and enlightened to a new life.

Convinced that the stability of the Empire and its material development depended upon the prosperity of the agricultural classes, writes Ameer Ali in *A Short History of the Saracens*, Omar 'took immediate steps to settle the peasantry securely in their possessions. "They were released from the galling oppression of the large land-owners; their assessments were revised and placed on a stable basis; the broken aqueducts were restored and new ones built ... Egypt, Syria, Irak, and Southern Persia were measured field by field, and the assessment fixed on a uniform basis. The record of this magnificent cadastral survey forms a veritable "catalogue", which, beside giving the area of the lands, describes in detail the quality of the soil, the nature of the produce, the character of the holdings.' The Zakat gave independence to the poor, but the rich were not oppressed, though shorn of their excesses to promote a greater equalization of wealth. There was no communistic division of their lands nor were they taken by the Arabs. The land-holders kept their estates, subject to a fixed tax. 'Liberty of conscience was allowed to everyone, and the Moslems were ordered not to interfere with the religion of the people. Those who adhered to the old faith received the designation of *Zimmis* (the protected people or liege men). The sole inducement to proselytism, if inducement it could be called, consisted in the fact that whereas the Moslems,, who were liable to be called at any time to serve in the army, contributed only a tithe to the State, the *Zimmis* paid a higher tax in consideration of being exempted from military service.' Nevertheless this *Jazia*, or poll-tax, was in no way

onerous.

When Omar died in A.H. 23, after a reign of ten years, Othman was elected Caliph. Othman was a member of the Ommeyade family of Mecca, of the clan of the Koraish that had shown itself most active in its hatred of Mohammed. The aged Othman was elected to the Caliphate by the intrigues of the Ommeyades. They then got themselves appointed as governors of the provinces; seized the land; subverted the precepts and actions of Mohammed and the first two Caliphs of the Republic, Abu Bakr (A.H. 11-13) and Omar (A.H. 13-23), both the early converts and devoted companions of Mohammed, treated the conquered peoples as satellites and slaves, and enriched themselves by oppression. This aroused the intense hatred of the true Moslems and led to an insurrection in which Othman, at the age of eighty-two, was slain in A.H. 34.

Ali, the beloved adopted son and later son-in-law of Mohammed, was elected as the fourth and last Caliph of the Republic. No man was more revered or trusted by the Moslems than he, not only because of his intimate association with the Prophet, but because he was 'the truest-hearted and best Moslem of whom Mohammedan history has preserved the remembrance' (Major Osborn), and, because both before and during his Caliphate he so stoutly upheld the doctrines of Mohammed and, in Othman's reign, upheld and extended the practical improvements of Omar through his energy and prestige. Then, wrote the French historian Sédillot: 'One would have thought that all would have bowed before this glory so pure and grand; but it was not to be.'

The Ommeyades were the chief cause of the failure of Ali and it was through their intrigues that he was assassinated after a brief reign (A.H. 34-40). They, the Ommeyades, were supported by tribal chiefs, who had been largely weakened in authority by Mohammed's reliance on the assured and faithful Moslems of Medina.

The all-too-human hatred of these reactionaries may seem to have its justification in their deposition from free and arbitrary authority. But their fury and tenacity, of which the modern reader can scarcely form a conception, all students are agreed, had their origin in the very roots of the pre-Mohammed conditions of the Arabian people. From the very earliest times blood-feud had been bitterly active amongst the tribes and consummated in the hatred that existed between the nomadic Arabs of the desert and the farming people of the more fertile south of Arabia bordered by the Arabian Gulf and known as Yemen. 'This blood-feud', wrote the Dutchman, Reinhart Dozy, in his *Histoire des Mussulmans d'Espagne*, translated into English by Mr. F. G. Stokes, 1913, 'has endured for twenty-five centuries; it can be traced back to the earliest historical times, and is far from extinct to-day.'

To the question why it preserved its bitterness with such extraordinary tenacity for so many centuries, Dozy wrote: 'Handed down from generation to generation in spite of community of language, laws, customs, modes of thought, religion, and, to some extent, of, origin -- since both races were Semitic -- we can only say that its causes are

inexplicable, but that it is "in the blood".' Nevertheless, it may be, as we have seen in Chapter 6, that the hostility lay in the ultimate relation of the two peoples to the soil, farming and trade on the one hand and nomadism on the other, and in the tenacity that characterizes the Semitic peoples. Whatever the true explanation is, this passion for feud and tribal independence runs, as a rebellious and anarchical spirit, through the pages of Arab history. It brought about the failure of Ali's courageous attempt in Othman's and in his own short reign to uphold and re-establish the precepts of Mohammed; it led to his assassination by Ommeyade intrigue; it brought the Ommeyades to the headship of the Moslem world, the cruel persecution of the family of Mohammed and the sack of the sacred city of Medina; it foiled the Period of Conquest of the Ommeyades and brought about the defeat of the Moslems by the Christians at Tours on the bank of the River Loire; it took its part in the disintegration of the Kingdom of Spain; it promoted the disintegration of the Saracenic Empire of the Abbasides and caused it to fall to pieces before the assault of the nomadic Mongols. 'It led', says Ameer Ali, 'not only to the end of the Republic, but also to the downfall of the Saracenic Empire.' To-day, it seems to the Europeans, that the Arabs are prevalently nomadic.

The Ommeyade Dynasty, which followed the assassination of Ali, with its capital at Damascus, endured for ninety years. Only one Caliph of the dynasty, Omar II, strove to re-enact the precepts of Mohammed. He, like Ali, was assassinated. The Ommeyades were themselves destroyed by the Abbasides, the descendants of Abbas, the uncle of the Prophet. One, Abd-al-Rahman, escaped to Spain and there founded the great Spanish Dynasty of the Ommeyades.

The Achievement

The Abbasides ruled from A.D. 750 to A.D. 1258, when their capital, Baghdad, was seized by the nomadic Mongols under Hulagn, the Caliph, and 800,000 inhabitants butchered within a week, and the great system of irrigation destroyed.

It was under the Abbasides that the great task of reconstruction was accomplished. Mansur, their second Caliph, was the first of a series of brilliant Caliphs, equal to that of the contemporaneous dynasty of the Ommeyades of Spain. The story of the development of the civilization of the Moors has many resemblances to that of the Abbasides, for both carried out the statesmanship of the fixed Islamic laws.

The Abbasides brought the era of conquests to an end. They renounced further warlike enterprises, and devoted themselves to the development of the land, the prosperity of the peasants, the promotion of commerce, the construction of roads and caravanserais, the establishment of charitable institutions, the spread of education, and the stimulation of literature and the arts.

The system of irrigation, which the Abbasides extended and amplified, was one of the

most wonderful in the world. Only time-honoured China and Islamic Spain had anything to compare with it; in actual fact, the Abbaside irrigation was superior to that of the Chinese, for it had control of the whole of the two great rivers, the Tigris and Euphrates, whereas the Chinese had no control over the sources of their great rivers.

The spirit and practice of the great riverine civilization of Babylon were revived. Throughout the whole Abbaside Empire the work of promoting agriculture was regarded as a religious duty, and the art of cultivation was developed and maintained with religious zeal. Mansur first abolished the payment of the Ommeyade money-tax upon grains and replaced it by a payment in kind. He extended this principle to other crops, and, in the case of the most fertile of lands, the produce-rates were fixed at two-fifths of the whole. Remission of taxes were frequent at times of stress even in the reigns of his most severe successors. By thus following the true economics of the soil, the prosperity of the peasants was at once implanted and the soil itself conserved as the basis of the State.

The method of land taxation was, however, not uniform throughout the Empire. 'In Babylonia, Chaldea, Irak, Mesopotamia and Persia there were numerous landowners and peasant free holders', writes Ameer Ali in his *History*, 'whose rents were permanently fixed upon the basis of agreements entered into at the time of the Conquest. No variation could be made in the tax leviable from them, and they were thus protected from all harassment. The same boon was enjoyed by the village communities of Northern Persia and Khorasan.' In a brief time, under this just care, the countryside of Irak and Southern Persia had the appearance of a veritable garden. Between Baghdad and Kufa especially, it made a setting of verdure for a number of prosperous towns, flourishing villages and fine villas. There was a teeming population. According to the writer of the article 'Irak-Arabi', in the 11th Edition of the *Encyclopaedia Britannica*, quoted by Mohammed Fadhel Jamali, Director of Education, Ministry of Education, Baghdad, in his book, *The New Iraq*, 1934, it was perhaps five hundred times as great as what 'it usually contains', in its present decadence.

A further feature of the greatest value to farming, with its *essential character of locality*, was the principle of self-government, that freedom for local customs and traditions on which Mohammed laid such stress. The Abbasides spread this precept throughout their dominions. 'The government carried its policy of non-interference with the separate communities sometimes to the extremest verge, to the detriment of its own interests. Each village, each town administered its own affairs, and the government only interfered when disturbances arose, or the taxes were not paid.' But so vital was the land, and so stupendous the system of irrigation which nourished it, that the construction of new canals and the cleansing and repair of old ones were entirely in governmental hands, as also was the maintenance of an efficient river police. The cost of the new canals was borne by the State, that of cleansing and repair was shared by the State and the recipients of the water. The workers on the land opened up by the new canals, consequently started their work without the shackles of a debt that had to be paid off. The benefit to the new farmers was primary, and, from their produce, they paid the usual taxes for the maintenance of the

State, which itself repaid them with so many benefits. In this way the soil was dominant and money the adjuvant.

With the same magnanimity as they bestowed on the soil, the Abbasides developed the precepts of Mohammed on knowledge. Academies, colleges and schools were everywhere established; education was opened to all, urban and rural; the education of the women proceeded on parallel lines with that of the men. This zeal for knowledge was developed to the highest pitch, as Ameer Ali, in *The Spirit of Islam*, writes: 'Under the Abbasides we find them (the Moslems) the repositories of the knowledge of the world. Every part of the globe is ransacked by the agents of the Caliphs for the hoarded wealth of antiquity; these were brought to the capital, and laid before an admiring and appreciating public. Schools and academies spring up in every direction; public libraries are established in every city for every comer; the great philosophers of the world are studied side by side with the Koran. Galen, Dioscorides, Themistius, Aristotle, Plato, Euclid, Ptolemy and Apollonius receive their due meed of appreciation. The sovereigns assist at literary meetings and philosophical disquisitions. For the first time in the history of humanity a religious and autocratic government is observed to ally itself with philosophy, preparing and participating in its triumphs.' What this zeal for knowledge meant for farming, we have already seen in Chapter 21.

This great reconstruction was to be witnessed in every country, where Islamic culture was implanted. It was the same story in Persia, Syria, Iraq, Egypt, Mauritania, Sicily and Spain. It seemed as if there was something magical, something beyond all previous conceptions of man, in the arrival of Islam. Spain, Mauritania, Sicily and other countries, previously stagnant or in decay, blossomed into active life. Idris of Medina, for example, escaped from a false charge of drunkenness. He won the adhesion of the Berbers of Mauritania and founded the Idriside dynasty. He built Fez and made it his capital. Under the new spirit Fez became a famous seat of learning, and the country, of which it was the capital, leapt into wealth and prosperity. Musa, Abd-al-Rahman and their successors in Spain, Majorca, Minorca, Sardinia, Corsica and a part of Sicily, in a very short time established a new culture and prosperity. There is nothing exactly like this in all history. The early Roman Empire and the Scientific Era are no parallels, because they both progressed, as we have seen, at the expense of humble peasantries and the exploitation of the soil. On the other hand, growth in prosperity in these Islamic countries *occurred in all branches of social life*. Farming, manufacture, trade, art, education, knowledge, all attained a very high level. *They increased in power and capacity equally*; they attained a balance amongst themselves, because they based themselves on a highly developed and conserved life-cycle, of which the Spirit of Islam was the creator.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 23

Recapitulation

In a chapter on Recapitulation designed to sum up the principles of reconstruction by way of the soil, I could have taken other civilizations than those of the period of Islamic success as a measure of our present needs. Mr. O. F. Cook of the U.S. Agricultural Department, for example, tempts me with words I have already quoted and will here repeat: 'Agriculture is not a lost art, but must be reckoned as one of those which reached a remarkable development in the remote past and afterwards declined.' This is his conclusion after his examination of the farming system of Ancient Peru.

William Prescott, in his *History of the Conquest of Peru*, 1847, gave a brief account of that remote farming. The land, he wrote, was divided into three parts, one for the support of the national religion and the sick and infirm, one for the maintenance of the Royal Family and Government, and one 'divided, per capita, in equal shares for the people'. By law each man had to marry at a certain age, and the land was re-allotted each year and 'increased or diminished according to the number of the members of his family'. None were allowed to be idle 'from the child of five years old to the aged matron not too infirm to hold a distaff'. Prescott then discussed this agrarian law, and, of European countries that resembled it, he selected that in Judaea as 'the nearest approach to the Peruvian constitution'.

Nevertheless, our information, or mine at least, of this system of irrigated fields 'cultivated wholly by the people', is so scanty and remote that thorough and practical to the highest degree as it was, it would have been quixotic for me to have made it a measure of choice.

The same applies to the riverine civilizations of Iraq; knowledge of essential details is lacking. These civilizations collectively offer a stability of the soil of some four thousand years, but so far off is this period that again it would be quixotic to choose ancient Iraq for

modern guidance.

It is a very different matter with a far more numerous people of a like duration of four thousand years, the Chinese, a people whose farming, right up to the years preceding the Great War of 1914-18, earned the unstinted praise of that genius of agriculture, Professor King. The introductory chapter of his *Farmers of Forty Centuries* is a well-deserved paean to the Chinese farming, carried out in spite of the floods of their great rivers, which, rising in the vast area of Tibet, have been beyond their control. Moreover, they have in their history records of several reconstructions by way of the soil one of which, that of the Tangs, was contemporary with the Islamic reconstruction. When their society was disintegrated by the incursions and conquests of the Tartars and when their land was devastated, the first task of a Chinese dynasty after overcoming the Nomads was the reconstruction of their peasant-farming system.

In the West, there has been abundant studentship given to the arts of China, and especially to its pictures and ceramics, but it has ignored the greater art, the art of agriculture and its reconstruction. One student, however, of the Columbia University, New York, Dr. Ping-Hua Lee, has been a fortunate exception, and this gifted author has given accounts of the Han and other dynastic reconstructions of the system of land tenure of the Chinese sages, of which I made use in the third chapter of my *Restoration of the Peasantries*, under the heading of 'The First Agricultural Path'. The history and character of these reconstructions, and of Chinese historic farming generally, to my mind and to that of the late Professor King, offer a wide field of invaluable research to future western students, but that time has not yet come. When it does come it will, doubtless, reveal a number of principles of reconstruction by way of the soil at present not available.

For these reasons, therefore, I have chosen the Arabic reconstruction, and for the further reason that they were, according to many scholars, the initiators of the modern sciences. It is true that we have surpassed their sciences to an immeasurable degree, but the same cannot be said of their arts, and particularly of their farming as a national art. Here we have by no means surpassed them; on the contrary, we are far below their level. So, although by their violent jealousies and extravagances, such as the Chinese were never guilty of, the Arabs exposed themselves to their enemies, who destroyed their empire, and though, with a fatality that seems as inexorable as it is inexplicable, they have almost reverted to their original desert status and to-day nowhere exhibit any art of agriculture for our enlightenment, I have chosen their historical reconstruction as the measure of what should be possible to us in our present urgent need. Consequently, to give coherence to my subject before my final chapter, I propose in this reconstruction to review the first twenty chapters of my book in the light of chapters 21 and 22.

Chapter 1 discloses the general theme and purport of the book as a need to accept the priority of the soil in a sane and sound civilization. It describes the intimacy and oneness of Man with the soil, which forms the initial factor of life-cycles, in which men have their being. It reveals the wholeness or health, which arises from a complete adherence to the

life-cycle by a brief account of possibly the healthiest people on the earth. It goes on to show how the human family conjoined with property in the soil, through which the life of the soil and of humanity become vitally interwoven. It ends with an account of the most enduring association of soil and family in history, that of the Tsing-Tien System of the Chinese.

The duration of the Chinese family system and the degree of positive health of the Hunza both surpass what the Arabs attained. Nevertheless, Islam attached great significance to both family and health. Mohammed asseverated the sanctity of agricultural work and coupled with it the declaration that the land or other property, was inviolable as long as it was rightly used. Islam, founded upon the Prophet's dicta, embodied them in its fixed laws upon the freedom and security of the peasantry and the inviolability of property rightly used.

As regards health, we know that, at the time of the rise of Islam and after, Europe was frequently devastated by epidemics. The condition of the towns and the homes of the people was one of extreme filth, and this condition has lasted amongst the poor urban classes almost to the present day. In many of the most populous capitals of Europe not a single public bath was to be found, and religion itself made personal dirtiness almost synonymous with holiness. The practice of Islam was the very opposite of this. Mohammed himself taught the paramount importance of hygiene. He also placed right feeding as the first source of health and decreed that lack of restraint in food and drink was 'the source of all physical ills'. Islamic civilization was marked by its insistence on bodily cleanliness, and public baths were provided on a liberal scale. Drainage in towns was efficient without being wasteful. Nevertheless, though vastly superior to anything in Europe, Islam needed the assistance of the medical art, which it developed to a high degree as shown by the fame of its Schools of Medicine and its hospitals, and the knowledge of botany, pharmacy, chemistry and other branches of medicine, from which much of the modern healing art is derived.

The next four chapters, Chapters 2 to 5, tell the story of Rome and the evil effect of its capitalistic civilization upon the peasantries and family, upon the food of the poor, and upon the soil resulting in its extensive loss through erosion and the formation of marshes. Islam supported the peasantries, honoured the family, dictated that even the slaves should have the same food as their masters, and took every care to conserve the soil.

Chapter 6 is concerned with Nomads and Farmers, and the effect which scarcity of the food of the Nomads had upon the civilizations of the Farmers and the history resulting therefrom.

Chapter 7 brings forward two contrasting examples, the first of the deprivation of the soil of the Falkland Islands under the dominance of modern commerce, and the second of the renovation of the soil of a Baltic dairy farm by correct farming and ecology. Both form examples on a small scale of vital issues. The local self-government in things of the soil

would have avoided the first; the second is in accord with the final unity of all living things of Mohammed's teaching.

Chapter 8 gives an account of the proper and the wrongful uses of urban and rural wastes. Islamic agriculture was, amongst other things, based on the proper use of wastes. Chapter 9 continues this theme and shows the reason why the cash-nexus leads to the wrongful use of wastes. Under the guidance of Oswald Spengler, it develops the difference in thought and values of the countrymen and townsmen, which are illustrated by the different character of their taxations, the natural character of that of the farmers being payment in kind or farm products, that of urbans payment in money. This difference was recognized and acted upon by Islamic civilization. The chapter continues with further illustrations of the economics of the soil, including an account of the Chinese economics of the use of water for the soil, as given by Professor King. It concludes with a brief description of the disastrous effect of the dominant money values upon the fertility and health of the soil.

Chapter 10 contains the story of the peasantry of England and the robbing of the food of the soil by the lords of the manor, culminating in the ruin of the peasantry in the Industrial Era by acquisitive men. Only the peasants of the Isle of Axholme escaped this fate.

The story shows especially the entire lack of decent conduct towards rural labour at the introduction of modern capitalism and is the precise opposite of the sacredness that was bestowed on all labour by the introduction of Islamic civilization.

Chapter 11 is the first tale of primitive agriculturists, those of Kenya, under the aegis of commercial farming, so poignantly told by Mrs. Huxley. It is a story without redemption, but not without the retribution of an extraordinarily rapid and devastating spread of erosion of the soil. Chapter 12 is a second story of a primitive people in Nyasa lured or forced from their land to serve in the adjacent gold and diamond mines. It has an all-too-near resemblance to the fate of the English peasantry as told in Chapter 10. The conditions of the miners in the gold and diamond mines was never as terrible as those of English miners under which children of six years, harnessed to small carts by chains, drew coal along the passages of the mines, but it was one with a large share of bondage, drunkenness and disease, under the stress of which many great and successful social and medical improvements have now been effected.

Chapter 13 tells the story of the salvation of Tanganyika, effected by the little tsetse fly, from the rapid erosion that has visited Kenya. It also contains a most promising story of redemption in the proper use of rivers, in which, instead of forming boundaries of human hostility with the ill-effect that such a river as the Rhine in particular has had, they are made beneficial by being used primarily for people on either bank.

The last tale of the due effect of dominance of money over a primitive peasantry is that of our oldest colonies, the West Indies, in Chapter 17. The hardships and erosion it has caused is made the more graphic by an account of an uninterfered with, and flourishing

island -- that of Lombock in the East Indies.

Under the Islamic principles of the treatment of peasants, none of the disasters of Chapters 11, 12 and 17 could have been brought about; on the contrary, the Lombocks would have been multiplied, as the results in the Mediterranean Moslem islands show.

Chapter 14 is a philosophic interlude on the extraordinarily delicate and infinitely varied nature of our food substances built up from only a few elements, the most common of which are not only earthly but also aerial, and the need for a wider conception of them and their nature, if positive mental and physical health are to be attained.

Chapter 15 is another tale of the effect of the dominance of money. It concerns itself with Sind and Egypt, and shows the danger to the alluvial soil, of trying to force it out of its primal character in order to make two blades grow where one or none grew before. The perennial irrigation, which has been introduced into Egypt and Sind, has been first financed by money at interest, and thereby has followed another path than that of Islam, in which the cost of new canals was borne by the government and that of cleansing and repair alone shared between the State and the recipients of water. There was no interest; there were no bankers who brought the huge sums into existence out of nothing and issued them as loans to be repaid with interest. The first thing the bankers sow upon the new land is debt, as one might sow tares amidst the wheat. They enforce greater productive effort upon the land than it will bear. 'Although interest brings increase', said Mohammed, 'yet its end tends to scarcity.' This great saying again proves itself true in this modern example. Both in Egypt and Sind, the forcing of the land out of its natural capacity to make it 'pay', has already produced scarcity, through alkalinity. Writing only from the purely agricultural side, Professor King says that in all probability the people whom our modern civilization has supplanted knew of this error and had tried and abandoned perennial irrigation. Islam went further in the interests of soil. *From the very start it shut out the men of greed.*

Chapter 16 is a second interlude chapter. It is a review of what are known as artificial manures. The introduction of artificial manures was a fragmentation, an incursion of one particular section of scientists into the realm of farming. These scientists took a partial view of the character of the soil. They took a few of the most important chemical elements of the soil, and tried to make them into a whole. They sought to displace natural manure with measured doses of these chemicals; they first diagnosed the land, and then prescribed for it. They began to be important when the quantity of natural manure itself began to decrease owing to railways taking away horse traffic and sanitation abolishing the disposal of refuse upon the soil. With motors displacing horses, and tractors displacing horses and oxen on the farm itself, artificials became yet more strongly advocated. They have their occasional place in increasing the amount of produce of underfed land, and they have been of great service during the period of war. But they have distracted thought from natural manures; they have helped to hide away the disastrous misuse of wastes. They are a fragmentation, a default in philosophic thought upon the wholeness of the association of

the dead and the living in farming. They have, therefore, been accompanied by a farming so beset by disease that the scientific farm has become a blend of factory and hospital, producing products inferior in health, quality and taste, and deterioration of the soil.

Artificials, of course, played no part in the farming of the Islamic civilization; nor, indeed, of that of ancient Peru, nor of any of the great farmings that men erected in the past.

Chapter 18 is the tale of the German Colonies, in which the creed of the rights of the fittest received almost its final consummation. The latter part of the chapter tells the happy stories of these same colonies under the guardianship of the Permanent Mandates Commission of the League of Nations. Differing in manner, the three governments, those of the Union of South Africa, of France and of Britain, effected a miraculous change by means of principles approaching, and in the case of Tanganyika nearly identical with, those of Islam, when dealing with oppressed peoples of the soil.

In Chapters 19 and 20, the huge countries of Russia, South Africa, Australia and the United States illustrate the climax of the destruction and death of the soil which our modern values make inevitable. In spite of their great scientists, all these countries have been placed in grave danger owing to erosion.

In Russia erosion, particularly that due to deforestation, is of longer duration than in the other three countries of later development. But, with Russia's modernization and especially its almost fanatical faith in the tractor or machine farming, Professor Kornev has had to utter the warning: 'At the present day there are huge areas in the U.S.S.R. where, owing to the excessive breaking up of topography, whole territories formerly under profitable agriculture are now occupied by immense ravines and infertile wastes.'

South Africa has been described by Mr. R. O. Whyte under the italicized sub-heading of *The Transformation of South Africa into Semi-desert in the Twentieth Century*. Mr. E. S. Clayton, in *Overseas Investigation*, 1937, declares: 'There is no doubt that we Australians are in a process of transforming the semi-arid areas into desert at a more rapid rate than in the U.S.A.'; and in the wetter, riverine districts many parts are gravely affected by erosion.

Finally we arrive at that great country, which has become the leading modern country in the production of food for itself and other countries, as well as of other essential crops for the benefit of all men and its own prosperity. Yet in doing so, it is fulfilling the prophecy of its own Professor Shaler that unless some radical change is adopted, we must anticipate a time 'when our kind, having wasted its great inheritance, will fade from the earth because of the ruin it has accomplished'. The chapter closes with an example of a great awakening, a powerful effort towards redemption in the U.S.A., the Tennessee Valley Authority, which follows the values of Islam in the priority given to local, agricultural knowledge, and the balance and mutuality of all labour, whether it be in the factory or on the land.

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Reconstruction by Way of the Soil

by G.T. Wrench

Chapter 24

Action

It may seem boastful on the part of a writer to say that his subject is world-wide, but the world, at one time so very large, has shrunk a good deal in these latter days and a number of questions, once national or local, have consequently become world-wide. Certainly, if any question has a world-wide significance it is that of the treatment of the world's crust. Action, therefore, at this present time, in the reconstruction via the soil must have a certain world-wide character attached to it.

What, then, of a world-wide character can form a means of action in reconstructions via the soil? The present has shown convincingly what, indeed, scarcely needed another demonstration, namely, that at a time of war every nation engaged, whatever its form of society and government, is not hindered by money. Nor is it hindered by unemployment. At such times there is work for one, and all, and work takes precedence of money; money does not call forth work, but work money. The impulse to action is so great that it takes complete mastery of men and matter. Hence, for a reconstruction of the soil, a very wide impulse will have to be called into being. It is not to be expected, of course, that the impulse will have the cohesive fury of a people called to war, but it should certainly seek for means that are world-wide in their character.

What means of this wide character are, then, favourable to a big-scale movement?

First and foremost there is the unique positive achievement of the war. The war has achieved, as never before, *the technical unity of the world*. The spirit of unity is quite a different matter. The riven spirit of the pre-war times remains, and as yet there has been nothing in the plans for the post-war period to prove positively that it has been radically diminished. This is as one might expect. The characteristic of the last few decades has been the improvement of technique, to which one great war, one great revolution,

expectation of war, and a second great war have jointly given an impulse that has been terrific. This technical achievement cannot possibly be overlooked as means to reconstruction. With its wireless reaching so many homes and papers, its multiple air routes and air bases, its great roads, even amidst the supposedly eternal defiance of the mountains of Central Asia, its innumerable mass-made ships, its thousand inventions in means of communication, it has developed a capacity to weld the world together, such as itself foretells a new era. The world has been technically transformed into one borderless whole, for neither the air nor the ether has frontiers. Unless, then, mankind is to be overtaken by physical degeneration, unless a decay of character brings with it one of those periods of disintegration of civilization, with which historians are familiar and of which the decline and fall of the Roman Empire has been the classic example in the West, there is no possibility of the future technical disseverance of the world. Its technical unity is a fact; all depends upon the uses to which it is put. It may, for example, be made subservient to a revived pre-war money power through a continuance of the officialism necessitated by the war. It may be limited by a variety of fragmentations, if the divided nationalities continue to indulge their political appetites and make the primary needs of their peoples means to national aggrandisement. Its use and misuse may, indeed, lead to further wars, famines and increasing social chaos. All this will be possible, if men continue to ignore the crust of the earth, until the uncontrollable increase of the soil's devastation sinks men into despair or forces them, before it is too late, to use this tremendous technical power for what its wide-world capacity seems to be designed, namely, the world's terrene salvation and not its destruction.

Those, then, who are convinced of the need of reconstruction via the soil, should not now allow themselves any laments for the past or indulge in vain dreams of a world other than it is at this very present. They should look upon the technical unity of the world as a giant of assistance to the awakening of the brotherhood of man through the common parent of all, the soil. They have a message and a means of communication commensurate with its vastness. Their message has undoubted prior claims because, physically, mentally and morally, it affects all men who tread the earth. If they can enforce themselves upon the world's wireless; if, by travel, they can reach once distant lands by air-speed, which now makes east and west and north and south neighbours; if in the world's press they can publish to innumerable readers at one and the same time the more striking news of their movement; if men of each country can communicate to men of other countries what they are doing, what developments have been accomplished or are expected, then they will fill the world with the creed of the soil. There is much to communicate at this day, as soon as the din of war has become silent. This will be far more when the thoughts of men are no longer directed to the slaughter of life, but to the means of its conservation.

Each country will need its band of men and women to take a part in this new unity of the world. The type of men required to form the initial bonds is of the greatest significance. It is at once clear that they must be of a kind that was almost voiceless in the period, between the two great wars, when their contraries, by converting soil-fertility freely into

money, were 'drawing the whole world headlong to starvation', in the words of Mr. Jacks. Upon their ignorant greed, there was, says Mr. Jacks, at that time only one check, the threat of war. Then came the actuality of war, and the governments of the Great Powers engaged in it, realizing at last the paramount and primary character of soil-fertility, allowed it no longer to be turned freely into money, but treated it as a national armament no less precious than were the metals and the chemicals. This dominance of soil over money must not be allowed to relapse with the cessation of the war. *The lesson then learnt must this time be unforgettable.*

A new social, non-military war, indeed, opens out, the war on behalf of the soil and of the healthy life and physical freedom of men. In this war, the soil will have, in the beginning, many opponents. Firstly, except for men of genius and the capacity it gives them to change an outlook and break with the personal trammels of the past, those men who rose to high authority before the war may be expected to be opponents, *from the very fact that they rose to authority under the ruinous values of the earth's devastation.* These values will still be treasured, because the use of them brought them their public power. To purge themselves of the gross defect of mind that the values entailed, will be beyond their capacity; whether they wish it or not, the familiar spirits will not cease to haunt their thoughts and actions.

Then, there are aliens and men without any country of their own, without, in the first case, any inborn, native love for the land in which they have their refuge; in the second, without any actual kinship of mind, occupation, and tradition with the soil. With both money is, of necessity, the paramount object, because the only world-wide rival to money is the soil. Such men are dangerous.

Urban people are likely to be opponents at the beginning, for urbans become perforce not individuals so much as mass. In small matters they hold the opinions of their set; in larger they are subject to mass-emotion. Their interests and faiths wax and wane, are hot and cold. Fed by selected news and spurred by propaganda, they are the objects of unfixed laws, each of which, like a wave on a sandy shore, wipes out the impress of its predecessor. Severed as they are by modern town life from the soil and its creative powers, they are alien to fixed laws, by which alone its dominance can be maintained.

Modern education itself is an opponent and a powerful detractor of the land, because the soil is only regarded in it as something that can be ignored. All education for the young, one can say, in all advanced countries seems to have this profound defect. Personally I am best acquainted with my own education, that of a public school in England. The school was situated amongst cultivated fields and riverside pastures. Yet never once was the local character of the land of sufficient significance to be mentioned by the teachers. I realized vaguely even then that our education *did not start at the beginning*, not from the soil and the river from which our life began, *but from somewhere else*, as if the roots of being did not matter in education and could be left invisible or unknown almost for ever to the instructed mind. It taught us to be gentlemen, something superior to the soil. It cut us

away at the start from the Islamic sanctity of the soil. And this stigma most of us had to carry throughout our lives, only the rare sceptic might escape from its trammels. Even when the Empire's needs called some of my colleagues to the charge of primitive agricultural peoples, the stigma remained. 'Unfortunately most of the Europeans who come out to this country (Nigeria)', stated Mr. G. N. Herrington, at a West African Agricultural Conference in 1938, 'have received an education which is divorced from rural life and few have any knowledge of its interest and variety, or the intelligent skill that rural life entails. This type of education has created a traditional attitude that is very difficult to overcome.' It has only very rarely been overcome, only in great sceptics and men with rare sympathy for their rural subjects, such as were pre-eminent in British India before the Mutiny, the four M's, Sir Thomas Munro, Sir John Malcolm, Sir Mountstuart Elphinstone and Sir Charles Metcalfe. Because of this almost invincible, traditional attitude, our empire over rural lands has been one mostly divorced from rural life and antagonistic to the soil.

In addition, to the famous British public schools, education in our state schools, in the United States and other countries, has had the same tendency. In the German University, where I spent eighteen months in post-graduate education, it seemed to me, then more awakened to the fault, to be the same; men with so-called brains were considered to be suited for something better and more *lucrative* than for work upon the land. This profound fault in the education of the Industrial Era has worked untold mischief in health, sanity, food and the conservation of the soil. It makes education undoubtedly an opponent, not an adjuvant to reconstruction via the soil.

The new men and women -- for the war has brought many women in direct contact with the land -- will be those who have been shaped and fashioned by the soil to a serenity, a sense of the spaciousness of time, and a capacity of individual judgment. The soil itself has been their textbook and printed books only subsidiary. Books widen the understanding and give to their students knowledge of many chemical and physical properties of the earth's crust, but they have not the magic in revelation of the soil itself. They are very valuable supports and helpers, but they are not initiators of the sense of kinship. Initiation belongs only to the parent of life.

The new men and women know the soil and its creative powers personally, learning chiefly through their eyes and muscle-sense, and not through their ears. Their knowledge and feeling for the soil are the same as they are for other living things, a matter of touch, smell and sight, a physical response to contact with it. It is made up of a variety of factors; the feel and sight of rain, snow, dew, sun and wind; the characters and purposes of hedges, woods, fields, hills, valleys and plains, of insects, plants, flowers, weeds, all subject to the seasons in their progress through the years. It is, then, something very real, something very vital, something that proclaims an ordered multitude of being, far transcending the ephemeral life of individuals. 'It is to the fresh air of the open field that we belong by right,' said Goethe. 'It is as if the Spirit of God there breathes immediately upon men and thereby a godlike strength exercises its influence.'

The new men and women possess or gain a health that transcends what the practitioners of scientific medicine have taught the public to regard as health, namely, something that can be acquired by a process of severally discovering and putting into practice means of escape or recovery from diseases in their severalty. What will be required is not this, but the positive, whole health, which exists in itself quite apart from disease. It will be required, because it is a necessary prerequisite of the comprehensive simplification which the times require. Cleverness there is at the present day in abundance, for when the simplification of positive health is mostly absent, cleverness finds opportunity in a thousand hydra-headed problems. It is for this reason that, in spite of the numbers of educated, clever men and women and in spite of their signal ability in dealing with fragmentary social and political difficulties, in their lack of the central understanding of what was really happening in the world they failed entirely to avoid the emergence of a series of catastrophes. Health, therefore, there must be. Its simplification -- such as healthy fields bring healthy men -- of hydra-headed difficulties is essential.

Health is, as Goethe said of truth, like a diamond, it emits its rays in all directions. Being whole itself, it brings with it a lively valuation of the things of health and wholesomeness, and a ready acceptance of them with rejection of the fragmentary. Its convictions are not mere matters of mental persuasion. They are matters of bodily response, sober in action and hard to oust, for they are creatively positive. By right choosing, they prevent the complication of many particulate solutions burdening a problem with much argument, for they are attracted to the right intuitively. The correct terrene life is in reality not nearly so difficult as the wrong, because it is *simple* in the root meaning of the word, which is unity.

It is to men and women so equipped that the initial guidance of reconstruction should be entrusted. Power comes later, when conviction of the need has become widespread. Then power will be given, as it was willingly and freely given by the people to its leaders during the war. Of this power, the great urgency of war has provided many valuable precedents, the memory of which, it is hoped, will not be permitted to die out with the rapidity that affects the day to day memory, which the swift transition of events and the concentration on those of the present inculcate in the public. Of these precedents there are few which surpass that established by Lord Woolton, Minister of Food in Britain. His is, to my mind, a classic example of an inspiration to workers in many, if not all, countries concerned in these primary matters. One only wishes that reconstruction via the soil could be almost a continuance of the work done by the Departments of Food and Agriculture, without the long lapse that seems inevitable for the initiation of the public to the need for reconstruction.

As to the nature of the work of initiation, it will come under some such headings as the following:

1. The restoration of the peasantries and peasant families as the cardinal cultivators of the soil; the use of large estates, where suitable to particular soils, forms of

- cultivation, or social conditions.
2. The freedom of the soil from money-power.
 3. The first claim of the soil upon a country's water; the local control of its distribution.
 4. A rural education, which is, locally and generally, a true soil-education.
 5. An education of all urban populations, which begins at the beginning in the soil and in the life which it provides to all men.
 6. The adoption by both town and country of the rule of return.
 7. The unity of the healths of the soil, the plant, the animal and man.
 8. The right of all men to their share of essential foods and work.
 9. The use of modern technique in promoting and maintaining the brotherhood of man throughout the world by the common bond of the soil and its conservation.

The gateways of change have been thrown open by the war, and when I venture near them to descry a vista of the future, I must confess that I am possessed by a dazzling vision of which this cruel war seems to be the immediate, creative cause.

The war has brought together, as allies, the four Powers that have control over the four greatest areas of land upon the surface of the globe. These four Powers divide themselves by neighbourhood into two pairs, namely, China and Russia, with a basic similarity soon to be propounded, the other pair, connected by the mediate country of Canada, the United States and the British Empire, the two leading capitalistic powers of the world.

These four allies form a strange conjunction of many differences. There is first the aged China, with an unequalled history of stability and conservatism, now torn asunder by the inroads of modernity. Secondly, there is Russia, also an ancient, historical autocracy, which has recently overthrown capitalism and with so fierce an energy has created a Collective State. Thirdly, there is the United States, so compact in the spacious unity of their land, in which they endeavoured to shut themselves from the troubles of the world, but suddenly aroused to the futility of this isolation by the catastrophe of Pearl Harbour. Lastly, there is the British Empire of dominions so wide and varied as to make it the leading power of the world, but aghast at the discovery of its inability to protect its far-flung possessions and almost its homeland, in the early years of the war.

There are, then, apparent infusible differences of need and necessity in the character and circumstance of the four allies, and especially do they reveal themselves if attempts to effect a fusion are made by the agency of politics and politicians.

One general need, however, indissolubly binds the four. It is to prevent the repetition of the present in the future by precluding the possibility, now and for ever, of further irruptions of the Teutonic Northerners or their pupils of the Pacific Sea.

Apart from this need it must seem, to those not instructed in the present terrene state of mankind, that genuine unity will find no bond in the manifest differences of character and

circumstance of the four allies. Yet there is such a bond, the bond that ultimately unites all terrene men in an ultimate similarity, and that bond is the soil. *It is the soil, and the soil alone, which can bind the four Powers together in a reconstruction of life. All four Powers, and with them the rest of the wide earth, are bound together as to their future state by the perilous condition of the world's soil. None can escape its dangers in the new technical unity of the world. That is the one imperative and vital bond in their conjunction for reconstruction.*

Let us take the four allies severally and see what contributions they can make to this fundamental question of life itself and to their own particular needs with regard to it.

The Chinese are by far the oldest people of the allies. Their contribution is that of the accumulated wisdom of four thousand years.

None have better described this gift of the historic Chinese and their pupils the Koreans and pre-modern Japanese, than Professor King in a partially written *Message of China and Japan to the World*, which he proposed to add to his great book on the *Farmers of Forty Centuries*, but which purpose was frustrated by his death.

In the part of this message that has survived his death, he wrote: 'It could not be other than a matter of the highest industrial, educational and social importance to any nation, if it could be furnished with a full and accurate account of all those conditions which have made it possible for such dense populations to be maintained upon the products of the Chinese, Korean and Japanese soils. Many of the steps, phases and practices through which this evolution has passed are irrecoverably buried in the past, but such remarkable maintenance attained centuries ago and projected into the present with little apparent decadence merits the most profound study. Living as we do in the morning of a century of transition from isolated to cosmopolitan national life, when profound readjustments, industrial, educative and social, must result, such an investigation cannot be made too soon.'

The practices and the methods, by which these meticulously careful farmers conserved the fertility of their soils are nowhere better described than in the pages of King's book. But he makes no specific mention of the Tsing Tien System of which Dr. Ping-Hua Lee, in Volume 99 of the Columbia University of New York's *Studies in History*, wrote: 'The whole history of the government administration of agriculture in China coincides with the Tsing Tien System. Its vicissitudes, its crises and its epochs were timed by the abolition or re-establishment of the System ... It is fortunate for the economic historian that the Tsing Tien System is coincident with China's political history.'

Yet, not the Chinese farmers' devotion to the rule of return; not their incomparable and tireless spreading of the mud of their numerous canals to the extent of seventy tons per acre; not their careful preservation of the humble earth-worm, who, said Darwin, spreads ten tons per acre of an even finer soil than silt upon the fields he studied, in addition to the

other services he so eloquently eulogizes; not the irrigation of their carefully levelled fields; not the mixed crops, will form a bond more firmly riveting peasants to peasants than this Tsing Tien System. What else, indeed, is the *Kolkhoz* System of the present Russians than the Tsing Tien System modified to suit their imperative duty to provide food and other soil-products for the hundred and more new manufacturing towns which were built to give them their place amongst the modern Powers, and to equip them for the Power-war, for which their rulers prepared with such marvellous speed? The Russian farming families have the same private fields handed over to them for continuous ownership and their partial subsistence. The central plot, immensely larger though it is than the ninth field of the Chinese sages, is like that ninth field in that it is the State's plot, worked co-operatively by the Russian farming families.

Moreover, the very dangers of the *Kolkhoz* System, in the pressure that perforce was put upon it for large and speedy returns by the threat of war, will find their solution nowhere better than in a study of Chinese methods. There can be no stronger bond between two huge, neighbouring terrene peoples, the Chinese and the Russians, than this bond of their peasantries.

The Chinese themselves are also in great need of effective bonds with their allies. Anyone who has talked to the Chinese leaders, knows how eagerly they look to the great water engineers of the British Empire and the United States, for instruction to curb the devastating floods of their great rivers, especially the Yellow River; to re-forest their barren catchment areas; to refructify the fertile loess soil, which was the teeming home of their first ancestors, but is now so miserably given over to waste; and in a hundred other ways to assist in the reconstruction of a distraught farming people. No one of the allies, then, has so much to give and so much to receive in the bonds of the soil as the Chinese.

The Russians are the next oldest people of wide dominions to the Chinese. Ivan IV (A.D. 1533-84), Ivan the Terrible, is now heralded as one of the greatest fathers of the Russian people. With ruthless determination, he consolidated the Russian lands, drove out the Mongols, made the Volga into a Russian river, annexed Siberia and made its lands so attractive to the Russian peasants that his successor to power, Boris Godounov, issued an order stopping further migrations of peasant families.

In Chapter 19 we have seen how the Russians had eroded vast areas of their land more or less from the time of Ivan onwards and mainly by the destruction of forests in order to open up new land. They did not even spare the watersheds and their slopes. But the tempo of those days was far slower than that of the modern Russians. Their need of cash for foreign machinery led to the wholesale destruction of Russian and Siberian forests, the timber of which was sold. The Steppe and other and lands did not offer the same inducement, so, while they were developed and arid lands were reclaimed with singular skill, the forested lands were gravely depleted. To the warning of Professor Kornev, quoted by Messrs. Jacks and Whyte, the two authors added this comment: 'The tractor plough is the enemy of grassland in dry areas, but is indispensable to the propagandist in

the modernization of Russian agriculture. Though fore-warned by the experience of other countries, it is difficult to ascertain if the authorities are aware of the danger of mechanization.'

To what degree the Russians have degraded their farmed soil owing to the pressure of the war cannot yet be known, but it must be considerable; it may be, indeed, the greatest loss which they as victors in the war have suffered. That they have much to give and much to receive from their allies in terms of the soil is clear. They can give their experience particularly in the reclamation of arid land; they can give the picture of land developed under an economic system by which the land is developed and farmed without the burden of financial debt, but with the help of their share of the State's revenues; they were about to give in their fourth Five-Year Plan a control of water of a stupendous character, linking together the waters of the north-flowing and south-flowing rivers, as well as individual rivers, and the same with the rivers flowing east and west, perhaps, to use Professor Kornev's words, an act 'of the excessive breaking-up of the topography', the results of which can only be estimated by experience. Yet, on a small scale, Mesopotamia once gave an example of unparalleled success in a linking of rivers.

So the Russians have much to give in terms of the soil. They have also much to receive; especially from the great work of the Americans of the United States in the reclamation and conservation of arid lands, and the re-growth of forests upon watersheds. They have, then, many bonds to forge in terms of the soil.

The last two allies give pictures of the development of farming of land under the dominion of money. The picture that they present has already been sufficiently illustrated in previous chapters as one of progressive destruction of life for temporarily successful financial farming and ranching. They have both pursued the path of Rome with a tempo far exceeding that of Rome. One writer, indeed, has stated that North America would, at the pace set, be turned into a Sahara within a century.

The rude fact is that neither the Americans nor the British are yet civilized in terms of the soil; neither has yet learnt the meaning of the Wisdom of the East. Their use of their dominant money is too often nomadic. They invest it in land or other ventures for *personal profit* and, when profit fails to appear, the pressed and overworked land is abandoned, and finance transfers itself to other ventures, even such as the help of other countries to arm themselves in a preparation to fight the very countries and peoples of the lending financiers themselves. Between the financiers and the nomads, between them and the practitioners of shifting cultivation, there is, indeed, very little difference in principle and in values in terms of the soil. Only the nomads of the past consciously risked much more; they risked their lives, those of their wives and children, their very existence. The financial nomads, on the other hand, consciously risked very little. They risked much *unconsciously*; their own lives by enemy bombing, those of their wives and children, their homes and the very safety and freedom of the countries in which they lived.

The Americans of North America, and especially the farmers of the United States, have recently become woefully aware and alarmed at the results of nomadism on the soil, of the free cutting down of forests, of over-grazing of the deforested land, of the deep ploughing and mechanical farming of their prairies, of the one-year tenures of farms which enable men to turn fertility into cash and, when this land is degraded, to purchase new land in the great territories of fertile soil which are still theirs. They can ponder over special maps, as we pondered, in Chapter 6, over the map of Asia, and read their fate in its distinctions. Such a special map of the United States is to be found on page 51 of Messrs. Jacks and Whyte's now famous warning to the world. The land of little or no erosion is white, the lands of erosion are graded in shades to indicate its character and degree. One may well shudder at the supreme peril of this great people, if one ponders on the human meaning of this map. The white areas are so few; they seem to cover but a tenth of the map. The rest is eroded lands, according to their kind and their degree, together with mountains, mesas, canyons, and bad-lands. This visual evidence is enhanced by a number of photographs, which terrify the mind, eased though it is by the knowledge that what is happening points to a dread future, to which our own span of life will not extend. 'Not in our time, O Lord,' but surely enough, in our time, and to many farmers who have witnessed their farms blown away in storms of dust, 'in our time' with a poignant reality.

Against this tale of home-destruction, with the haunting fear it brings to farmers of the richest country in the world in money, can now be set the supreme achievement of the Tennessee Valley Authority, which has brought about in the valley's inhabitants a veritable resurrection of the human spirit. Mr. Lilienthal does not fail to lay stress on this human change-about and quotes these words from an editorial of a newspaper of Alabama, one of the seven states: 'We can write of the great dam ... of the building of home-grown industry and of electricity at last coming to the farms of thousands of farm people in the Valley. *Yet the significant advance has been made in the thinking of a people. They are no longer afraid. They have caught the vision of their own powers.*'

This gift of confidence, one thinks, will be the outstanding contribution of the U.S.A. It has already attracted the keen interest of many governments of South America, Europe, the East and South Africa. But, if the men of the United States have much to give, they have also much to learn from their Allies. From the Russians, they can learn the value of saving the soil from the dominance of money; from the Chinese, the meticulous conservation of the soil, the full rule of return, and agriculture as a national art; and since they now have colonies; from the British, the right and wrong ways of the treatment of tropical colonies, and much else.

The gift of the British to their allies is, indeed, unique in that they, with their extensive empire, have been brought into relationship with all kinds and varieties of terrene conditions. The British have the greatest world-knowledge; ranging from the many millions of India and their imperilment due to their relation of the soil, which I have described elsewhere in my *Restoration of the Peasantries*, 1939; from the vast plains of Canada, which share so fully the most dramatic dangers of the Dust Bowl of the United

States; from the disasters that are afflicting her Australasian colonies; from the erosion and degradation of the fertile West Indian Islands, to the little twin islands of the Falklands in the cold waters of the South Atlantic. They are, indeed, fortunate, in comparison to their allies, in that their homeland, set in a temperate sea and served by a humid climate, is almost free from the dangers of erosion. The problems of the reconstruction of its misused soil have not the gigantic proportions of the homelands of the other three.

They, therefore, with the vast varieties of their experience, can act as bonds not only between the Allies, but between them and the whole wide world. Their knowledge of cold, temperate and tropical soils and their peoples is not yet understanding enough for them to be the bond that is needful, but at least they possess the links, through which that knowledge, when recognized and formulated, can be diffused. With their contact with their allies and their contact with many lands and their peoples, with their empire-made neighbours, they, like their great technical achievements, are making the world one.

The meeting of the Four Powers, then, has potentially a far greater meaning than the somewhat hackneyed phrase of a Conference of Powers customarily conveys. It is a meeting, not of tongues and diplomats of the countries they represent, but of the soil of the world and of mankind. It is a meeting, not of four great Powers only, but of four great masses of men all witnessing the rebellion of the soil to its human treatment. They are severally not China, but the Chinese with their forty centuries of farming; not Russia, but the Russians, who first conjoined great tracts of two continents in one whole and who are now testing ways of treating their soils so as to form the basis of a civilization of stability; not the United States, but Americans, people of yet another continent, who are gathering their forces together to stem the terror of an insulted virgin soil; not Britain, but the British, who have been marching upon the path of soil destruction so clearly marked out by Rome, but who, with a like courage and enterprise to that great people, link together most parts of the habitable world. What a conjunction of opportunity! The heart almost stops at the thought that, had the war ended as at one time it seemed it might end, the future of the world would have belonged to the Germans, who, shut in their history between their southern and eastern neighbours and two cold northern seas, have none of the treasures of experience which the Four Allies can bring to reconstruction.

But to the Four Allies are opened the gateways of an opportunity to bless the whole world as never before. Beyond the murk and rubble of the war; beyond the last, bleak resting places of millions of heroic men; beyond the razed homes and shattered towns of 'the quiet people'; beyond the scorched acres and barren fields; beyond the famines and their reign of death; beyond all this horrible orgy of life-destruction, is seen the vista of the living earth, as the source of the reconstruction of terrene mankind. At the gateways stand sentinels awaiting the password -- THE SOIL.

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