FROM THE GROUND UP

AN OUTLINE OF REAL ECONOMY

BY

JORIAN JENKS

WITH AN INTRODUCTION BY

H. J. MASSINGHAM

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INTRODUCTION

BY H. J. MASSINGHAM

MR JORIAN JENKS has the best possible qualifications for the formidable task he has set himself of exposing the pretensions of a false economics, based on the abstractions of money and the machine, and outlining the regenerative potential of Real Economy. For eight years he was a working farmer, tending his own stock, sowing his own corn, harnessing and driving his own horses and working side by side with his own men. In fact, he inherited the timeless economy of mixed husbandry as practised by the yeoman given official status in freehold, franchise, and freedom by an Act of 1430. In 1700, the yeoman numbered one-eighth of the population, breasting every social, political, and economic vicissitude up to the conquest of rural England in the nineteenth and twentieth centuries. He was celebrated in history and literature by Chaucer, Holinshed, Harrison, Sir Thomas Overbury, Sir John Fortescue, the Robin Hood Ballads, Drayton, Fielding, Gilbert White, Collins, Cobbett, Wordsworth, John Clare, Richard Jefferies, Mary Mitford, Bewick, Crabbe the Younger, Scawen Blunt, George Eliot, Tennyson, William Barnes, and others. He was the ancestor of Shakespeare and wrote his own autobiography in such works as the 1641 *Farming Boke* of Henry Best. Mr Jenks was once himself a small yeoman, a member of that rural middle class that formed the first storey of the national building, broadly based from the plinth of the peasantry and firm to uphold the aristocratic and mercantile superstructure. But as the Industrial Revolution and its consequences finally demolished the yeoman freeholder, so Mr Jenks was forced out of his vocation by the economic blizzard of the nineteen thirties. The practitioner of rural economy became the critic of modern economics, well known among the small resistance minority to its catastrophic repercussions. Now by this book time has had its revenges.

It is a very difficult book to introduce because it covers so wide-spreading a landscape of economic development, dis-

integration, and dissolution, staged against a background of permanent values and realities, like a range of distant mountains closing in a great plain where "ignorant armies clash by night". The book's part-achievement is in dispassionate and comprehensive analysis, in intimate knowledge of the ideological assumptions and abstractions no less than in the technological data of their historical results peculiar to the phenomena of "finance-industrialism". This is rendered doubly impressive by the back-stage presence of true economy, *oikonomia*, the management of the national household, like the chorus in a Greek play. The economy of wholeness and balance, health, wealth, and well-being, all by their Saxon originals meaning the same thing, are, as Mr Jenks demonstrates, virtually changeless by the very nature of their being. They are so because they conform to that Cinderella of modern science, ecology, the science and more than science of the living creature's, human and animal, harmonious response to its natural environment. It is Mr Jenks's object in this book to reveal the multiform ways and means by which the modern experiment of Megalopolis has endeavoured to contract out of this universal law, this primary condition of life as laid down by the Creator, and to indicate the terms of the Nemesis, the judgement, the retribution that is falling upon it at the very moment when the Age of Plenty seemed assured and the theory of Progress to be rosy with promise.

He expounds the steps by which agriculture has been transformed into agri-industry, wholly dominated by the machine and the mechanical mentality which in its turn dominates our society. He traces the development of the farm into the food factory, exporting virtually the whole of its produce through the medium of the dealer and distributor and processor into the industrial town. The factory concept is based on the conversion of raw materials into commodities and its application to the natural organisms that live in and above and from the soil imposes upon them the inevitable specialization of monoculture and technical extraction of soil-capital accumulated by an ancestry of social and ecological patterns despised for their "primitive" methods and simple equipment. Mr Jenks does not fail to discover the connection between the doctrine of efficiency, a substitute for, not an advance upon, the doctrine of "humus and husbandry", and the policy of imported cheap foods to feed the

displaced proletariat manufacturing exportable goods to pay for them. Our own farmers lost and (except at intervals of crisis) have never regained even the predatory security of exporting the bulk instead of the surplus of their produce at the expense of the fertility of their lands. But the foreign farmers lost even more; *their* lands have been blown and washed away by "mining" them to produce food for us, devitalized by processing and preserving, at or below the cost of production. At the cost of a million square miles of desert and two million approaching desert conditions in North America alone, not to mention the global effects of economic brigandage in South America, Asia, Africa, and parts of Europe. For the theory of the automatic expansion of the industrial machine is geared to that of unlimited natural resources to meet it and to gratify over wider and wider fields the acquisitive motive impelling that expansion.

Mr Jenks does not fail to correlate the fate of the soil's fertility with that of the husbandmen whose cultivations maintained it by the natural law of return. The Mechanical Age has destroyed the organic link between work and the worker, thereby stopping up his individual and creative capacity and debasing him into an instrument of production. When the worker was compelled to leave his home for the factory in order to exist, he became perforce the prey of economic forces and the victim of mass-manipulation at the will first of private enterprise and then of the impersonal combine, itself automatically progressing into the super-monopoly of the collective State machine, devoting the enhanced power-mechanisms of the twentieth century to the economic imperialism of the nineteenth. The historical causes to this end began with the Enclosures of the nineteenth century which displaced the peasantry and set the swelling drift from the land into motion. The economic causes began with the doctrine of Adam Smith that labour was a unit of human energy and so a mechanical function in the conversion of natural resources into consumable goods through the self-acting mechanism of a competitive "free economy". The worker lost both his status and, for good or ill, his personal employer. Salesmanship was organized as a further mechanism to induce the consumer to want what he got instead of getting what he wanted, and mass-entertainment was another to draw off the

frictions and discontents set up by the worker's own conversion into machine-minding at the cost of personal skill, pleasure in and responsibility for his work. Mr Jenks also deals at length, and with a lucidity rare indeed in the annals of such pontifical witchcraft, with the deterioration of money economics from a measure of value and medium of exchange into a supreme commodity in itself, an idea derived from Adam Smith that goods take their value from the process of exchange and not from being intrinsically good in themselves.

This *précis* of Mr Jenks's criticism of our present financial-industrial system is scarcely more than a series of headings and sub-headings upon the contents of his book. I have given a very faint indication of their complexity and of the cool mastery of treatment with which he moves from one aspect of his intricate and multitudinous theme to another, throwing up the significant and relevant detail so that the light can play upon it to the most revealing effect. I doubt whether there is another living man who could have probed to the heart of the heartless economic machine which is disintegrating under our eyes, with such extraordinary grasp of its labyrinthine windings and without ever losing sight of its essential meaning. The book could not have been written at—I am inclined to say—a more providential moment. For the whole vast complex is plainly tottering to its fall, as so constricted and inhuman a concept of life and society was bound to do. Whether war or starvation or both or the sheer topheaviness and lopsidedness of the inorganic pseudo-structure will deliver the final blow we need not pause to inquire. Enough that catastrophe has succeeded prosperity and want plenty, while the mitigations introduced into the system have entirely failed to do other than prop up the externals rather than underpin the fundamental masonry. "Finance-industrialism" is running down, if its momentum is not already the convulsion of death. It cannot survive because it has cut across the grain of human nature, because it has fostered its predatory elements at the expense of its more stable and creative ones and because its basic assumption—that natural resources are illimitable—has finally failed it.

I may be wrong but I doubt myself whether a rootless and mechanized society is capable not only of the extremely drastic

readjustments necessary to prolong its existence in a modified form but of that excruciatingly painful change in heart and mind which must precede any such remedial measures. For the change must take the form of what used to be called repentance, and how can a machine shed tears or turn itself into a vital and spiritual substance? The more urgent is it that keen and constructive thought should be devoted to outlining an alternative of life to the automatism of the *status quo*. Not by revolutionary programmes and procedure, for the futility of revolution has become self-evident, but by conversion in the older sense of the term. The leavening of the lump, fixed into immobility by the basilisk stare of a one-track-minded science, is the only possible way. This missionary labour is sure to be compensated for the exiguous numbers of its zealots by the massive weight of the concrete situation, namely, the cosmic fall of fertility and the inescapable facts of erosion accompanied by the rapid increase of the world's populations. The policy or automatic drift of expansion is at an end; there are no more virgin territories to conquer and exploit and the import-export economics of cheap food is doomed, not merely because food has ceased to be cheap, but because it has a scarcity value which is bound to get worse and worse in inverse ratio to the demands made upon it.

This regenerative alternative is mapped and closely reasoned in Mr Jenks's book which is fully alive to the material and spiritual issues involved. He advocates by the unerring logic of events an intensive husbandry in place of an extensive agri-industry; part-time holdings and a re-colonization of our land for the "labour-saving" devices of "efficiency" farming; the nursing of apprenticeship for rural trades ancillary to agriculture; the restoration not only of wastes to the soil and human skill to the land but of economies localized to their respective regions; the use of the machine for the only purpose that justifies it, the elimination or reduction rather of drudgery after its chaotic career of using us; the biological and ecological study of the soil instead of ignoring its micro-organic society in favour of "plant nutrients" worked out by chemical formulae, a proper industrial technique; the nutritional integrity of food-products, so shamefully adulterated both for commercial ends and out of the sheer automatism of processing, preserving, and transport-

ing—these and other measures designed to restore the balance not only of nature but of man considered as the partner with nature in place of the predator upon nature.

None of these proposals are theoretic abstractions, for they are merely and most wisely adaptations of pre-industrial practice. For, as Mr Jenks truly says, "humus and husbandry" have been the response of agricultural man to the resources of nature ever since sowing and tillage were discovered. Anybody who travels those few portions of our countryside that have escaped industrial pressures can see for himself what an ecological relation to land and landscape means. What tell its tale are the mixed woodlands, farms, and stock, the colour, texture, and structure of the soil, the congruity of the buildings to the nature of the region and at the same time the diversity within small compass of all the factors concerned, the natural vitality and integrity of the whole scene, unbroken by violent interferences and disruptions. Modern inventions are welcome to this integrated and qualitative pattern so long as they are subordinated to it. Soil depletion, as Mr Jenks justly points out, can no more be overcome by tractors and fertilizers than cheques can be written against an overdraft. The irony of the present *impasse* is that that earth-scholarship and intuitive management of natural rhythms which the industrial mentality has dismissed as obsolete and derided as a day-dreaming fantasy have become by the wastage of the earth quintessential for survival.

What Mr Jenks is pleading for with a wealth of illustration, epigram, and consecutive thought is the re-discovery of traditional values and the closing of the gap explosively torn between them and the importunate present. He argues on behalf of a way of life for man severed from his roots and his nature "all in pieces, all coherence gone", as Donne says. But because it is a way of life and so the reverse of a mechanism, he is *not* pleading for a lifeless and nostalgic imitation of the past. Society must put out new roots into its own land or perish whether by calamity or inanition. History is on his side and the nature of our mortal life with it. I know of no writer who has put the case for economy as opposed to economics with such persuasion, force, and clear-sightedness.

I have two reservations to make. No such revaluation as Mr Jenks envisages for our whole civilization (so that it may become whole again instead of a swarm of disintegrated particles) can occur without a religious and so Christian partnership with an organic economy. Mr Jenks is well aware of this but his treatment of this ultimate issue is decidedly sketchy. I do not know what he means by a reinterpretation of the Christian faith "in terms of the living". If Christianity is not the religion of essential life by its own terms of reference, it means nothing at all. What we need is a re-statement of the Christian sanction for all forms of creative life and dedicated work but one that recognizes the highly fallible nature of man for what it really is. In nothing has "finance-industrialism" offended more than in its contempt for humility, its ignorance of sinfulness and Liberal confusion of a vague ethics with doctrine.

Secondly, Mr Jenks emphasizes continually the cultural implications of his theme. He insists that cultural must replace mechanical valuations. For that very reason, I wish that he might have found some space for discussing the decline of the arts in a machine-obsessed civilization, especially as he remarks that a fertility-renewing agriculture is the foster-mother of the arts and crafts. He confines himself to the crafts but the arts have also suffered mortally by the dislocation of wholeness and the civil war between the rational intellect and the inchoate kingdom of the unconscious. Lord Dunsany once pointed out that modern art has adopted the angles of the machine for the curves of nature, nor can any art grow and flourish out of a purely urban matrix. The sources of life are both natural and supernatural. But let me praise Mr Jenks for what he has done rather than demur at what he has not done. For *From the Ground Up* is an achievement of mastery.

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PART I

GROUNDWORK

I

THE SOCIAL ECONOMY

THIS BOOK is about *economy*, and only incidentally about *economics*, a specialized and somewhat abstract subject. It discusses in particular the economy of Western civilization. Hence arises a need for definition, lest writer and reader find themselves at cross-purposes.

Economy is a word of Greek origin, *oikos* being a house and *nomos* a law. It means literally a system of household management, and in all probability was originally applied, not only to such domestic details as the ordering of meals, but also to the management of the estate from which food and other materials were drawn. By extension, it came to include the management of the material resources of a social group, first the Greek city-state, later the large political organizations which we now call nations. Indeed, until quite recently, the term "political economy" was in regular use.

Western civilization is harder to define, partly because "the West" has enlarged its borders very considerably in recent centuries, partly because there is little agreement as to what really constitutes civilization. But there is no great difficulty in distinguishing as a continuously coherent group the peoples of western Europe, who have drawn their intellectual culture from ancient Greece, their ideas of government from Rome, their religious inspiration from Christianity and most of their social customs from the Celtic and Teutonic tribes. These peoples, though to-day divided into nations (often with unstable political frontiers and institutions), have developed distinctive ways of thought and behaviour, and a distinctive scale of values—in short, a recognizable way of living, and of *living together*. This they have taken with them overseas into the territories they have colonized, so that to-day the white American, Canadian, Australian or New Zealander is even more "Western" than the western European. And while it is true that the social economy is profoundly influenced by environment and circumstances, social

ideas about living are at least as important in determining its shape.

An economy, then, is essentially functional. It is the *means* whereby a human society manages its material resources so as to obtain, as far as circumstances permit, the kind of living it wants. It seems necessary to make this rather obvious point because, for reasons which will be discussed later, there has developed a tendency to treat economic arrangements as if they were *ends* in themselves. Such things as private enterprise and public ownership, free trade and managed trade, are too often regarded as ultimate objectives instead of as methods to be considered on their merits. Industrial output, volume of trade, rates of consumption, circulation of money, are too often employed as measurements of economic efficiency, or even as constituting a "standard of living", whereas they are but statistical evidence on specific points.

This tendency is no doubt largely due to our pre-occupation with power. We too readily assume that because some elaborate economic apparatus can achieve impressive results, it is therefore necessary to our well-being and its efficiency is a measure of that well-being. It is, for instance, very convenient to be able to open at a moment's notice a tin of fruit which was picked some months ago on a farm at the other side of the world, and distinctly gratifying to our vanity to be able to reflect on the way in which there have been co-ordinated to serve that convenience the skill and industry of a small army of people—growers, packers, tin-makers, shippers, transport workers, importers, wholesalers, and retailers, to say nothing of the miners, foundrymen, engineers, and so on. But the fact remains that the fruit serves our nutritional needs rather less adequately than that which is picked from a tree in the back garden and eaten without resort to any economic apparatus at all.

Never was there a greater need than at the present time for a thorough re-examination and re-statement of the *purpose* of economic activities. It is not enough for us to know *what* is produced and consumed—heaven knows, we have enough statistics on these points. We must also try to understand, at least in broad outline, *how* it is produced and consumed, and *why*. Unless we are to assume that we travel in order to provide traffic for the railways, we must ask ourselves at every stage whether our

journey is really necessary and whether there may not be some better way of accomplishing our object.

There are at least three good reasons why this process of revision must be undertaken.

1. Our economic system has for some time been showing increasing signs of breakdown, and though a great deal of effort is being constantly devoted to repair work, it is evident that we are passing through a period of rapid and far-reaching change, which can fairly be described as an economic revolution.

2. While that system is suffering acutely from dislocation and mal-adjustment it is being challenged with increasing violence by a rival system which, however degenerate we feel its philosophy to be, nevertheless possesses the ruthless vigour of barbarism and all the attraction, to the materialistic mind, of deterministic logic. This challenge can be met only by a regeneration of our own Western philosophy and its effective expression through our social economy.

3. There has been developing in the West, as an aspect of the general concept of social regeneration, a distinctively new approach to the physical facts of life which may have a profound and stimulating effect on our social economy and thus provide both the remedy for the breakdown and the answer to the challenge.

Here clearly is a situation which may prove to be one of the turning-points in history, and which certainly cannot be met by a mere static defence of established ideas and practices. If we are going to demonstrate that Western civilization has sufficient vitality and adaptability to overcome its twentieth-century crisis, and incidentally show that the Marxist theory of dialectical materialism is wrong, we may well have to reconstruct its economy, not just at the superstructure level, but from its roots in the soil right through to the points at which it shapes the lives of its individual members—that is, from the ground up.

Such reconstruction requires, first of all, a reconsideration of economic values in terms, not of doctrines and conventions, but of realities. For this task the branch of applied mathematics which we know as "economics" is quite inadequate, because, however useful figures and formulae may be for certain purposes, they are at best only symbolizations of reality. Yet so accustomed have we become to its limitations that it is not easy to reduce

to a few words the objectives which we feel our economy ought to have if it is to be really functional and enable us to develop our resources for living in the way that we believe to be the right one for us. For want of better definitions, I propose to fall back on the words of the old toast—*Health, Wealth, and Happiness.*

Of these three objectives, economy is most directly concerned with wealth; but the value of wealth clearly depends upon the degree of health and happiness associated with it.

Health, as we are at last beginning to realize, is not just the absence of identifiable disease or disorder. It is a condition of haleness or wholeness, in body, mind, and spirit—an expression of full living. As such, it implies a state of balanced, functional activity. A food, for instance, is wholesome or health-giving when it nourishes us without upsetting or unbalancing our digestive economy; and this is most likely to be the case when it is itself whole and balanced and is derived from a healthy plant or animal. A way of living is wholesome when it provides for the balanced exercise of all our faculties, for the healthy expression of our creative powers as well as for the healthy enjoyment of wealth. In this respect, of course, we differ from other creatures; we possess a conscious and selective will. Whereas a plant or animal, given access to its requirements, will instinctively adopt a healthy way of living, we are responsible for making our own choices. And it is in the making of the right choices that we achieve mental and spiritual as well as physical health. Perfection, perhaps, we can never achieve, but it is a sound and healthy instinct to strive for it.

Wealth is simply the means of well-being (weal)—the raw material, so to speak, of health. That is why money is not wealth, but only a claim to wealth, valid to the extent that real wealth exists to meet it. Money has no "weal value", but only exchange value, a much less stable thing. The exchange value of money in terms of eggs, for example, may fluctuate greatly (it is more often quoted as "price per dozen") without any change in the nutritive value of the eggs themselves.

Wealth can be both tangible and intangible. Food, housing, clothing, water, fuel are tangible and to a large extent measurable; but their "weal value" may be greatly influenced by their intangible and immeasurable properties. Up to a point, quality can be measured by means of analysis; we can say that a food

contains so much protein and so many vitamins, or that a cloth contains so much wool. But this is really only an extension of the quantitative method of assessment. There are many vital qualities—vital in the sense that they make for good living—which are not amenable to mathematics. Two foods, for instance, may have identical chemical analyses, yet differ markedly in their nutritional value; to argue that this difference must be ignored because it cannot be measured is like saying that two musical performances must be of the same merit because the same notes are played in the same order. Some forms of wealth are entirely intangible, such as the "output" of a church or school or theatre, or the cumulative effects of a congenial as opposed to an uncongenial occupation.

The art of living, which is the essence of civilization, consists very largely in the recognition and cultivation of quality; and if the social economy is to be designed for good living, it must take quality into account, even if we cannot measure it by existing methods.

Of happiness we can only say that it has neither quantity nor quality, but only degree, being essentially a spiritual condition. It obviously cannot be "produced" in the economic sense, or even deliberately fostered. But because it is the ultimate expression of the satisfactions derived from wealth through health, and because it is entirely spontaneous, it would seem to be about as good a test as we have of right living, both personally and socially, and therefore of the real efficiency of our economic arrangements.

It will no doubt be objected that the economist ought not to be concerned with such imponderables as health and happiness, but should concentrate on such "facts" as can be measured and checked. Such a stricture, if true, would be a striking commentary on the extent to which intellectual fragmentation has been developed in the forcing-house of specialization. But is it true? Would it not be more correct to say that the economist has always been concerned with imponderables, but that during the last hundred years his interpretation of them has been crystallized, as a matter of technical convenience, into a code of conventions or premises.

The *laissez-faire* school of thought, for example, took for granted the right of the individual to opportunities for acquisition and

self-advancement. The Marxist school assumed the collective right of the proletariat to the whole product of labour. Both have assumed, virtually without qualification, that human labour (and/or mechanical power) is the decisive factor in production, that material gain is the decisive economic motive, and that standards of living can be measured in terms of quantitative consumption.

These premises cannot at any time have been more than generalizations. They have now been outmoded by the development of new social ideas and invalidated by physical as well as technological changes. What we need, therefore, at this crisis in our history, is not just a new system of "economics", but a re-survey, in the light of past experience, modern knowledge, and future probabilities, of the whole context in which the social economy is required to operate.

At this point we must revert for a moment to definitions. If economy is concerned with the management of resources for living, it must conform to the means by which life is sustained. If it is social, it must conform to the means by which associations are maintained. Actually the two subjects are intimately connected in that life cannot be sustained in isolation; and they are brought together on the scientific plane by *ecology*—the study of the relations of living creatures to each other and to their surroundings. Ecology is in fact defined by one dictionary (Chambers 1946) as "the science of animal and vegetable economy."

But what is life? No man has yet successfully defined it. Even some scientists admit that it contains an element of mystery. Neither can it be subjected to the processes of analysis and measurement; for disintegration destroys the vital element, which in any case is incalculable, at any rate in mathematical terms. A mineral compound can be analysed and re-constituted. A watch can be dismantled and re-assembled. But an organism, once dissected, consists only of dead fragments; and no laboratory or workshop can restore it to life. The organic whole is always more than the sum of its tangible parts.

But though we cannot define or analyse life, we can learn a great deal about living by observation and by the synthesis of observations into a code of knowledge by which real standards of living, and hence economic principles and practices, can be judged.

We have first to recognize that for the purposes which we have in view, there are two distinct kingdoms of nature—the organic (plants, animals and men) and the inorganic (minerals, water and air).[1] The frontier between them is never very clear and is always being crossed, as when plants "organize" the carbon and oxygen of the air into vegetable tissue, or vegetable tissue is resolved by fire into carbonaceous gases and mineral ash. But whereas inorganic matter and energy, being amenable to analysis and calculation, can be manipulated according to the laws of physical science and so harnessed for industrial purposes (technology), living creatures cannot be disintegrated and controlled in the same way,[2] but must be cultivated (i.e. tended) in conformity with what we know about their vital requirements (biology); in short, the laws of life must be observed, in both senses of the word.

We can, for example, with the aid of harnessed inanimate energy, extract metals from the mineral ore of the earth's crust, reconstitute them as alloys to serve particular needs, and from them fabricate an immense range of articles useful to us. Our power to effect such transformations is constantly increasing, because physical science and technology have given us a high degree of mastery over such materials.

But we have no such mastery in the organic kingdom. Human living requirements in terms of air, sunlight, water and food are substantially the same as they were 10,000 years ago; and though we may have changed to some extent the means by which we obtain them, the fundamental processes involved have altered little. Over the course of centuries, we have evolved from a wild grass of Asia Minor wheats capable (under favourable conditions) of providing sufficient bread from a single acre to feed a dozen persons for a year. But that has been done, not by imposing industrial techniques on plant or soil, but by studying and intensifying natural processes; and that is not mastery but culture. Moreover, as the last few years should have taught us, we cannot expand the production of wheat with the facility with

[1] This is a broad generalization, not necessarily in close conformity with present-day scientific usage. Chemists, for instance, confine the term "organic" to the carbon compounds, while the word "organization" is now put to a great variety of uses.

[2] "Living cannot be interpreted in terms of materio-dynamics."—p. 15, *The Peckham Experiment*, Pearse and Crocker (Allen and Unwin, 1943).

which we can expand that of, say, steel or chemicals; we cannot even predict with any degree of accuracy how large the next harvest will be; and that again is not mastery.

There is this further important difference. Inorganic relationships can be static or mechanical, as when water wears away rock or turns a wheel; they may change the form of matter; but they can never create new life. But organic relationships, that is, relationships between organisms, give rise to vital and mutual inter-activity such as nutrition, growth and reproduction. Life, in fact, depends for its continuance upon such inter-activities.

Moreover, since it is mortal as well as vital, the organic kingdom is not only productive but *re*productive. It must constantly be regenerating itself—new individuals carrying forward the flow of vitality as old ones die. And while some of the simpler organisms reproduce by a process of sub-division, in all the higher species there must be inter-action between differentiated individuals.

Life therefore is essentially *social*, the dynamic impulse of organic nature to create, sustain, and replenish life being maintained by an intricate system of vital relationships. This is the essence of *fertility*. In the human species, this impulse finds expression, not only in the instinctive urge to live and to reproduce which is common to the whole organic kingdom, but in an urge to create. For these urges the social economy must provide scope if they are not to be atrophied or perverted.

It is by means of these complex mutual processes that organic nature has in the course of centuries clothed the earth with vegetation and populated it with an infinity of living species. So long as no disruptive factor intervenes, there is a general increase in the totality of life, as inanimate matter is "organized" from the inorganic kingdom. The main function is performed by plants, which alone have the ability to photo-synthesize the oxygen and carbon of the air and combine it with materials drawn up by their roots from the soil. But plants themselves require for the preparation of this material the assistance of soil bacteria and fungi—humbler forms of vegetable life, some of which can capture atmospheric nitrogen, but which have no power of photo-synthesis and depend for their nutrition upon organized matter obtained from plant and animal wastes.

The animal sub-kingdom, on the other hand, while it can utilize water and atmospheric oxygen direct, depends for that portion of its requirements which we call food upon the vitalized products of vegetation. For this purpose, most of its members are endowed with mobility, so that they can move about in search of nutriment. Thus they are not rooted to the soil directly, but indirectly through their dependence on plants. In return, they perform many services for vegetation; earthworms aerate the soil and draw into it the plant residues on which they feed; insects carry pollen; and all return to the soil in one way or another the organized matter they have derived from it, including their bodies after death.

This general scheme is of course infinitely variable and flexible. The immense number of species which make up the organic kingdom tend to group themselves into ecological patterns or *associations for living*, localized, but having in common certain important characteristics.

(i) Each association is closely fitted to, and disciplined by, its inorganic environment.[1] Variations in climate, altitude, aspect, water-supply, geology, are reflected in the composition of the plant population and hence, to some extent at least, of the animal population. Big trees, for instance, are not found on semi-arid steppes, nor heaths in swamps.

(ii) There is an immense diversity of form and habit, not only as between species, but as between individuals of the same species. It is this diversity which makes possible both the division of functions and the gradual process of adaptation to environment.

(iii) Though there are certain predacious and also parasitic species, the general principle is that of mutual aid. Besides the nutritional system already mentioned, there are many cases in which species are "complementary". It is the general experience, for instance, that mixed woodlands and mixed pastures thrive better than pure stands; sheep thrive better when their grazing is shared with cattle, and Sir Albert Howard's researches showed that many crop-plants and trees lack vigour and disease-resistance in the absence of certain root-fungi (mycorrhiza).[2] There

[1] See Dr K. E. Barlow's illuminating book, *The Discipline of Peace* (Faber, 1942).
[2] See *An Agricultural Testament* (O.U.P., 1940), also M. C. Rayner and Neilson-Jones, *Problems in Tree Nutrition* (Faber, 1944).

may well be a whole system of affinities about which we still know relatively little.[1]

(iv) For healthy function, factors and species must be present in certain proportions or, as it is more usually termed, "balance". This balance varies in response to changes in conditions, and it was no doubt the elimination of the superfluous (and the "unfit") that gave rise to the unbalanced theory of the "struggle for existence".

(v) There are within each association two types of cyclic movement. Not only is each organism moving through its own life-cycle of birth, growth, maturity, death, and decay, but the nutritional system tends likewise to take the form of a continuous cycle, as the organized matter built into the structure of plants is returned to the soil, either direct or via animals, there to be broken down by the soil organisms into elemental food for themselves and for succeeding generations of plants. Thus composition is balanced by decomposition.

(vi) There is a strong tendency, in the higher species, to upward growth towards the light and warmth of the sun. This "up-reaching" becomes spiritualized in human religious aspirations, as witness the sun-worship of primitive peoples, and even the Gothic spire, Mahometan minaret, Egyptian obelisk and Greek column.

Have these associations nothing to teach us? Should they not be regarded as the groundwork upon which our own social economy must be reconstructed? For while we may feel, with some justification, that we are a superior species, charged with responsibility for "dominion" over all other species, we are by no means outside the natural order and can by no artifice dissociate ourselves from it. We may rise *within* it—that, indeed, epitomizes the history of human civilization—but there can be no contracting *out* of it during our earthly existence. For with all our ingenuity, we can contrive no substitute for the vital nexus which it provides.

In the true sense of the word, organic nature is the first and greatest economist, conservative in that she uses everything and wastes nothing, progressive in that she is constantly adapting

[1] Dr Ehrenfried Pfeiffer in *Soil Fertility; Renewal and Preservation* (Faber, 1947) says that "it has been shown that not only plant rotation but juxtaposition of plants has an important effect" (p. 98) and cites numerous examples in gardening.

species to conditions, associations to their environments. Hers are the *re*sources from which the flow of vitality is perpetually renewed—so long as the laws which govern their functioning are faithfully observed. In that civilization is social—the art of living together healthily and creatively—our economy must be founded upon hers.

II

HUSBANDRY IS FUNDAMENTAL

Our main economic activity is the production of wealth. But to-day the word "production" is used as loosely as is "wealth". Strictly speaking, it means "leading forth"; and in the sense that finished goods are led forth from raw materials, it is applied correctly enough to manufacturing industry. Since, however, the latter works with materials that are already products of the farm, forest, or mine, it is in effect secondary production and might even be regarded as the first phase in consumption.

Agriculture, on the other hand—and this includes horticulture and forestry—is concerned with the production of materials themselves. It is therefore primary or original production. Moreover, since we cannot ourselves "organize" elemental matter into the foodstuffs and other organic material we need, agriculture's main function is to cultivate or tend the vegetable and animal life which performs this task for us.

In other words, just as industrial or secondary production depends on agricultural or primary production, so does the latter depend upon biological reproduction. And since reproduction involves the maintenance of breeding stocks—which term must include, not only plants and animals, but also the micro-organisms of the soil—all that we can expect from agriculture by way of "output", if fertility is not to be depleted, is the surplus over and above reproductive requirements. This in effect is what our food supply mainly consists of, namely, seeds not required for sowing the next crop, animals not required for breeding, milk surplus to the needs of calf-rearing, and so on.

This duality in agriculture—production and reproduction—presents the farmer with an endless series of questions on which he alone is really competent to make decisions, though he is greatly influenced (often for the worse) by economic or governmental pressures. He must, for example, reserve from his annual production of lambs or calves (even though these may be his

main source of income) sufficient animals to make good the wastage in his flock or herd from death, disease, accident, and old age; and if he is to improve his stock, these must be the best, not the worst, of the crop. Similarly, he must devote at least a part of his land each year to fodder crops and leys (temporary pastures) which, being fed to livestock on the farm, enable organic manure to be returned to the soil. Sometimes there is a division of functions; a dairy farmer may replenish his herd with heifers bred by some one else; an arable farmer or grazier may confine himself to fattening stock bred in another district,[1] a market-gardener will usually buy dung and/or straw for compost-making from farmers. But, taking agriculture as a whole, this maintenance of reproductive capital is (or rather, should be) the prime consideration and the first charge on income, whereas industry is concerned only with the maintenance and renewal of mechanical equipment and buildings.

Such is the basis of true husbandry, no matter whether it is practised by the "ignorant" peasant tilling with a few primitive tools the patch of land that supports himself and his family, or the modern commercial farmer growing, with the aid of employees and modern implements, food for perhaps hundreds of people. It is sharply opposed to the predatory, nomadic type of food-extraction in which the farmer or pastoralist takes all he can get without return until the soil is exhausted or the herbage eaten out, when he moves on in search of fresh land. This exploitation—it can hardly be called agriculture—can likewise be primitive or modern. Its instruments may be the ravenous goats of the Mediterranean peasant, the vast flocks of the Australasian pastoralist or American rancher, or the elaborate and costly machinery with which the big "operator" of up-to-date U.S. farming is "tooled-up" to extract crops from thousands of acres on which he himself never sets foot.

There is a profound difference here, one which affects, not only the pattern of agriculture, but the whole outlook and structure of human society. The predatory nomad captures his food supply; he lives *off* the country; he is rarely *of* it. His methods conform to certain human instincts—aggressiveness, acquisitive-

[1] In this country, for instance, there is a large traffic in "store" stock from the hill districts of the north and west, and from Ireland, to the midland pastures and the arable districts of the east and south. It is an example of "complementary" agricultures.

ness, restlessness; and there is some evidence[1] that they are seldom abandoned until their inherent self-destructiveness enforces a change. This self-destructiveness is due to the fact that constant depredation erodes (i.e. wears away) natural reproductive processes. Game dwindles through over-hunting; pastures fail through over-stocking; tilled land loses humus through over-cropping and reverts to dust, so that it must either be abandoned or cultivated on more conservative lines.

It is not until a permanent fertility-renewing agriculture takes shape that human society can make roots, develop the arts and crafts of civilization, and establish an orderly community life. This rooting can occur only when men learn how to secure their food by cultivation (that is, by the careful tending of plants and animals so that they may yield a recurrent reproductive surplus) instead of by capture.

The arts which this cultivation develops, and the principles on which it is based, are well termed husbandry. For just as the house-wife is "married" to the home and its economy, so is the husbandman "married" to the land and its economy. This is not just romanticism, but a fact which can be observed in any household, on any farm. In all things which concern the maintenance and enrichment of life, there can be no taking without giving. In husbandry, man is no longer a mere grabber, snatching a precarious living wherever and whenever he can find it. By a long and painful process of trial and error, he discovers how best he can meet the needs of his land and livestock, and duly preserves this precious knowledge in peasant lore and religious ritual.

In this way, human society wins security from hunger and, as the skill of its husbandmen increases, wider opportunities to expand its numbers and diversify its occupations. Agriculture, too, is the primary culture, training hand and eye for the crafts, inspiring by its inherent creativeness the finer arts, providing parable and precept for religion. As H. J. Massingham well says[2]: "All true culture is organic and rooted in the traditional forms evolved out of a rural matrix. Culture cannot exist in a vacuum."

True agriculture, however skilful and "art-ful" it may become, can never be artificial in the sense of using substitutes for natural processes. On the contrary, it must always conform to those

[1] See *Hunter to Husbandman*, J. W. Page (Harrap, 1939).
[2] *Where Man Belongs* (Collins, 1940).

processes, however much it may seek to modify them, as for instance by the systematic selection of plants and animals with desired characteristics, and by the aeration and drainage of the soil to provide better living conditions for its inhabitants. Such modifications represent an intensification of natural methods without departure from the principles underlying them, rather than "interference" with them in the sense of cutting across those principles, as happens when concentrated chemicals are employed to stimulate the growth of wanted species or to destroy unwanted species.

What in effect the husbandman does is to create and maintain a new kind of ecological pattern in which the human species has a permanent place. He lives *in* the country, instead of *off* it, working in intimate association with its other inhabitants, justifying the toll he levies on them by the contributions he makes to the natural economy.

As Dr G. T. Wrench says in *Reconstruction by Way of the Soil*[1]: "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."

In consequence, the agri-cultural relationship is, like all other vital relationships, two-way. The cultivator is himself cultivated —influenced creatively—by the terrain which he cultivates. That is why the preservation of rural beauty, and not only wild (i.e. uncultivated) beauty, is so essential a part of social policy; it is indispensable to human well-being.

This point was implicitly recognized by the Scott Committee on Land Utilization in Rural Areas (1942),[2] which pointed out that,

> The pattern of an inhabited countryside is brought about in two ways. The age-long processes of geology have made for man the hills, valleys, and plains which he inherits to-day; but he has done much by his agriculture to increase, indeed to create, the beauty of that heritage. While man's activities are limited by the geographical configuration of the landscape; while he cannot mould and shape it at his will; he can, and does, adapt it to suit his purpose. Such adaptations are pri-

[1] Faber, 1946, p. 10.
[2] Cmd. 6378. Paras. 13 and 14.

marily the result of man's economic needs, but they may also arise from less utilitarian causes—his love of beauty for its own sake and his desire to create beauty, as in the case of many English parks.

But what is it that the husbandman puts into the land to balance the wealth (both tangible and intangible) that he takes out of it? What exactly *are* his contributions to the natural economy? There are two, both of them of decisive importance.

First, as follows from the word "husbandman"—something of himself. He puts in skill, effort, devotion, all the fruit of accumulated observation and experience. H. J. Massingham, in fact, says that "if we look well into the word husbandry, we can risk a definition of it, namely loving management. It means man the head of Nature, acting towards Nature in a family spirit."[1]

Unlike industry, agriculture is concerned with a diversity of creatures living and growing under constantly varying conditions. Its methods therefore can never be wholly reduced to techniques or formulae. What may serve well with one field or one animal may be quite unsuited to another field or animal; what may be the right procedure for tillage or hay-making one day may be quite wrong the next. Its efficiency as a cultivator of fertility and producer of food depends, not only on *what* is done, but on *how* and *when* it is done. There is a "land sense" and a "stock sense" which are genuinely cultural and are derived less from acquired knowledge than from an instinctive feeling for the land and its creatures.

The second thing that the husbandman puts into the soil—or rather puts back in accordance with the nutritional cycle already mentioned—is organic matter in the form of plant residues and animal wastes. This material can play its full part in maintaining fertility only when it is decomposed by bacterial and fungoid activity to form *humus*, the highly-complex colloidal substance which gives soils their crumb-like texture and dark colour. *Humus* is the Latin word for soil, and humus itself can best be described as organic matter in a transitional state between one form of life and the next via the soil.

Most agricultural scientists now agree that organic matter is indispensable for soil fertility. But because they are still inclined

[1] *The Natural Order* (Dent, 1945), p. 8.

to think of the latter in terms of chemical elements, which they call "plant nutrients", most of them maintain that the functions of humus are chiefly physical, i.e. that it improves the texture and moisture-holding capacity of the soil. That humus has such properties is undoubted; but it seems illogical to dismiss on the ground that it is "unproven" the view of the "compost school"[1] that the indispensability of humus lies primarily in the part it plays in the life processes of soil micro-organisms. There is nothing unreasonable in thinking that an organic substance of high biological potency has organic functions; rather is it for the chemist to prove that the concentrated mineral salts which he recommends serve the same physiological purpose, and do so without affecting the biologic balance (health) of the plant, or of the animal or human being consuming it.

This is not the place for a review of all the evidence on this important subject,[2] but its economic significance should be noted. If the present trend in agricultural science is to be continued and intensified, so that more and more time and money are expended on the artificial treatment of deficiencies, diseases, disorders and pests, then agriculture itself will become more and more costly—and hazardous; for no artificial corrective can hope to achieve the delicate biologic balance of nature, while some "scientific weapons", such as strong acids and poisons, can hardly fail to disturb it. If, on the other hand, the "compost school" are correct in their belief that by proper attention to biologic factors we can build up positive health in plants, animals, and eventually man himself, then not only can expenditure on artificial aids and treatments be steadily reduced in all three fields, but agriculture and nutrition can be put on a sound economic footing. For seeing that soil, sub-soil, and atmosphere together contain all the elements needed for nutrition, it is surely more "economic" to employ natural agencies to "organize" them for us than to try to perform by artificial means tasks that nature can do much more efficiently. In other words, what

[1] The word "compost" is loosely applied to many materials, including straw rotted down with chemicals. But true compost is made by reproducing above ground and under controlled conditions the biologic processes which take place in the soil during natural humus-making.

[2] For further information, see *The Living Soil*, Lady Eve Balfour (Faber, 1943); *Soil and Sense*, Michael Graham (Faber, 1941); *The Earth's Green Carpet*, Lady Howard (Faber, 1947); *Chemicals, Humus and the Soil*, Donald P. Hopkins (Faber, 1945); and many other books; also the literature of the Soil Association.

we may need to overcome the present (and probably continuing) food shortage is not more science but better husbandry.

Husbandry, then, is essentially conservative. It is *real* capitalism, an economy based on the conservation and (so far as possible) increase in the stock or "head" of fertility which constitutes the earth's greatest resource of wealth. This is clearly the only type of economy that can be maintained for any length of time, and it is a pity that the word "capitalism" should have been perverted from its true meaning. And while as an occupation husbandry is intensely personal, its function is intensely social. The husbandman is in effect the living link between human society and the larger society of organic nature, between civilization and the soil by which it lives.

But the very fact that good husbandry makes possible a large non-agricultural population constitutes a danger, in that a time may come when the social superstructure grows so top-heavy and so preoccupied with other matters that it neglects, exploits, and even despises the foundation on which it has been erected. Then the whole edifice cracks, just as a wall cracks when the ground subsides, even slightly: and the larger and more complex the superstructure is, the greater is likely to be its ultimate collapse.

This was, to a very great extent, the fate of Rome, whose empire was, in power and size, comparable to the Western civilization of our own time. Dr G. T. Wrench quotes Simkovitch to the effect that,

> Province after province was turned by Rome into a desert, 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 enrich the prosperous with its loot. The only exception was Egypt, because of the overflow of the Nile . . . 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 a desert. The forest-clad hills were denuded.[1]

[1] *Op. cit.*, pp. 43–44. The quotation is from an essay by Professor Simkovitch in the *Political Science Quarterly* of the Columbia University, 1916, under the title of "Rome's Fall Reconsidered".

Dare any one say that there is *no* reasonable analogy between the Roman Empire as it approached its period of dissolution and the condition of Western civilization to-day? There can even be detected an approximation in social policy to the "bread and circuses" form of appeasement which Rome's rulers found so useful.

As an increasing proportion of a human society becomes detached from the soil, cultural retrogression is almost inevitable. Men become isolated from any ecological context, increasingly mobile, over-confident in human cleverness, biologically irresponsible. They develop a tendency to consume rather than create, to take rather than give, to construct rather than cultivate. In short, they are in danger of reverting to predatory, nomadic habits, living by capture.

It will be the main business of this book to discuss the extent to which this diagnosis applies to Western civilization, the origins of its social and economic trends and probable outcome, and the ways in which they can most usefully be counteracted so as to produce a condition of health and vigour. Some of these trends may appear at first sight to have little economic significance; but they all form part of the pattern of relationships which constitutes the background of any economic survey. For what men do cannot be dissociated from what they think, or what they think from what they believe.

PART II

THE MECHANICAL AGE

III

THE ECONOMIC CONSEQUENCES OF LIBERALISM

THE ARTS of the husbandman and the housewife are ageless; but the superstructure of civilization reared upon them varies greatly from age to age. It is shaped by historic events, by dominant personalities, by technological achievement, but above all by cycles of human thought and belief—the ideological trend.[1] Economic history must always be seen against its background of contemporary social philosophy and political ideas.

The present economic structure of Western civilization is largely the outcome of changes which took place, broadly speaking, between 1750 and 1850. We are all aware of the great expansion that has occurred within the last 200 years in mechanized industry and transport, in populations, in urban development and colonial expansion. But while all these things are ascribed, quite correctly, to the Industrial Revolution, the point is sometimes overlooked that that revolution was itself only a part of a general economic revolution, and that this in turn was associated with—and largely shaped by—a social revolution. It is perhaps significant that many of the inventions which we identify with the Industrial Revolution actually ante-dated it. What brought them into play was the development of new social ideas, and therefore of an economy, which was *potentially machine-minded.*

The ideological change which inspired the American and French Revolutions and formed the background to the Industrial Revolution can best be described as a transition from various forms of authoritarianism to liberalism. The term liberalism is here applied, not to the tenets of any particular party, but to the general body of interconnected ideas which have centred about the ideals of liberty and equality. Its cardinal belief is that every human being, without distinction, has a natural right to freedom

[1] "Ideology" is the study of ideas, more especially the association of ideas in a social context.

of thought, speech, and action, and that the primary function of society is to provide him with the opportunity, so far as it may be physically possible and without hurt to others, to gratify his own desires.

These ideas are not of course eternal verities. They were, in their revolutionary form, essentially a human reaction to outgrown forms of human authority. And just as the revolutionary liberal philosophers claimed that their ideas were an interpretation of natural rights, so must we to-day revise those ideas in the light of all we have since learned about natural relationships and processes.

The basic idea of the Liberal Revolution was crystallized by Jean Jacques Rousseau in the historic phrase, "all men are created free and equal".[1] Even more explicit, though still essentially idealistic, was the passage in the American Declaration of Independence which ran:

> We hold these truths to be self-evident, that all men are created free and equal, that they are endowed by their Creator with certain inalienable rights, that among these are life, liberty, and the pursuit of happiness, and that to secure these rights governments are instituted, deriving their just powers from the consent of the governed.

Those are noble sentiments, and it is not until recent years that their validity as "truths" has been questioned; nor is it indeed our business here to criticize them from the ethical or the political angle. But it is quite impossible to study the economic developments of the liberal period without taking into account the influence exercised by its social creed, the more especially as freedom and equality were held to be, not *relative* rights originating in social function and conditioned by social requirements, but *absolute* and "inalienable" rights—the natural condition of every human individual.

The results of this influence were, broadly speaking—Disintegration, De-organization, and Mechanization. Society, one might almost say, was taken to bits and then gradually reassembled as a piece of machinery, thereby losing its organic character.

[1] *The Social Contract* (1762).

The first process is easy enough to understand. Liberalism sought to liberate men from ties that were irksome, and to destroy distinctions that were felt to be arbitrary. It could hardly hope to do so without breaking up the pre-existing order of society, while the essentially abstract, and even negative, character of its own ideals inhibited it from constructing a new order of its own.

Up to a point, this process may have been historically necessary. For though the authoritarian type of society had originally been valid and effective, many of its institutions had become obsolete, even corrupt and oppressive. They had, moreover, been undermined by the growing power of the merchant and banking classes who were, in the event, the chief beneficiaries of the revolution. In a sense, liberalism only completed and legitimized the dissolution of something which was itself already dissolving.

But what liberalism did, in its pursuit of human liberty and equality, was to set up, or idealize, an abstract, standard Man in whom the "inalienable rights" could be vested and whose sovereign will could be ascertained by the mathematical process of head-counting. Broadly speaking, democracy (political liberalism) is predominantly quantitative, while aristocracy is essentially qualitative. Idealized Man appears again and again as "the voter", "the consumer" or "the worker", or collectively as "the public", "the people" or (more comprehensively) as "humanity". He has become the mythological hero of modern times.

But however strongly we may feel about democracy, however convenient "the common man" may be as a figure of speech, we are bound to admit that he is unreal—a convention. For he has no ecological or cultural ties, no localized background, no organic function or affinities. He is the symbol of a society in which association in the true sense is at a discount and which has in effect been de-organized. He is the human unit from which the mass has been formed.

Liberalism did not perhaps directly inspire the disintegrating influences that undermined the old rural and functional economies, and so created the rootless, urban proletariat of our own times. As against the socially-disastrous Enclosure movement in England, for instance, must be set the establishment of a landowning peasantry in France. But such disintegration was

entirely consistent with, and thus promoted by, liberal philosophy, because the latter envisaged men as self-contained individuals rather than as social creatures in a natural setting.

There was a similar fragmentation of men's attitude towards life. No longer were religion, government, economy and the arts regarded simply as different but interrelated aspects of an organic whole. They became, so to speak, autonomous, and went their several ways. Religion became a "special (and to a large extent an optional) subject", politics a hobby or even a profession. Learning and the arts acquired a rarefied atmosphere of their own. Economy, long the seat of rebellion against moral restraints, was rapidly divorced from non-material considerations. But here again it would be a mistake to think of fragmentation as the outcome of deliberate policy; the whole idea of planning was quite alien to liberal philosophy in its earlier and purer forms. Disintegration occurred because there was no longer any authoritarian corpus of beliefs to hold the social concept together, as the colloidal properties of humus hold soil particles together.

Twentieth-century social moralists, in assuming that the motives of nineteenth-century "capitalists" were entirely sordid, misinterpret the logic of liberal ideology. The Victorians honestly believed that business, morality, and beauty could be kept in separate compartments, that just as men were free to make the most advantageous bargains they could for themselves, so were they free to spend the proceeds in whatever way seemed best to them. Many of them did spend freely on public welfare and charities, and their so-called private lives (privacy being the very acme of individualism) were often inspired by a keen sense of rectitude. Modern science, in claiming to be strictly objective and devoted freely to the discovery of truth, tries to attain an even higher degree of detachment. Since, however, even the scientist is but human, it often reflects the mental bias of the period, achieving fragmentation rather than impartiality.

Be that as it may, it is difficult to discover in Western economy, as it had evolved by the middle of the nineteenth century, any restraints save those, such as sanctity of contract, which were necessary to its own working. It was no longer an ordered association of men for a common purpose, but had become an arena in which men rose or fell according to their own capacity for self-preservation. It was undoubtedly free; but the simile of a free

fight is by no means unjust. No wonder that the neo-Darwinians were tempted to envisage Nature's processes of adjustment as a stark struggle for existence.

Nevertheless, it is impossible for men even to exist together without relationships of some kind; there must be contacts and transactions conforming to a generally-accepted pattern of behaviour. But whereas the relationships of the pre-liberal age were mainly organic in origin and character, those which arose from "liberation" were predominantly inorganic; a process of de-organization took place.

Pre-liberal society, though it had undergone many modifications since the Middle Ages, still retained the principles which characterized mediaeval society and on which feudalism had been based. It was personal, functional, hereditary, and agrarian. Status and property were vested in the person (i.e. they were *organic* "rights" or "liberties"), and with them went social responsibilities. Behind all economic arrangements lay the recognition of the land as the primary source of wealth and of the over-riding necessity for tilling it. The peasant might be bound to the soil, both by the social system and by the fact that he had no alternative source of livelihood. But, conversely, the soil belonged to him, if only for the very practical reason that without his husbandry there could be no society. The craftsman, likewise, whether carpenter, mason, smith, leatherworker or miller, had a secure place in society. His craft, like the skill of the husbandman, was an integral part of himself; and being a social function, it integrated him both with the natural environment whence he derived his materials, and with the society he served. It gave him status.

Nor did the hereditary landlord "possess" his estates in the way that a man to-day "possesses" a motor-car, with absolute rights in its use and disposal. In fact he was bound to the land in much the same way, though perhaps not to the same degree, as the humblest cottager on it. From it he derived certain rents and privileges, by virtue of his *status*. But in exchange he was required to fulfil certain personal responsibilities, originally those of protection and the dispensing of justice, subsequently those of social leadership and material maintenance. And just as men had a claim on society through their organic relationship with the

soil or through their personal functions, so could that claim be transmitted through their own bodies—i.e. to their families. The principle of heredity, the idea of "breed", even that of racial characteristics, are discounted to-day, partly, it is true, because they were sometimes carried to extremes, but primarily because organic relationships are inconsistent with egalitarian idealization of "common man".

In sharp contrast with this pattern of organic relationships was the intellectual ideal of abstract "rights" vested in the human individual by liberal philosophy. This postulated a society without ties or distinctions, in which all men, simply by virtue of their humanity, had a right to "better themselves", to move where they liked and adopt whatever calling they preferred, to acquire "out-right" possessions and to challenge any human authority save their own consciences and the formal laws of elected governments.

With the inorganic idea of abstract "rights" went the equally inorganic idea of "contract". The whole theory of democratic government is based on the ballot-box as a register of popular will, and the vote is a highly-formalized and impersonal relationship, reducible to mathematics. Similarly in the economic sphere, relations between buyer and seller, between employer and employee, though often tempered by personal friendship, are in themselves strictly inorganic—the "cold cash nexus", as Marx so aptly termed it.

The equalitarian theory, moreover, is in practice as unworkable as it is unnatural. Diversity is essential for the functioning of society, and diversity necessitates distinctions. The abolition of distinction by birth, vocation, and rank did not abolish social gradations; it merely shifted the emphasis from *quality of person* to *quantity of material possessions*. In other words, status (and to a large extent function) was transferred from persons to things, more particularly to that thing which, in a free economy, can most readily be converted into other things, namely *money*; and money is essentially inorganic.

In the economic sense at least, liberalism did not so much liberate man as enthrone money, replacing a possibly degenerate aristocracy by an almost unlimited plutocracy, and social ties by economic pressures.

It has now apparently become an article of faith with many

people that "democracy", by which is meant political freedom and equality, is somehow antipathetic to "capitalism", by which is meant an economy dominated by money, and that the former must eventually overthrow the latter. This surely is a false, if superficially attractive, hypothesis. For all our experience goes to show that the two are in practice simply the political and the economic aspects of the one idea. If all men are to be regarded as being free and equal, then the medium of relationship between them must be of an impersonal and inorganic character; and of all possible media, money is by far the most convenient. The old saying that "one man's sixpence is as good as another's" expresses exactly the way in which freedom and equality were achieved by vesting them in money. While the modern development of socialism certainly does represent a diminution of money-power, there has been no corresponding enlargement of individual freedom or even equality. On the contrary, social planning involves a contraction of individual freedom and the appearance of a new administrative hierarchy.

Just as money became the common denominator of the new plutocratic society, so it came also to be regarded as the embodiment of wealth. Capital is really something accumulated as a source of, or aid to, future production. A peasant who holds back some of his corn for seed, or a carpenter who invests some of his skill and energy in the construction of a work-bench, are in effect capitalists. But as the old rooted and functional type of economy was first undermined and then displaced by the development of commerce, and as society became more mobile and fluid, so money came to be used increasingly, not only as a *measure* of value, but as the *standard* of value.[1] For mobility was the economic equivalent of freedom, and interchangeability that of equality. Thence it was but an easy step to the calculation of all capital in terms of money, so that "capitalism" in modern parlance means, not a system which conserves the sources of real wealth, but a system by which accumulations of money exercise effective control over the means of production and the disposal of the product—in short, money-power.

[1] An example of the extraordinary lengths to which the money-standard has been carried is given by Dr Lionel Picton in *Thoughts on Feeding* (Faber, 1946). He says (p. 101) that "it is common to find that young women cannot convince themselves that their own breast-milk, which costs nothing, can be as good as a patent (baby) food which costs much money."

In actual practice it came to mean the assessment of all economic activities in terms of money increment. Here again was a fundamental difference between mediaeval and liberal outlook. Mediaeval authorities, both ecclesiastical and lay, seem to have been almost unanimous in their reprobation of "money-breeding", because it not only gave rise to injustice and extortion, but was essentially unnatural—organically immoral. Usury (the charging of interest on loans) was specifically condemned, while "engrossing" and "regrating" (buying at one price and selling at another) were regarded as morally reprehensible. The Just Price and the Just Wage were not merely pious theories; though not, we may suspect, always effectively enforced, they were accepted principles of economic government.

But when liberalism established the freedom of money from moral restraints (as an aspect of individual liberty), money-breeding through lending, speculation, trade and industry became, not only the chief motive in economic activity, but the chief measure of prosperity. The political economy came to be envisaged, not as an arrangement of society for the maintenance and enjoyment of life, but as a complicated piece of apparatus for the "making" of money, the assumption being that the production and distribution of real wealth would inevitably keep step. If an activity "paid" (i.e. yielded more money than was invested) it was regarded as *ipso facto* "good business", or, in modern parlance, "economic".

As this new pattern of inorganic money-relationships established itself, it fostered the development of technical ingenuity, largely because it could exploit mechanical inventions. Hitherto, technological genius had either bloomed unseen, or had come to fruition only with the aid of influential patronage. Now it became harnessed to the chariots of commerce and industry. In other words, it was money-economics that led to the development of technics, and technics in turn strengthened and consolidated money-power.

According to Lewis Mumford,[1] the flying shuttle, for instance, was invented as early as 1733, the iron-rail tramway in 1738, cast steel in 1740, the steam pump in 1765 and the steam carriage in 1769; but these and other inventions did not play any important part in the economic system until the first half

[1] *Technics and Civilization* (English ed., Routledge, 1934).

of the nineteenth century, when money-capitalism was firmly established.

Just as liberalism had found economic expression in money-capitalism, so it found economic opportunity in industrial technology. But just as the benefits of democracy became vested in money, so did the benefits of machine-power become vested in the machine itself. Hence the two changes working together produced a system which can more accurately be described as *finance-industrialism* than as "capitalism".

This system, by providing a mechanical substitute for the nexus of organic relationships which had formerly held society together, prepared the way for the mechanization, and hence the collectivization, of society.

IV

THE EMERGENCE OF "ECONOMICS"

VERY TYPICAL of the long-term effects of liberal philosophy upon social relationships has been the development of "economics" as a specialized science with its own precise laws and scale of values. For only in a society in which personal and functional responsibilities have been replaced by impersonal and formal contracts would it be possible to uphold the thesis that socially-desirable activities can nevertheless be "uneconomic" and socially-undesirable activities can be "economic". It is of more than academic interest to trace out the development of this "science", if only because it has strongly influenced the ideas which underlie two of the greatest anti-social forces of our time—international money-power on the one hand, and international Communism on the other.

The modern study of economy as such may be said to have begun with the French school of Physiocrats, of whom the chief was François Quesnay (1694–1774). These were not so much mathematicians as social observers and logicians; and though some of their deductions may appear to us somewhat crude, the premise from which they started was (within limits) sound enough. It was that all material wealth is derived from the soil, and that the first aim of social policy must be to promote its production in accordance with what they conceived to be the natural order—physio-cracy. This, however, they believed could best be achieved by decentralization and economic freedom; for, like contemporary liberal philosophers, they envisaged freedom as a "state of nature".

Adam Smith (1723–1790), though generally regarded as the founder of economic science, was himself strongly influenced by the Physiocrats and built on their foundations. It is perhaps significant that he began as an "all-rounder". For nearly twelve years—which he afterwards declared were "by far the most useful" period of his life—he occupied the chair of moral philosophy at Glasgow University. He was the author of *A Theory*

of Moral Sentiments (1759), and his course of lectures comprised "(1) natural theology, (2) ethics, (3) a treatment of that branch of morality which relates to justice, and (4) a study of those political regulations which are founded, not upon the principle of justice, but on that of expedience, and which are calculated to increase the riches, the power, and the prosperity of the state".[1]

The distinction between morality and justice on the one hand, and expediency and material prosperity on the other, is particularly interesting. For it seems to mark the first overt departure from the pre-liberal concept of economic morality and justice upheld by State paternalism, and the first overt recognition of expediency as the economic counterpart of political freedom. Indeed, Adam Smith's best-known work, *An Inquiry into the Nature and Causes of the Wealth of Nations* (which was published in 1776, though probably written much earlier), can best be described as a shrewd analysis of what is most likely to happen when men are left free to pursue a self-interest defined as acquisition. Like all liberal thinkers of his period, he had an implicit faith in the inherent sagacity of the human race and its capacity for self-regulation.

It must always be kept in mind that Adam Smith's observations were made upon the relatively simple and predominantly agrarian economies of relatively small communities, in a world as yet untroubled by the problems which the power-machine and international finance were to bring in their train. It needed the development on a grand scale of economic mechanisms to reveal the dangers of relying on a theory of automatism.

Like the Physiocrats, Adam Smith perceived the fundamental importance of agriculture. His writings may well have inspired Napoleon's dictum that "Agriculture is the soul, the first basis of the kingdom; industry ministers to the comfort and happiness of the population; foreign trade is the superabundance, it allows the proper exchange of agriculture and industry." Unlike the Physiocrats, however, he placed his emphasis on labour rather than on the land itself, though he never fell into the modern error of supposing that wealth is created *solely* by human effort. He affirmed, for instance, that "No equal capital puts into motion a greater quantity of productive labour than that of the farmer.

[1] From *Encyclopaedia Britannica*, 1912 edition.

Not only his labouring servants, but his labouring cattle, are productive labours. In agriculture, too, nature labours along with man; and though her labour costs no expense, its produce has its value, as well as that of the most expensive workmen."[1]

In this way, Adam Smith gave economic interpretation to the behaviour of liberal man—a standardized human individual—as an absolute. He went so far as to declare that "Labour alone, therefore, never varying in its own value, is alone the ultimate and real standard by which the value of all commodities can at all times and places be estimated and compared. It is their real price."[2] Marx was not so revolutionary after all in arguing that all the product should be returned to labour. He was simply carrying this particular theory of value to its logical conclusion.

In this way, human labour became detached from its organic setting. It was no longer the contribution which men made to the social pattern in which they lived; still less was it a creative expression of personality. For purposes of analysis and calculation, it became simply a unit of energy, something to be sold by the labourer for the highest price he could get, and utilized by the capitalist at the greatest profit he could make. Nor did the labourer, according to this philosophy, labour in order to enjoy life; he laboured in order to "consume"—a kind of economic machine, yielding energy in exchange for fuel. Just as it seemed to the American constitution-makers a "self-evident truth" that "all men are created free and equal", so did it seem to Adam Smith a maxim "so perfectly self-evident that it would be absurd to attempt to prove it", that "consumption is the sole end and purpose of all production".[3]

Labour was by no means the only factor to be treated in this way. Land, food, everything which had a utilitarian value, no matter whether it had or had not a cultural aspect as well, came to be regarded by Adam Smith and his followers as a "commodity", that is, a subject of trade. He even considered that the division of labour—the forerunner of specialization—originated in men's natural propensity to "truck, barter and exchange one thing for another".[4]

This key-process of exchange clearly postulated some kind of

[1] *Wealth of Nations*, Book II, Ch. V.
[2] *Op. cit.*, Book I, Ch. V.
[3] *Op. cit.*, Book IV, Ch. VIII.
[4] *Op. cit.*, Book I, Ch. II.

apparatus. And since to liberal philosophy all forms of positive regulation were abhorrent, the focal point of the free economy became the self-regulating *market*. It is in the market that all the inorganic relationships of Free Trade, all the pressures and tensions set in motion by acquisitive self-interest, are brought together to produce "the natural play of economic forces". It is essentially an automatic mechanism.

Now Adam Smith was thinking primarily in terms of real things. He maintained, for instance, that it was the labour expended in their production that gave value to commodities, and not money, which was only their "nominal price". By capital he meant the stock of real wealth which supported labour while it was engaged in production; and it seems a fair conclusion that "profit" was in his mind analogous to the natural increase of real wealth which might reasonably be expected in a simple and mainly agricultural economy. He assumed, as so many have done since, that money always reflects with tolerable accuracy the real values both of capital and of consumable wealth, and that there would be no difficulty in insuring that there was sufficient of it in circulation to keep the market mechanism functioning efficiently. His view was that "the sole use of money is to circulate consumable goods";[1] and he wrote in favour of paper money "issued by people of undoubted credit",[2] insisting that "the quantity of money in every country must naturally increase as the value of the annual produce increases."[3]

What he was not in a position fully to foresee was that, in a free economy, money becomes the master, not the servant. Being the most detached, least perishable, most mobile, and by far the most easily exchangeable of all commodities, it becomes in fact the key-commodity. Yet there seems no feasible way whereby it can be made to function automatically as a key, i.e. to reflect accurately real values and to "circulate consumable goods". In the absence of positive management, the money mechanism inevitably comes to dominate the market mechanism which in turn regulates all economic activities.

So it happened. A rapid increase in population and in produc-

[1] *Op cit.*, Book II, Ch. II.
[2] *Op. cit.*, Book II, Ch. II.
[3] *Op. cit.*, Book II, Ch. III.

tion was accompanied by the gradual abolition of economic regulation; complete faith came to be reposed in automatism. But free money could not or would not fulfil the function assigned to it. Increasing use of credit and paper money was soon necessitated by the fact that there was never enough gold and silver for all the needs of exchange. But sometimes there was too much of it, so that prices rose monetarily (i.e. independently of physical supply and demand); sometimes too little, so that prices fell monetarily. To remedy this situation, monetary control came to be centralized in banking systems, and in order to provide further stabilization, one country after another adopted the "gold standard".[1] Not only was the unit of currency expressed in terms of weight of gold, but bank-paper was made exchangeable into gold on demand.

This system had the merit of expediency, since gold has always had scarcity value, and is highly concentrated and portable. But it meant that production and distribution were still not regulated by real needs but were geared to the stock of gold available to banks; and these soon learnt to protect themselves by declining to issue more credit or paper than their gold reserves appeared to them to warrant. Thus money itself acquired scarcity value in addition to its detachment, mobility, imperishability, and exchangeability. This had two important consequences.

First, it became a major objective to "economize" or "save money" by spreading it as thinly as possible; in other words, a virtue was made of "cheapness", that is, low values for commodities in terms of money. Prices in fact came to be determined, not by any moral concept of justice, or by the Smithian concept of labour-content, but by the limited amount of money available for purchase.

Second, the "hire" aspect of money was magnified. It came to be assumed that money had a natural "right" to interest which it was said to "earn", even when lent for unproductive purposes or without risk. There was indeed an argument advanced that interest on money lent represented the rightful "reward of abstinence", in the same way that profit represented the rightful reward of enterprise; and this argument may have had practical value at a time when it was more desirable to promote capital

[1] See Ch. VII, p. 74, footnote.

construction than to promote consumption. But since money cannot breed, and is in fact "made" only by banks of issue, interest on loans (as distinct from risk-sharing "investments" of money in enterprise) derives solely from scarcity value, i.e. it is a charge for use of a scarce article.

What happened in practice therefore to the allegedly self-regulating free economy was that its central mechanism—the market—became regulated in a highly arbitrary way by money-power, operating (i) through quantitative control of currency and credit, and (ii) through changes in the rate of interest.

It is now possible to perceive how the study of economy came to be detached from its context of real life and regarded as an abstract science—"economics". By employing the processes of disintegration, isolation, and assembly, Adam Smith was able to divorce his subject-matter from its former association with morality and justice, split it up into standardized (i.e. uniform and interchangeable) factors, and finally construct from these a set of formal and mechanical relationships. When, for example, "labour" meant simply the expenditure of energy, and "wealth" meant simply material gain, it was possible to establish as a premise that the sole object of the former was to obtain as much as possible of the latter. Hence the apparent ease with which economic principles could be reduced to a set of simple formulae or aphorisms, a process further advanced by the increasing use of money as the equivalent of real value. Inevitably the whole market idea of freely-operating economic forces on which the Smithian concept is based came to be expressed in mathematical terms and its factors assessed by quantitative measurement (statistics). In so far as this particular kind of interpretation is valid, it certainly seems to constitute a science of economics analogous to that of mechanics. But to what extent is it valid?

At this point it seems necessary to distinguish between "science" in the broad sense of the pursuit of knowledge and "science" in the narrower, popular sense of physical science based on mathematical methods. It is clearly to the latter group that "economics" has been attached. But physical science works on a system of verifiable "facts" from which new hypotheses can be evolved and checked. In order to be verifiable, such "facts" must be capable of statement in precise quantitative terms and of

infinite replication. In other words, they must be *absolute*, not *relative*; they must stand by themselves regardless of context. For instance, pure (i.e. standard) water at a given atmospheric pressure always boils at a given temperature, no matter whether it comes from a spring, well, or river, no matter whether it is in a billy in the Australian bush or in a kettle on a gas-ring in a London suburb.

Physical science, therefore, is built up from standard factors or components, such as rarely occur in organic Nature, which is characterized by infinite variability and constant change. It can yield exact knowledge about inanimate matter and energy, and hence the power to manipulate the one and harness the other. This knowledge can then be applied as techniques, which are the industrial equivalents of scientific formulae: once worked out, these can often be entrusted to machinery, because they involve only mechanical (inorganic) relationships and processes.

But to what extent can such "facts" be discovered and such formulae be constructed in the field of economy, which is concerned so largely with the behaviour and requirements of living creatures? In certain departments, it is true, statistics (statements of quantity) can give an accurate and useful picture. It is possible to state that a certain district has X coking-ovens which in a year are capable of converting Y tons of coal into Z tons of coke, or that in a certain period a certain industry sold A tons of product for £B millions. But this is only information about apparatus. Statistics can tell us very little about the main factors in living; for these are organic, and wherever life enters, precision gives way to variability and facts are conditioned by circumstances. The statistical method cannot in fact give an accurate presentation of factors in living because it can measure only things that are static. Even so-called "vital statistics" can reflect only the arbitrary averages obtained by counting heads; they cannot measure the quality or vigour of human vitality.

Unfortunately it is all too easy to assume that a unit of economic measurement, because it is convenient, is necessarily an accurate representation of reality. "Man-hour", for instance, seems straightforward enough. But is it? Do all men work at the same pace or with the same degree of skill? Does a man always put forth the same amount of effort, regardless of the nature of the work, the inducement offered, and the state of his health? Over-

simplification may not perhaps make a great deal of difference when like is being compared with like, say similar work in adjacent factories over the same period of time. But when extended without qualification in time and context, it can give rise to misleading assumptions such as the view commonly expressed by economists during the interwar period (and even since) that it was "uneconomic" to use more British man-power to grow more food at home, even if the alternative was unemployment. The argument was that, since fewer man-hours need be used in producing a bushel of wheat in, say, Western Canada or Argentina than in Britain, British man-hours would be better employed in producing manufactures to exchange for food. So sweeping a generalization might have had some validity at the beginning of this century, when Western Canada and Argentina were still at so early a stage of development that they were obliged to mine and sell soil capital in order to get manufactured goods. But that constituted a special and temporary set of circumstances, the comparison being, not between one agriculture and another, but between extraction and husbandry. And even if, during the interwar period, imported food was still cheap, it was nevertheless inconsistent with true economy to allow land and labour to remain idle unless all food requirements were being met—which was palpably not the case.

Since the last war, of course, even wheat has been obtained from British farmers at prices which were (at any rate till recently) below those paid in the open world market: so that calculations purporting to demonstrate that the expenditure of man-hours in producing an essential requirement is "uneconomic" are more than ever unrealistic.

Economics then, except in so far as it is dealing with purely mathematical considerations, works from a system, not of "facts", but of *premises*. It must attempt to crystallize in static form phenomena that are by their very nature fluid, to isolate factors that have no meaning apart from their context, to envisage as mechanisms economic activities that are really organic inter-activities. True, the economist can safeguard his statements by use of the qualification "other things being equal", though in point of fact he rarely seems to do so. But such a safeguard would of course at once reveal the academic character of economics. For while the scientist in his laboratory can, indeed

must, ensure that disturbing factors are excluded from his calculations (i.e. that other things *are* equal), the economist cannot possibly hope to exercise such control over conditions. For him, other things are never equal, nor are they ever likely to be. All he can do—all he should aspire to do if he wants to be more than a mere mathematician—is to study what actually happens in terms of real things and endeavour to gauge general trends.

The concept of economics as an exact science of universal application is particularly unfortunate, because to-day "Science" is regarded by many people as being endowed with that infallibility which at one time attached only to revealed religion. Diagnoses and predictions by economists are, therefore, apt to be accepted at their face-value, and without due allowance for the fact that a system of deductions built up from premises can in fact be highly fallible, and is very doubtfully scientific.

V

THE IMPACT OF THE POWER-MACHINE

THE INDUSTRIAL REVOLUTION, we now realize, comprised very much more than the rapid development of machinery for manufacturing and transport. It was associated with a new set of ideas and with great political, social, and economic changes. But to such an extent has Western civilization since become pivoted about, and modelled upon, the machine that it would be difficult to find a more appropriate name for the last 150 years of its history than that of the Mechanical Age.

It seems important then, before proceeding further, to seek some economic definition of the machine, its characteristics, and its functions. Clearly there is a distinction between it and the tool. Both are instruments; but whereas the tool is a qualitative instrument whereby effort is changed in kind, the machine is a quantitative instrument whereby it is changed in volume, or rather is mobilized, concentrated, and applied. Many instruments of course partake of both characteristics.

Thus a knife is a tool, because the human hand cannot itself cut but requires a means whereby its pressures can be transmitted to a sharp edge. It is a machine only so far as its handle may increase leverage. On the other hand, a lever, even of the simplest type, is a machine, because while the kind of effort remains the same (though the direction is reversed), its effect is increased. Scissors, incorporating both the knife and the lever, are both tool and machine.

Tools, therefore, are essentially passive accessories. Hand tools are an extension of human faculties, transmitting the skill as well as the energy of the user. That is why the skilled workman is always so particular about his tools, never lending them if he can help it, or using any one else's. They have become through use a part of himself, a very real property, the means whereby he expresses his creativeness. Hence tools, though themselves inorganic, can serve as a link in organic cultural relationships—

as, for instance, between the craftsman and his material, the painter and his pigments, the cultivator and the soil. Similarly, the machine-tool is a part of the machine, following its motions precisely.

The machine itself, however, is designed for the harnessing of energy rather than the application of skill. By releasing or concentrating or transmitting energy, it enables power to be mobilized and multiplied. Since this power can be, and to-day usually is, derived from sources other than human effort, the machine can operate independently of human faculties. It belongs in fact to the sphere of inorganic relationships, and its performance can be calculated precisely by means of the science of mechanics.

In general practice, machines are essentially instruments of conversion, while tools are often implements of culture. Possibly the first machine was the tree-limb with which primitive men levered boulders into the mouth of their cave in order to keep out wild beasts. Modern industrial techniques, too, are concerned with the transformation of materials that are unusable in their natural state or situation into useful articles. Mineral ores, for instance, are converted into things like radio-sets and motor-cars —and the typewriter on which this book has been written. Animal and vegetable fibres are converted into fabrics. Coal is converted into plastics and perfumes. In thousands of different ways, the conversion of matter into new forms, with the aid of machinery, enters into our way of living.

The period under review—and more especially the first half of the nineteenth century—was a time of rapid economic change and industrial development. But what in fact made it an Industrial *Revolution*? Men had been expert tool-users almost from the dawn of civilization, and in many respects the effect of the Industrial Revolution was to diminish rather than to increase tool-skill. They had, moreover, long mastered elementary mechanics to the extent of devising simple machines such as the oar and the treadle for the better application of their own energy. They had learnt, not only how to employ domesticated animals to draw and carry loads, but how to harness inorganic forces such as wind and water,[1] and some of the apparatus used for

[1] According to Lewis Mumford (*op. cit.*), water-mills were first used in the tenth century and wind-mills in the fifteenth.

this purpose, such as the tide-mill and the turret wind-mill, was of considerable ingenuity.

The revolutionary factor was the invention and gradual improvement of the *steam-engine*. Unlike the sail and the water-wheel, the steam-engine is a machine, not for harnessing and applying existing power, but for releasing latent power from matter long inert *as, when, and where men want it.*

Dr L. C. A. Knowles sets this triumph of conversionary ingenuity in its historical context:

> Great Britain was responsible for the successful development of steam power during the eighteenth century, while from France were to spread those ideas of personal liberty which, differently applied in different countries, were, in combination with steam engines and machinery, to transform Europe and by way of Europe the economy of the rest of the world. The nineteenth century is the outcome of French ideas and English technique. The reason for the revolutionary effect of the steam-engine is to be found in the fact that it provides a power independent of climate or geography which can be applied to an infinite number of different purposes.[1]

Though the use of this new power at first spread very slowly, the steam-engine and the new large-scale type of machinery which it made possible were widely regarded as practical means of giving effect to liberal ambitions. Nor was this enthusiasm confined to "hard-faced capitalists" who could use the machine for extracting the "surplus value" from human labour. Most social reformers came to regard steam as a submissive giant able to liberate men from physical toil, endow them with the material benefits of civilization, and further their pursuit of happiness.[2] The edifice of Progress acquired a belching chimney.

There were, however, two important sections of the community which did *not* welcome this new economic factor. Rural landowners, perceiving the threat to the existing pattern of the countryside and their own position in it, were frequently and not

[1] L. C. A. Knowles, *Industrial and Commercial Revolution in Gt. Britain during the 19th century* (Routledge), pp. 5 and 6.

[2] Arthur J. Penty, in *Post-Industrialism* (Geo. Allen and Unwin, 1922), pointed out that while Robert Owen (the founder of Socialism), Karl Marx and John Ruskin all saw in the relationships of men and machinery the central social problem of modern times, it was Herbert Spencer's "comfortable optimism" that was adopted by the Fabians and reformist movements in general.

unnaturally obstructive. The other section of resisters consisted, paradoxically enough, of those who, so the reformers held, would most benefit—the manual workers. These took so unkindly to the new order that at first, not only was industrial development held back by lack of skilled mechanics, but numerous riots occurred in which machinery was smashed and mills burnt. This, conventionally speaking, was conservatism. But it was conservatism with sound intuition behind it. For what the workers instinctively sought to conserve was that intangible form of wealth which statistical records can never adequately interpret—economic *status*. In a free economy, the material gains inevitably accrued to those best able to exploit the machine, while the rest of society had to pay the social price of dislocation.

Let us, however, be just, and endeavour to assess the gains and losses of the Industrial Revolution in terms of realities. Undoubtedly the mechanization of industry and transport resulted in a steady *quantitative* increment in goods and services. Many articles of personal and household utility, hitherto regarded as luxuries, became available for general use. Human intercourse was facilitated, and the more ambitious spirits were provided with wider opportunities. After the middle of the century, as the working classes recovered more political and economic power, their conditions as wage-earners improved very considerably. According to Professor Bowley, real wages in Britain rose "slowly" from 1810 to 1852, "considerably" from 1852 to 1870, and "fast" from 1870 to the end of the century, though for this latter phenomenon there was another reason, to be discussed later.

Against these quantitative gains must be set qualitative losses. In an economy which envisaged all things as commodities, all that the manual worker had to sell was energy and skill. Before the coming of steam, he had been the main source of these; and since they were an integral part of himself, he was socially indispensable. While he was never able to dictate his own terms, he was nevertheless in a strong position. The economy was adapted to the needs of society, and not (as now) society to the needs of the economy: and production was mainly for local needs. Even in the case of those goods manufactured for the general market, work was taken to the worker rather than the

worker to the work, being distributed among country towns and villages, and dove-tailed to a large extent with the claims of agriculture. Many workers were, as we should now say, self-employed, buying their own materials and selling their finished goods direct to merchants or even to consumers. In other cases, there was a contract system, the employer providing materials and paying for the work done. Rates were often low, and hard times were by no means unknown; but at least some initiative remained with the workers, many of whom, moreover, had a little land and some livestock to run on the commons. Thus a portion at least of their food was fresh and wholesome, and was obtained outside of the money system, unaffected by trade fluctuations. However frugal and arduous this way of living may appear by modern standards, it did provide a substantial measure of economic security.

It was this status that was threatened, undermined, and finally demolished, by the advent of steam-power. For machinery of increasing size and capacity gave employers a practicable alternative to hand-labour, so that the bargaining value of human energy and skill correspondingly declined. The new factories, too, tended to be concentrated on or near the coalfields, where fuel from the pits and machine-parts from the foundries could most easily be obtained. Hence the power-machine compelled the worker to go to the work, drawing him thither by inorganic tensions as the domestic industries and local crafts were undercut in price by machine-made goods. In Britain, this process was associated with the economic pressure of the Enclosure movement which, by imposing a structure of individualistic commercial agriculture on the old pattern of semi-communal subsistence agriculture, squeezed most of the cottage manufacturers and small-holders off the land.

Nor was this all. The factory system, by fragmenting manufacturing processes into repetitive operations that could be mechanized, destroyed the organic connection between the worker and his work. He became a "hand" or a "minder", a cog in a mechanism which had usurped his economic position and now imposed on him its own disciplines and its own pace. In many cases he did not even see the finished article. Some of the sweat had been taken out of labour, it is true, so that women and children were often more in demand than men; but most of the

satisfaction had simultaneously disappeared. In effect it was now the machine that was industrious, employing the human worker as a subsidiary mechanism.[1]

So was evolved the proletariat of modern times, the mass of humanity which lacks *property*, whether this be reckoned in social roots, in physical assets, or in the personal, creative attributes by which men are organically associated with the economy of which they are members. Only those who have experienced proletarian conditions can realize how readily these breed a sense of irresponsible dis-sociation, and this in turn, under Marxist teaching, resentful class-consciousness. Modern industrial society contains too many persons with nothing to lose.

Inevitably society suffered ecologically. What the countryside gained in technological aids to agriculture was more than counterbalanced by its loss in human membership, and in the subordination of husbandry to commercial ends. The old, intimate association of land, labour, and living was broken apart by the intrusion of inorganic factors—money and machinery. The rapidly-expanding industrial towns became unnatural wens of artificial origin. Even when their more grossly insanitary features had been ameliorated, they remained unhealthy in the sense of being unwhole—parasitic, dependent for their very existence upon the vitality of human beings and food-stuffs drawn from the countryside. No one can say what are the true "vital statistics" of the cities.

Finally, there was the damage done to that basic human association from which the whole ecological pattern of civilization is built up—the family-home. Women and children have always worked; the Industrial Revolution introduced no novelty there, though by gearing their work to machines and increasing the element of monotony, it made that work more of a hardship. But what it did was to transfer the work-place from the home to the factory, thus dis-integrating the former and uprooting its most important inhabitants. In many instances, too, it converted them from auxiliaries into competitors of the chief family bread-winner, and thus initiated that discord between the sexes which now centres about the theory of sex-equality—a theory which

[1] Paul Derrick, in *Lost Property* (Dennis Dobson, 1947) maintains that finance-industrialism has degraded men socially by making them mere *instruments*, instead of *agents*, in production.

has been rendered plausible by the de-personalization of so many modern occupations.

These profound changes in economic relationships did not, of course, take place rapidly, nor simultaneously in all Western countries, some of which are still relatively un-industrialized. They have been spread over the best part of two centuries. Men and women, being adaptable creatures, have in some measure adjusted themselves to the impact of the power-machine. Some have rebelled against it; some have sought to escape it; but the majority have come to terms with it. It follows that the general run of economic ideas has become conditioned to the power-machine. Not only does it tend to follow mechanical lines; it tends to concentrate on machine-function—conversion.

It is instructive to note how the power-machine has changed the very meaning of words. "Industry" means literally the steady application of human effort, "manufacturing" making by hand, "manipulation" leading by the hand, "efficiency" human competence, "organization" making organic (i.e. the incorporation of matter into organisms). But to-day organization means often enough a set of inorganic relationships and industry means an organization or group of organizations devoted to mechanized manufacture, which in turn means the conversion of materials by technical processes of manipulation, the efficiency of which is calculated in terms of money or machine power. Hence nearly all economic activities have come to be regarded as "industries" —mechanized organizations for conversion. We even have an "agricultural industry", a "distributive industry", an "entertainments industry", a "sports industry". Doubtless we shall soon have a "medical industry" and a "social service industry". Both economic theory and economic practice have tended more and more to adopt as the model for social organization, not the living organism, but the mechanized factory.

Now the function of the factory is to add utility (and, therefore, exchange-value) to materials by converting them into useful articles—"goods". These materials may be inorganic, in which case they are changed in form. Or they may be organic, in which case the function of industrial organization is (paradoxically enough) to de-organize them—render them inert in order that their final form may be stable. It would hardly do, for instance,

for wool to complete the fertility cycle by decomposing after being worked up into blankets, or for linseed oil in floorcloth to ferment after being laid down. And because it is essential for the full use of machinery to adapt processes to its performance, "standardization" or uniformity has become a characteristic of industry.

Hence the essence of what may be termed *the industrial idea* is *output*—the conversion of materials into wanted "goods" by means of techniques. It is an expression of power, the power of the human mind, in control of the inorganic energy which it has harnessed for application through machinery, to adapt inanimate things to human needs. In this respect it is very different from the cultural idea, which is that of participation in creation—the nurturing or fostering of the total fund of life in order that human life itself may be richer and more abundant.

This manipulative conversion has become the supreme objective, as it is the supreme achievement, of the Mechanical Age—the expression of Power-Man. Its motif and method may be observed in all the "organized" (actually mechanized) economic activities of the modern world.

In finance, the objective is *transactions*—the conversion of one kind of claim to wealth into another kind, and finally into wealth itself, through the manipulative operations of the money mechanism, which is essentially an instrument for the manipulation of credit. Money has purchasing-power in proportion to the ability of society to "deliver the goods"; and it is the function of financial technicians to ensure, not only that the flow of transactions is regulated, but that the conversion of claims into physical acquisition remains as fully under control as is the machinery in a factory.

In trade, the objective is *turnover*—the conversion of goods available into goods in use or consumption, through the operations of the commercial mechanism, which is an instrument designed to link production and consumption through the market. Here again, the function of the commercial technician is, not only to increase the volume of turnover, but to keep the conversionary process under control by adjusting supply to demand.

In transport likewise the objective is *traffic*—the conversion of goods at one point into goods at another point, through the

manipulative operations of the transport mechanism with its apparatus of roads, railways, steamships, and docks. Here too the function of the technician is to maintain the flow of traffic and to keep it under control by the adjustment of freights, timetables, ship-movements, and so on.

These mechanisms, it will be noted, do not in themselves originate production, and ought not to be regarded as ends in themselves. They are essentially apparatus for linking primary production with ultimate use or consumption; their function is to render intermediary services. But because they are an expression of power, of human ability to exercise control over matter and energy and to order things according to human desires, their increasing size and complexity have come to be regarded as the measure of human achievement. Economic well-being is in fact largely assessed in terms of conversion—volume of output, transactions, turnover, and traffic.

This emphasis on conversion, associated with an uncritical acceptance of Adam Smith's dictum that "the sole object of production is consumption", has led to a purely mechanistic concept of *efficiency*. The term seems to have been borrowed from the engineers, who use it to denote the ratio between fuel consumed and horse-power delivered. Its use in "economics" presupposes that the sole criterion of any economic enterprise is the quantity of consumable goods obtained per unit of human energy applied. So that where, as in a modern industrial economy, the bulk of such enterprises are of a conversionary character, a wholly misleading impression is created—namely, that the standard of living depends upon improvements in technical processes.

For it must always be remembered that what is called output is in reality *throughput*; and throughput postulates intake and outlet. The engineer may not be concerned with supplies of fuel or with the uses to which horse-power is put. But the economist *should* be concerned both with sources of wealth and with the wealth-requirements of the human population; for the social value of industry, trade, finance, and transport, no matter what degree of technical proficiency they represent, is wholly conditioned by these two factors.

That seems a perfectly obvious truth when stated in simple terms. But the development of machine-power has taken place

in such a way and in such circumstances as to thrust it into the background. Now that those circumstances are changing, it seems to need re-statement, so that its implications may be more fully understood.

VI

THE DEVELOPMENT OF AGRI-INDUSTRY

VERY TYPICAL of the influence of mechanical progress on the modern outlook is the general impression that because agriculture has not yet adopted, or has only in part adopted, the technical methods and large-scale organization of manufacturing, it is correspondingly "backward". For the reasons already put forward, this view originates in a misconception. Human relationships with the organic realm are of a fundamentally different character from those with the inorganic realm. Agriculture is not "backward" for the good reason that it cannot "progress" beyond the limits imposed by organic Nature, and within those limits improvement must be cultural rather than technological—the intensification of natural processes rather than the imposition of mechanical processes.

Nevertheless, Western agriculture has been subjected to the same forces that have been shaping other economic activities; and while such a term as "the agricultural industry" is a misnomer based on the above misconception, there is no doubt that in some countries there has developed a sort of hybrid which may conveniently be described as "*agri-industry*". This development has been most marked in the Anglo-Saxon countries; so that though British agriculture is by no means the most outstanding example of the industrial influence, its history may be cited as reasonably typical.

For practically 1,000 years before the Industrial Revolution, agriculture in this island, though it experienced many vicissitudes, was, from the ecological point of view, relatively stable. As Sir Albert Howard says of Europe generally, apart from the despoiled and eroded Mediterranean region:

> Out of the lingering shadows of the Roman Empire there finally emerged into mediaeval times a system of agriculture

> which held its own well into the nineteenth century. Such a history is an honourable one and we may agree that this system, that of mixed husbandry, was in many essentials excellent. Food was abundant and nourishing, and above all the soil remained in good heart.[1]

In other words, agricultural efficiency in the true sense did not begin with the introduction of "agricultural science" and industrial methods; these have represented a substitute for the traditional code of husbandry rather than an advance on it. This code was no product of intellectual rationalization. It literally grew up out of the ground—a child of the marriage of a certain kind of human society to the living landscape which it occupied; it partook, therefore, of the characteristics of both parents.

Whereas the Romano-British villa-estates had for the most part been situated on the open chalk downs, Saxon settlement penetrated the "wealds"—heavily-timbered country with clay soils. Partly because of their tribal origin, partly because the clearing of such country and its subsequent cultivation with long ox-teams and heavy wooden ploughs must have been essentially a "community job", these settlements evolved as miniature self-contained societies. The Normans, who called them manors, used them as the basis for their feudal system; but manorial economy both pre-dated that system and survived it.

While under the feudal system the land was vested in the person of the King, from whom the lords of the manors "held" it (hence "tenure") in return for military support, most of the cleared portion was actually farmed by the villagers, who held it from the landlords on service-tenures, later gradually converted into money-rents. Each family held strips in the unfenced arable fields and meadow (not necessarily the same strips continuously); but these had to be farmed according to a common programme, and all livestock were grazed together on the common "wastes" in charge of the village herds.

Thus agriculture was an integral part of a social pattern which, like some sturdy oak, had its roots deep in the soil. Like an oak, too, it looked upwards towards Heaven. For Christianity is essentially a peasant religion, full of agricultural similes and

[1] *Farming and Gardening for Health or Disease* (Faber, 1945), p. 49.

easily translatable in terms of good husbandry and country living. And it was by no mere accident that the rural community was built round the parish church.

Howard reminds us that this semi-communal, agrarian type of association "prevailed during the period of national formation of the English people", and that "the sense of personal responsibility, which the system of communal work created, made it a vital factor in the social education of the people."[1] Despite its many imperfections, the manor was a very good example of an ecological pattern in which human society had successfully adjusted itself to its context.

While the manorial economy had the virtue of stability, it had also, however, the drawback of comparative inflexibility. Improvements in agricultural practice had to surmount barriers both of local custom and of personal rights. With the gradual increase in population and trade, there therefore grew also a demand from the more enterprising members of the community that the land should be farmed "in several" instead of "in champion".[2] The two systems, of course, long existed side by side. The demesnes of the landlords and the estates of the monasteries, for instance, represented land farmed "in several", while in the western and northern counties, where the land was cleared for pasture rather than for arable, the open-field economy was never widely established. The latter, on the other hand, was general throughout the (then) more populous districts of the east and south until well into the nineteenth century.

During the eighteenth century, however, a great deal of valuable pioneer work was done in evolving better crop-rotations with the aid of new introductions such as clover and turnips, in perfecting systems of manuring and draining, and in the systematic improvement of livestock. These were mostly real improvements in that they represented an intensification of husbandry rather than an adoption of new principles. They were the work of practical farmers and landowners. Unfortunately they could not well be grafted on to the open-field system. In consequence the arguments in favour of "enclosure"[3] were

[1] *Op. cit.*, p. 54.

[2] i.e. severed into individual holdings instead of semi-communal open fields (Fr. *champ*).

[3] i.e. re-allocation as compact holdings. In theory, each person got the equivalent of the land they had held as strips in the common fields; but the redistribution

greatly strengthened; and further weight was added when Britain became engaged, during the last quarter of the eighteenth and the first quarter of the nineteenth century, in a series of wars. For these drained off able-bodied men, cut off imports, and in general threw a heavy strain on the national economy. There seems little doubt that some re-adjustment had become necessary; and, in theory, the last and greatest enclosure movement, between the middle of the eighteenth and the middle of the nineteenth centuries, was designed to meet this situation by re-allocating the land on an individual basis. But legal costs and formalities (combined, no doubt, with a good deal of sharp dealing) squeezed out most of the smaller holders and extinguished most of the common rights. The bulk of the land became consolidated in extensive private estates, sub-divided into relatively large farms and let on a commercial basis for the production of food for sale.

The deciding factor was the rise in the market-price of produce and, therefore, in the rental value of land. This made the process of aggregation profitable to those few who had access to money-capital. But behind it lay the new economic philosophy which regarded land, labour, and their products as commodities, and reduced all relationships to a money basis. Whereas an earlier crop of enclosures (in Tudor times) had been widely regarded as a social evil and actively countered by the State, the process had now become part of State policy—it was considered an inevitable phase in economic progress.[1]

Thus the old village association was broken up. Most of its human members were uprooted and became mere wage-labourers, often paupers. By degrees many of them drifted off to serve the new mechanized industries as proletarian "hands" and to populate the new industrial towns; later, many migrated to the New World. The village ceased to be an economic entity, and became more and more an appendage of the towns.

The land at first benefited, for its new "capitalist" owners could afford to adopt improved agricultural practices in a way that had been impracticable under the open-field system. Its

was often very inequitable, while the fact that the new plots had to be enclosed (i.e. fenced) threw a considerable burden on the poorer landholders, many of whom sold their land for what they could get.

[1] "Every encouragement was therefore given to enclosing by the Government" (Knowles, p. 366).

products, moreover, were in increasing demand as commodities for consumption in the towns; and in exchange there came back improved implements and other technical aids. Both land-improvement and farming itself attracted a great deal of money capital. Many of the old squires had been squeezed out in the deflation which followed the Napoleonic Wars, and the new type of landlord, who was often a man who had accumulated money-capital in trade or industry, could and did spend large sums on reclaiming waste land and equipping farms with buildings, cottages, drains, fences, and other accessories.

High farming[1] became both profitable and fashionable. Higher production was sought by better crop-rotations, by drainage, by heavier stocking with the aid of imported feeding-stuffs, and by liberal expenditure of labour, which, being now landless, was cheap and abundant. The first phase of mechanization began. Threshing-machines came in early in the century; the seed-drill (invented by Tull a century earlier) became general; iron horse-ploughs replaced the cumbrous wooden ox-ploughs, while the first steam-ploughs appeared in 1857. Even the mechanical reaper, invented in Scotland, returned from the U.S. in improved form as early as the 1830's.

But the whole economic content of agriculture underwent a gradual but fundamental change. No longer was it the chief function of the land to provide nourishment for those who lived and worked on it; it became more and more a food-factory for the towns. Landlord, farmer, and labourer might still feel a real affection for it and take a deep interest in it; but their effective connection with it was now mainly through money. Similarly, the fast-growing urban population (and to an increasing extent country people also) obtained their food at second-hand through the market-mechanism and its entourage of dealers, merchants, and processors. Relationships were no longer direct, but *indirect*, through an arbitrary and inorganic medium.

So accustomed have we become to this mechanism, and to the treatment of food as a commodity, that it is not easy for us to realize that until comparatively modern times traffic in food was regarded as a social evil to be kept strictly within bounds. Mediaeval injunctions against dealing applied with particular

[1] The term is not easy to define. Broadly, it connotes farming for a high level of productivity *per acre*, as contrasted with the maximum *margin* of money profit.

emphasis to staple foodstuffs, and there is no evidence whatever that the Just Price included any provision for what is now known as the "distributive margin". The Corn Laws of a later period likewise had as their primary aim, not so much the securing of farming profits, as the stabilization of supplies and prices for the benefit equally of the producer and the consumer. They included, not only import-duties when prices were low, but export-duties and even import-subsidies when prices were high. They were, in fact, a transitional stage between the mediaeval regulated economy and the developing free economy; and their final repeal in 1846 marked the triumph of the latter.

While the result of this economic revolution was to legitimize the food-intermediary, the urbanizing effect of the Industrial Revolution made his services a physical necessity. The urban housewife became almost completely dependent on him for the collection, grading, packing, transportation, and delivery of the foodstuffs that formerly most people had either grown for themselves or obtained from neighbours. For these services he naturally expected to be paid, and in a free economy he was entitled to any additional profit he could make by forcing down the price he paid to the producer and forcing up the price he asked of the consumer. It was indeed (and still is) his lawful business to "buy cheap and sell dear" and to retain the difference as his fee for market-knowledge and risk-taking. So that though in theory the middleman acts as agent for the levelling operations of the law of supply and demand, in practice his operations have often tended to exaggerate the fluctuations of the market.

To these intermediate charges were gradually added, as the food trade grew more complex, the costs of "processing", that is, the adaptation of perishable produce to the requirements of transport and storage and to meet trade demands for standardized and attractively-presented articles. By 1939, at least 7d. out of every shilling paid by the British housewife for food was being absorbed by these two groups of costs; and though the present (1949) position is masked by subsidies, these charges would appear to have become to a large extent consolidated.

Thus the net effect of urbanization and the widening gap between producer and consumer was to *increase* the total real cost of food and so dissipate most of the saving which should have accrued from improved farming methods. Labour displaced

from production was largely re-absorbed in transport, processing, and distribution, and in the manufacture of the new technical aids introduced on the farm to supersede the old manual operations. For even a simple machine represents many hours of work in mines, foundries, and workshops before it "saves" any labour at all.

This shift in costs, moreover, subjected agriculture to money-pressures of increasing intensity. It now had to yield, in *cash*, rent for the landlord, profit for the farmer, wages for the worker, payment to those who supplied machinery, artificial manures, feeding-stuffs, and transport, and finally a profit-margin for merchant, processer, and distributor.

Such pressures necessitated an increasing export of produce from farm to city. This would not in itself have been harmful had anything approaching a biological balance been maintained. But the old pattern of self-sufficient husbandry was constantly being pulled out of shape by the fact that the city made little organic return, except some stable-manure which tended to be concentrated on suburban market-gardens. This distortion, coupled with the steady exodus of people from rural to urban areas, meant that the fertility cycle tended to be replaced by one-way traffic. For, besides the factor of human excrement, increasing quantities of household and industrial organic wastes were either burnt or discharged into water-courses instead of finding their way back to the soil via the midden. Production in the industrial sense of "output" was fostered at the expense of reproduction in the biological sense of "natural increase".

This unbalancing process was reflected also in the accelerating trend towards specialization, both in farming systems and the crops and livestock themselves. From time immemorial of course the arts of husbandry have included the adaptation of land-use to local soils and climates, and the deliberate selection and management of plants and animals for the development of desired characteristics. Both represent cultural equivalents of natural processes—adaptation and selection—which fit the organism to its environment, and, when practised within a system of balanced husbandry dependent for its results on natural factors, are subject to natural checks which cut short any tendency to extremes. Any increase in utility to man has to be matched by an increase in all-round ability to live.

This correlation of functional performance and "constitution" had not been greatly affected by the earlier improvements in farming practice. The introduction of fodder-crops, for example, by improving the living conditions of cattle and sheep, made possible an improvement by selective breeding in their meat-yielding propensities. But as the industrialization of agriculture has proceeded—that is, from the late nineteenth century onwards—economic pressure to produce commodities at minimum cost, combined with the rapid development of technical aids to production, has resulted in more advanced forms of specialization at the expense of biological balance. These in turn have made for increasing dependence on artificial methods, both as stimuli to production and as "correctives" of the many cumulative deficiencies and disorders arising from a condition of imbalance. In other words, "survival of the fittest" has been displaced by "survival of the fattest" (or biggest or milkiest and so on).

Some of our more highly specialized crops, such as potatoes and tomatoes, are to-day extremely productive. But because all the skill and care lavished on their breeding and management have been directed to that one end only, and because the soils on which they are grown are themselves often unbalanced as a result of artificial treatment, they have become highly susceptible to a variety of diseases. Indeed, almost as much attention has to be given to "protecting" them as to growing them, a fact which materially affects production costs. The modern dairy cow, likewise, is capable of yielding large quantities of milk, but only if she is given large quantities of concentrated foods (with mineral supplements and whatnot) and kept almost continuously under veterinary supervision; even so, her average working life is computed to be less than three years.

It has to be remembered that where production is raised by the use of such stimulants as chemical "fertilizers" and "concentrated" feeding-stuffs, increased "output" is by no means balanced by increased "input", since none of the stimulants in general use contain *all* the constituents of the additional product. There are always deficiencies, which have to be made good by drawing on reserves in the soil, plant or animal. These reserves may be considerable, which is why the stimulation process may seem profitable for a time, but they are not inexhaustible.

The industrialization of farming was closely associated with

the application of physical science. The natural processes which agriculture incorporates had of course interested acute minds for centuries before the industrial era. But the behaviour of soils, crops and animals had, so to speak, been studied "from life"; the intellectual deductions were sometimes faulty, but the resultant practices were usually sound because they were based on the observed performance of living creatures in the field. Jethro Tull (1674–1741), for example, deduced from his observation that plants throve best in finely-pulverized soil that they absorbed nourishment by actually absorbing soil-particles. This theory was by no means correct, but his devotion to it led to his invention of the seed-drill for planting seed in rows at uniform depths and of the horse-hoe for cultivating between the rows during growth; both implements contributed greatly to the improvement of crops. Pioneer stock-breeders such as Bakewell, Bates, and Ellman, though knowing little of the modern science of genetics, had laid the foundations of our modern breeds by skilful application of the observation that "like begets like".

But now there entered, in the wake of the analytical economist, the analytical chemist. Baron Justus von Liebig (1803–1873), having achieved a great reputation in inorganic chemistry, set out, about 1838, to "trace out the determinate chemical and physical laws in the maintenance of life and health". To this end he examined analytically blood, bile, urine, and flesh, classified the functions of various articles of food, expounded the philosophy of cooking, and taught that "the heat of the body is the result of the processes of combustion and oxidation performed within the organism." He applied similar principles to agriculture on these lines: [1]

> Rejecting the old notion that plants derive their nourishment from humus, he taught that they get carbon and nitrogen from the carbon dioxide and ammonia present in the atmosphere, these compounds being returned by them to the atmosphere by the processes of putrefaction and fermentation —which latter he regarded as essentially chemical in nature— while their potash, soda, lime, sulphur, phosphorus, etc., come from the soil. Of the carbon dioxide and ammonia no exhaustion can take place, but of the mineral constituents the supply

[1] The quotations are from the biographical account in *Encyclopaedia Britannica* (1912 edition).

is limited because the soil cannot afford an indefinite amount of them; hence the chief care of the farmer, and the function of manures, is to restore to the soil those minerals which each crop is found, by the analysis of its ash, to take up in its growth. On this theory he prepared artificial manures containing the essential mineral substances together with a small quantity of ammoniacal salts, because he held that the air does not supply ammonia fast enough in certain cases.

Here the theory was brilliantly correct from the standpoint of scientific reasoning, but its application was unsound, or rather unbalanced. For though there is unquestionably a chemical aspect of all natural processes, it is a highly specialized aspect and one which leaves out of account the all-important fact that plant-growth is not a set of reactions taking place in a test-tube or retort in a laboratory, but a function of living organisms in an ecological context. As we now know, there is seldom any physical shortage of elements. Plant growth appears to depend less on the chemical composition of the soil than on the activities of its micro-organisms, and these in turn on the food and living conditions provided for them.[1] Nevertheless—perhaps because it accorded so well with the industrial idea of converting raw materials (elements) into commodities (plants)—Liebig's theory became firmly established as a complete scientific explanation of plant nutrition. For 100 years it has formed the basis of the instruction given to students and farmers, and has only of recent years been seriously challenged.

It was soon discovered, however, that a system of "chemical accountancy" could not be strictly applied in practice. Of the fifteen to twenty constituents of plants, only three (in addition to calcium, which is usually given separately as lime) seemed to evoke crop responses when applied directly in artificial form, namely nitrogen (N), phosphorus (P) and potassium (K). There has therefore grown up a convention whereby these are termed "plant foods" and materials containing them in approved proportions "complete" or "balanced" fertilizers; and the possible

[1] A striking demonstration of this has been provided by the experience of Mr Friend Sykes, a well-known Wiltshire farmer, who has been able to restore to high fertility land which (on archaeological evidence) has been farmed for over 4,000 years, simply by building up its humus content and by sub-soiling, without any resort to artificial "fertilizers". See Mr Sykes' book, *Humus and the Farmer* (Faber, 1946).

combinations of N, P and K have been the subject of innumerable experiments of the pot-and-plot type. In point of fact, recent discoveries of deficiencies in "trace elements"[1] and other growth-factors suggest strongly that NPK fertilizers are anything but complete and may actually contribute to a condition of imbalance in the soil. Moreover, while it is probable that the practice of good husbandry would have suffered in any case under economic pressures, the apparent ability of science to provide artificial substitutes for the natural organic manures of tradition has diverted attention from declining soil fertility by masking its symptoms.

The pros and cons of the chemical interpretation of soil fertility need not detain us here. But three at least of its consequences have been of economic importance.

(i) It has given rise to an extensive branch of the chemical industry, devoted to the manufacture and sale of "fertilizers", usually in the form of concentrated, water-soluble chemical compounds which, though contributing nothing to true (reproductive) fertility, can powerfully stimulate crop growth (production).

(ii) By appearing to provide in this way a cheap and convenient alternative to the full utilization of organic wastes, it has helped farmers through a period of depression and labour-scarcity, but only at the expense of their land, and by making them increasingly dependent on the chemical industry.

(iii) It has fostered a popular idea that soil fertility can always be re-adjusted by the use of these "fertilizers" and hence that soil erosion and declining productivity can be corrected by technical and industrial means.

A similar theory of "chemical accountancy" has been applied in animal nutrition, the requirements of livestock and the nutritive value of foods given them being precisely calculated in terms of proteins, starch, fats, minerals, and so on. And just as chemical "fertilizers" have been brought in as alternatives and supplements to indigenous supplies of organic manure, so have concentrated and processed organic by-products of industry, such as the residues of oilseeds, been brought in as

[1] Elements such as boron, copper, manganese and cobalt which occur only in minute quantities (traces) but which seem indispensable nevertheless for plant metabolism, possibly as catalysts.

alternatives and supplements to indigenous supplies of fodder. Only gradually, and sometimes rather grudgingly, has it been admitted by chemists that such factors as palatability, freshness, suitability of form, and growth-history, which may not be reflected in analysis, can be no less important than tables of constituents. And even now, the verdict of the animal often differs markedly from the verdict of the laboratory.

These points are of particular interest because a parallel method, with of course many refinements and qualifications, has been applied to human nutrition. In other words, agriculture has been regarded, not so much as the biological connecting link between man and soil, but as a factory for the output of components (protein, starch, vitamins, and so on) for final assembly, according to dietitians' specifications, in the human system.

Nor has the application of chemistry been confined to the nutrition of domesticated species. Manufactured chemicals, often in the form of poisons and corrosives, have been used to an increasing extent to destroy wild species that interfere with production—insect pests, fungus spores, undesirable bacteria, and weeds. The latest development is the dusting of large acreages with "selective" weed-killers by means of aeroplanes. It is difficult to believe that the cumulative effect of such powerful agents will not be the destruction of much more than their specified target; several modern insecticides, for instance, are transmissible through plants to animals and humans. But what is even more serious is the extent to which such methods, by the very fact that they can (like artificial "fertilizers") give immediate results, discourage any attempt to discover and apply the true remedy, namely, re-adjustment of the ecological conditions which have brought about the infestation or disease. Indeed, it seems highly probable that, by disturbing balances still further, they may ultimately make those conditions worse rather than better.

Inevitably, of course, the engineer has played a big part in the development of agri-industry. Unlike the chemist, however, who has throughout adopted a pontifical attitude, he has confined himself to the problem set him, namely, the invention of substitutes for the rural worker as the latter left the countryside for the city. But he has thereby facilitated the transfer of some of the

labour of food production from farm to factory.[1] And just as the chemical aspect of physiology has been misinterpreted as a complete explanation of plant and animal nutrition, so the mechanical aspect of farming operations has been studied to the exclusion of their cultural qualities. The functional distinction between the tool and the machine has become blurred.

Nearly all agricultural tasks, it is true, involve the application of energy, and some, such as cutting corn or lifting hay on to a stack, can be reduced to terms of mechanics. But to treat tillage as simply the disintegration of inert mineral matter, and harvesting as the drying and transport of inert organic matter, is to disregard altogether the vital relationship between the personal skill of the husbandman and the biological requirements of that which he tends.

The plough, for example, which in one form or another may be 6,000 years old, has always been the basic cultural tool of civilization. At one time it was even thought that the plough-ox had fertilizing properties quite apart from his utility as a draught-animal,[2] and though the idea may seem to us absurd, we are learning by degrees that *no* ecological factor can be ignored.[3] At any rate we can be certain that the drastic shattering and inversion of the soil by heavy, steel, tractor-drawn implements adds nothing to its fertility; indeed there is a growing school of cultivators which claims better results from surface scratching such as we associate with "backward" peasant methods. We are learning, too, that the most expensive and elaborate harvesting equipment in the form of combine-harvesters and artificial driers is no more efficient (and as regards viability of seeds may be less efficient) than the system of drying crops in the field on racks or tripods, which in principle is centuries old.

The point is often overlooked that many farm tasks, including some of a decisive character, can never be mechanized because (unlike factory processes) they can never be reduced to routines; such are the tending of livestock, the selection of individuals (as when hoeing out sugar-beet) and the constant adaptation of

[1] In some cases, notably in the U.S., machinery has been used actually to *displace* rural population.

[2] "Origin and Early Diffusion of the Traction Plough", *Antiquity*, 1936, Vol. X, p. 264.

[3] It is now known, for instance, that the old belief that the toad fertilizes soil on which he squats has a factual basis; he exudes appreciable quantities of adrenalin from his skin.

method to circumstances. In so far as machinery can relieve the human worker of the more purely energetic operations and so release his energies for the more cultural operations, it can be a decided benefit. In so far as it is used to reduce cultural to mechanical relationships, in so far as it reduces the "input" of husbandry by reducing the number of husbandmen, it must inevitably lower the standard of farming.

Mechanization, moreover, constitutes an indirect threat to that mixed husbandry which provides the soundest ecological basis for agriculture, since it cannot be applied to more than a few of the highly diversified operations of the mixed farm without overloading it with machinery. It therefore creates an economic bias in favour of specialization or even monoculture, and hence the adaptation of the farm to the machine instead of the machine to the farm. The extent to which this particular principle of agri-industry has already become established is admirably demonstrated by the following extract from the editorial columns of a widely-circulated English farming weekly of recent date:

> The unit of management to-day is undeniably the machine —in farming as in all other forms of commodity production. Our job, therefore, if we are to get the utmost out of our land, is to correlate—to integrate—*all* our farm mechanisms on the basis of the power unit provided by the tractor with its 1,500-or-so annual working hours.

In view of this unquestioning application of chemistry and mechanics to what is essentially a biological subject, it is hardly surprising that the study of rural economy has become "agricultural economics" or that the agricultural economist applies industrial criteria without much heed to such factors as soil fertility, ecological balances, or social requirements. Apart from his function as a statistician, he is in effect limited by his training and techniques to the answering of one question only—"Does it pay?" His answers may be of considerable value to the farmer as *entrepreneur*, but they have little bearing on the basic problems of the social economy. For of course it doesn't "pay" to tend land and livestock, to grow and cook food or, for that matter, to eat it. It would be infinitely cheaper to live on fresh air and pulverised rock. It is no doubt because of these limitations that the economist has been so slow to recognize that his favourite

standard of "Output per Man" is being steadily eclipsed in economic importance by "Output (or rather circulation) of Food per Acre".

The physical and mathematical sciences can be useful servants when assigned to tasks as specific as their own techniques. As authorities on living and the means of living they can be dangerously misleading in that they cannot present to us biological wholes but only formalized fragments. That is why it has been so difficult for us to realize that agriculture by nature is not an industry at all, as the term is commonly used, and that the passive resistance of the peasant to so-called scientific methods is not just obstructionism. He has always been aware (in an instinctive rather than intellectual way) of realities from which the urban mind is cut off and which the laboratory mind cannot grasp, because they cannot be reduced to symbols and formulae.

It is only when we come to consider agriculture in terms of social ecology that we begin to perceive the economic consequences of the development of agri-industry.

(i) There has been a progressive weakening of that intimate association of human society with its natural environment on which civilization is based, so that agriculture has become a specialized (and degraded) occupation, receiving proportionately less and less attention.

(ii) On this contracting base there has been erected an expanding structure of urban activities, all of them drawing wealth from the soil without proportionate return.

(iii) Agriculture itself has become geared to this top-structure by a complex system of money-relationships, all of them exerting powerful pressures upon the rural economy.

(iv) As a result, there has been brought about within agriculture a condition of imbalance, both biologic and economic.

(v) There has been—and still is—a continuing process of mechanization by which the organic becomes subordinate to the inorganic.

In short, agricultural history reveals clearly the sequence of events that has characterized social and economic change during the Mechanical Age—disintegration, de-organization, and mechanization.

VII

THE PERIOD OF EXPANSION

WHATEVER may have been the ecological consequences of the liberal revolution, there can be no doubt that in one sense at least it more than fulfilled expectations. It liberated an enormous amount of energy, both human and inorganic; and this in turn produced a period of unprecedented expansion or quantitative increase. So accustomed has Western outlook been to expansion as a "normal" condition, so conditioned to it have Western institutions become, that even to-day there is great difficulty in the adjustment of ideas to the fact that it has passed its climax.

The scale of this expansion can be shown in various terms, but the two simplest, and as regards ecology and real economy two of the most important, are territory and population.

In 1750, the West consisted territorially of Europe itself, the English and French colonies along the eastern seaboard of North America, and the Spanish and Portuguese colonies in South America. Apart from a few trading-posts, there were no European settlements in Asia or Africa, and none at all in Australasia. By 1914, the whole of the Americas, Australia, New Zealand, and South Africa had been brought within the orbit of Western civilization, which had also acquired extensive property rights in Asia and the rest of Africa. The European peoples, formerly occupying less than 7 per cent of the land-surface of the globe, had colonized another 33 per cent, and had come to dominate most of the remainder.

The expansion of population was hardly less striking. During the 100 years previous to 1750, the population of Europe had increased by 40 per cent—from 100 to 140 millions, while that of North America grew from 1 to 1.3 millions, and that of South America (at this date only partly European by descent) shrank slightly to 11.1 millions. During the next 100 years, from 1750 to 1850, the population of Europe increased by no less than 90 per cent, from 140 to 226 millions. If the even greater increase in the Americas is taken to be mainly of European origin or

descent, it seems safe to say that in the first century of the Mechanical Age the people of the West more than doubled their numbers.[1]

Nor was this a mere spurt. By 1940, the population of Europe, European U.S.S.R., the Americas and Australasia had grown to 895 millions, an increase of almost 175 per cent over the figure for 1850. Admittedly this total includes many peoples who can hardly be described as Western; but on the basis of Carr-Saunders' estimate that in 1933 persons of unmixed European descent numbered 720 millions it would appear that the West had again fully doubled its human inhabitants. Even if Russia is left out of account altogether, and a fifth of the population of the Americas is excluded as being of African or indigenous descent, it seems clear that the expansion of the West after 1750 yielded a fivefold human increase, and raised its share of world population from 17 per cent to 30 per cent.

Associated with this enormous increase of territory and people there was a prodigious expansion of the apparatus of modern civilization. Transport advanced from the phase of pack-horse, waggon and sailing ship to that of transcontinental railways and giant ocean liners. Trade expanded from a mere trickle of luxury goods (which alone could bear the high transport costs of pre-mechanical days) into a vast world-wide traffic in materials and goods of every kind. Industry expanded likewise, from the stage of primitive factories and mills into that of huge, highly-mechanized "plants" combing the world for raw materials and sending their finished articles into its remotest corners. In like manner grew the ramifications of finance until a draft made out on one side of the globe could be cashed on the other, and the fortunes of farmers scattered over millions of square miles could be made or broken by some swift spasm of a distant market.

It is possible to divide this period into two distinct phases. In the first, economic and physical mechanisms were constructed and set in motion. In the second, these mechanisms thrust outwards from their original domiciles, and extended their influence until they covered nearly the entire world.

[1] Figures from *World Population*, A. Carr-Saunders (Clarendon Press, 1936). Revised by him from table by Willcox

The first phase lasted until approximately 1873, though the out-thrust was beginning to manifest itself before that date. Soon after it began, a long series of wars drove Britain, France, and to a less extent the seceding American colonies, to develop intensively both industry and agriculture for military needs. There followed a period of reconstruction during which new economic relationships were being evolved in a new political atmosphere. It was then that Britain seized the opportunity presented by the defeat of France and the disorganization of Europe. Of this period, Dr Knowles says[1] that "Napoleon failed to accomplish the ruin of Britain, so strong was her economic position, and she emerged in 1815 the workshop of the world, the forge of the world, the banker of the world and the world's greatest carrier."

She was to keep that lead till the end of the century, but during the first phase it expressed itself internally rather than externally. It was then that the principles of a free economy were worked out and established. It was then that canals and railways were constructed, steamships and dock equipment built, business enterprises founded, discarded, or enlarged into bigger units, trade connections evolved, and money capital mobilized for operations of ever-increasing magnitude. All this created a network of inorganic relationships that expanded in scope, power, and complexity until the economic well-being of the humblest pit-boy or shepherd-lad was linked by invisible money-threads with the central market mechanisms in the heart of the City of London.

Typical of this development was the growth of joint-stock companies, which in Britain received full economic status by the Companies Act of 1862. Through the principle of limited liability it became possible for any person to take part in manufacturing, trading, or transport, in the employment of labour, in the purchase and sale of goods, and in the possession of land and other real property. He could do it simply by the acquisition of share script in exchange for money, and without physical participation or moral responsibility. In this way, a London suburban dweller could enter into economic relations with Lancashire cotton-operatives; yet he might never have seen a cotton-mill or have been nearer to Lancashire than Kentish Town.

By 1850, this first phase of trial and error, of physical re-

[1] *Op. cit.*, p. 102.

equipment and machine-construction, was drawing to its climax. For Britain, still well in the lead, the next twenty-three years were years of intensified economic activity and great prosperity, when her economy was approximately balanced. From that secure foundation she was able to reach out through trade and shipping to extraneous sources of wealth. Her exports expanded year by year as her industries began to yield surpluses over home requirements that were as yet restricted by frugality and the identification of "economy" with money-saving. In exchange she obtained materials suitable for the slow transport of those days—wool from Australia, cotton and tobacco from the U.S., silk from China, jute from India, sugar from the West Indies, and, above all, gold from the new fields in California, Australia, and New Zealand for the corresponding expansion of her monetary base. In all essentials, however, she was still substantially self-supporting. It was her enjoyment of a balanced and self-reliant domestic economy that enabled her to trade on terms favourable to herself.

Other countries were still in the crucial phase which preceded their emergence as modern states. It was during this period that the industrial Northern States of the U.S. defeated the plantation South, that Prussia defeated Denmark, Austria, and France and became modern Germany, the industrial centre of Europe, that Italy became a united nation, that several of the British colonies became self-governing.

In due course, the logic of industrialism began to make itself felt, and not only in Britain. The essence of economic freedom (and this was the height of the Free Trade period) is unlimited opportunity; the dynamic of the power mechanism is unlimited expansion. The conversion-potential of the West, whether in industry, trade, or finance, was in danger of outstripping its resources. More living space, more materials, more outlets, were necessary if the pace of expansion was to be maintained.

As Dr Knowles points out:[1]

> The industrial revolution had created a demand for new commodities, increasing quantities of raw material were required, markets were needed for the new mass production, new commerce was inaugurated which in its turn made new

[1] *Op. cit.*, p. 315.

demands on transport. Transport again quickened the whole volume of transactions and stimulated a new industrial and commercial development which proved to be a veritable commercial revolution in that it altered the relative value of the commodities which were the subject of commercial dealings; it brought new articles into commerce and created a further demand for raw materials, foodstuffs and markets.

The second phase of the Mechanical Age was, therefore, made possible only by an historic event of immense economic significance. Within the space of a man's lifetime, that is, between 1865 and 1914, the West over-ran and drew within its economic orbit an area of virgin territory amounting to fully a quarter of the earth's land surface. While it was the mechanical inventions of the first phase that enabled this expansion to be effected, it was access to this vast new field for exploitation that gave the economic mechanisms a fresh lease of vigour.

Before 1865, the "new" countries were little more than enlarged coastal settlements. Even in North America, the great central hinterlands had been exploited only in the most superficial way—for furs, the rarer minerals, and open-range grazing of sheep and cattle. The development of the railway and the steamship, backed by highly-organized trade, industry and finance, altered the whole situation.

With the conclusion of the Civil War, the frontier of the U.S. began to be pushed steadily westward; the great prairie lands of the Middle-West, and later of the South-West, became the scene of rapid colonization and exploitation as the railroads thrust out their tentacles and towns sprang up overnight. This new outgrowth was followed by expansion into the Australian hinterlands, and this in turn by pastoral development in Argentina and New Zealand. During the same period, the greater part of Africa was carved up for European exploitation.

Between 1900 and 1914, the last great wave of settlement rippled across the prairies of western Canada, and the remaining islands of virgin territory in the U.S. were engulfed, while in Australia and New Zealand closer settlement proceeded apace. During the inter-war period (1920–39) there were some further extensions on a smaller scale, especially in northern Canada and in Africa. But after 1925, certainly not later than 1930, the tide

turned and recession began to exceed expansion. Everywhere, except possibly in Brazil, the frontiers had been reached. The phase of outward expansion had been as dramatic in terms of time as it had been impressive in terms of space.

The range of primary produce entering world trade underwent a similar expansion. To the products of the older colonial and plantation areas—sugar, cotton, spices, and tobacco—had been added during the first phase wool, hides, and gold. But with the railway went the plough and the small settler, on whose behalf Homestead Acts were passed in several countries; and world traffic in wheat, which hitherto had been transported (even from one part of Europe to another) only at times of scarcity now expanded rapidly. The year 1882 marked another turning-point, for it saw the introduction of refrigerating machinery which made possible the long-distance transport of meat, and later of dairy produce and fruit. At the same time there was an increasing exploitation of tropical resources for such products as palmnuts, coconuts, cocoa, groundnuts, and fruits.

From a social point of view, most of this territorial expansion represented genuine colonization in that the migrants intended to establish new homes and communities. But, from an economic point of view, it represented a series of annexations by which finance-industrialism broadened its base. In other words, the new territories became, not new economic entities, but tributary dependencies of the economic empires centred on Britain, north-central Europe and north-eastern U.S. And while the new territories undoubtedly were dependent on the older regions during the earlier stages of their development, it was not long before the older regions became highly dependent on them, and in a number of different ways.

In the first place, the new territories provided money capitalism with an expanding field for investment. The banking system had by this time developed the technique of basing an elaborate structure of credit on a relatively small stock of gold, and though there were occasional dislocations and even panics, it was in general able to provide expanding trade and industry with the money required as a medium. What it could not provide, however, was an expanding supply of profitable outlets for this new

form of money capital as it accumulated within the system. It seems quite possible that as the phase of intensive home railway construction and industrial equipment drew to a close, the "earning-power" of money would have declined sharply had not new outlets been found, and the financial congestion which occurred in 1930 would have taken place some half a century earlier.

A new market for equipment and consumer goods, however, meant also a new field for financial investment. The flotation of overseas loans and development companies maintained the demand for money capital and kept the money market buoyant, besides providing a rich harvest of commissions. Much of the yield from these investments was re-invested in the new territories, so that in effect the scarcity value of money was upheld in the face of increasing supplies by the process of spreading it over an ever-increasing area. By 1914, for instance, fully £4,000,000,000 of British capital had been invested abroad.

Nor should it be overlooked that this system of "making" money and planting it out to breed was immensely aided by the steady influx of gold from the new fields. This gold not only extended the base of the credit structure but facilitated international trade by providing a convenient medium in which outstanding balances could be transferred.[1]

In the second place, the rapidly-expanding supply of low-priced foodstuffs and raw materials gave industry a powerful stimulus. For while it might have been possible by careful husbandry to obtain from local resources an increase in primary production sufficient to maintain an expanding population and industrial structure, a substantial proportion of the former would have had to be retained in agriculture and associated occupations, so that the development of the latter would have been slowed down, both by scarcity of labour and by the substantial proportion of consumer income required for food.

[1] The theory of the international gold standard (which to some extent worked in this period) is that countries importing more than they export tend to lose gold and thus have to contract their domestic credit and currency, so that their internal price-level falls and other countries then purchase more of their cheaper goods until the balance of trade is corrected. Similarly, countries whose exports exceed their imports accumulate gold until their rising internal price-level increases their willingness to import and diminishes their ability to export. It is a typical example of free-market automatism, which obviously presupposes that all countries adopt identical financial and economic practices.

The primary produce of the new countries, however, did not have to bear the costs of husbandry, but only those of exploitation and transportation, both of which are susceptible to technological improvements.[1] Moreover, since it had no outlet save in the industrial regions, increasing supplies constantly operated to force down prices and maintain a "buyer's market". Thus industry was enabled to obtain cheaper materials and to keep down wages without restricting the ability of the workers to purchase more manufactured goods (less being spent on food). It is no wonder that manufacturers and the commercial classes generally have always been so insistent on "the blessings of cheap food", no matter how divided they may have been on the subject of tariffs on industrial products.

In the third place, industry obtained an expanding outlet for finished goods, while trade and shipping received an equal benefit.[2] New territories need, not only equipment, but goods of all kinds, since it is inevitably some time before they can manufacture many for themselves.[3] Just as they must sell primary produce on a buyer's market, so they must buy secondary products on a seller's market.

Thus territorial expansion enabled industry (as it did finance) to avoid a congestion of the home market which could have been overcome only by drastic economic and social re-adjustments, and to maintain the pace of expansion. For example, the manufacture of railway equipment, with all that it means to the basic industries of coal-mining, and iron and steel, must have been slowed down appreciably by 1890 had it not been for the rapid extension of railroad construction in such countries as Canada, the Middle-West of the U.S., and Argentina, largely with British-raised capital.[4]

A fourth benefit, the importance of which is perhaps insufficiently recognized in economic histories, was the outlet provided

[1] There was in addition intense competition in the freight market at this time.

[2] This did not immediately eventuate. For instance the period 1873–86 was in Britain a period of comparative depression, largely because diversion of gold to Germany after the Franco-Prussian war contracted the monetary base until the South African fields were discovered.

[3] Until quite recent years, for instance, Australia used to buy large quantities of British-made woollen goods, though herself the largest wool producer in the world.

[4] Sir George Paish has estimated that by 1909, £1,700,000,000 of British capital had been invested in foreign and empire railways, and that this capital was then yielding £82,777,000 a year (Knowles, p. 214).

for human beings surplus to the industrial system. Even the new economic and social order that arose during the Mechanical Age could not well accommodate the whole of rapidly-growing populations. Inevitably there were many misfits—peasants uprooted by the commercialization of farming and craftsmen displaced by the factory-system, younger sons of impoverished rural gentry, discharged soldiers and sailors—who could not or would not take to industrial or commercial employment. Left within the system, these might easily have proved a source of social discontent; in any case, they would have had to be supported somehow. But, when attracted to a new country in search of the land, adventure, or quick fortune which they could not find at home, they were at least out of the way and might become assets as contributors of primary wealth. The biggest waves of migration were usually associated with gold discoveries, but throughout the nineteenth century there was a continuous human out-thrust, which at times reached impressive dimensions. Between 1846 and 1932, no less than 53,000,000 people left Europe, more than half going to the U.S., though Argentina, Canada, Brazil, and Australia also received large contingents[1]; at the same time, there was a considerable westward movement within the U.S. itself.

Thus there was set in motion an enormous volume of long-distance traffic which, unlike the interflow of an ecological association, was activated chiefly by inorganic pressures and conducted by mechanical means. It seemed to justify abundantly all that had been claimed for division of labour, specialization of production, and freedom of trade. Not only were agriculture and the various branches of manufacturing now segregated and commercialized, so that each had to exchange products with the other through the monetary and trading systems; whole countries could now be labelled "industrial" or "agricultural", "old" (i.e. densely-populated) or "new" (i.e. thinly-populated). There was thus a regular condition of disequilibrium, as between populations and as between productions, and the functions of the trader and the financier became of paramount importance. For they were the agents of exchange and distribution, the technicians of the market mechanisms.

But "the appetite grows by what it feeds on." By 1914, the

[1] Carr-Saunders, *op. cit.*

apparatus of economic power had become geared to, and dependent on, a continuous process of expansion. It was the apparently unending supply of fresh fields for investment that maintained the rate of interest and preserved the illusion of "money-breeding". It was the continual expansion of both intake and outlet that enabled industry to offset rising wages and overheads by increasing throughput. It was the steady increase in total trade that enabled commerce and transport to provide better services and still maintain profits. And it was the constant occurrence of new opportunities for enterprise that enabled widespread human displacement in agriculture and industry to take place without large-scale unemployment.

Thus grew the legend of Progress—a belief that, by increasing technical efficiency, mankind (or at least the nations of the West) could perpetually increase the consumption of material wealth per head of population. So general has been the impression that the apparatus of conversion and exchange can solve the problems of civilization that a member of the British Cabinet (Mr Herbert Morrison) told a meeting of the United Nations Association as recently as December 1946 that "trade between nations is the only possible basis of a prosperous and safe world," and that "the great network of world trade" is "one of the incomparable achievements of mankind".[1]

Achievement this phase of expansion certainly was: incomparable, too, in the sense that never before can any civilization have occupied so much living space in so short a time. But its very success has masked the extent to which its huge increment of material wealth has been derived from the conversion of real capital—pre-eminently soil fertility, but also forests, mineral deposits and oil-fields—into income, without corresponding re-investment.

[1] *The Times*, 5/12/46.

VIII

SUPER-MECHANIZATION

THROUGHOUT the Mechanical Age, economic apparatus has shown a constant tendency to expand, not only by increasing throughput *per* unit, but also by aggregation *of* units. As its components have become more complex, and have extended their operations more widely, so they have coalesced or amalgamated into combinations of ever-increasing size.[1] Socialist collectivism is in many ways simply the logical development from industrial and financial aggregation. To this extent, Marx was right. The centrifugal out-thrust of economic power-mechanisms in search of intakes and outlets has been matched by a centripetal action—the centralization of control. In this way, the vertical economic structure of pre-industrial times has been disrupted and largely displaced by lateral development.

There appear to be two main reasons for aggregation. One is that as mechanization proceeds, it entails the use of machinery of increasing size, complexity, and capital cost. This in turn postulates organizations of increasing size, scope and financial resources. An independent carpenter or joiner may have insufficient work to justify the expense of a power-driven saw, no matter how much labour it would save him. But a "capitalist" firm undertaking ten times as much work can very well afford it, and on the strength of its greater power (financial as well as mechanical) may under-sell or buy out the independents. A farm of less than 50 acres cannot well justify a binder, one of less than 300 acres a combine-harvester. But a farm of 1,000 acres may well justify complete equipment. Hence the *a priori* arguments for big farms. As technological aids to production increase, so do pressures for the adjustment of production units to suit them. The machine comes to be accepted as the authority.

The other reason for aggregation is that, in a free economy, the competitive element which is so essential to the smooth working

[1] "As communications became more rapid, the growth of huge business concerns with world-wide interests emerged, and equally large trade unions or labour combinations became possible." (Knowles, *op. cit.*, p. 11.)

of its general principles tends to be self-eliminating. Adam Smith and his more immediate disciples, in developing those principles, envisaged a society of individuals, or at any rate small groups of individuals. Each *entrepreneur* represented in effect an economic power-unit motivated by self-interest. The merchant bought and sold on his own judgment, sought out his own sources of supply and his own customers, and seldom employed more than a few clerks and warehousemen. The manufacturer supervised personally all the processes of his business, and possibly worked himself. The workman, too, as a competitive individual, would make the best bargain he could for the disposal of his own skill and energy.

It seemed a sound piece of economic logic to conclude that the best results, socially as well as individually, would be achieved by leaving all the pressures created by these different factors to adjust themselves "naturally" by the "play of the market". Hence the policy of *laissez-faire*—leave alone. The earlier Factory Acts, for example, were accepted only on the grounds that they would not interfere with this automatic arrangement, but merely protect those who could not protect themselves—women and children.

But self-interest itself soon invoked the principle of aggregation. As trade grew more complex, as machinery became larger and more intricate, and as the need for larger money-capitals became more insistent, so personal businesses and simple partnerships were expanded into "firms" and "companies". It was not long before the practical advantages of combination began to out-weigh the theoretical merits of competition, especially in times of depression. Not all of this combination was of course voluntary. Indeed it can be said that competition has bred combination, not only by setting a premium on price-fixing, but by creating a state of economic struggle in which the financially-weaker contestants must inevitably be eliminated or absorbed by the financially-stronger.

Dr Knowles notes that:

> The very severity of the struggle to get business during the Depression (1873–86) led to the formation of combinations and amalgamations to avoid cut-throat competition, with the result that free competition tended to disappear and prices

were increasingly fixed by rings and agreements. Trade unions were then faced with great Employers' Federations and were driven to rely on legislative action rather than collective bargaining . . . The employers' combines began to include not merely national trades or branches of a trade, but extended their scope to include foreign concerns. These international combines made "free trade" of little or no effect where they existed.[1]

This process of amalgamation was clearly of an inorganic character, being brought about primarily by money pressures rather than through any natural urge towards association for mutual benefit. But it did very often lead to gains in technical efficiency.

On the whole, these combinations make for efficiency in production and the elimination of waste. It is possible to specialize branch factories to a very high degree, raw material bought in large quantities is bought cheaper and is easier and less costly to handle. Large scale businesses can afford to try experiments and carry out research as small ones cannot. Above all, they can assemble and utilize by-products on a commercial scale impossible to small businesses.[2]

Laissez-faire was quite unfitted to deal with such a development. Certainly anti-combination legislation was invoked, chiefly in Britain against trade unions, and later in the U.S. against "trusts". But it was not difficult to show that combination did in fact arise from the "natural play of economic forces", and that, paradoxically enough, in a free economy, men should be as free to combine as to compete.

So patent did the material advantages of combination become that even those most strongly "anti-capitalist" in the political sense soon came to adopt the "capitalist" model in the economic sense. Once the first humanitarian reaction against industrialism was over, the more truly rebellious movements associated with such men as John Ruskin and William Morris tended to give way, as being too "unpractical" for a utilitarian age, to a more purely economic reaction. The first part of the Marxian prophecy, namely the inevitable trend of capitalism towards monopoly, was being at least partially substantiated by events. It was therefore assumed without question by those who like their politics reduced to determinism, that the second part was equally valid. Why then, it was asked, should the proletariat attempt to resist a development which was not only pre-ordained, but would eventually place all the more power in their hands?

[1] *Op. cit.*, pp. 152 and 153.
[2] *Op. cit.*, p. 211.

Hence the idealized State of socialism, no matter whether it is to be attained by the revolutionary class-struggle of Marxism or by the evolutionary gradualness of Fabianism, has always borne a strong family resemblance to the type of economic empire which Big Business has in fact constructed. It is true that it is to be run by nominees of the proletariat instead of the nominees of the capitalists, and that the profit motive is to be removed. But since large-scale economic organizations must in any case be run by skilled technicians, and since both Big Business and the socialist State are primarily concerned with power, these alleged differences tend to become academic. It has become increasingly difficult to discover any fundamental distinction in approach to specific problems between the orthodox socialist and the large-scale capitalist. Both accept, implicitly if not avowedly, the mechanistic interpretation of economy. The only real point at issue between them seems to be the distribution of power and product as between sectional groups, and even on this point compromise seems possible.

In point of fact, in all the earlier phases of socialization, force of circumstances seems to have played a larger part than socialist doctrine. For inevitably, in the absence of any recognized code of economic morality and any organic structure of economic government, the State has been called upon for ever-increasing instalments of that paternalism which the Adam Smith school so decisively rejected. Just as the civil police have had to extend their duties from that of keeping streets clear of obstruction to those of positive regulation of vehicular traffic, so have governments had to extend their economic functions from that of merely "keeping the ring" to those of positive regulation of economic traffic. Tariffs on imports, for instance, such as every Western country except Britain has employed for the past three-quarters of a century,[1] have involved important economic decisions as to the

[1] "A third change of national policy becomes evident after 1870, when there was a return to protection and State regulation on every side increased." (Knowles, *op. cit.*, p. 12.)

degree of protection required by various home industries, and as to the countries with which it was most desirable to trade. Even Britain, though still nominally a Free Trader until 1931, found a number of inconspicuous ways in which to promote imperial trade and development.[1]

At the same time, State intervention in the form of labour legislation increased steadily. But except in Germany, where the State actively participated in banking, transport, industry, and commerce from unification (1871) onwards, governments for a long time aimed at influencing economic activities rather than at direct management.[2]

The war of 1914–18 ended this phase. For it was the first of the great industrial wars, and there quickly arose a need for the State to direct, not only military operations, but the whole national economy. Beginning as a war of conscript masses, it gradually became a struggle of machines—guns, aeroplanes, submarines, tanks—hence also a struggle between industrial organizations. But States could not confine themselves to munition-making; they perforce had to control also the issue of currency and credit, the procuring and distribution of food-supplies, the mobilization of labour and many other economic activities. And the lesson did not go unheeded.

In consequence, when bitter experience had revealed the difficulties inherent in a return to "normality", it was the State which was called upon for an attempt to bring order out of chaos, not only by tariffs, quotas, and currency controls, but by setting up agencies to direct and co-ordinate economic activities with government aid and under government supervision. Such were the New Deal institutions in the U.S., the "rationalization of industry" schemes and Agricultural Marketing Boards in Britain, and much similar activity in the British Dominions. France, on the other hand, used "her tariffs to forward a domestic policy of social and economic *laissez-faire*".[3] But Italy, and later Germany, where the degree of chaos was much greater,

[1] e.g., by colonial preferences on dutiable commodities such as sugar, wines and tobacco, and guaranteeing development loans.

[2] Another exception must be made of Australia and New Zealand, where a relatively virgin field and a spirit of enterprise enabled some important economic experiments to be made. Here, as early as the 1880's, the State was buying and selling land, operating railways, and making loans to settlers and house-builders.

[3] G. D. H. and M. I. Cole, *The Intelligent Man's Review of Europe Today* (Gollancz, 1933), p. 315.

moved rapidly into socialistic economies in which all economic mechanisms were required strictly to conform to State social aims.

All these experiences have combined to build up a concept, by no means confined to convinced Marxists, of the State as a kind of master-mechanism—not for eliminating or even modifying the mechanisms of capitalism, but for co-ordinating them and running them more efficiently than the capitalists themselves have done. Indeed, the most frequent charge now heard against "private enterprise" is, not that it makes profits or that it involves economic servitude, but that it is incompetent to manage its own affairs. For what modern man has been taught to admire above all else (partly by propaganda, but also by experience) is managerial efficiency—of which more anon. One of the reasons why extreme measures of government control (even in countries occupied by the Germans) were so meekly accepted during and since the recent war is an underlying fear of mechanisms getting *out of control*. Much as the average citizen dislikes being regulated, he dislikes even more any prospect of a return to financial inflation and deflation, trade booms and slumps, with their inevitable industrial disemployment and human hardship. Even in the U.S., where there seems to be still a strong feeling in favour of *laissez-faire*, this is apparently associated with a curious belief that international Free Trade can be re-created by governmental or rather inter-governmental action.

A natural extension of a belief in "nationalization" (State management), and tracing back to the same parentage (by Marxism out of finance-industrialism) is a belief in internationalization. A World-State is envisaged as a super-super-mechanism, rationalizing and regulating all activities on this globe, reducing all men and all human institutions to a common basis. Where the liberals idealized individual Man, orthodox socialists idealize collective Man, giving expression to a popular belief that the mere process of "getting together" will produce order and prosperity.

Thus the events of the last thirty years have revealed the existence of yet another dynamic of expansion—that of State-power. For the logic of the administrative machines is that all control, if it is to remain effective, tends ultimately to become total. Control the price of meat, up goes the price of fish! Control

the price of fish, up goes the price of eggs! and so on. This progressive extension of control is clearly not the only nor necessarily the best way of inducing economic order; but it is the way that is dictated by a mechanistic concept of economy.

Those who inveigh against the network of red-tape that bureaucracy weaves about them, and maintain that enabling legislation which vests almost unlimited powers in officials is a violation of traditional civic liberties (which it is),[1] should remember the extreme inflexibility of machinery. The bureaucrat is seldom expected to exercise discretion in the adjustment of enactments to individual cases; on the contrary, he is required to treat everybody exactly alike and to adhere strictly to regulations. When, therefore, he finds the machinery inadequate, he is forced to add more fitments to it, in the same way that a mechanic adds gadgets to a motor-car. He is not really a manager at all, in the true economic sense; he is essentially a technician applying techniques, working to formulae. And the more faith is reposed in committees, Boards, and Ministries, the more mechanically will our lives be regulated.

There are many things which the State can do—and under modern conditions must do—to promote the economic well-being of the nation committed to its care. It can inspire, guide, and co-ordinate. It can maintain a just balance between different sections of the national society and defend the interests of that society as a whole. But such duties are essentially functions of statesmanship, which should be discharged by those persons who have been placed in responsible positions. When such personal responsibilities are delegated to administrative mechanisms, inspiration and guidance tend to disappear, and co-ordination necessitates an ever-expanding network of petty regulation.

Common sense would suggest that disorders in the social economy resulting from excessive reliance on financial, industrial, and commercial mechanisms cannot be set right merely by constructing a new mechanism to provide compensations and counter-actions. Yet this is precisely what Britain (and to a large extent other countries) seems to be trying to do.

Dr Knowles expressed the super-mechanization idea with admirable clarity and logic over a quarter of a century ago.

> It is the problem of the twentieth century to invent a social mechanism to promote human welfare which shall correspond in power to the industrial mechanism of the last century.[1]

[1] Hewart, *The New Despotism*.

This attitude—which seems fairly typical of most contemporary social reformers—ignores the fact that the primary and all-important requirements for human welfare are essentially organic—wholesome food, congenial environment, opportunities for family life and creative expression. These cannot be provided by mechanical means; for they are products of association—the association of human beings with each other, with their work, with their native soil, in such a way as to foster (i.e. cultivate) the interflow of vitality. For this organic social integration, mechanical re-assembly and mass-manipulation can be no more than sociologically and biologically inefficient *substitutes*. They may afford temporary relief, but they do so only by providing an endless series of compensations for an endless series of deficiencies.

It is perhaps our reliance on figures and formulae to represent realities which prevents us from seeing that a collection of fragments cannot reconstitute wholeness. We can realize now that the Industrial Revolution and *laissez-faire* so shattered the social economy as to destroy most of the benefits which technological advances should have brought. But instead of disciplining industrialism and commercialism, and putting them in their proper place as servants, we seem to be trying to find an *industrial remedy* for their ill-effects.

Instead of re-cultivating family and community associations in which such responsibilities as child-rearing, education, and the care of the sick, the aged, and the unfortunate, can be discharged as natural functions, we are trying to devise machinery —the "social services"—which will perform them on an impersonal basis. Possibly that is why so many hospitals, workhouses, and even schools look like factories.

Instead of re-constituting the nutritional connection between soil and consumer so that food is eaten as fresh, as whole, and as untreated as possible, we are trying to devise synthetic dietaries out of the commodities of world trade. Orange-juice, codliver-

[1] *Op. cit.*, p. 107.

oil, and chalk are doled out to fill up the deficiencies in heat-treated milk, margarine, and white bread. The oranges may come from Spain, the codliver-oil from Newfoundland, the chalk from a quarry, the milk from Wiltshire, the margarine-materials from West Africa, the flour from Canada, while the consumer may live in Shoreditch. But so long as the approved formula is followed, this assembly of components is held to constitute a wholesome diet.

Instead of recognizing that diversity is a fundamental characteristic of life, and that every healthy social group has its own racial, religious, cultural, and ecological context, every step taken in the laudable attempts made to ensure world peace and prosperity seems to proceed from an assumption that uniformity and interchangeability are pre-requisites of co-operation. Can it be that these are the modern interpretations of liberal freedom and equality, adapted to the needs of a Mechanical Age?

And so the question which really confronts us at this time of crisis and transition is this: How long can we continue to force life to adjust itself to the requirements and the performance of machinery, and base our economic plans on the premise that technology can solve all problems for us? Can we not recognize in time that a good standard of living predicates an understanding and an acknowledgment of the terms on which life is lived, and that technological means must be subordinated to vital ends? It may help us to appreciate the urgency of this question if we take some note of the economic revolution that is shaping itself at the present time.

PART III

THE ECONOMIC REVOLUTION OF OUR TIME

IX

A SYSTEM IN DISSOLUTION

THE YEAR 1914 was one of the great turning-points in modern history, more significant even than 1873. For it marked, not only the beginning of the greatest war since the Napoleonic struggle, but the beginning of the end of the economic system which had been developing, virtually without check, during the intervening 100 years. It was, moreover, an ideological watershed, marking the end of liberalism as an effective creed and the start of the transitional period into socialism.

Throughout the nineteenth century, the concept of a free economy, like the legend of Progress, was supported by the fact that there were at all times opportunities for free expansion. The power-mechanisms were efficient because they had scope for their inherently dynamic tendencies; year by year there were more materials for their intake, more outlets for their throughput—wider feeding-grounds, larger populations, increasing demands for their services.

Signs, however, were early apparent that this condition would not last indefinitely. After 1873, Britain's economic leadership was increasingly challenged by other nations whose industrial development, thanks largely to the technical tutelage, equipment and loans she herself had provided, was now comparable to her own.

The following table[1] shows the development of French, German and American competition:

	Net Imports (1)		*Domestic Exports* (2)		*Exp. of Manufact.* (*included in 2*)	
	1880–84	1900–04	1880–84	1900–04	1880–84	1900–04
	£mill.	*£mill.*	*£mill.*	*£mill.*	*£mill.*	*£mill.*
United Kingdom	343·6	466·0	234·3	282·7	206·4	224·7
France	190·1	182·1	138·3	168·6	73·1	94·6
Germany	151·8	287·0	152·8	235·6	91·9	154·2
United States	140·1	186·0	165·4	292·3	30·6	99·8

[1] Condensed from Knowles, *op. cit.*, p. 159.

While these were the economic Great Powers of the West, several small nations—Belgium, Holland, Sweden, and Italy—were also developing industrially and commercially, while in the Far East, Japan, westernizing her economy with amazing rapidity, was becoming a serious trade rival.

Dr Knowles, writing before the full consequences of the 1914–18 war had become apparent, thus summarizes the situation that had arisen by 1914:

> Nations have developed into great land or sea empires, each owning or dominating financially large portions of the globe. This period of world economy, which means world production, world distribution, world interdependence, and world rivalry, may be held to date from 1870.

So long as there was new territory, or at any rate new markets, into which this economic imperialism could expand, all was well, relatively speaking. That is why there were only colonial wars between 1873 and 1914. But by 1900 all the big blocks of virgin land were either occupied or in process of being settled, Africa had been shared out, and the rich trade of the East apportioned.

Rival mechanisms now began to jostle and elbow each other; for behind them was the hunger of great money-capitals for investment-fields, of expanding industries for markets and materials, of growing populations for food and outlets; and behind these again was the rising discontent of huge proletariats, taught to idealize material Progress, demanding an ever-increasing share in its gains, and organizing to enforce this demand. Despite relative prosperity, the years from 1890 onwards were marked by a series of bitter strikes in all industrial countries as the trade union power-mechanism began to challenge that of the employers. In the U.S., for instance, where real wages were probably highest, the average number of strikes rose from 917 a year in the decade 1880–90 to 1,362 a year in the following decade and 2,793 a year in the 1900–05 period.[1]

From every angle, it looked as if the system of allegedly self-regulating economic pressures was developing into a system of high-powered tensions. Is it any wonder that the larger nations sought to divert some of this concentrated energy into armaments

[1] *Encyclopaedia Britannica*, 1912 ed.

which would serve as a backing for economic imperialism, an outlet for industry, and a distraction from social discontents? While there were, no doubt, non-economic factors operating as well, it was primarily lack of outlets for expansive economic forces that made the explosion of 1914 inevitable.

One of the great lessons of that first World War (as indeed of the second) was that international industry, trade, and finance, far from being natural growths whose fruits are peace and prosperity, tend to become instruments of economic power, capable, not only of creating a war-like atmosphere, but of full mobilization for war itself. Nor can "victory" yield more than a temporarily enlarged outlet for this power, by destruction of rival mechanisms.

Had this lesson been firmly grasped by the leaders and experts of the victorious Allies at the moment when they virtually had the world at their disposal, there might well have been no second World War. For they had undertaken, and no doubt earnestly desired, to create a new order. But because they were unable to envisage a world economy different from that of the nineteenth century, the precious years of opportunity were spent in fruitless endeavours to squeeze a new situation into the old formulae.

What was that situation? To meet war needs, both industrial and agricultural production had been greatly expanded. But to provide the necessary incentive, and to buy scarce goods for the insatiable war machines (the only market which can never be glutted), the money mechanism had been detached from its gold base and expanded to an even greater extent. In consequence, prices and wages had risen far above their 1914 level. The post-war boom could not perhaps have been maintained indefinitely; but it could nevertheless have been most easily tapered off, and the war debts contracted in the inflated currency most easily carried, had the money mechanism been permanently re-adjusted to a new price-level substantially higher than the obsolete 1914 figures.

Unfortunately, in a free economy, money is the master-mechanism; and the leading money-technicians of that date could hold out no prospect of regaining effective control of it save by a return to the gold standard which had given it both scarcity value and international uniformity. To them, prosperity

was synonymous with "normality" and "normality" with a return to the pre-1914 international economic system. The same tendency to idealize a past situation can be observed to-day.

Accordingly, by a policy of deflation initiated in the U.S. late in 1920, credits and currencies were progressively contracted so as to bring the volume of circulating money (not, of course, debts) back to its former relationship with gold stocks. The results have been described by the Coles:

> Prices in terms of gold fell with unparalleled sharpness, so that in all the countries which either remained on or were intent upon returning to the gold standard a rapid and destructive process of deflation set in. This deflation, wherever it occurred, intensified the difficulties of the economically weaker countries, and led in their case to a precisely contrary tendency. In the new States of Europe, in Germany, and before long in France and Italy as well, the machinery of government could be kept at work only by printing the money required to meet the immediate expenses of the State; and the inflationary process thus begun speedily communicated itself to the operations of industry, causing a wave of speculative activity in both internal and international business dealings. Thus prices in different countries pursued an erratic and dissimilar course, as some followed the path of deflation on their way back to the gold standard, while others hovered between attempts at stabilizing their currencies at varying levels of exchange, and renewed plunges into inflation as their difficulties began again to accumulate.[1]

After 1923, some provisional measure of stability was achieved and industries began to settle down (though the General Strike in Britain in 1926 was due to the wage-cuts occasioned by the final restoration of the gold standard in 1925). Indeed industrial activity was expanding fairly rapidly again between 1925 and 1929, the index figure rising from 91 to 112.[2] Real wages also tended to increase.

But there was already at work a long-term factor which was not only the main underlying cause of the Great Slump of

[1] *The Intelligent Man's Review of Europe Today* (Gollancz, 1933), pp. 399–400.
[2] *Op. cit.*, p. 403.

1929–32, but effectively prevented any return to the nineteenth-century type of world economy. Its operation was in part foreseen as early as 1927 by the World Economic Conference at Geneva, which noted that:

> The economic depression in agriculture is characterized by the disequilibrium which has arisen between the prices of agricultural products and those of manufactured products; as a result, agriculturists in a great number of countries no longer receive a sufficient return for their labour or their capital. This depression is aggravated in many countries by the difficulty of obtaining credit on normal terms and by the great increase in fiscal charges; while it has led to a decrease in the purchasing power of agriculturists, consumers have not, in all cases, benefited by a fall in the price of foodstuffs.
>
> The diminution in the purchasing power of the agricultural population has reacted upon industrial production, and is consequently one of the causes of unemployment, which in turn reduces the outlet for agricultural products.

Clearly a vicious circle of contracting purchasing power was developing, and it was developing because the main equilibrating factor in a free economy—the Law of Supply and Demand—was not functioning; otherwise the cheapness of agricultural products would automatically have increased the effective demand for them and so levelled out the disequilibrium to which the above passage refers.

This law of course seldom functions accurately in a complex modern economy, because various other factors, such as monetary policy, and combinations of producers and/or buyers, intervene to modify its operation; and in the field of agricultural production its working had been greatly modified by the great territorial expansion from 1865 onwards. But it had now been rendered quite ineffective by the rapid expansion which had taken place between 1916 and 1920—the period of war blockades followed by near-famine conditions in many parts of Europe. Farmers in every Western country outside the actual war areas had then been urged by their governments and tempted by high prices to push up production without much heed to possible consequences. To this end there was brought into use a great deal of marginal land which could be farmed profitably only so

long as both its virgin fertility and world prices remained at high levels[1]; at the same time farmers everywhere had enormously increased their financial commitments by buying land and equipment at inflated wartime rates.

When therefore post-war deflation was set in motion, and produce prices were in some cases halved in a twelve-month, farmers were caught with heavy capital charges, sharply-falling incomes, and, over large sections of food-exporting countries, land which was declining yearly in productivity. During the inter-war period—but most markedly of course during the severe slumps of 1921–23 and 1930–33—hundreds of thousands of farmers literally "walked off" their land penniless, abandoning it to mortgagees and landlords, and often enough to the sheer wilderness which results when a natural ecological pattern is destroyed and no cultivated pattern is established in its place. The more fortunate of these "displaced persons" found jobs in the cities; many became casual workers and joined the standing army of the unemployed. And even where no abandonment took place, farmers were so crippled by debt and impoverished by low prices that their expenditure on farm and household requirements was cut to bare subsistence level or even below it. This was a major factor in industrial depression.

Agricultural production did not, however, contract correspondingly—at the time; on the contrary, it showed a temporary increase, enough to maintain a constant sagging tendency in world markets and lend colour to the theory of "over-production". This was partly because the farmer's first reaction to financial pressure was to squeeze more produce out of his land and more work out of his family,[2] partly because large areas passed into control of big absentee "operators" (sometimes banks and trusts holding the mortgages) who, by farming cheaply

[1] G. V. Jacks and R. O. Whyte, two soil scientists of high standing, writing of this period in *The Rape of the Earth* (Faber, 1939, p. 35), say, "Over 40,000,000 acres of new land in the U.S. were brought under the plough during the war and immediate post-war period. They were exploited to the utmost to secure the high profits obtainable, and afterwards they were exhausted without hope of improvement . . . Today much of those 40,000,000 acres has been eroded beyond repair or has become sub-marginal land to be left for time and Nature to restore to fertility." Much the same thing occurred in Australia, New Zealand, Canada, and South Africa, and almost certainly in other countries also.

[2] In Britain the position was rather different, since here the biggest cost item on most farms is wages and the farmer's first reaction was to cut his labour-bill, even if this reduced production.

with large-scale machinery, were able to skim a profit off land formerly worked by family-farmers. This forced production—for that is the only way in which to describe it—was actively encouraged by governments of food-exporting countries, since these, like the farmers themselves, were driven by inflated debts and falling prices to push up physical "output" at any cost. By 1930, almost all foodstuffs entering world trade were subsidized either directly or by currency-devaluation, and prices had ceased to bear any relation to production costs.

In effect, the impoverishment of agriculture, accelerated of course by the dislocations of the war period, had advanced far beyond the capacity of any self-regulating system of economy to arrest it. It had undermined the whole economic structure of the West by contracting industry's largest market. Wholesale prices of food were so low that its producers could not afford to buy manufactured goods or meet their debts in full, while retail prices (though they too had fallen) were still too high for consumers whose own purchasing power had been gravely reduced by industrial under-employment. Sir John Boyd Orr (now Lord Boyd Orr), surveying the nutritional situation at this period when Britain was fairly inundated with cheap foodstuffs from all over the world, found that "the diet of nearly one half of the population, though sufficient to satisfy hunger, is deficient for health."[1] Even the *rentier* class, who probably fared best, found the increased purchasing power of money offset by reduced yields of investments and the high rate of taxation required to provide relief for the unemployed. Finance-industrialism was being choked with the fruits of its own success in exploiting the natural resources of the world.

Another long-term factor operating against any return to pre-1914 "normality" was the growth of economic nationalism. This movement, though often referred to as a kind of economic disease, was simply the inevitable reaction to an economic *inter*-nationalism which had ceased to function beneficially or even effectively.

Long before this date, of course, tariffs and other economic devices had been employed by national governments both as protection for their own producers and as bargaining-counters in the trade war that was developing. If the chief exception was

[1] *Food, Health and Income*, p. 8. (Macmillan and Co., 1937.)

Britain, it was largely because she was thought to lose more than she would gain by such a policy.[1] When, therefore, the structure of world trade was disrupted, first by war and then by deflation, many nations resorted increasingly to such expedients—but now as a measure of self-defence rather than as an aid to expansion. Faced with the problem of paying debts which had been inflated by the attempted return to an international gold standard, their natural reaction was to try to avoid bankruptcy by subsidizing their exports and reducing their imports. Moreover, the more they were able to contract out of the international system, the better able were they to control their own fluctuating currencies and provide work for their own nationals.

The one nation which could have afforded a thoroughgoing international policy and possibly have taken over Britain's rôle of world banker and buyer, namely the U.S., became at this period as nationalistic as any country. Based on the gold she had accumulated during and after the war, money piled up in her great cities and found vent in an orgy of stock-market speculation, the collapse of which was the starting-point (though not the main cause) of the great slump of 1929–32.

The growth of economic nationalism, however, was not entirely due to expediency. It was associated (and still is) with a returning sense of social consciousness. The Versailles Peace Conference had upheld the political independence of nations, small as well as great; it had even created new nations. But of what value was political sovereignty without economic sovereignty? If a nation had the right to defend its frontiers against military or political aggression, surely it had an equal right to defend them against economic aggression, against dumped imports and the operations of foreign speculators! Of what practical value in an uneasy world were the theoretical virtues of specialized production and free exchange as compared with the solid advantages of a diversified economy and a regulated price-level? It is, moreover, a profound mistake to identify economic nationalism with "capitalism". In practice labour is far more nationalistic than "capital" since, being relatively

[1] "Great Britain was forced to change her economic basis and relied after 1870 upon importing food and paying for it with high-class manufactures, coal, shipping, and financial services." (Knowles, *op. cit.*, p. 193.)

immobile, it stands to gain more from the security of a closed economy than from the opportunities of the open frontier.

It is difficult to say how successful the nations of the West would have been in extricating themselves from the Great Slump had there been no second World War. Most of the steps taken during the 1930's were attempts to deal in a practical (if somewhat tentative) way with practical problems as they arose. Some of them were reasonably successful, largely *because* they departed from the strict orthodoxy of "sound finance" and multilateral trading. Such were the "deficit financing" of New Deal measures in the U.S., the formation of a "sterling area" around Britain, the conclusion of trade agreements on a direct (i.e. bilateral) basis, attempts to create a "price floor" at least for primary commodities, and the general movement (very strong in the new countries, such as Alberta and N.Z.) to bring monetary management directly under government control.

These were, however, widely regarded as mere temporary expedients. The only answer that economic orthodoxy could find for Axis heresies was a renewed protestation of faith in unlimited international exchange on a multilateral gold-standard basis; and the more often this protestation was repeated, the more like a lost cause did it sound. The following extract from a special article on World Trade in *Whitaker's Almanack* for 1940 is typical.

> In contrast to the earlier recovery (1925–1927), when trade expanded faster than production, the present recovery (1933 onwards) shows a marked *lag* in trade in *foodstuffs* and *manufactured* articles, due mainly to widespread quotas, tariffs, and exchange control devices introduced to stimulate *agriculture* in *industrial* countries, and conversely in developing *manufactures* in hitherto primarily *agricultural* countries."[1]

Is it altogether unreasonable to deduce from this admission that the nations were beginning to draw their own conclusions from the economic events of the 1920's—and in particular the abortive attempt to get back to "normality"? How far those conclusions would have been translated into constructive policies

[1] p. 1118.

must remain a matter of conjecture; for after 1935 the whole economic outlook was increasingly dominated by the prospect of a second World War. But the frustrations of the inter-war period have certain lessons to teach us now that we have entered upon a second period of reconstruction.

(i) *No self-regulating money-system, especially one based on so arbitrary a factor as gold stocks, can be relied upon to act efficiently as a general regulator of economic activities.* Prosperity could not be restored by any of the attempts that were made to re-establish "sound finance". On the contrary, deflation inaugurated a period of economic depression and unemployment during which money, no matter how much its purchasing-power had been raised, simply could not be tempted in sufficient quantities out of the banks to do its job properly as a circulating medium. Economic anaemia was associated with financial apoplexy until positive steps were taken to put money to work, by "deficit expenditure" by government agencies (as in the U.S.), by devaluation (as in Britain), or by some equally unorthodox means.

(ii) *Industry can no longer be relied upon exclusively as a source of real wealth or (through employment) as the means of distributing it.* It gradually became apparent that, with the growth of mass-production techniques which progressively reduce the human element in factory production and of manufacturing in formerly unindustrialized countries, industrial communities would have to develop non-industrial activities and sources of personal income.

(iii) *Trade can no longer be regarded as a measure of economic well-being, or freedom of trade as a pre-requisite of peace and prosperity.* Exchange, after all, is not directly productive of wealth, but is only a means of facilitating the distribution of wealth; carried to excess, as an end in itself, it can result in unproductive use of man-power, dissipation of resources and distortion of economies. Economic nationalism, despite its own abuses and occasional absurdities, has been a useful corrective of such excesses.

These three lessons add up to one broad conclusion, namely that the nineteenth century (or rather 1873–1914) system of maximized international traffic was peculiar to its period and circumstances, not a prescription for all time. It cannot be reinstated, at any rate without profound modifications, under twentieth century conditions.

X

"BUT YOU CAN'T EAT A TRACTOR"

MANY PEOPLE find it hard to understand how it is that the pre-war problem of "Too much food—too little money" should have become within a few years the post-war problem of "Too much money—too little food". This swift reversal of economic pressures has of course been greatly accelerated by the second World War, and it is affecting us in Britain with particular severity by reason of our rather special position in world economy. But it remains a baffling phenomenon unless and until due allowance is made for the social and psychological as well as the economic and physical changes wrought by the Mechanical Age. The West has allowed this terrific food problem to creep up on it almost unawares, because its whole economic outlook for several generations has been based on the assumption that food would always be cheap and plentiful.

Such an assumption could of course only be made by populations out of touch with the soils that feed them. There has been, for the last three-quarters of a century, a progressive decline in the social status of agriculture and public understanding of its realities. Just as aesthetic culture has come to be regarded as "unpractical"—unrelated to the practices of living, so agriculture has come to be regarded as "uneconomic"—incapable of supporting industrial standards of profits and wages. In consequence, the tendency has been, either to relegate it to residual and outlying populations whose standards of living were nobody's business, or (more recently) to treat it as a primitive, inferior kind of industry—agri-industry—best left to a few specialists.

There has thus developed a mental as well as an economic cleavage between the urban consumer and the agricultural producer. The former has acquired, despite all the lip-service paid to the value of agriculture at times of crisis, a superior attitude. This attitude is built up from all that he has read or heard of low wages, long hours, and lack of modern conveniences in the countryside, *plus* the large sums of public money apparently

lavished on agriculture in the form of subsidies, free technical instruction, and so on.

The agriculturist, on the other hand, has always remained outside the urban-industrial system and has always been precluded by the very nature of his calling from evolving any effective system of defence against its rapid economic changes. Being geared to the slow rhythm of natural processes, for which plans and outlay must be made long in advance of actual production, he cannot adjust his business rapidly to meet price changes. Being in effect a one-man business, he cannot cut losses by passing dividends or writing down capital. Being scattered and imperfectly organized, he finds even collective bargaining difficult. Broadly speaking, he must pay what is asked and accept what is offered; for he cannot strike or close down, even for a day. In effect, the only response he can make to inadequate prices is a lower standard of farming and living. That is why economic depression, though it usually hits the farm first, never fails to gather strength by the time it reaches the city and the factory. No community, however well it is organized or equipped, can long prosper at the expense of its food producers.

Yet that is, substantially, what Western industrialized communities have been trying to do, in their attempts to secure cheap and abundant supplies of soil products without themselves participating in the labours and hazards of husbandry. They have indeed, both in their feeding-habits and in their rootlessness, shown signs of reverting to the predatory nomadism of the barbarian. For with their concentrated economic power, and their elaborate apparatus of extraction, transport, and conversion, they have been reaching out over vast areas for natural wealth for which they make no corresponding return. They are in effect the absentee landlords of modern times. And while Western civilization has given, and can give, much of value to the world in general, no real economist can overlook the fact that, in seizing and despoiling a far larger feeding-ground than its share of world population can justify, it has contributed greatly to the making of what is perhaps the biggest problem the world has ever had to face—that of feeding fast-growing human populations from dwindling natural resources.[1]

[1] "As to the remaining amount of land that can be used for cultivation, the productive soil of the world is now so limited that it is estimated that there are not more than four billion acres of arable land left to feed more than two billion people." *Our Plundered Planet* (Fairfield Osborn, p. 44, Faber, 1943).

We saw in the last chapter how, in the inter-war period, agricultural impoverishment and industrial under-employment proved to be but different aspects of the one economic *impasse* brought about by the disequilibrium between agricultural and industrial prices. But the same over-concentration of economic power in finance-industrialism which caused the price disequilibrium has also caused a grave social disequilibrium; and this has not only obstructed intelligent treatment of the agricultural problem but is largely responsible for the emergence of a new *impasse* of which food shortage and social discontent are the two aspects, the latter finding political expression in Communism.

Interchange of human beings between country and city is nothing new, and can, under certain circumstances, be good for both. But the steady "urban drift" which has characterized the social development of most Western countries during the last hundred years has had, on balance, deplorable consequences. For while it has robbed agriculture of millions of its more enterprising children and so led to increasing reliance on substitutes for husbandmen, it has resulted in unwholesome congestion in the cities and frequently undermined the economic position of the urban worker.

Montague Fordham, who studied at first-hand this social phenomenon as it occurred in England, wrote:

> The "Tragedy of the Countryside", it has been said, was to be found in the towns . . . During the nineteenth century, perhaps as early as the reign of William IV, there began a steady stream of sturdy workers away from the country; our hamlets and villages were denuded. This flow of rosy-faced men easily found jobs in towns or industrial districts, but drove the weaker city workers into the classes of unemployed or unemployable to live under conditions of extreme misery. This amazing exodus carried in a century some two million workers to the towns and industrial areas . . . As a result of the hundred-year drift from the countryside, slums, poverty, and misery and ultimately unemployment, grew on an enormous scale in towns and industrial districts; the aggregate cost to the nation, direct and indirect, measured both in money and human life—in wealth and welfare—is incalculable.[1]

[1] *The Land and Life* (Routledge, 1942), p. 20.

Dr Knowles, again, quotes an official memorandum by Mr Wilson Fox (Cd. 2,978) in 1906 to the effect that "the major part of London poverty and distress is home-made, that the countrymen who migrate to London are mainly the cream of the youths of the villages, and that they get the pick of the posts."[1]

So strong has the economic pull of the cities been, so dominant have their standards of social value become, so hopeless have the prospects of agriculture looked to rural youth (especially when educated on urban lines) that the urban drift has taken place even in the "new" countries where the average density of population is still low. One third of Australia's 7½ million people (2½ to the square mile) now live in Sydney and Melbourne; nearly one fifth of Argentina's 16 millions (15 to the square mile) in Buenos Aires. As for the U.S., Carey McWilliams says that "since 1870, there has been a steady migration of farm families into urban areas . . . from 1920 to 1930 there was a net farm migration to urban centres of about 6,000,000 people."[2]

That this movement is continuing is evidenced by the fact that while the total population of the U.S. rose by 14,000,000 during the last war, her agricultural population is estimated to have declined by 2,700,000.[3]

One of the most serious consequences of this social shift is that agricultural policy, even when it is not directly dictated by what are presumed to be desires of the urban vote, is almost invariably framed and administered by men who have had little personal contact with the land. This weakness is clearly discernible in the various attempts which were made between the wars to relieve agricultural poverty and, more recently, to satisfy urban hunger.

After the economic disasters of 1929–32, for instance, a good deal was done to ensure that world produce prices at least did not sink to the fantastic levels at which wheat—the "staff of life"—was hardly saleable at a halfpenny a lb. and in some countries was actually burnt as fuel. But there was little recognition of the long-term biological and sociological trends which lay behind the economic crisis, and of course none at all that

[1] *Op. cit.*, p. 377.
[2] *Ill Fares The Land* (English edition, Faber, 1945), p. 194. This movement has now developed a new feature, the displacement of several million workers (mostly Negroes) by the mechanical cotton-picker.
[3] *The Times* American Correspondent, 24 March 1948.

these trends would within fifteen years send wheat prices up to over 3d. a lb. and enforce bread-rationing on Britain. Instead, it was taken for granted that foodstuffs simply represented a group of commodities in over-supply through a combination of natural bounty and technological progress, and that the obvious remedy was to reduce that supply till it more nearly coincided with effective (i.e. market) demand. Such reasoning of course, disregarded the fact that many millions of people in different parts of the world (not excepting relatively prosperous Britain and U.S.) were gravely under-nourished.

This restrictionist policy did have some effect on prices, though it is likely that the "reflationist" monetary policy initiated about the same time had even more, for what the world was clearly suffering from was not an excess of real wealth but a shortage of purchasing power in the hands of those who needed it most. In any case, help given to agriculture during this period was so hedged about with fearsome limitations on production that the producer, especially the small working farmer, was hardly better off.[1] These limitations were usually presented in the guise of "organized marketing", which became the fashionable prescription for agricultural ills and was applied both nationally and internationally. For this was a time when almost all countries, in their efforts to remain financially solvent, developed a craving for "favourable trade balances", which meant subsidizing exports and reducing imports to a minimum by means of tariffs and quotas. It is interesting, in these days of scarcity, to note that an International Wheat Agreement arranged for the crop-year 1933–34 "was intended to provide export quotas for the principal wheat-exporting countries to be accompanied by a reduction in wheat acreage", but was abandoned because "a succession of short crops rendered international action unnecessary".[2]

In short, the restrictionist policy was a trader's concept which paid too much attention to the restoration of the market mechanism and too little to the fact that neither suppliers nor demanders had sufficient money to make the classic law work effectively. Its influence on agricultural prices can be judged

[1] Carey McWilliams, for instance (*op. cit.*, p. 220) points out that a large proportion of the payments under the Agricultural Adjustment Act (U.S.) went to the big "operators" and in many cases were paid direct to mortgagees.
[2] *The Agricultural Register* (Oxford Inst. of Ag. Econ.), 1938–39, p. 183.

from the following table of indices which, because it refers to the British market, the largest and free-est market at that time for exportable surplusses, reflects fairly closely world trends.[1]

1927–29	100	1933	75½	1937	89
1930	91	1934	77	1938	87½
1931	83½	1935	78½		
1932	80½	1936	80½		

The one service that the restrictions rendered—and that by a side-wind—was the checking, to some extent at least, of further exploitation of marginal land. The Agricultural Adjustment Act in the U.S., for example, made some of its payments for non-production conditional upon the adoption of soil conservation practices; and though the quota system was anything but constructive, it did help to deter farmers from trying to salvage their financial position by transferring capital from the soil to the banks.[2]

The restrictionist policy had therefore to be reinforced by subsidies. These were designed to make good to the producer the difference between the market-price and his estimated costs of production, and were derived either from general public funds or from some levy. In the case of export commodities (e.g. Australian butter) this levy was made on home consumption of the same article, in the case of home-consumed commodities (e.g. British wheat) on imports. The system undoubtedly saved millions of farmers from complete bankruptcy and so kept their land in cultivation; but it greatly complicated, and often worked against, the quota system. It was, moreover, a crude and unconstructive way of dealing with the economic disease of adequate produce prices, not only because it did not—and probably could not—distribute financial relief equitably, but because it accepted and helped to prolong a price structure that was itself hopelessly uneconomic. In this way it reinforced and perpetuated the misleading impression that agriculture itself was uneconomic, and so was cordially disliked by producers as well as by taxpayers.

A case in point was sugar, the production of which, for many years and for various reasons, had been so heavily subsidized in different countries that the so-called world price was quite unreal. When therefore a British government, casting round for

[1] *National Farmers' Union Yearbook*, 1939.

[2] "Economic nationalism is slowly but surely effecting a more equal distribution of soil capital, and forcing a check to excessive exploitation of newly developed lands." (Jacks and Whyte, *op. cit.*, p. 218.)

some valuable crop to reinforce arable farming,[1] decided to establish sugar-growing in this country, it had itself to adopt a relatively high rate of subsidy, the more especially as the Treasury refused to forgo its claim to Excise duty. As the "world price" slumped still lower, this subsidy rose to impressive heights; in 1934–35 (when the "world price" of sugar was around 4s. a cwt.) it amounted to nearly £4½ million on rather more than 300,000 acres, though a large part was of course paid back in Excise duty! At about the same period, "deficiency payments" on home-grown wheat roughly equalled the market-price.

This state of affairs has inevitably given rise to a widespread belief that agriculture can and must increase its "efficiency". This belief is naturally voiced most forcefully and rationally by those who have never themselves been farmers or farm-workers and rely mainly on the application of "economics"; and it has gained considerable credence among urban populations with few opportunities to judge for themselves. Nor has it been shaken by the dramatic upswing in world foodstuff prices which has now resulted in the payment of subsidies to consumers instead of producers, often indeed from the pockets of the latter in that they are required to accept prices below those ruling in the open market. On the contrary, it is felt to be altogether anomalous that an age which has achieved so much in technology and industrial organization should be unable to solve the elemental problem of hunger. Behind this feeling of impatience with the apparent incompetence of agriculturists lies of course the paradoxical but typically urban impression (fostered by the subsidy system) that it is the consumer and taxpayer who support the farmer, not vice versa. This attitude is common to exponents both of the old open-market economic system and of State-management.

Thus Geoffrey Crowther, in a paper read to the (London) Farmers' Club in March 1945:

> It should, therefore, be made clear that the guaranteed prices are designed to provide a decent livelihood only for the efficient farmer, and they should be fixed in relation to the costs of the efficient farmer only. What is more, since efficiency

[1] Sugar beet has proved a considerable asset to mixed arable farming in that it provides, as well as a high cash return per acre, large amounts of by-products for stock-feeding and facilities for cleaning and deep-working the land.

increases over the years, it should be a definite part of the policy to assume a slight fall in the costs of efficient production year by year, provided there is no change in the level of agricultural wages or outside costs.

And F. W. Bateson in *Towards a Socialist Agriculture*:[1]

> There is a very real danger, of which Socialists are not sufficiently aware, that the farmers' leaders, and possibly some of the farm-workers' leaders, will attempt to exploit a favourable situation by committing the nation to a long-term policy of subsidizing an inefficient agriculture.

Now, in so far as "efficiency" refers to truly agricultural (or more strictly, biological) efficiency—better use of natural resources, elimination of waste, and a general build-up of soil fertility and the health of crops and livestock—no sensible person, least of all the farmer himself whose income depends on such efficiency, would disagree with anything done to increase it. Even so, it must be remembered that responsibility does not lie with the farmer only, but also with those who handle his produce, return (or fail to return) its waste matters, and (through various official bodies) exercise considerable influence over such determining factors as prices, wages, housing, and the supply of materials.

But what the efficiency-enthusiasts[2] clearly have in mind is *industrial* efficiency, as reflected in rising "output per man" and hence falling money-costs per unit of produce. Only in this way, they maintain, can agriculture "compete" with other occupations and pay good wages, without becoming a "burden" on the community. And though their views relate particularly to British agriculture, they are clearly meant to be applicable generally. It is indeed a part of their doctrine that each country should produce only "those things which it is best fitted to produce" and so help to maintain the maximum volume of international traffic.

[1] A Fabian production published by Gollancz, 1946 (p. 10).

[2] Views similar to those expressed by Crowther and Bateson are to be found in books by Lord Astor and Seebohm Rowntree (*British Agriculture*, Penguin, 1939; and *Mixed Farming and Muddled Thinking*, Macdonald, 1946), Dr. C. S. Orwin (*Speed the Plough*, Penguin, 1942, and *Problems of the Countryside*, Cambridge U.P., 1945) and in the Minority Report of the Scott Committee (Cmd. 6378, 1942) by S. R. Dennison.

Such a concept obviously envisages the farm as a factory and accepts without question the view that agriculture can be interpreted entirely in terms of chemistry, mechanics, and economics. It therefore leads, almost without reservations, in the direction of specialized production and the development of "units" large enough to be completely mechanized and staffed with technical "experts", employing as little labour as is consistent with short working-hours. Such "units" it envisages as either company- or State-owned, according to political tastes, but in either case is clearly designed to fit a system of centralized control located in the city. In short, it attributes the persistent failure of Western civilization to solve its food problem, not to any fault in its social and economic structure, but to the "backwardness" of agriculture in conforming to the industrialization process. Subconsciously, it seeks to rationalize and perpetuate the "cheap food" basis on which the industrial system was erected and without which it must undergo drastic modification.

Unfortunately for the "efficiency" doctrine, the premises on which it is based are faulty. The processes of the farm are quite unlike those of the factory in that they involve the generation, cultivation, and nutrition of living creatures, and not just the manipulation and conversion of inert materials. They are, moreover, carried out under quite different conditions; the weather alone, to say nothing of the infinite diversity of nature, makes it impossible to routinize farm operations. Farmers and farm-workers, for this reason, have to be a good deal more than technicians, and any form of re-organization which weakens their personal connection with the land by reducing their status to that of industrial employees must lower their agricultural efficiency. The machinery and chemicals on which the industrial efficiency theory relied can certainly be used to increase "output", and probably must be so used at present owing to the unbalanced condition of agriculture. But an increase in "output" without a corresponding increase in "input" simply means a further running-down of capital, borrowing from the future to meet obligations that will almost certainly grow heavier as the years go by. For by no stretch of imagination can it be said that either machinery or chemicals supply husbandry or humus, the two great factors in maintaining the fund of fertility on which all agricultural production depends; on the

contrary, they can be so used—or misused—as to reduce both.

Even from a purely economic point of view (if there is such a thing), the "output per man" argument is fifty years out of date; for with the steady increase in human populations and in mechanical inventions to supplement their labour on the one hand, and the steady depletion of natural resources on the other, the crucial factor in the whole social economy is now "output (or rather, circulation of vitalized materials) per acre". Indeed, in so far as "output per man" is raised by extensification and not intensification of agriculture, it is out of step with world trends.[1]

It is for this reason that the present tendency to "leave it to the experts", though very natural, is most unwise and even dangerous. Such bodies as F.A.O.,[2] and the various governmental and voluntary agencies cannot undertake more than distribution—foodstuffs, information, technical advice, improved varieties of crops and stock, and so on. This work can be extremely useful; but it is not primarily productive. Moreover, it operates in the least effective direction—from the conference-hall and office downwards, instead of from the soil upwards—and is directed, as is perhaps unavoidable, by men who are expert in statistics rather than in actual cultivation. Being essentially mechanical in character, since no matter how skilfully and sympathetically it is conducted it relies on the administrative machine, it should not be regarded as more than a transitional phase, certainly not as a substitute for the re-integration of human society with its natural resources for the re-fertilization of both.

The dominion granted to Adam and his seed over all other creatures constitutes a direct, personal, and continuing responsibility; it is one of the terms on which the human race is permitted to enjoy life. Trusteeship cannot be delegated either to technicians or to slave populations without grave social consequences; nor can vital relationships be replaced with mechanical and chemical substitutes without impairment of health. A

[1] During the interwar depression, for instance, large areas of arable land in Britain were allowed to revert to indifferent grazings on which sheep and cattle were run with a minimum of labour. Such a change resulted in raising the "output per man" very considerably, though it certainly could not be said to be socially desirable, or even economic, in the sense that it meant the disuse and deterioration of real capital.

[2] Food and Agriculture Organization of the United Nations.

mounting mass of machinery will be no compensation for a dwindling supply of food, nor is there much comfort in the thought that we may go down to history as the age that was too clever to live.

There could be no more fitting tailpiece to this chapter than the comment attributed to an old Russian peasant on the new collectivized (i.e. industrialized) farming:

> Before the machines came, we worked hard with our ox-ploughs, in a bad year, we could always eat some of the oxen and work a little harder. But now, when the crops fail, there is nothing left. You can't eat a tractor.

XI

THE ECOLOGICAL REACTION

CERTAIN consequences of industrialization—the break-up of the old, rooted social patterns, the severance of large human populations from the soil, the progressive impoverishment of agriculture and the attempted substitution for good husbandry of that unnatural hybrid, agri-industry, have all been fairly obvious processes. But their cumulative effect on the soil itself, more especially the soil of the "new" countries whose exploitation did so much to enable finance-industrialism to attain its full development, has been virtually unseen and uncomprehended by the industrialized communities themselves. Yet no single factor has contributed more to the breakdown of the economic system on which they have come to depend, and so to the economic revolution of our time, than the slow, silent, relentless march of the forces of soil-depletion through the lands which we have made the granaries of our civilization. It is essential that these forces should be understood, both in their cause and in their consequences, not only because they materially affect both present and future food supplies, but because they demonstrate what can happen to natural resources when these are exposed, without the intervention of a peasant buffer, to the full blast of an acquisitive economic system equipped with all the powerful devices of technology. The failure of the West to civilize (in the true sense) large territories which it has attempted to colonize within living memory constitutes an object-lesson which should not be disregarded now that new development schemes are being undertaken. For while these schemes cover small areas, they are even more technological in character than those of the past.

It seems necessary first to point out that the virgin territories into which the West expanded in the latter half of the nineteenth century and the earlier years of the twentieth were not, in the true sense of the word, unproductive. On the contrary, they possessed their own finely-adjusted ecological patterns within which the level of fertility had probably been rising for centuries.

They were wildernesses only in the sense that their human populations, being small, did not impose their will to any extent upon these patterns. There was in fact a very large production of vegetable and animal life, all of which eventually found its way back into the reproductive system; hence the gain in fertility.

Unlike the development of Europe itself, the transition which took place in these territories when they were occupied by European migrants was not a gradual growth of husbandry. Rather was it *telescoped history*, a sudden impact of Technological Man upon primeval virginity. There was a rapid invasion by considerable human populations, confident in their technical skills, of country with which they had had no previous association and of whose ecological system they were almost completely ignorant. The biological disturbance so caused was terrific. Is it any wonder that its consequences have been catastrophic?

The invaders themselves—the squatters, the selectors, the homesteaders—were seldom of course deliberate exploiters, being for the most part people of agricultural stock, squeezed out of the industrial economies or reacting against them, and genuinely seeking new homes. But they were too preoccupied with the struggle for survival which frontier life entails, too unfamiliar with their new environment, too hard-pressed by the demands of the money system behind them, to study carefully how best they might fit themselves into the landscape.[1] In more recent decades, when growing experience might have produced new localized patterns of husbandry, they have found themselves gripped in the meshes of economic mechanisms which have precluded any such development. At the psychological moment for adjustment to environment, they were required to adjust themselves to exterior forces.

Only here and there, where a tradition of husbandry has been strong enough to overcome such difficulties and has found a congenial setting,[2] have these newly-settled areas been allowed to grow up as complete communities—as real associations for living. Always they have been regarded as economic appendages of urban industry and commerce, and as economic tributaries of international finance—an inexhaustible mine from which an

[1] Often they elected (or were compelled) to adopt a modified form of predatory nomadism, moving on from place to place. The rate of human "turnover" in a new district is sometimes very high.

[2] Such as Prince Edward Isle (Canadian Maritimes).

ever-increasing one-way flow of primary wealth could be drawn. Thus, from the very outset, there has been lacking that protective blanket of peasant conservatism which, in Europe itself, has done so much to protect the land.

In consequence, territorial expansion not only unbalanced (by over-stimulating industry) the economies of the Old World, but gave rise to unbalanced economies in the New. The new areas were deficient in population, equipment and manufactured consumer goods. What they had in abundance was natural capital—soil fertility and its associated vegetative covering. By the rules of finance, they could obtain what they needed only by mortgaging this real capital to money capital—by undertaking that a proportion of its natural increase would be converted year by year for ever into an unnatural increase of money. Just what that proportion would be has ever since been determined by the money system itself through the market mechanism. For clearly 7 per cent on a mortgage when produce is cheap is a very different thing from 7 per cent when it is dear.[1] Thus the colonies of the West were literally born in debt, and grew up in debt as borrowing proceeded side by side with development. For the same reason, the potentialities of the new countries as sources of exportable wealth have frequently been over-estimated. Borrowers have a natural tendency to over-emphasize their credit-worthiness.

The chain of debt in a new area begins with the individual settler, who is, in nine cases out of ten, a poor man; often he is a settler *because* he is a poor man, lacking the money-capital necessary for farming in one of the older regions and attracted, not only by the cheaper land, but also by easier credit facilities. He borrows in order to buy farming equipment, building materials, and household requirements. Next come the various grades of local authorities, who must borrow for the construction of roads, bridges, and schools, and the many commercial enterprises which provide settlers with livestock, stores, seeds, and many other requirements on credit terms. Finally, governments themselves must borrow for the financing of public works.

[1] For example, Lord Portsmouth quotes in his Preface to the English edition of Carey McWilliams' *Ill Fares The Land* the case of some South Australian wheat farms on which the interest amounted to 1s. 5d. per bushel produced while the average price realized 1930–38 was 2s. 9d. I myself came across many dairy farms in New Zealand with interest charges of £5 an acre or more, and rough grazing farms paying interest up to £1 an acre. (The average rent of farm land in England and Wales is still only 27s. an acre.) These may be extreme cases, but it would, before 1939, have been hard to find a farm in the new countries that did not carry a mortgage of some kind, often several.

In so far as this debt is owed externally, as a large part of it must be in the earlier stages, interest can be paid only by the shipment of primary produce, which also has to pay for current requirements in industrial goods. Hence production tends to be predominantly for export, and there is an inevitable tendency for monoculture to develop through concentration on one, or perhaps a few, products for which a special place can be made in the market. These, too, must be produced as cheaply as possible, to offset transport charges and undersell competitors.

For these reasons, and also because labour is always scarce in a new country, technological aids in the form of machinery (and to a less extent chemicals) are used wherever possible, so that a large output per man can be skimmed off a wide acreage. Gang-ploughs, shearing-machines, and even milking-machines, came early into use in the Dominions, while the progenitor of the modern combine-harvester made its appearance in Australia 100 years ago.

Thus not only is the national economy unbalanced, but land-use is unbalanced, both by excess of one kind of plant or animal and by the constant "output" of organic material without return. While a large part of this "output" may consist of genuine surplus (natural increase), inevitably some of it will consist of soil capital; and as the process is continued and intensified under money-pressure, so will the proportion of capital tend to rise until, in many cases, "soil mining" actually occurs. As Lord Portsmouth has said,[1] "Those of us who sat down to eat our cheap imported food before the war were in fact too often eating ruined homes, ruined lives, and ruined soil." Jacks and Whyte say, even of the Corn Belt which comprises some of the best land in the U.S.,[2] that "In a typical area fifteen to thirty inches of the top soil have been removed."

But this one-way traffic—the conversion of real capital into money-interest—is only the quantitative aspect of biological deterioration. What has proved even more disastrous has been the violent disturbance of natural equilibria. Forces that former-

[1] Introduction to *Ill Fares the Land*, p. 11.
[2] *The Rape of the Earth*, p. 53.

ly benefited, or at least did not harm, the original ecological pattern have been rendered increasingly destructive by the break-up of that pattern. A condition of chronic instability has been brought about,[1] and this in turn has been fully as wasteful of fertility as the continuous removal of organic matter with which it has been associated. Two generalized illustrations must serve.

Many of the economically more important new lands fall into one or other of two broad types—open prairie or steppe country, and relatively hilly rain-forest country. The first occurs as extensive plains or plateaux in regions with a "continental" climate of low rainfall, high winds, cold winters, and fairly hot summers. It constitutes some of the major grain-growing and grazing areas of the modern world, such as the prairie ranges and wheat-belts of Western U.S. and Canada, the semi-arid wheat-lands of Australia, the steppes of southern Russia-in-Europe, and the "pampas" of South America. Such country carries, in a virgin state, a natural cover of drought-resisting grasses and herbs, with or without low scrub, trees being conspicuously absent save along the rare watercourses. This cover is an essential feature of the ecological pattern, since it is not only stable itself, but, with its thick sub-surface layer of fibrous matter and humus, protects the soil from desiccation and disintegration under climatic extremes.

It is this humic layer which, when broken up with the plough, provides the settler with a series of relatively heavy grain-crops at a minimum of expense, since it supplies them with both nutrient and moisture. But as it gradually disintegrates through tillage and oxidation, the soil itself, now depleted of colloidal humus and exposed to sun, wind, and frost, becomes dry and loose in texture. This process is subsequently accelerated by the summer fallows (stirring without cropping) which become necessary for the control of weeds and the conservation of moisture. But the settler, having by this time incurred heavy financial commitments and built his home, cannot afford to reduce his cash returns by giving the land a chance to recuperate and re-stabilize itself under grass, even if it is physically possible to establish a turf in so dry a climate.

Economic pressures and natural forces are now working together destructively. Debt-charges plus falling crop-yields

[1] Jacks and Whyte, *op. cit.*, pp. 26 and 28.

drive the settler to increase the vulnerability of his land by tilling the maximum acreage to grain, while sun, wind, and frost carry on the disintegrating process.

The soil becomes more and more susceptible to drought, and in a dry season begins to "blow" and then to "drift". For its particles, being now dry fragments detached from their former living context, are dead; and Nature, ever watchful to eliminate the unfit, has no further use for them. The dead soil is lifted bodily from the surface by the wind and carried away, perhaps for some hundreds of miles. But wherever it falls it is useless, and may by its smothering action do considerable harm. Thus is a "Dust Bowl" made.

Rain-forest country is less in extent, but is of considerable economic importance by reason of its suitability for close settlement. It is usually rather sharply broken, with a high rainfall and a more or less equable climate. It occurs in fairly extensive tracts in the U.S. between the Alleghanies and the Mississippi, around the coasts of Australia and New Zealand, and in many parts of Africa. The natural cover here is not grass, but trees—often high forest interlaced with shrubs and creepers. This leafy canopy breaks the force of the rain and so checks soil-wash on the slopes, while the tree-roots bind the soil together and the accumulating leaf-mould builds up the stock of humus. Again, the ecological pattern conforms admirably to the habitat.

The first thing that the settler does is to remove this protective cover with axe and fire-stick. Sometimes he removes the stumps as well in order that he may plough; sometimes he sows grass-seed in the wood-ash for pasture. Like the prairie settler, he at first reaps handsomely where he has not manured, by converting the accumulated fertility into saleable produce. But the soil is now exposed to the full force of the rain, with no living roots to hold it or leaf-mould to renew its stock of humus. Consequently, it is only a question of time before water-erosion sets in, first the finer soil-particles being washed down the slopes, then the coarser fragments, until finally great gullies are torn in the hillside, or the whole surface skin of soil is removed down to the bare rock. And just as the dust from wind-erosion may cause secondary damage at points far removed from its origin, so can the soil from water-erosion choke water-courses, silt up reservoirs, and cause disastrous floods many miles away.

So, in the course of a single human generation or less, Nature's work of many centuries in clothing and fertilizing the face of the earth is swept away. There could be no more striking commentary on certain trends in our civilization. For while soil erosion is no new thing, being characteristic of the breakdown of civilization throughout history,[1] the rate at which it has been taking place, and the important part which our technological apparatus has played in it, are immensely significant.

> For, as the result solely of human mismanagement, the soils on which men have attempted to found new civilizations are disappearing, washed away by water and blown away by wind. To-day, destruction of the earth's thin living cover is proceeding at a rate and on a scale unparalleled in history, and when that thin cover—the soil—is gone, the fertile regions where it lay will be uninhabitable desert. Already, indeed (1939), probably nearly a million square miles of desert have been formed, a far larger area is approaching desert conditions, and throughout the New World erosion is taking its relentless toll of soil fertility with incredible and ever-increasing speed.[2]
>
> The unprecedented economic expansion during the nineteenth century has been followed by a world-wide biological deterioration of the land. The opportunities for expansion and progress were so great that it is doubtful whether soil erosion could have been checked by any means, even had the full seriousness of the consequences been foreseen.[3]

Though the money system has undoubtedly played a leading part in this tragedy of wasted resources—and wasted human lives—it would be wrong to identify soil depletion exclusively with "capitalism". State-ownership of land, as in Australia and New Zealand,[4] has not prevented the occurrence of erosion; nor is there any reason to suppose that collective acquisitiveness is less dangerous than individual acquisitiveness. Moreover, the industrial dynamic has been scarcely less responsible than the

[1] Mesopotamia, North Africa and Asia Minor are cases in point.
[2] Jacks and Whyte, *op. cit.*, p. 18.
[3] *Ibid.*, p. 213.
[4] In these countries, where the doctrines of Henry George made a tremendous impression in the late nineteenth century, the State has either retained, or even re-acquired, legal title to large areas, which are usually let on long leases.

money dynamic. The factory is no more closely connected with the soil than is the financier; so long as it gets an expanding supply of materials for its machines and food for its workers, it cares little whence they come or how they have been obtained. To agriculturists it gives in exchange many useful goods and gadgets; but to the soil itself it gives nothing. On the contrary the more ingenious and powerful the instruments which it places at the agriculturist's disposal, the greater is the temptation offered him to speed up the conversion of fertility into commodities on factory lines.

Of more recent years, the dramatization of some of the more spectacular forms of erosion, such as the Kansas-Oklahoma "Dust Bowl", has tended to make the West slightly more soil-conscious. A great deal of public conservation and reclamation work has been set on foot and, especially in the U.S., has begun to achieve encouraging results. But publicity rightly given to this, and to comprehensive schemes such as that of the Tennessee Valley Authority, has tended to create a false sense of security, which is reinforced whenever an occasional run of good seasons, by temporarily masking the imbalance of biological factors, gives the impression that fertility has been regained. It is only too readily assumed that the "erosion problem" consists of a series of isolated phenomena which can readily be mastered if the right techniques are applied.

Certain facts, therefore, about soil erosion seem to call for statement.

(1) It is a natural process in that it occurs even in stable and highly fertile soils. But on the scale on which it is now taking place it is natural only in the sense that it is the inevitable outcome of human mismanagement. Whereas virgin Nature creates soil slowly, but more rapidly than it is lost, cultivated areas are now losing it far more rapidly than Nature and man working together can re-create it; and that is far from natural.[1]

(2) It is by no means a localized or a spasmodic phenomenon. In some form or other it is now continuous and general throughout the world, though still relatively slight in N.W. Europe.

(3) It is not fortuitous, but is on the contrary simply the end-phase of a gradual process of debilitation culminating in total

[1] "It takes nature from 300 to 1,000 years to build up one inch of fertile soil. Man by his wanton misuse can destroy 8 inches in one or two generations." (Sir John Boyd Orr, *Soil Fertility—The Wasting Basis of Human Society*, Pilot Press, 1948, p. 8.)

sterility. The universality of erosion indicates far more conclusively than any figures could do the progressive decline of soil fertility; for fertile soil does not erode to any serious extent.

(4) It is cumulative, each stage consisting of more rapid degeneration than the last. While its effect on crop-yields (productivity) may vary from season to season, the whole long-term trend is downwards at an increasing pace.

(5) There is no quick technological remedy. Organic degeneration cannot be arrested by the use of inorganic fertilizers; nor can machinery and engineering works do more than assist in certain stages of biological restoration.

It is no disparagement of those who are leading the campaign for conservation to point out that erosion is still far from being "under control". As recently as 1944, the U.S. Secretary of Agriculture told a Rotarian Convention that while considerably more than half the American farmlands were suffering in some degree from erosion, only 10 per cent of them had so far been protected by conservation measures. "Erosion," he said, "is still a national menace." If that be true of the U.S., which has the biggest and best-developed conservation service in the world, what must be the case in Canada, in South America, in Africa, in Australia, and in New Zealand, to say nothing of Asia? No seasonal fluctuations in crop production can alter the fact that "Soil waste is a world problem of the toughest kind."[1]

Quite clearly then the West has not yet succeeded in finding means to curb this "reactionary" movement which it has set in motion and which threatens to stultify all its technological triumphs. For if it cannot obtain all the primary wealth—essential foods and materials—that it needs, it has not solved the problem of production at all. It is, to put the matter bluntly, living on capital, and is now having an increasing proportion of its cheques returned. But because it still thinks of agriculture only in terms of technics, and of economy only in terms of power-mechanics, it is not yet even aware of the size of the problem that hangs over it, or of the cost of solving that problem in terms, not just of money, but also of human vanity. For one of the fondest beliefs associated with the legend of Progress is that "we have conquered Nature".

[1] Sir John Boyd Orr in Introduction to *Soil Conservation* (F.A.O. publication, 1948).

> Probably more soil was lost from the world between 1914 and 1934 than in the whole of previous human history. By 1935 the illusion that nations could get rich quick at the expense of a beneficent, unresisting Nature had finally been shattered.[1]

Those words were published in 1939. What have we been doing since to adjust our economy to this new and tremendously important fact?

[1] Jacks and Whyte, *op. cit.*, p. 213.

XII

THE HUMAN REACTION

THERE are three possible ways in which the sociological consequences of an economic system may be judged—by the kind of society it develops, by its effects on the organic context of that society, and, finally, by its effects on human beings themselves.

It is possible of course to argue that human reactions lie outside the field of economic inquiry, and that the function of the economist is simply to indicate by quantitative measurement how material wealth is produced and distributed. Conventionally speaking, the use to which that wealth is put is no concern of his. But if it be conceded that wealth has intangible as well as tangible aspects, quality as well as quantity, and that its function is to promote health and happiness in the broad sense of the words, no assessment of economic efficiency can exclude reference to human well-being, to quality of living as well as quantities of "goods" available.

What then have been the effects of the Mechanical Age upon human beings? Here statistics afford little help, for even as regards physical health they have so far been used only negatively (i.e. as a measure of ill-health), and there are no mathematical means for registering happiness. One can only gather together impressions and compare them with what one believes to be normal (i.e. natural) standards.

There is a popular idea, not unconnected with the legend of Progress, that the Western peoples are to-day "better off" than were their forebears of, say 1750. On the other hand, there is a considerable and growing body of opinion to the effect that they are, in some respects at least, less healthy and happy. Such comparisons must remain largely matters of generalized deduction. All that can be done here is to note certain trends that have developed and appear to have significance.

Obviously there has been, from the purely *quantitative* point of view, a considerable gain. This is particularly true of those

populations in which financial, commercial, and industrial power has been most highly developed, and which in consequence have had the greatest command over both natural resources and the means of converting them. Industrial hours of labour have been reduced, the labour itself has in many cases become less strenuous, a much wider range both of foodstuffs and of other consumer goods has been made available and, owing to a marked rise in money-income at the lower end of the scale, has become more evenly distributed. Broadly speaking, an hour of labour to-day is exchanged for a greater quantity of goods and services than was the case even a century ago.

But quantitative calculations of output and intake do not give the whole picture. Human beings are not just machines, producing labour and consuming material wealth. They are living creatures and creators. Their health, or wholeness, can be judged only by the way in which they are permitted to exercise their natural functions, not merely as instinct-actuated animals, but as diversified personalities. For it is only by fulfilment of these functions that human nature can be satisfied and made happy.[1]

Considered from this *qualitative* angle, it is difficult to escape a conclusion that human personality has undergone processes similar to those which have shaped the development of society and its economy—disintegration, de-organization, and even mechanization in the sense of a "massification" of human effort, mental as well as physical. Indeed the very words "personality" and "character" seem to-day to be reserved for those whose distinction in behaviour from the mass suggests that they have contrived in some measure to escape these processes.

The extent of the disintegration process can be judged from the fact that each adult human being is now classified in at least three different and organically unrelated ways—as a voter, as a worker, and as a consumer. Each function has, so to speak, been split off from its personal context in order that it may the better conform to the manipulative requirements of different mechanisms.

[1] "Christian social teaching must insist that economic work has its own immediate and natural purposes, and that the daily job ministers to the whole nature of man, and thus to his attainment of his heavenly end, only when it is such a job as has true, immediate, natural effects." Dr W. G. Peck in *An Outline of Christian Sociology* (James Clark, 1948), p. 30.

With an analysis of the political function this book is not qualified to deal, though it is of interest to note that a considerable proportion of people do not seem to exercise it. This suggests that the party mechanisms are increasingly inefficient as media of human political expression.

The work function has clearly been adapted to the needs of the industrial mechanism for uniform materials, disintegration of processes into standardized routines, regularity of throughput, uniformity of product. Human faculties have been detached from their personal origin, standardized as far as possible, and geared to particular routines (i.e., specialized). To a large extent, skill, which is essentially a personal attribute, has become identified with amenability to machine-techniques. In this way, the worker himself or herself (for many processes have been specifically designed to exploit women's labour) has become mechanized,[1] not only in his or her work, but in outlook. Since labour has so long been regarded as a commodity to be bought and sold in the market, the labourer can hardly be blamed for envisaging the enterprise for which he works as a mechanism whose efficiency (so far as he is concerned) lies in its ability to convert labour into money reward, or for believing that it is his "interest" to put in as little effort as possible and extract as much money as possible. Granted that few workers do in fact adopt quite so mechanistic an attitude, that nevertheless is the cold logic of the system.

Moreover, as the economic mechanisms have expanded in size, scope, and complexity, so proportionately has the status, contribution and bargaining-power of the individual worker been reduced. The majority of industrial workers to-day have no personal employer with whom they can deal as "man to man"; relationships, however much they may be tempered by tactful managers, have become largely impersonal. In consequence workers have been driven to rely on their trade unions, which in turn, as they have expanded, have become mechanisms, overshadowing and manipulating the individual.

Thus the natural instincts for which work forms an outlet are

[1] This does not apply only to manual workers. *Vide* the recent decision by the National Coal Board that managers must not participate in public affairs: "Managers, deputy managers, and agents are vital cogs in the machinery of production." (Chairman, N.E. District, as reported in the *Daily Telegraph*, 4 February 1947.)

largely frustrated. Except for a relatively small class of technicians, there is little scope for creativeness, for design, for initiative, even for the gratification of a completed job. Labour has been divorced from living; it is no longer a direct source of satisfaction, but simply a qualification for a meal-ticket.

The full extent of this divorce can be appreciated only by contact with men who are, though wage-earners, still relatively unindustrialized, as for instance the older (and even some of the younger) farm workers. These men were, until very recently, badly off in the material sense as compared with industrial workers, working longer hours for less pay, having fewer "amenities" and being often worse housed. Yet the satisfaction they derive from their work is undoubtedly greater, because they are "*at one*" with it, "owning" (not legally, of course) the land and livestock they tend, giving as well as taking according to the old law of husbandry rather than some conventionalized system of economics. To some extent this is due to the more natural rhythm and background of farm work; to some extent also it is due to closer personal relations between employer and employee. But mainly it is due to the organic relationships inherent in the work itself; not "work for work's sake" (for these men are skilled in achieving the maximum result for the minimum of exertion), but work that provides a medium of creative expression and at the same time calls into use the whole of a man's faculties.

Nor is this "oneness" with work confined to farming. H. J. Massingham has rendered civilization great service by recording in vivid pen-pictures the lives and outlook of our few remaining craftsmen, to whom the enjoyment of work is an infinitely more real satisfaction than the pay-packet of the factory hand. As a ploughman once pointed out: "Man is a creative animal, and his greatest happiness comes when hand and brain are used in conjunction, when he can view his own handiwork".[1]

In the earlier phases of industrialism, this occupational frustration was perforce overlaid by the struggle for survival. As they were squeezed out of peasantry and craftsmanship, men were compelled by sheer hunger to harness themselves and their families to the mechanized chariot of industrial employment. For the only alternative was the workhouse, which meant even harder and duller work for an even smaller reward. During the

[1] Fred Kitchen, *Encounter*. (S.P.C.K., 1946.)

period of expansion, too, there were undoubtedly possibilities of escape from the treadmill, though probably never so many as we are sometimes asked to believe. An enterprising or fortunate few did undoubtedly "better themselves", and there were always the new countries in which pressures were less severe and opportunities more numerous. But while the barbarism of the industrial system has progressively been palliated, first by labour legislation, then by trade union activity and social insurance, the gates of opportunity have gradually been closed by the slowing-down of economic expansion and the filling-up of the new territories.

Hence the proletariat of the twentieth century, which comprises the greater part of any industrialized community, suffers from a real, if largely sub-conscious, sense of frustration, arising cumulatively from the nature of its employment. Yet it fears *un*employment—or, more accurately, displacement—more than anything else; for unemployment means not only physical privation, but the exclusion of men *as superfluities* from their own economy. This is the crowning irony of mechanization; it has liberated men from some of their most essential functions.

Is it any wonder that "incentives" are said to present a problem? The creative instinct, the fear of destitution, the spur of opportunity, even to some extent the power of acquisition, have progressively been removed, leaving labour as a mere mechanical function, lacking volition and spontaneity. That is why increasing resort is had to assembly-line methods which set the pace of every detail of work. These carry the process of mechanization to its logical conclusion; the human element is virtually incorporated in the machine.

Naturally the worker demands more and more money. He needs it for conversion, through another set of mechanisms, into compensatory "pleasures". It used to be said that the quickest road out of Manchester was the nearest pub; but technological ingenuity has now produced far more elaborate compensations for dissatisfactions than mere beer-intoxication. "Pictures", "dogs", professionalized "sport", gambling in all its forms, are essentially avenues of escape from frustration—artificial substitutes for that sense of adventure without which life is as dull as flat beer. They have become psychological necessities to industrial populations, even as purgatives become physical necessities to those whose diet is composed of sophisticated foods.

The consumer function has undergone a similar transformation. Time was when the great majority of people "lived on" the products of their neighbourhood, supplemented by small (and, therefore, highly-valued) comforts; few could afford exotic luxuries. Consumption, therefore, conformed pretty closely to a localized economic pattern. Then came the enormous expansion of both industrial and agricultural production under the stimulus of machine-power, the products being distributed widely and on a purely monetary basis. Relationships between consumer and product virtually disappeared, or rather became vested almost exclusively in the inorganic money system.

In theory, and to some extent in practice, money is a highly effective instrument of distribution and consumption. Moreover, it flatters human vanity by giving an impression of power. This purchasing-power, having no organic limitations, reflects the wishes of the purchaser; he (or more often she) is free to choose. That, no doubt, is why the advocates of the free economy have always idealized the "consumer". But under conditions of relative abundance of goods and relative scarcity of money—such as prevailed throughout the later phases of the Mechanical Age and in particular during the inter-war period—there is continual pressure to convert saleable goods into money by the manipulation of consumption. This pressure is transferred to the consumer through the mechanism of salesmanship; in effect, the consumer is cajoled, flattered or frightened into buying a particular kind or brand of goods. This pressure can, of course, be total as well as selective. During a deflationary period, it will be directed by commercial firms to the expansion of spending through price-cuts, advertising, hire-purchase and so on; during a period of inflation, it will be directed by governments to an increase of saving. Salesmanship, therefore, has little to do with the intrinsic merits of goods or with the real needs of consumers. It is essentially an extension of the money-mechanism, a commercial exploitation of the idea of economic freedom. Advertising, like much political propaganda, employs the technique of making people want what they get in the belief that they are getting what they want.

It follows that while human beings, considered as consumers, may be quite well equipped by instinct and by reason to make the right choices, their consumption is to a very large extent in-

fluenced by pressures. An appreciable proportion of their purchasing-power is expended on things which have no organic value, that is, do not promote better living, but which add to the cost of living—attractiveness, trade name, convenience—shop-windows, display advertisements, high shop-rents, superfluous services. In many cases this manipulation of consumption does no great harm. But in the case of essential items of real wealth—food, and to some extent housing and clothing—great harm can be, and often has been, done because in the lower income ranges (and sometimes even in the higher ones) biologic needs cannot be met, no matter how free the consumer may nominally be.

A case in point is wheaten bread—the staple food of the West. Until about seventy years ago, the population of Britain, for instance, really "lived on" wheat—home-grown and stone-ground—in the sense that bread formed by far the largest part of the diet of the working population. These bread-fed people accomplished all the heavy constructional work for the industrial economy, with little aid from mechanical appliances. They brought the wastes into cultivation and equipped the new commercial farms; they dug the canals and railway cuttings, metalled the roads; they excavated the tunnels and sewers; they built the embankments, the docks, the new towns and factories. They worked strenuously for ten or twelve hours a day, and reared large families. So that there could not have been much wrong with the bread!

It would be a bold man who would maintain that such tasks could have been accomplished on the white bread of, say, the 1930's, which contained little but starch, gluten,[1] and water, all the vital parts of the wheat having been removed as "offal",[2] or even on the "fortified" loaf of 1949 in which an attempt is made by assembly of presumed dietetic requirements to provide a substitute for the natural wholeness of the grain.

Was this drastic interference with a staple food of Western peoples due to the scientific discovery in it, after many centuries of use, of some harmful factor? On the contrary, nutritional experts are agreed that whole-ground wheat is an excellent all-

[1] The sticky substance which holds the dough together as it rises; found in all wheats, but especially in the quick-ripening varieties grown under prairie conditions.

[2] Some of this, after processing, is sold under fancy names as "health" foods, naturally at a much higher price than bread.

round food. The sole reason was the industrialization of milling, and in particular the introduction of the steel roller mill in the 1870's. The new technique enabled the grain to be disintegrated instead of ground, so that the starchy portion could be sold as "pure" white flour, while the "offal" could be sold to farmers, who, it should be noted, have always set a high value on it as an animal feeding-stuff. It also enabled labour-saving mills to be erected at the ports to exploit the cheap, dry wheats then beginning to pour in from the new countries. Nor was this all. The white flour, being to all intents dead and inert, was found highly suitable for bulk handling and storage, while bakers soon discovered that it would absorb more water and hold more air-bubbles than the old wholemeal, so giving them more and bigger loaves per sack. It only remained for skilful salesmanship to identify whiteness and fineness with purity and "quality", and so build up a "public demand".

Bread is an outstanding example, though a highly important one economically in that manual workers still rely on it as their main foodstuff. But it typifies the extent to which the natural character of foods has been subordinated to the industrial need for inertness and uniformity, and the commercial need for convenience and attractive appearance. Gradually the nutritional importance of freshness and wholeness are becoming recognized. But it is perhaps significant that such foods as milk, fruit, and vegetables are still advocated less for their own virtues (which are of course considerable) than as "protective" foods. From what, it may be asked, do we require to be protected, if it is not shortcomings of industrialized staple foods?

How high actually has been the resultant standard of living, when assessed in terms, not of money, but of the nearest approach we have to health and vigour? Such evidence as is obtainable from the inter-war period is rather remarkable when it is remembered that at that time the industrial populations of the West (especially in Britain and the U.S.) had access to an unprecedented quantity and variety of foods, household appliances, and organized amusements.

The Pioneer Health Centre was established in 1926 in Peckham, a typical all-class South London district, as a means of studying social health on a voluntary, family basis. Its discover-

ies, which are based on regular and detailed medical overhauls over lengthy periods, make one wonder just how many of us really are fit, even in the negative sense of being free from chronic ailments and maladjustments.

> The first and outstanding finding is that from a total of 3,911 individuals of all ages, 3,553 (90.85 per cent) at first overhaul were found to have something the matter with them, i.e. some physiological defect, deficiency, or aberration. As the district from which these families were drawn was chosen because it did not contain a social-problem group of the populace, but on the contrary one that was considered to yield a relatively healthy populace, this finding is an arresting one . . . It cannot be disregarded on the score of being a solitary and unique survey of its kind. In 1941, among the first batch of American recruits, 50 per cent were rejected as being unfit for admission to the U.S. Army, and in the opinion of the authorities it is unlikely that more than 10 per cent of the rejects could have been made fit for service. This indicates that the disorders found were not of a merely transitory nature, and leads to the conclusion that our findings are not peculiar to Peckham, or even to the British Isles. It is a general, not a local, phenomenon that we have encountered. The interest of the findings on the U.S. Army recruits is that the 50 per cent of rejects were all young men; that is to say, they were of an age when the health of the individual is usually regarded as likely to reach a relatively high level.[1]

The people studied by the Health Centre were not patients seeking relief from disabling ailments. They were a fair sample, rather above average if anything, of a typical urban population.

> In spite of the fact that these individuals were going about their daily work, their disorders are just those listed in any text-book of Medicine, the defects ranging from the most trivial to the most serious condition.[2]

A broadly similar conclusion was reached, quite independently, by the Local Medical and Panel Committee of Cheshire and

[1] *The Peckham Experiment*, Pearse and Crocker (Allen and Unwin, 1943), pp. 94–95.
[2] *Ibid.*, p. 95.

published in 1939 as *A Medical Testament.*[1] After reciting, with much evidence, the conviction of these general practitioners that most ill-health traces back, through food, to the soil, this document affirms that:

> Probably half our work is wasted, since our patients are so fed from the cradle, indeed before the cradle, that they are certain contributions to a C.3 nation. Even our country people share the white bread, tinned salmon, dried milk régime. Against this the efforts of the doctor resemble those of Sisiphus. This is our medical testament, given to all whom it may concern—and whom does it not concern?

Even in New Zealand, which has one of the highest material living standards and lowest mortality rates in the world, the incidence of physical disorder is extraordinarily high. Lady Eve Balfour, reviewing the Dominion's statistics in *The Living Soil*, mentions that "Every year, of children of pre-school age, some 80 per cent are found to be physically defective in some way."[2]

So "normal" has sub-health become that it supports a large and flourishing patent-medicine industry, while a vast organization is required to cope with the more serious manifestations, most of which represent "repair work" that should not be necessary in a population living healthily. It would perhaps be unfair to criticize the cost of Britain's new "health service" until it has had time to settle down. But it was estimated before the last war that the cost of medical treatment and maintenance of the sick amounted to £180,000,000 a year, in addition to loss of working time valued at £120,000,000, while the annual cost of medical care in the U.S. was put at £700,000,000. And it is interesting to note the ease with which the idea has gained credence (except of course among doctors themselves) that "treatment"—meaning the application of medical techniques to symptoms of ill-health—ought to be organized and distributed by centralized State administration as if it were a nationalized industry. The following extract from a speech made by a government representative on behalf of the National Health Service Bill reveals only too clearly the industrial mentality behind this idea.

[1] Edited by Dr Lionel Picton. Reprints available from Soil Association, Haughley, Suffolk.
[2] p. 131.

In the last 150 years, medicine has advanced more rapidly than in any corresponding period in the past . . . But, although there has been steady and general improvement, there has been no equal or corresponding advance during this period in the level of health enjoyed by the whole population. There has been, not only in this country, but throughout the free enterprise world, a deplorable hiatus between the progress of medicine and its social application. It has taken the intervening years to convince slow-moving public opinion that the free play of supply and demand, aided by private charity for the poor and public provision for the destitute, even in conjunction with environmental health services instituted later by the local authorities, cannot bridge the wide gap that still remains between the health needs of the majority of the people and organized medicine. The public has now learnt from long and bitter experience that it must look to the State to give an equal opportunity of health and happiness to all its citizens, to the children of poor or wealthy parents, to those born in our great and densely populated cities or in tiny hamlets buried in the depths of the countryside.[1]

Granted that much physical suffering can be, and should be, relieved by organized medical treatment, surely it is not seriously contended that what is in effect a Repair Service can in itself provide "opportunities of health and happiness"?

The conclusion is inescapable that, just as the disintegration of the social economy has led to increasing dependence on the manipulative mechanisms of finance, trade, and industry, so the disintegration of the human economy has led to increasing dependence on the compensatory mechanism of emotional escape and physical amelioration. Thus the power generated by science and technology is constantly dissipated in efforts to restore the balances upset by their misapplication. Wisdom has not grown with knowledge, or health with opportunities for consumption of material wealth.

Perhaps the most striking example of all, however, is provided by the economy of the *family*—the basic group of any civilization and the medium through which its fertility is expressed. Children are much more than the physical result of sexual intercourse

[1] Lord Listowel in the House of Lords, 9 October 1946.

between individuals of opposite sex; they are living expressions of the creative urge working through organic relationships, both within the family and between it and its social environment.

Every Western industrialized community has experienced a downward trend in its birth-rate, this decline in reproduction corresponding roughly with the development of outward expansion. It is, however, by no means to be accounted for by the emigration of young people, since it has occurred in the new countries also. Hitherto, it has been masked by a contemporaneous fall in death-rates. But the fact remains that Western populations have been ageing—i.e. containing a progressive smaller proportion of young people, active workers of reproductive age; so that they must shortly begin to decline quantitatively also, both absolutely and relatively to those of the U.S.S.R., and the East.

This trend towards sterility cannot be accounted for by the spread of contraceptives, since these are simply a convenient means to a desired end, or by poverty, since it is most pronounced among those with a high "standard of living". The most important factors seem to have been:

(1) The conversion of home-economies into an industrial economy, a step which first broke up the cohesion of the family, and then, by reason of the labour legislation which it made necessary, converted children from a family asset into a parental liability, i.e., they obstructed the "getting on" process even where they did not actually cause poverty.

(2) Unnatural living conditions, especially the use of stale, devitalized foods (such as white bread), but also cramped accommodation, nervous strain, and late hours. By no means all the decline in fertility has been voluntary, though this factor has been masked by the constant renewal of urban populations from country districts.

(3) The growth of fatalism in consequence of the delegation of initiative to economic and administrative mechanisms. It is not only that potential parents feel disinclined to rear a new generation "in time for the next war"—or, for that matter, the next slump. They have been decreasingly conscious of personal responsibility towards a society in which they are mere units.

The strength of this reaction is to be judged, not so much by its quantitative aspect, since no social problem can be assessed

in terms of mere numbers, as by its qualitative aspect. The urge to reproduce is one of the most fundamental of natural instincts; in humans this urge is reinforced and ennobled by a cultural urge, for the rearing and education of children is one of the higher forms of cultivation. The weakening in Western civilization of both the physical and cultural urge is a significant trend which can be traced back to the substitution of inorganic for organic social relationships and of acquisition for creation as the dominant human motive.

XIII

THE TREND OF IDEOLOGICAL CHANGE

THE EXISTING structure of society is the outcome of a group of inter-related ideas which developed in Western civilization nearly two centuries ago, and moved it to bring about profound social and economic changes. In retrospect, these changes in outlook can be seen as an ideological revolution—that is, a general movement round from one set of ideas to another, from a certain view of life to quite a different one.

It now appears that another such revolution is taking place. But since such movements, unlike political revolutions of the *coup d'état* variety, are usually slow and uneven, it is possible to observe certain "time layers". While many of the terms, forms, and institutions still in general use have liberal and individualistic origins, the present phase of economic development is predominantly collectivist in practice. Beneath both form and practice are taking shape those ideas which will emerge as a new ideology when the present transitional phase is over. Perhaps, since the main trend is unmistakably away from liberalism back towards some form of authoritarianism, "renewed" would be a more appropriate adjective than "new".

As has been suggested already, State collectivism is not really revolutionary. It is the logical climax to an era of "capitalist" aggregation, an administrative super-mechanism being superimposed on pre-existing economic mechanisms. It involves some shifts of emphasis, some re-alignments of social strata, but so far little real change in values, objectives, or even methods. Money, however much its use may be restricted by official permits and coupons, remains the chief standard of value and medium of economic relationships. Acquisition remains the chief economic objective, and conversion and exchange the chief means of effecting it. Undoubtedly social legislation and rationing in its various forms have brought about a greater equity of distribution, at some cost in flexibility. But our attitude towards both produc-

tion and consumption reveals few differences from that which has characterized the last seventy or eighty years. The twentieth-century landscape is changing before our eyes; but we are still viewing it through nineteenth-century spectacles.

Nationalization, for instance, will do little in itself to alter industrial relationships. The State will still need, in one form or another, a "profit", if only to carry compensation costs, overheads, and the added burden of bureaucratic control. The wage-system is likely to remain very much as in the past. Indeed the State, by reason of its remoteness and impersonal character, may be even less capable than the business organization of sharing initiative and responsibility with the workers. It is still "they" to the wage-earner.

Some real economies, it is true, may be effected by rationalization, but these, as in Big Business, are likely to be offset by increases in overheads. Beyond a certain point, increases even in technical efficiency do not conform to increases in size of throughput; on the contrary, the longer the chain of control, the greater is the friction and wastage of effort. While some degree of overall State direction is obviously desirable, actual State participation in industry serves merely to over-complicate mechanisms that are already too complex.

A similar consideration applies to rationing and "controls". In certain fields these will undoubtedly be necessary for a considerable time to come. But they cannot in themselves create more wealth; they are simply mechanical remedies for mechanical defects in the economy. Even "social security", though a step towards the recognition of mutual responsibility, is essentially remedial rather than creative. It acknowledges the duty of society to provide for those who cannot provide for themselves; but it does nothing to augment the fund of wealth. And there is always the danger in an insurance system, as in a money system, that a claim to wealth may become confused with wealth itself, so establishing a false sense of security.

What *is* significant in the development of State-socialism is the change that it reveals in the main current of human desires since the days of Rousseau and Tom Paine. It is true that the idea of a "social contract" still holds, that social relations are still thought of as bargains made between parties without

organic connection. But what government is now expected to provide in exchange for loyalty and obedience is not so much *opportunity* for life, liberty, and the pursuit of happiness as *protection* from fear, want, and injustice.

Consciously or unconsciously, men have come to perceive that freedom in itself is negative, that the removal of restraints has liberated, not humanity, but immense forces which can be at least as oppressive as any personal tyrant. No longer believing in the self-sufficiency of the individual, they look to social organization for defence against these forces, and to obtain it are prepared to forgo much of their own freedom.

Even the idea of equality which is the basis of mass-democracy and underlies much scientific rationalism has in effect been modified. One of the strongest arguments in favour of *laissez-faire* was that it gave all men equality of opportunity. One of the strongest arguments against it to-day is that it produces gross inequality of reward. So long as all men were regarded as freely-contracting parties of equal status, there was clearly no reason why an employer should pay a higher wage than the employee (perhaps under pressure of hunger) could be induced to accept, or why a buyer should pay a higher price than the seller (perhaps under pressure of debt) could be induced to accept. By degrees this concept is being displaced by that of a *fair* wage and a *just* price, both upheld by the State; the self-regulating mechanism of the free market is no longer trusted to render natural justice; and though the adoption of this principle (or rather re-adoption of a mediaeval principle) has in fact been reached largely by a process of bargaining, it is itself a denial that equality of bargaining-power exists.

This renewed emphasis on security and justice indicates a widespread, if largely unformulated, desire for a return to a social *order* in which every member has a recognized place, with appropriate duties and rewards. Effective socialism in fact, though this would probably be denied by so-called social democrats, postulates very much the hierarchic type of society and authoritarian type of government against which liberalism was so emphatic a protest.

Such an order is, however, very much easier to evolve in a relatively small and simple community than in a large, complex, and highly-mechanized community, where machinery is

called upon to discharge functions that are essentially personal. What in fact is happening is not the constitution of a new social order, but a further development of the old industrial structure of society under the guidance of its technicians. These form the new ruling class which is now emerging as the façade of parliamentarianism crumbles. From aristocracy, the West has passed via plutocracy into technocracy, which is probably the last phase of the Mechanical Age.

The steps in this transition are not difficult to follow. In the earlier stages of industrialization it was perfectly feasible for one man or a family or a small group of men to own and run an enterprise of limited scope, such as an iron foundry or a cotton mill or a commercial agency. That was, and still is, genuine private enterprise, in which money capital and technical control were vested in and exercised by the same persons. But as enterprises grew larger and more diversified, the two functions have tended to separate and become themselves sub-divided. The provision of money capital, and with it legal ownership, has been delegated to shareholders, who may number many thousands, while technical control has been delegated to departmental experts who are essentially salaried officials. In proportion as the mechanisms of industry, trade, and administration have grown in complexity, so has the power of these technicians increased. This has been true even of money capital itself, which to-day requires expert manipulation; so that the power which it confers is now wielded less by those who legally own it than by those who manage it through such institutions as insurance companies, investment trusts and banks, and who may themselves be relatively poor men.

Just so long as the State is dependent on economic mechanisms —and especially if it itself operates these—so long must it employ expert mechanics to run them. Hence the change-over from liberal-capitalism to State-collectivism—or Socialization as it is still sometimes called—means not only continuity of objective and method, but also continuity of personnel. Some of the figureheads, it is true, may disappear (compensated) into retirement, and the *rentier* class is likely to suffer considerably. But men who actually managed the "capitalist" system are much too valuable to a technically-minded society to be discarded. Far from being liquidated, this class is consolidated,

providing State functionaries, members of National Boards and official advisers. Socialism is being administered by minds conditioned to think in terms of finance-industrialism.

This transition from plutocracy to technocracy is, of course, the central theme of Professor James Burnham's lucid little book, *The Managerial Revolution*.[1] Granted that he uses both "manager" and "revolution" in a particular and rather limited way, Professor Burnham's logic seems unanswerable. Indeed the only explanation why it is not yet widely accepted seems to be that it invalidates more popular theories, notably that of the Proletarian Revolution on which Left or social democratic ideology is based.

Professor Burnham endorses the Left view that the "capitalist" or bourgeois kind of economy is losing ground steadily, and that State-power is rapidly displacing money-power. But whereas Left doctrinaires have always contended that "capitalism" will ultimately be superseded by a classless, free, and international society, he points out that *in fact* it is being superseded by a régime of the *managers*. This new ruling class, in his view, comprises not only the business executives and technical experts who have hitherto carried out the orders of the money-owning class, but also the rapidly-growing group of State directors and bureaucrats. The more effectively power is centralized in the State, the more firmly established in the saddle will this class become; and there is no reason whatever to suppose that it will rule any more democratically than the "capitalists" have done.

By way of example, Professor Burnham points to the outcome of the Socialist Revolution in Russia—"every shred of freedom and democracy has by now been purged from Russian life, all the evidence indicates that the autocracy of the Russian régime is the most extreme that has ever existed in human history, not excepting the régime of Hitler,"[2] and—"a new class stratification, along economic lines, has proceeded to such a point that it equals or exceeds in sharpness that found in capitalist nations."[3] Nor does he confine himself to "the Soviet experiment", for he points out that similar, if less well-developed, trends could be observed in Germany and Italy, and are present in Britain and

[1] First published in the U.S. in 1941, in England 1942. (Penguin, 1945.)
[2] *Op. cit.*, p. 43.
[3] *Op. cit.*, p. 42.

even in the U.S. In the latter country, the Rooseveltian "New Deal" has put increasing power in the hands of official controllers, and "already (1941) half or more of the entire population is dependent wholly, or in determining part, upon government for the means of living."[1]

Professor Burnham's verdict is the more notable because he himself has been a prominent Marxist intellectual and a firm believer in the triumph of democracy through socialism; he states in fact that "my personal interests, material as well as moral, and my hopes are in conflict with the conclusions of this theory."[2] What is no less remarkable, however, than the close conformity of actual events to Professor Burnham's interpretation, is the relative passivity with which this transition has been received, not only in Russia, where objectors are speedily eliminated, but even in Britain and the U.S., where political intimidation is still kept very much in the background. It is perhaps understandable that money-owners—Professor Burnham's "capitalists"—should feel their position so insecure as to tolerate the gradual erosion of their economic power so long as they receive some compensation. But what of the proletariat, the masses, the "sovereign people" in whom ultimate power is alleged to reside, and who have for so long been led to believe that socialism would place that power in their hands for direct use?

There are two answers to this question. The first is that power does not in fact reside in the mass, which is of necessity incapable of initiative, but in the manipulation of the mass; and the manipulators—the party chiefs and the professional propagandists—are themselves of the managerial class.

The second answer is that the majority at least of a proletariat seems rather to like being managed, or, to be quite fair, will tolerate a great deal of management so long as it can be persuaded to think that it is getting the results it wants. Having no roots of its own, and only an industrial background, it has no standard of values by which to judge policies, and no means of support other than the mechanisms through which managerial techniques are exercised.

The real question, therefore, is not when and how will doctrinal opposition to the managers arise, but how long can

[1] *Op. cit.*, p. 93.
[2] *Op. cit.*, p. 228.

the managers continue to produce the results expected of them. For their status has always been derived, not from any democratic procedure, but from their ability to handle economic and political mechanisms. Their power resides, in the last resort, in the capacity of these to "deliver the goods".

Discussion of that question must be left for the next chapter, but some brief reference must be made to the ideological trend of the future as it is beginning to shape itself.

As long ago as 1930, Lewis Mumford, writing in his *Technics and Civilization*[1] of what he termed the Neotechnic Phase, foresaw that:

> Our goal is not increased consumption but a vital standard; less in the preparatory means, more in the ends; less in the mechanical apparatus, more in the organic fulfilment.
>
> When we think and act in terms of an organic whole, rather than in terms of abstractions, when we are concerned with life in its full manifestation, rather than with the fragment of it that seeks physical domination, we will no longer require from the machine alone what we should demand through a many sided adjustment of every aspect of life.

Those words are not yet true of Western civilization in the aggregate, of any nation within it, or even of any influential group. But they are very largely true of an increasing number of people who can see nothing but sterility in the dominant social trends of the present, nothing but disaster if those trends continue into the future. They may not all be travelling by the same route; but their routes all point in the same direction. And even among those who still accept without much question the existing structure and objectives of society there can be observed working a leaven of new values which suggests strongly that Western ideology at the end of this century may be as different from that at its opening as liberalism was from feudalism.

Characteristic of this emergent ideology is a growing sense of community as an organic association rather than a collective convenience, of nature as a source of life and wisdom, to be cultivated rather than rationalized, and of quality of living rather than quantity of acquisition as the main object of human activities.

[1] pp. 399 and 425.

Broadly speaking, its thought-processes are inductive rather than deductive, proceeding from the microcosm to the macrocosm, from the specific to the universal, from the real to the ideal, rather than seeking to apply to all aspects of life a few intellectual abstractions. In this respect, it is genuinely revolutionary.

Just how far this new philosophic approach can be identified with a religious revival is hard to say, largely because the Churches have been slow to recognize and guide it, so that many of those who are most earnestly convinced of the need for religious interpretation are reluctant to observe religious forms which they feel to be obsolete and inadequate. But a fresh interpretation of nature, and a revived respect for natural law as an authority, lead intelligent minds towards a revived awareness of a divine Author of whose supernatural powers nature is a manifestation; and the connection between the ceaseless renewal of physical life through natural processes and the renewal of spiritual life through Christ's Resurrection can hardly fail to be perceived.

The creed which is menacing and undermining our civilization to-day is likewise authoritarian; but it is also anti-religious in that it idealizes mass-man (which is the substance of its claim to be democratic) and seeks its authority in economic forces which men themselves have set in motion. This challenge can be met only by a revival and re-interpretation of the religious character of our own civilization, by the acknowledgment of an Authority greater than material forces and wiser than the keenest human intellect, and, coincidently, by the development of a social economy which will express this acknowledgment and so conform to spiritual as well as material considerations.

XIV

THE NEW SITUATION

THROUGHOUT the Mechanical Age, Western economic theory and practice have been developed from certain basic premises. These have been regarded as "so perfectly self-evident" (as Adam Smith put it) that in the science of economics they have acquired the status of facts. While there have been many differences of opinion as to how the processes of production and distribution are best regulated, the nature and objects of production itself have been taken more or less for granted.

The premises in question are implicit rather than explicit, but can be summarized roughly as follows:

(i) Wealth is material and can be measured and represented by a common denominator—money.

(ii) The standard of living is the average rate of quantitative consumption of material wealth.

(iii) The sources (raw materials) of wealth are unlimited, matter being indestructible.

(iv) The limiting factor in the production of wealth, therefore, is labour.

(v) Hence the main object of economic activity is to achieve the largest possible output of wealth for each unit of labour put in—i.e., efficiency.

(vi) The technological apparatus (machinery) of industry, transport and trade is an effective substitute for labour, and its efficiency is constantly being increased by scientific discovery, mechanical invention, and technical ingenuity.

(vii) If this increasing technical efficiency is fully exploited by specialized production and fully utilized by unrestricted exchange of products, the standard of living must continue to rise, thus providing an economic basis for the idea of Progress.

A striking demonstration of the persistence of these premises is provided by the following passage:

> The wealth of every nation is derived from the labour of its inhabitants, and as it is by physical and mental labour that all is produced, the facilities of obtaining national riches are in greater or less proportion to the intelligence existing in the country. By the spread of knowledge and education, the people are enabled to produce the greatest amount of commodities for exportation, with the least physical toil.

That is not, as might be supposed, an extract from a "pep-talk" delivered to the House of Commons in 1948 by Sir Stafford Cripps, Socialist Chancellor of the Exchequer, but an extract from an editorial observation appearing in *The Economist* of 30 January 1847, and reprinted by the same paper exactly 100 years later.

In short, while some of Adam Smith's conclusions may have been modified in the light of subsequent experience, his original dicta have never seriously been re-examined, even by Marxist economists. Surely it is time that such a re-examination was made, if only for the reason that both the scale of Western social economy and the conditions under which it operates have changed enormously since he wrote.

In physical science, which deals with absolutes, there is no hesitation in revising even "facts" when their invalidity has been demonstrated. How much more then should the study of economy, which is concerned with relatives and variables, be subjected to revision? Is there not a danger in exclusive pre-occupation with the performance of apparatus, however well it lends itself to mathematical methods and statistical results, without constant enquiry into the validity of underlying premises? Is it wise, for instance, to devote so much attention to the restoration of international trade and the achievement of "full employment" without first investigating the extent to which these are necessary to human well-being? Is there even a precise "law of supply and demand"; and is it still true to-day that "the sole object of production is consumption"? Would it not be wise, as a preliminary step, to compare the economic situation which existed when Adam Smith formulated his ideas with that which exists to-day?

At the end of the eighteenth century, Western economies were still relatively simple. Human populations were small and mainly engaged in agriculture. Potential natural resources, on the other hand, were abundant; for even in the older regions much land was still imperfectly utilized, while the immense reserves of the new territories had hardly been scratched. Assuming that the sole object of production was in fact consumption, the limiting factor in the "wealth of nations" was clearly *power*—power to convert natural resources into consumable "goods". Yet, apart from such limited aids as wind, water, and draught animals, the only available source of this power was human energy—what we call to-day "man-power"; and the effectiveness of this was further reduced by the time-wasting lay-out of the village-farms, the laboriousness of transport and the claims of military service. On the other hand, the potentialities of machine-power were beginning to be realized. Mechanics were "the coming thing", and Adam Smith adopted them as the basis for his conclusions.

What could be more natural then than that a logical Scots mind, interpreting economic phenomena in terms of mechanics, should attribute all values to labour and the wealth of nations to its effective utilization? An expanding supply of "goods", the alleviation of "ills", the accumulation of durable assets, all seemed to depend upon the expenditure of energy; and since human effort was the main source of such energy, the whole economy must be directed towards its efficient employment. Capital was of value only in so far as it "set labour in motion"; money was of value in so far as it served as a medium of exchange and a "nominal price" for the products of labour. Division of labour and freedom of trade followed as basic principles; for just as water, when unimpeded, flows to the lowest level, so, according to Adam Smith, would labour flow to the most economical employment and money capital to the most profitable investment. Similarly, the power-machine, as it developed, came to be regarded as the chief instrument in wealth-production, since it enabled labour to be spread "more economically".

Those were the premises which Adam Smith established as a basis for economic theory; and they were more or less valid as long as the underlying economic relationships remained substantially unchanged—which, thanks to territorial expansion,

was for the greater part of the Mechanical Age. If the economic philosophy of that Age can be reduced to a phrase, it may be described as the application of human labour, augmented by machine-power and facilitated by freedom of exchange, to purposes of material acquisition through the conversion of natural resources into consumable goods.

For most of this period, the only major disturbing factor in this economic scheme has been the behaviour of money, to which Adam Smith assigned a merely representative rôle, but which, owing to the scarcity value it so long possessed, has tended constantly to usurp the position of limiting factor assigned to labour. As a result, the mechanisms of industry and trade have not functioned nearly as efficiently as they would have done had money in fact been used for "nominal" purposes instead of as itself a power-mechanism. For, in addition to the labour-standard, there has been (and still is) an arbitrary and fluctuating money-standard. This condition of duality has been reflected in alternating periods of inflation and deflation, trade booms and slumps, instability of prices and industrial employment.

Nevertheless, it remains broadly true that economic theory and practice have been built up from the assumption that labour is scarce and must be "saved", while natural resources are abundant and only require conversion into goods. To this assumption can be traced the emphasis placed on employment as qualification for reward, specialized production as a means of utilizing labour more efficiently, trade as a means of giving effect to specialized production, and finally on "labour-saving" as the main object of technical invention.

But does that particular relationship between labour and natural resources still exist? Is the situation that exists in the middle of the twentieth century the same as that which existed in the second half of the eighteenth century when Adam Smith made his analysis, or even in the nineteenth century?

Regarded simply as a source of energy—that is, power in the physical sense—labour has ceased to be the main limiting factor; it has increasingly been displaced by the power-machine, the potentialities of which are apparently unlimited. For even should deposits of coal and oil be exhausted—as undoubtedly they can be—there remains the energy of falling water, the tides and the sun, to say nothing of atomic fission. Applied through mechanism of ever-increasing ingenuity, these sources can supply every conceivable *energetic* requirement of human civilization. In this respect at any rate, the achievements of the Mechanical Age have exceeded all expectations. Technological Man is in constant danger of disemploying himself.

Such a statement appears inconsistent with the existing "shortage of man-power". Yet there is no *real* shortage of man-power for productive purposes, though there is an artificial shortage in some countries brought about by various circumstances, some of which have little to do with production. There is, for instance, the need to reconstruct and make good deferred maintenance on capital assets after a long and destructive war. There is the need to maintain relatively large military forces and their equipment. There is also the shortage of materials, which tends to make labour less productive. If all labour were to be conscripted for production, there would in all probability be a large and increasing surplus in most countries.

Quite apart from these special circumstances, there is the undoubted fact that mechanization, while it tends to displace productive workers, tends also to create unproductive (or at least indirectly productive) jobs, which compete for labour, generally very effectively, with productive jobs. The larger and more complex mechanisms become, the greater is this tendency. And while many of these non-productive jobs are doubtless necessary, by no means *all* of them are economically essential.

It is difficult to believe, for instance, that a great city such as London or New York can provide productive, or even indirectly productive, employment for several million people. A large proportion of its inhabitants are in fact engaged in work made necessary by the existence of the city itself. Just what proportion are engaged in the actual production and distribution of goods, or in essential administrative work, is almost impossible to ascertain, for one job is often made necessary by another. But in all probability, the non-essential surplus in, say, London exceeds the estimated shortage in total British man-power. Then there is the immense expenditure of time and energy occasioned by the sheer magnitude of a modern city—the millions of hours wasted every week in mere movement between home and place of work, the expensive apparatus of transport involved (and rendered relatively inefficient by the congestion), the elaborate

provision that has to be made for centralizing supplies of food, water, fuel and lighting, and for the removal of wastes, and finally all the machinery of compensation—entertainment, professional sports, and gambling.

In so far as all paid jobs, whether essential or "made", rank as "gainful employment", there seems to be no physical difficulty involved in maintaining "full employment". The only question —and it is an increasingly serious one—is whether all this employment can in the aggregate produce enough wealth for human needs *plus* the maintenance of the apparatus. *For while the power-machine has solved the problem of energy, it has not solved the problem of production—on the contrary, it has complicated that problem.*

The arguments in favour of "full employment" are really three; first, that it maintains full production; second, that it distributes purchasing-power as wages; third, that it keeps people usefully occupied. These are all highly desirable objectives, but it is only industrialism that has created the illusion that "full employment" is the way to achieve them. The illusion arises from failure to distinguish between "employment", which is an industrial definition, and productive labour which is an economic definition. Much present-day employment is unproductive, and such employment tends to draw off labour from necessary work; purchasing-power can be (and to an increasing extent is) distributed outside the wages system; and people can be occupied in ways much more useful than those of tapping typewriters, checking forms or opening taxi-doors. "Service" occupations are not necessarily unproductive, but they must be judged on their merits, and not regarded as solving any particular problem.

Where there is a shortage—and a growing one—is in the direct personal skills which demand, not just output of energy, but instinctive knowledge and dexterity, mental concentration and a sense of responsibility. This shortage is said to exist even in industry and administration; but it is most marked in the primary and absolutely essential occupations—agriculture, craftsmanship, mining, and household management. For every man who can really handle a plough, there are a dozen who can drive a tractor or lorry; yet it is the ploughing, not the driving, that determines how well society is fed. For every woman who

really understands the art of rearing a family and providing it with a good home, there are a dozen who are reasonably competent behind a counter or desk; yet it is the home, not the shop or office, that determines the standard of social life. These scarcities are the price we are paying for allowing machinery to displace and devalue elemental skills.

We have then arrived at a somewhat paradoxical state of affairs. While technology and mechanization are displacing human labour—considered as a source of energy—in production, they have by no means assured us an abundance of wealth. It is this paradox that renders illusory the view that by maintaining a corps of expert technicians and by rationalizing primary production and retail distribution as industry has already been rationalized, we can expect to enjoy progressively more consumable wealth at the cost of progressively less effort. While there is a good case for modifying the concept of work as the price of maintenance which underlies the wages system, it would be profoundly misleading to assume that the "standard of living" will continue to rise simply because there is a continual expansion and improvement of power-apparatus.

For what has been happening to the other main factor in production while we have been preoccupied with the efficiency of labour? So accustomed have we become (until very recently) to an abundance of primary products, so easy has it been to argue that because they were cheap their supply was inexhaustible, that we have been taking natural resources for granted. Even now there is a general impression that the shrinkage in supply is a purely temporary phenomenon arising out of dislocations caused by war. To what extent is this view justified?

At this point, it seems necessary to revert for a moment to the fundamental distinction between the inorganic and organic natural kingdoms, regarded as sources of wealth. It is true that a shortage of minerals (such as coal) can be brought about by the relative unattractiveness of mining as an occupation, and that a mine is a wasting asset in that every ton extracted represents a depletion of capital. But this is precisely the sort of problem that technology can reasonably be expected to solve, by improved mining equipment, better conditions in the mines and greater efficiency of utilization. Scrap-metal can be re-used; one metal

can to some extent be substituted for another. Plastics made from coal can to some extent replace both metal and timber, while coal itself can be conserved by developing other sources of energy. So that although sources of inorganic materials are probably smaller than was at one time believed,[1] and the rate at which they are being used up has been increasing rapidly, there is not much prospect, so far as human well-being is concerned, of anything worse than temporary inconveniences.

Very different, however, is the situation in the even more important organic kingdom, where the pulse of reproduction, as has been noted, has begun to flag perceptibly. Whereas throughout the earlier phases of the Mechanical Age the world level of fertility, both in the soil and in the creatures living on it, was still rising gradually, the trend is now unmistakably downwards.

Fertility is falling for the simple reason that its cultivation has not received the attention necessitated by rapidly increasing demands on it. When it has not been left out of calculations altogether (as it usually is by economists) its cultivation has either been left to impoverished peasants and farmers preoccupied with their own struggle for survival, or treated as the usual industrial problem in labour-efficiency. Almost all the appliances and materials with which physical science, through technology, has supplied agriculture have been designed to speed up and facilitate the conversion of fertility into removable products, very few to the fostering of fertility itself. And though such terms as "fertilizer" and "cultivator" are often used, there are not even clear definitions of fertility and cultivation (especially of soils) on which scientists would agree. On the contrary, the net effect so far of technology has been to rob the land of human cultivators and fertilizing material, so that attempts to increase "output per man" have not prevented, and to some extent at least have caused, a decrease in "output per acre". As Jacks and Whyte pointed out:

> Science produces new aids to production—new machines that do the work of a score of men, new crop varieties that thrive in climates too harsh for agriculture, new fertilizers

[1] For instance, "there is a growing recognition of the fact that the United States' once-plentiful deposits of high-grade, easily available minerals are far less inexhaustible than they appeared a few short years ago." (*Economist*, 4 January 1947.)

> that double and treble yields—yet, taken the world over, the average output per unit area of land is falling.[1]

Not only is long-term productivity per acre falling, but the vigour and stamina of crops and livestock are declining, if the persistent increase in pests and diseases is any guide.[2] While the precise correlation between soil fertility and plant- and animal-health (our own also) has yet to be demonstrated, it is broadly true that nutrition is the biggest single factor in health and that "food is no better than the soil it grows in".

Technology, misapplied, has in fact accelerated rather than averted the process described by Sir John Boyd Orr in his Sanderson-Wells lecture.[3]

> Destruction of land has been going on ever since mankind began congregating in great cities. The nearest forests had to be cut and sent to the cities for fuel and timber, the land over-cultivated for food to be sent to the cities. The age-long cycle of soil to plants, to animals, to man and back to the soil again was broken. The fertility of the land was lost in the ravenous maw of the cities.

Nor can physical science and technology in themselves restore the balance between human fertility and soil fertility. At best, they can only supply a few aids, such as check dams and improved types of implement; for soil degeneration is essentially biological in origin and only in its later phases (erosion) mechanical.

> The illusion that fertility can always be restored by applying some of the huge amounts of artificial fertilizers now available has been shattered by the recognition that fertility is not merely a matter of plant food supply (for even exhausted soils usually contain ample reserves of plant food), but is also closely connected with soil stability. An exhausted soil is an unstable soil; Nature has no further use for it and removes it bodily.[4]

This contraction of resources, which affects the supply of important industrial materials such as wool and cotton besides

[1] *Op. cit.*, p. 18.
[2] Even in relatively well-farmed Britain, animal diseases are now estimated to cause an annual loss of £60,000,000.
[3] *Soil Fertility—The Wasting Basis of Human Society* (Pilot Press, 1948. See footnote, p. 117.
[4] Jacks and Whyte, *op. cit.*, p. 26.

food, would be serious enough if world requirements were stationary, since it is raising appreciably real costs of production. But taken in conjunction with the rapid increase in world populations—which in Adam Smith's day numbered well under 1,000,000,000—it presents human resourcefulness with the greatest problem it has ever had to face. To quote Sir John Boyd Orr again,

> unless there occurs some world-wide disaster such as the "black death" which swept over Europe in the Middle Ages, we must look forward to the present 2,200 million people being increased by another 500 million within the lifetime of our children. If the World Health Organization succeeds in carrying out its plans the increase will be nearer 1,000 million. These teeming millions will demand food and they will demand better food than they have had in the past. Before the last war, about two-thirds of the people in the world lacked food sufficient for health and many millions suffered from sheer hunger.[1]

What has happened to agricultural "over-production"? The answer, as is clear from Sir John's statement, is that there never was over-production, only mal-distribution; and while we may doubt the ability of such bodies as F.A.O. to eliminate mal-distribution altogether, we must recognize that those same improvements in transport and communications which enabled the industrial communities of the West to plunder the world's reserves of virgin land are making it increasingly difficult for them, even if they desired, to enjoy full diets while millions in Asia and Africa go hungry.

And there are no more virgin lands left to plunder. So far as cultivable land is concerned, the world reached its last frontiers about 1930. Since that date no substantial acreage of new land has been brought into use, despite high prices and mechanical aids; in fact the cultivable acreage is almost certainly declining. Definitions of cultivability, as of fertility, are so vague that it is hard to give precise figures. But Dr Hugh Bennett, Chief of the U.S. Soil Conservation Service, told the Hot Springs Conference[2] in 1943 that:

[1] *Op. cit.*, pp. 5-6.
[2] United Nations Food and Agriculture Conference at Hot Springs, Va.

> The inescapable truth is that the area of productive soil on this earth is becoming more and more limited. In turn that means that the capacity of the earth to produce food is becoming more and more limited.

Certainly there are still plenty of unoccupied spaces on the map, and a good deal is now expected of Africa, Australia, and Brazil. But practically every area with possibilities of cultivation possesses some marked physical disability, otherwise of course it would have been exploited years ago. Some of these disabilities, such as difficulty of access, can be overcome by expenditure on engineering; others, such as low rainfall or short seasons, must always place limits on production. Moreover, we should have learnt by this time that it is very much easier to break up virgin ecological patterns than to establish cultivated ones on an enduring basis.

In any event, the acreage of new land which can be brought into use within the next few decades, even with heavy expenditure on labour and materials, is very small compared with the immense area now drifting down the fertility-scale and so out of use; and it is questionable whether such outlay could not more profitably be devoted to restoring some of the latter. Perhaps we are reluctant to admit that the exciting period of expansion is over and that we must now dig our own gardens.

Some idea of the extent to which we must revise our ideas of "inexhaustible resources" could be got from an article in *The Economist* of 4 January 1947 on Canadian agriculture. This was based on a survey made by the Dominion soil specialist (Dr A. Leahy) and recorded that Canada now has about 89 million acres of cultivated land, of which some 4 million acres should, in expert opinion, be withdrawn from use, and some 45 million acres of virgin arable land, most of it unsuitable for "rapid exploitation" and constituting a reserve sufficient only to offset the deterioration and abandonment of inferior soils. "There are no more vast inland empires such as were opened up on the western prairies between 1896 and 1913." The article also points out that average crop yields throughout eastern Canada have "remained approximately stationary", despite the use of improved crop varieties, more fertilizers, and better farm machinery.

The theoretical limit of the earth's capacity to support human

life can only be a matter for conjecture. It may very well be that if we can relearn and practise the art of using natural agencies to organize nourishment for us, instead of trying to force much less efficient industrial processes on our fellow-creatures, that limit is much higher than we now think. But one thing is certain—that the only alternative to better methods of land-use is a reduction in present human populations by starvation. There is nothing new in that prediction. Thomas Malthus, an English country clergyman, observed 150 years ago that populations tended constantly to outstrip their means of sustenance. We have simply postponed the event by using up reserves.

Such a situation reverses former trends in relative economic values, making fertility (especially soil fertility) the main limiting factor in place of human labour or any other source of energy. The greater the pressure of population on soil, the greater is the need for intensive cultivation, which in effect means greater input of human cultural skills.

If the West is to retain world leadership, or even maintain its living standards, it cannot afford to rely so predominantly as now on technical skills and industrial power, which in any case are losing scarcity value as they become more widely distributed. It must increasingly develop its agricultural and other primary activities, re-establishing rural populations and husbanding natural resources with as much zeal as it has devoted in the past to the husbanding of money or the saving of labour. Indeed, it may need to re-adjust its financial and industrial systems drastically, so as to encourage primary production and ensure conservative land-use. Even so, it may, quite conceivably, have to make territorial concessions to the more populous East.

Symptoms of this far-reaching economic revolution are everywhere apparent. The power-mechanisms have now been developed to a point at which the world has increasing difficulty in containing them without serious risk of further explosions. The only alternative to a prolongation of the state of economic friction which has existed since 1914 at least, is a deliberate limitation of expansion. Physical energy tends to be produced to excess; indeed millions of people stand perpetually on the brink of destitution because their function as suppliers of energy has become industrially superfluous. Similarly the potential of conversionary industry has a constant tendency to increase beyond

effective requirements. It may not yet have provided every inhabitant of the world with a refrigerator and a radio-set. But in all probability it could have done so, had not ten out of the last twenty-five years been devoted to destructive warfare, and most of the remainder to preparations for it and recovery from it. Thanks to the mobile (because inorganic) character of industrial machinery and techniques, it is now possible for factories to be set up wherever labour and power are available and materials can be obtained. Practically every country in the world is now to some extent industrialized; and whether there is a resumption of competitive conditions or not, the exchange-value of most industrial goods seems likely to fall under pressure of expanding output.

On the other hand, the increasing strain on natural resources is already manifest in the high price and physical scarcity of food, and in the growing reluctance of nations which are fortunate enough to possess a surplus to sell it, except on terms favourable to themselves. Nor can this increasing disparity between industrial potential and primary production be controlled by monetary manipulation. For now that knowledge of gold-less monetary techniques is becoming an important feature of economic nationalism, the power of international credit-centres is on the wane. International transactions will tend to be governed by physical rather than financial considerations.

Thus the whole system of economic relationships which characterized the nineteenth and early twentieth centuries is in process of dissolution. New relationships are fast emerging.

Diminishing, or about to diminish, are:

(1) the power of money over commodities, on which was built the mechanism of international finance;

(2) the power of conversionary industry over primary production, on which was built the economic supremacy of the older manufacturing areas; and

(3) the system of specialized production on which was built an unprecedented volume of international trade.

Increasing in importance, and forcing themselves more and more upon our attention, are the relationships:

(1) of human effort to work, on the one hand energetic and on the other cultural;

(2) of human biological needs to natural biological resources;
(3) of human psychological needs to social organization; and finally
(4) of economic mechanisms to the production and enjoyment of real wealth.

Sheer pressure of events is forcing us to realize that it is no longer possible to regard the world as a departmentalized workshop in which organic factors are adjustable to the performance of machinery. The most efficient mechanism in the world cannot create or sustain life. Power without fertility is sterile and ultimately self-destructive. If, therefore, we are to raise, or even maintain, the standard of living, it is life that must be studied first, and the power-mechanisms that must be adjusted to it. The remainder of this book will be devoted to a discussion of some ways in which this adjustment can be effected.

PART IV

SOME THINGS TO THINK ABOUT

XV

RE-VALUATION

IN DEALING with a revolutionary situation, one should always beware of adopting a static position. Ideas which have become crystallized as conventions can remain valid only so long as their original context endures. Especially is this true of the social and environmental relationships from which all economic thought should spring.

Life is integral; to be studied as a whole. But it is also continuous; to be cultivated as it is—not as we think it ought to be. We cannot suspend it at will for scene-shifting, as a playwright suspends the action of a drama. The coming can grow only out of the be-coming, even as the be-coming has grown out of that which has already come. We can begin our planning for the future only from where we are at present. But what we can do, and indeed must do in the particular situation which confronts us, is to stop thinking outwards from the city in terms of its conventions and start thinking upwards from the earth in terms of its realities.

For these reasons, it is better to emphasize regeneration than reconstruction. The latter term may properly be applied to inanimate things—to buildings, to machines, to apparatus of various kinds. In such cases, materials can be adapted to a preconceived plan which has been worked out in detail. But reconstruction, or rather re-adjustment, is for us only the secondary problem. Our primary need is to re-integrate, re-cultivate, regenerate life itself; and that is a task which demands that plans and methods be adapted, not only to the terms on which life is enjoyed, but to the current needs and behaviour of living creatures. In other words, our first concern is not with some hypothetical state of perfection, but with the *direction* in which we must endeavour to travel towards perfection. That is the only kind of progress that can call forth those creative urges which distinguish men from the more intelligent apes.

Direction nevertheless predicates a purpose. It is difficult to

discover how to live unless one has some idea what life is *for*, some body of beliefs as to its meaning and spiritual significance. The natural cannot be truly interpreted without reference to the supernatural. In the last resort, it is religion—or lack of it—which determines human behaviour, including economic behaviour. It is difficult to believe that the West can recover economic health unless it recovers at the same time spiritual health; for Western civilization without the Christian faith from which it sprang is virtually meaningless.

Creativeness depends first and foremost on the spirit that moves both hands and mind, and that gives a sense of wholeness of life and work. The men who built Salisbury Cathedral had few technical aids at their command. But they achieved a masterpiece none the less, because they put more than technique into it, more than inanimate stone and glass. They put into it their belief that their work had a higher purpose than utility, a belief which, in all probability, they never stopped to analyse or rationalize. They accepted the meaning of life, where we to-day tend to accept only "facts". And if, with a vast range of technical aids at our command, we are not building Salisbury Cathedrals, but only things that are imposing and impressive, it may be because we are trying to impose our techniques on the world and to leave an impress of our own ingenuity and power.

It is largely because of this lack of purpose, this reluctance—as a society—to acknowledge anything more than human aggrandizement as a social objective, that we have become preoccupied with the accessories of living to the exclusion of life itself. We cannot of course begin by casting overboard these accessories. Now that we have made ourselves dependent on the performance of complicated mechanisms, we cannot at once dispense with them. But we should at least perceive that these are not an end in themselves; and, having acknowledged the rightful end, begin to explore the possibilities of reaching it by simpler and more direct means. For if the end is organic—better living in the fullest sense of the term—organic means are the most likely to achieve our purpose. In other words, we should aim, not at more and better apparatus of mechanical assembly, but at a gradual reduction of our need for such apparatus as a means of patching up the deficiencies of disintegrated living. For,

just as the imitation is inferior to the original, so is the synthetic inferior to the natural whole.

Neither can we overlook the fact that the world is now so full of power-devices, most of them capable of being used for purposes of destruction, that counter-devices have become indispensable as a means of survival. International traffic generates international frictions, and these in turn necessitate apparatus for international adjustment.

But the survival of civilization cannot be ensured merely by avoidance of disaster, any more than health can be ensured merely by avoidance of pathological infection. Since the world is never static, survival postulates *re*vival. The only effective answer to concentrated money-power on the one hand, and concentrated State-power on the other, is a renewal of vitality—physical, intellectual, and spiritual—in Western civilization itself. For both money and State are essentially abstractions, deriving power from the passivity of the real. Their sterilizing influence can, therefore, be countered only by a regeneration of the real.

This process of regeneration is not to be achieved by gearing Western economy to a world mechanism in which all vital factors are either ignored or regarded as interchangeable. Life itself cannot be mass-handled according to international formulae, or regulated by edicts of centralized administrations. It can be cultivated only from the ground up—through localized human associations rooted in their native soil and historic traditions, and actuated by a common sense of spiritual purpose. Massification and mechanization have no more rendered such associations obsolete than rapid communications have rendered the world "smaller". We should recognize these forces for what they are—a legacy of finance-industrialism—to be endured only for as long as it takes to re-establish the organic association as the basis of society.

But re-integration postulates re-valuation. Most of our values, especially economic values, have been derived from a period in which power was regarded as the limiting factor. They are essentially quantitative and mechanistic, because power has been associated with size and mechanical efficiency. Our assessments tend to be in inorganic and mathematical terms—output

per man, miles per hour, money-income per head, volume of trade, magnitude of population—power to convert, to control, and to consume. Accordingly the Utopia of Technological Man, his sub-conscious idea of heaven-on-earth, is Megalopolis—the world-city of such size and power that it represents complete freedom from any organic context or limitation. It is this background of power economics and relationships that prevents us from achieving a clear concept of organic economy. We tend to value things, not according to their intrinsic merit as means of, or aids to, living, but according to the power which they incorporate and which is reflected in the amount of money (purchasing-power) required to obtain them.

What we seem to need above all else at this juncture is a real standard of living to which such aspects of life as function, quality, balance, creativeness, and fertility can be related, and which will enable us to make our assessments in terms, not of mathematics, but of satisfactions. The very fact that we still have to measure nutrition in terms of calories and prosperity in terms of money shows how far we are from possessing such a standard.

It may help us to formulate the new approach we need if we reflect that there are certain relationships or *interests* (literally, "that which is between") which are so fundamental to the social economy as to demand prior and special consideration. Unless we can think clearly about them, we can think clearly about little else.

One such relationship is that between Work and Wealth. Truly was it said, "In the sweat of thy brow shalt thou eat bread." Men live by effort; they always have and always will. But only in modern mechanistic economies have the two aspects of the life-labour relationship been sharply divided into two contrasting and opposed activities—output of effort (labour) and intake of wealth (consumption.) This is an outcome of the market idea; in order to envisage labour as a commodity sold by the labourer, it has been necessary to detach it from its context and standardize it.

Such a concept is clearly unreal. There are many kinds of work, and their different values (either to the worker or to society) are by no means to be measured quantitatively in terms of energy. A skilled technician may command a wage much

higher than that of a skilled manual labourer, but it is doubtful if he expends as much energy. What has happened is that he has adjusted himself better to the requirements of the machine which, by mobilizing and applying inorganic power, appears to multiply his "output". This relationship is temporary and conventional, dependent on the capacity of the machine to serve our needs. Already certain types of manual labour, such as mining and farm work, are becoming more socially valuable than technical skills, such as engineering. It may never be possible, even if it were desirable, to relate rewards precisely to value of service; but we certainly need some better system than we have at present.

The quantitative method, again, fails to take into account the relationship of work to the worker. There are some tasks which call only for the application of energy—routine jobs well designated "mechanical" because they can be delegated to a machine and also, significantly enough, because they are the kind of jobs that machinery tends to make for those who work with it. There are other tasks which call for an all-round exercise of faculties, which are directly or indirectly creative, and which therefore satisfy the worker. Most jobs have some of each characteristic; but it is possible (and very necessary) to perceive that there are at least two main elements in work—the mechanical and the creative. The first has no organic relationship to the worker; it can be done by any one with sufficient physical strength or delegated to a machine. The second *has* such a relationship; the worker has an interest in it because he puts something of his own personality into it and gets out of it something which satisfies him. Such work is unmistakably a form of wealth—a means of well-being. In fact it is often done voluntarily and without money reward as a "hobby"—a medium of personal re-creation.

A homely illustration will suffice. Both pumping (water) and ploughing are conventionally classified as manual work; yet the one is purely mechanical, the other essentially (if indirectly) creative. In pumping, a man is just a supplier of energy; in fact, he can disconnect his muscular activity from his mental activity and be thinking of something entirely different without the work suffering. But in ploughing, a man is intimately related to the work, which demands the *whole* of him—muscles, senses, and

mind. He is related, moreover, to the context—to the horses, with them to the plough, and through the plough to the soil with its diversified texture, living population, and promise of future wealth. He is not just a machine inverting so many tons of earth a day; he has become integrated with the organic pattern of Nature.

This is not sentimentality; it is sober, everyday fact. To reduce it to terms of mechanics and economics is not to make it more real, but to make it *less* real, because figures can never be more than imperfect substitutes for realities. Men really enjoy ploughing and feel an interest in it. It satisfies them; they can take a pride in it; that is why ploughing-matches have never lost their appeal. But few men enjoy pumping, no matter how well they are paid for it, or how free their minds may be while they are doing it.

It is time that we studied work as a source of intangible satisfactions for the worker as well as a source of tangible "goods" for society. We should use the machine, not just as quantitative "labour-saver" (which generally means in effect a "wage-saver"), but as a saver of a particular *kind* of labour—the mechanical kind. There may well be cases in which it is better not to use machines at all if the work that is left for the human worker is degraded from creative to mechanical status. This is largely a question of striking a social balance in terms of satisfactions, always remembering that quality of "goods" is generally associated with quality of work.

Efficiency of wealth-production, therefore, cannot be measured only in terms of quantity of output (or throughput) per unit of human energy. It depends also on quality of interest between work and worker. Unless this point is appreciated, gains through mechanization will be cancelled out (and perhaps more than cancelled out) by increasing tensions arising from the dis-satisfactions of mechanical work-relations. We need industrial processes which give more scope for the worker's faculties, industrial organizations which give him a greater share of responsibility and reward, and (as far as possible) more diversification of labour—in short, "personalization" of work rather than "nationalization". Such an approach clearly runs counter to the economic trends of the Mechanical Age. It means to some extent a reversal of those trends. It might mean breaking up big

industrial combinations, subordinating output to human well-being, even abandoning the idea of mass-production altogether. For quality of work in the sense in which we have been using it is usually associated with relatively small units of production. But it is better to disintegrate mechanisms than to disintegrate human beings.

Smaller units, moreover, would enable factories and offices to be located in small towns and villages, so that their workers could have real homesteads with gardens and even small family holdings. This would be an effective movement away from the tensile machine complex of the industrial city, and towards a re-integration of ecological patterns.[1] Particularly interesting in this connection is the experience of the Land Settlement Association, a semi-public body.

> During the past seven years the Association have been concerned with experiments in the use of land as a means of improving the standard of life of unemployed industrial workers. In the course of carrying out these experiments, it has become evident to the Association that, apart from settlement on the land on holdings that can yield a complete livelihood, the use of land as a part-time subsidiary occupation by industrial workers is capable of becoming one of the most effective methods of improving the standard and quality of life of large numbers of town-dwellers.
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> . . . This being so, it is of the greatest importance that, in the re-planning of existing towns, and the planning of new industrial and urban centres, careful thought should be given to the provision of areas of land that can be cultivated by men engaged in factories, offices, and other urban occupations.[2]

A similar development was taking place in Germany before the war, while both in this country and in the U.S. the number of urban workers (mostly in the professional classes) with food-producing homesteads in the country is increasing yearly. There seems to be a growing desire to by-pass "employment" as a

[1] "Agriculture is *par excellence* a school of integration . . . In my opinion there can be no world stability until in all parts of the world we have achieved a just balance between the urban-industrial and the rural-agricultural." (Sir George Stapledon in his address to the Rural Reconstruction Association Annual Meeting 1946.)

[2] *Town Planning* pamphlet, Land Settlement Association Ltd., 43 Cromwell Road, London, S.W.7.

means of obtaining the essentials of life and to revert to more direct methods. This is important in view of the increasing difficulty in maintaining real wages under the new relationships between agricultural and industrial prices.

Another set of economic relationships which calls for revaluation is that between seller and buyer, i.e. Prices. Here the system of pressures that the market idea postulated has been distorted, and at times disorganized, by the vagaries of a far from efficient money system. Selling and buying are not, at bottom, opposed functions. They are simply different aspects of the same transaction, which should, to give the best results, represent mutual gain. There is no particular economic virtue in cheapness—or in dearness. Both arise as a rule from the instability of money accurately to represent real values. Neither adds to the stock of real wealth; either can materially impede its distribution. We should remember that the old idea of the Just Price sought to combine moral justice with economic efficiency; for, as we have again begun to realize, prices are not necessarily self-adjusting, and any maldistribution of rewards sooner or later throws the whole economy out of balance. Price-fixing has now returned, but still tends to be determined by power-pressures rather than by social considerations. What we need even more than efficient machinery of regulation is a scale of relative values which will reflect these considerations.

A third set of relationships due for reconsideration is that which centres about Property. Great fervour has been expended on the respective merits of private and public ownership without much serious attempt to discover the real social significance and implications of such terms. The idea that a nation of many million people can effectively "own" a thing like a factory or coal-mine seems as little tenable as the idea that it can be "private property".

The concept of ownership as absolute possession is comparatively modern. Throughout the Middle Ages and for a considerable time afterwards, the term personal "property" was applied only to things which were "proper" (near) to the person; nearly all other forms of ownership were in effect tenures associated with the discharge of social (or at least family) functions—the relationship was organic. It seems to have been the liberal emphasis on the human individual as a free and absolute entity

that brought into being the corresponding concept of property as unqualified possession with unlimited rights of use and disposal. At any rate such rights were among the "inalienable" Rights of Man. From real property, the idea has been extended to cover things that are no more than claims to wealth—such as stocks and shares, and loan-certificates. Hence, under the "capitalist" system, ownership has come to be de-personalized and identified almost exclusively with economic power; so much so that the combination of land-ownership with social responsibilities which is still fairly common in rural areas is often referred to as a "relic of feudalism", though it is a perfectly natural association. Professor Burnham, in his economic definition of ownership, refers to two rights only as being "fundamental", namely "control of access and preferential treatment in distribution (of produce)"[1]; these are unmistakably attributes of power rather than of function, as Marxists, at any rate, well realize.

As in the case of work, we should endeavour to distinguish and provide for different characteristics now conventionally covered by the one term. Where relationships are intimate and are associated with personal responsibility, such an expression as "private property" seems to apply, and there is a good case for absolute rights of possession and disposal. Obvious examples are clothing and furniture, and the category might well include houses personally occupied, land personally managed and businesses personally directed. But even in such cases, rights must clearly be conditioned by social considerations, since the individual enjoys them only by virtue of the fact that he is a member of society. He does not usually, for instance, make his own clothes or build his own house; he has a business only because other people are willing to do business with him. Where, however, the value of property arises wholly or mainly from social needs and efforts, and especially where responsibility is exercised by proxy or impersonally (e.g., the limited liability company), such a phrase as "private ownership" becomes unreal because the function is in effect public. In such cases, the validity of exclusive rights becomes highly questionable. Shareholders in a factory, for instance, may have a limited claim to reward for money invested at risk, but not an unlimited claim to the

[1] *Op. cit.*, p. 80.

profit margin which over-rides the claim of those who actually operate (i.e. work) the factory.

On the other hand, "public ownership", which appears to mean sooner or later State management in one form or another, is equally unreal and even more impersonal. In fact property disappears. "When everybody owns everything, then nobody owns anything." It is only because ownership has come to be regarded as a power attribute that the idea of State ownership has arisen as an aspect of super-mechanization. But if "private ownership" has proved socially irresponsible in the case of big industrial undertakings, how is a much greater (because completely monopolistic) degree of responsibility to be exercised by the State? Surely not through the apparatus of politics! In practice power becomes vested in the administrative machine; so that its transfer from "capitalist" institutions to the State, through nationalization and taxation, represents only the end-phase of social de-organization. However inevitable this process may be as a logical outcome of the Mechanical Age, it can hardly be regarded as a "restoration of property to the people".

A truly regenerative movement would aim at re-establishing real property-relations so as to bring the worker into more creative and more satisfying relationship, not only to his work, but to the things that he works *with*. Very little industrial apparatus, it is true, even if decentralized, can be distributed to individuals; but a good deal could be distributed to functional groups small enough to permit personal contacts but still large enough for a useful degree of technical efficiency and diversification of skills. While such groups would in fact be co-operative and enjoy, as corporate bodies, both property and responsibility, we badly need to evolve some form of organization which would break away from the ineffective committee-system and its head-counting ceremonies.[1] Surely we are adult enough to admit that there can no more be equality of leadership or of contribution than there can be equality of technical proficiency or artistic ability.

These various aspects of economic revaluation—and there are of course many others—all point to the same conclusion. That

[1] Paul Derrick, in *Lost Property* (*op. cit.*), puts forward a practical scheme whereby existing British company law could be so amended as to combine the advantages of expert personal management with the acquisition of property rights by workers by virtue of their work contributions.

conclusion is that the idea of society as a collection of individuals, and of its economy as an assembly of technological apparatus, needs fundamental reconsideration. It is no use trying to plan an economy without a clear conception of what it is to be planned *for*. Economic means are valid only in so far as they are related to social ends.

XVI

WHAT KIND OF A SOCIAL ECONOMY DO WE NEED?

FOR BETTER or for worse, the free economy—economic liberalism—appears to have run its course. Not only has it devoured the opportunities which rendered its freedom at once so attractive and so effective, it has been itself devoured by its own children, the monopolistic mechanisms. Even in the U.S., generally considered its last home, it can never recapture the expansionist conditions so long identified with "the American way of living". With the reaching of the frontiers, a new phase of civilization sets in, to which economic thought and practice must be adapted.

There is, however, an ideological time-lag, a tendency still to think in terms of the factors as well as of the conditions on which the free economy was based. In particular, we retain the idea of out-thrust and acquisition by self-centred entities—the individual, the class, the "vested interest", the city, the State. While on the one hand we condemn selfishness and greed as un-Christian and anti-social, on the other we have great difficulty in recognizing any economic motive save acquisitiveness. When we say that a certain course of action is "economic", what we really mean is that "it pays"—in terms of labour or (more usually) money. Thus we tend to live in a state of tension produced by the polarity between morality and expediency. Whereas the liberals pinned their faith to self-interest and mistrusted the State, orthodox socialists pin their faith to the State and mistrust the individual. But at the back of both attitudes is not only the idea of man as an absolute, but the idea of *getting*—getting on, getting somewhere, and (especially) getting more for less. Between materialist Progress and "capitalist" Profit there is no very great difference; both require for effective action plenty of room for expansion and plenty of natural wealth for exploitation.

We ought to be able to agree by this time that acquisitiveness is neither a virtue nor a vice but a common human characteristic,

that it need not be the only economic motive, but very easily becomes so unless counter-balanced by the cultivation of creativeness. We might then give a wider meaning to "interests", envisaging them not merely as possessive or acquisitive claims, but as organic links between men and their social and ecological contexts. We might similarly give a wider meaning to "enterprise", envisaging it not so much as the seizure of opportunities for monetary gain as the seizure of opportunities for fuller and richer living within the social body.

Few persons would now deny that socialism is in process of arriving. But how many realize that true socialism predicates a society, or that a true society is an organic association for living, and not just a collective arrangement for getting? Collectivization, no matter whether it is carried out by industrial combination, a financial trust, or the State, is *not* a re-integration of society. At best, it is mere massification—the assembly of organically-unrelated units by mechanical means. At worst, it is an extension of the acquisitive idea—aggrandizement by aggregation. In either case, it is an expression of power, not of growth; and if a society cannot live and grow it must wither and die, no matter how massive or powerful it may be.

These considerations are of crucial importance at the present time, because the emergent managerial system of government has not yet formulated its own ideology. It is arriving under various labels and in confused circumstances, chiefly because the breakdown of money-capitalism has set a premium on administrative and technical efficiency. In view, however, of the economic revolution which is taking place, it can succeed and endure only in so far as the managers cease to be mere manipulators and become real managers of a real economy. There is, on the face of it, no reason why they should not do so; since they are for the most part men who have risen by personal ability. But much will depend on how effectively and how swiftly they are able to abandon short-term State expediency for long-term statesmanship, to appraise the future prospect as well as the present scene, to become organically functional as leaders as well as technically functional as administrators. The final test will be, not how closely their management conforms to any particular political concept, but how successfully it can re-integrate and regenerate society to meet the new set of conditions. For in the

long run—and even in the short run at times of crisis—life and the means of living count for more than abstract doctrines.

The chief flaw in the managerial system is that it gives the governed so few means of controlling the actions of the governors; for while most Westerners accept management which produces the results they desire, they have a rooted objection to being too obviously "pushed around". The most practical means of removing this flaw (far more practical than vote-counting or committee-making) are, first, the devolution of power, and second, the formulation of a social code by which the quality of management can be judged. On both counts it seems very necessary that we should consider carefully what we mean by society and by the social economy.

A society, in the organic sense, should mean primarily an association of people bound together by ties of blood, cultural affinity and historic tradition, possessing both a common outlook towards the world and a common feeling for the land which they inhabit. But the last qualification suggests a secondary but hardly less important meaning—a human association *plus* its organic context—well-termed motherland. For it is no more possible for the society than it is for the individual to exist *in vacuo*.

In all probability there is no ideal size for a society; just as each local community represents a group of functionally diverse individuals, so should society represent a grouping of groups. It should be defined (if at all) in terms of qualitative content, of completeness, rather than in terms of quantitative dimensions. A small country such as Denmark is probably nearer to being a society than is a vast assembly of imperfectly-related people such as the United States. At the present time, the dominant social organization is the nation. In it are fused political, economic, and administrative sovereignty; and where nationality expresses sociological as well as geographical unity, the nation is in effect a society. Unfortunately, some political nations are little more than aggregations of different and perhaps antipathetic constituents. Hence the great interest that attaches to the development of regionalism; for a region carefully demarcated by some important natural feature such as a river basin should provide the right kind of setting for social reconstruction on ecological lines as well as community of interests.

Here, the experience gained, and still being gained, in the Tennessee Valley constitutes one of the most important signposts of our own times. Sixteen years ago, the Valley was a social and economic slum—its hillsides ravaged by deforestation and erosion, its valley lands subject to recurrent floods, its whole population suffering acutely from agricultural impoverishment, industrial depression, and disemployment. Very wisely, Congress, in setting up the Tennessee Valley Authority, delegated far-reaching powers to the men on the spot, who in turn have made it their policy to foster local responsibility, in individuals and in private business no less than in official agencies. As a result, the Valley is not only being re-integrated as an ecological whole, providing a rising standard of living and opportunity for its own population; it is furnishing a large-scale experiment in administrative practices which, while it may not be precisely replicable in other places, may well serve as a prototype for large areas of the West.

At a higher level, nations with common origins and interests may well be drawn together to form supra-national groups. This appears to be the main idea behind Western Union, and it is a sound one if not pushed too far; for great as are the disabilities of small nations in the modern world, there would appear to be even greater disadvantages and dangers in the type of mass-aggregation which tends to ignore natural diversities in an attempt to enforce unity by standardization and centralization.

These issues will become very much clearer if we exchange the nineteenth-century concept of *lateral development*, whether centrifugal (acquisitive out-thrust) or centripetal (in-drawing of wealth and power), for one of *vertical growth*, from physical roots to spiritual aspirations—from husbandry, through home and community, to a spiritual concept of civilization—"man in society". The word "neighbour", so far as we know, was not used by Christ in any loose or abstract sense; brotherly love should radiate upwards and outwards, through those who are nigh to us.

Just as the historical root-ground of society is its past, so is its physical root-ground the land which it inhabits and which, by processes of inter-action, moulds its living habits. Soil, climate,

topography, geographical situation, all exercise a formative influence on diet, recreations, architecture, temperament, and social arrangements. Natural resources are not only economic; they are also social; and a social system which maltreats or neglects them is not only betraying its trust, but is cutting itself off from its earthly source of vitality.

The roots by which human society is associated with its organic context are the biologically functional occupations—home-making and husbandry, in which term is included forestry, gardening, and estate management as well as agriculture. The family-homestead is the seed-bed of civilization; which is why a nation cannot long survive the loss of its peasantry. These basic functions cannot be exercised in mass or regulated according to standard formulae, nor can they be subjected to external pressures without injury to the intimate and vital relationships which they comprise. Families and farms should be regarded as primary social organisms which, for biological efficiency, should be both balanced in themselves and ecologically fitted to their environment. The natural social setting for them, moreover, is the relatively small community with its own spiritual and intellectual resources, and its own diversity of skilled occupations.

Social development need not of course *stop* at these primary organisms and groups. But it must *begin* with them. For unless right relationships and healthy vigour exist at the roots, how can they possibly be created at the top? To begin at the top—with an abstract concept of world politics and economics—is tantamount to standing society on its head; no wonder it doesn't grow healthily.

The really crucial questions before Western society to-day are *not* how many children its married couples can afford to have, what proportion of its population it can afford to have on the land, or how best it can industrialize its agriculture and urbanize its villages, *but* how many couples it can afford to have childless, how many people it can afford to have *off* the land, how best can its industries, trade, finance, and administration be adapted to the long-term requirements of farm, village, and country town.

Whether or not the mechanized industry, the network of exchange, the money system and the big city are actually "doomed", it seems safe to say that they will have to undergo

profound modification within the next generation or two if they are to survive. Such social apparatus is inherently unreproductive, and can be maintained only from the surplus of organic reproduction. If its demands exceed that which can be furnished by natural increase, society as a whole becomes unbalanced and top-heavy, and its vitality is impaired. That, broadly speaking, is the situation which is developing to-day, in Britain and in other countries of the West. So much fertility has been taken from the soil to build factories and cities that the resources of future food supply are steadily shrinking. So many people have been taken from the countryside that there is a growing scarcity, not only of primary producers but of young people and potential parents. Populations are becoming progressively older, more sterile, and more helpless. Nor can the factory and the city re-adjust this situation by distributing more machinery, chemicals, gadgets, and services as inducements to residual rural communities to produce more for urban needs. There are certain useful things which can be given to the countryside in exchange for its wealth, but none of them is capable of directly stimulating the reproductive processes; in fact, if used unwisely in the name of "technical efficiency" they may do more harm than good. What is needed is not more industrialization of rural areas, but more ruralization of population and industries.

The regeneration of the social reproductive system from the roots cannot be accomplished merely by a re-shuffling of economic rewards. Systematic re-adjustment is of course very important, for it is characteristic of social disorder that secondary manipulation should be so much better rewarded than primary production. But it is even more necessary that a truer set of relative values should be inculcated by education, so that the essential functions can regain the social status they have lost. A society in which the husbandman and the house-wife are regarded as mere drudges (largely because their functions cannot be mechanized), can hardly expect to have full larders and cradles. And finally, means must be developed whereby power, both economic and administrative, is decentralized, and initiative and responsibility re-associated with actual function.

As Adam Smith pointed out long ago, specialization of production and facility of exchange have certain real advantages to

offer. But those advantages are relative, not absolute. The rich pastures of Somerset may be admirably fitted to produce milk, while the engineering skills and equipment of Birmingham, adjacent to coal-seams, may be no less admirably fitted to manufacture tools; in such circumstances a system of exchange between the two localities is both possible and desirable. But if large areas of Somerset become mere milk-factories, and Birmingham an industrial monstrosity, the system has clearly been carried too far. The quality of living in both places has been sacrificed to quantity of production; and some at least of Birmingham's inhabitants and their industries should, on the face of it, be settled in Somerset, where in turn the land should be used for all-round agriculture rather than mere "milk output".

It would be a mistake to assume that a policy of rebuilding balanced local economies with diversity of products and occupations would involve a reduction in total production, or that "production for use" in place of "production for export" would lower the standard of living. It might conceivably involve a reduction in output per person productively occupied; but it would make possible an increase in the number of those persons. For it would reduce substantially the need for an elaborate mechanism of co-ordination and exchange. Economic efficiency can be promoted at least as readily by approximating production and consumption, both in time and space, as it can be by increasing the volume of "output per man".

This is a point of fundamental importance. We have been proceeding for so long on the assumption that the more that human effort can be liberated from the tasks of production the more will men be able to enjoy life: that "labour-saving" per unit of product has been accepted almost without question as a prerequisite of improvements in the standard of living.[1] But it is becoming apparent that the more human effort is "saved" by specialization and mechanization in the directly productive occupations, the more is absorbed in transport, exchange, and distribution, and of course in the over-centralized administrative system that has now blossomed into "nationalization". Nor does re-absorption end there. For industrialization, by fragmenting life and reducing its direct natural satisfactions, as well as by in-

[1] "Increased output per man-year is the only way to expand production and the standard of living." *Economic Survey for 1947* (Cmd. 7046).

stituting artificial working conditions, has created at least as many needs as it meets. In particular it has created a need for "compensations". The expansion of the amusement and betting industries is a reflection of the expanding need of industrial populations for some emotional off-set to the dullness and dissatisfactions of their working lives, a means of escape from boredom. The expanding demand for medical treatment is a reflection of the needs created by unwholesome (i.e. fragmented) ways of living. And because the compensation, being no more than a substitute, can never make the assembled fragments equal to a whole, it follows that the cycle of production and consumption tends to become a spiral. The more we get, the more we need.

It will naturally be asked whether decentralization and redistribution will not obstruct the development of a truly social economy. The answer is Yes—if that development is to follow, as at present, the lines laid down by finance-industrialism. But the answer is No—if we really try to grasp what society is and put its health and general well-being before all other considerations. A healthy society does not have to wait for a ruling from some remote official on the extra food a harvest worker wants or the hour at which its shops shall shut. It does not need instructions on how to live, because it is already living; what it does need is guidance and direction in matters beyond the competence of the ordinary citizen or local leader.

The function of government is to *govern*—to lay down and maintain broad principles, to defend the interests of society as a whole, to preserve a healthy balance between its different organs and members, and to see that each plays its part and receives its share. If government, whether local, regional, national, or supranational, attempts more than this, if it tries to make every social activity conform to some detailed blue-print, it tends either to create apathy by stifling initiative or to generate frictions which defeat its own aims, no matter how benevolent. To recognize these limitations to "planning" is to recommend, not a reversion to *laissez-faire* (which assumed that principles and balances would look after themselves), but sound management—the kind of attitude which one *hopes* the managerial order will adopt. For the further development of that order, which will in effect, if not in theory, complete the exclusion of all but a few individuals from public affairs, will make it increasingly necessary to enlarge, as a

political counterpoise, the sphere of local and personal management. Economic self-sufficiency—in nation, region or even village—will be a far more effective safeguard against centralized despotism than any number of political "rights".

It will be agreed that there are certain services, such as trunk communications and transport, which are unsuitable for decentralization, and that there are certain industries which are either "anchored" geographically or can be managed efficiently only in relatively large units. But the advance of technology, which was once a powerful force making for aggregation, now tends to operate in the other direction. The development of industrial synthetics and the increasing interchangeability of inorganic materials tend to release manufacturing from sources of supply formerly regarded as indispensable, while grid-electricity means that in many cases factories can be re-located in smaller units. It is becoming increasingly possible to take work to the people, instead of compelling people to come to the work. At the same time, there is a tendency for management to take labour into more effective partnership. Finally, there is the military consideration that dispersion is one of the few means of defence against sudden attack with scientific weapons. In a number of different ways, the stage is being set, not only for a redistribution of industries and population, but (which is of vastly greater importance) for the re-building of local economies which will have as their main objective a healthy balance of resources, occupations, and needs rather than maximum output at minimum costs under pressure of price-competition.

XVII

MUST WE EXPORT TO LIVE?

THE ARGUMENT most likely to be heard against the balanced and decentralized economy is that any reduction in manufacturing potential of the big industrial centres and (possibly) in technical efficiency would make it more difficult to export profitably. Since this argument usually begins with a categorical statement that "we must export to live", it seems worth while having a closer look at the export system and its relation to our actual living requirements. For though the "Export or Die" doctrine is most fervently preached in Britain,[1] it is by no means peculiar to this country, being inherent in finance-industrialism.

Exports seem to be a modern obsession. Unless tribute paid in kind by vassal states and conquered territories is classified as a form of involuntary export, it is only within a hundred years that they have come to be regarded as indispensable to economic well-being. Before that time they consisted for the most part of relatively rare goods—spices, choice textiles, fine wools, wines, and the like—luxuries rather than essentials of life. Adam Smith himself emphasized the primary importance of the domestic market.[2]

It was the Industrial Revolution which, by rapidly expanding manufacturing output and simultaneously cheapening and speeding-up transport, made mass-exports both necessary and feasible. It thus brought into being that unprecedented volume of international trade which characterized the 1870–1930 period. This development was of course powerfully aided by a contemporary expansion of international loan-finance, and

[1] "The basic fact of our position for a long time ahead is that we must devote at least 25 per cent of our manufacturing capacity to the production of exports." *Economic Survey for 1947* (Cmd. 7046).

[2] "The capital, therefore, employed in the home-trade of any country will generally give encouragement and support to a greater quantity of productive labour in that country, and increase the value of its annual produce, more than an equal capital employed in the foreign trade of consumption." (*Wealth of Nations* Book II, Ch. V.)

received academic benediction in the shape of a theory of specialized production. It reached its climax in the inter-war period when nations faced with financial insolvency and rising unemployment resorted desperately to exports at almost any cost as the only means they knew of dealing with either.

Instead, therefore, of treating exports as a means of obtaining exotic supplements to domestic economies, nations vied with each other in sending out of their territories goods which, often enough, their own people needed, and in dumping on other nations goods which those nations did not want. Exports became, not only a measure of economic prosperity and financial solvency, but the chief instrument of power-economics; markets were never "supplied"; usually they were "exploited", sometimes "captured". And so we arrive at a date when the whole British population is being subjected to a quite unnecessary degree of austerity in order that an "export-drive" may be accelerated by a few million more pounds a year. It is odd to reflect, as we read that even housewives are urged to work part time in factories and foreign workers are being imported, that barely a decade ago unemployment was a major economic problem—created by the same system, export-industrialism.

The obvious answer to the discomfort and insecurity of the export system—for there is no assurance that importing countries will continue to want the goods or to pay remunerative prices—is a systematic build-up of home production to a point at which international exchange is again confined to true specialities and genuine surpluses. This indeed seems likely to be the outcome of present world trends towards balanced economies; in which case nations that persist in relying on exports *will* stand a very good chance of dying. But just as a man who has become accustomed to driving a powerful car is likely to plead all sorts of reasons for not giving it up when his doctor orders him to walk, so does a nation with the export-habit plead all sorts of reasons for not producing its own requirements. In our own case, the reasons usually given are (a) that we must export in order to pay for our food imports, which at present cover more than half our consumption, (b) that we haven't enough land to grow all, or even the essential portion, of our food requirements, and (c) that in any case home-grown food costs too much. These arguments have lost some of their force

since the war demonstrated how quickly and effectively home food production could in fact be expanded, but they are still very generally advanced and accepted. And since it seems more than likely that we shall *have* to feed ourselves (or very nearly so) in the fairly near future, it is as well that they can be answered. Even Britain can live, in the sense of having enough to eat, without imports and therefore without exports.

The answer lies in adopting a real instead of a statistical basis. The present official method of approaching this issue is to start either from a conventional diet or (as is more usual these days) a theoretical computation of standardized human requirements, proceed to an estimation of agricultural production at home and overseas, and relate the two by means of the export-import system. This approach is mathematically convenient; it conforms, moreover, both to the industrial idea of assembling components and the commercial idea of production for trade; and it provides employment for existing economic mechanisms. But its blind reliance on chemical analysis as a measure of food values can lead it into some absurd assumptions, as for instance that months-old egg-powder has the same nutritional value as new-laid eggs, and that devitalized and "fortified" flour made from wheat grown under unknown conditions in some remote country makes the best possible kind of bread.[1] And it is difficult to find in it any appreciation of biological—or more particularly, ecological—considerations; which is hardly less absurd if we are to take seriously the statement that we must "export to *live*".

A biological approach yields very different, and on the whole more encouraging, conclusions. Starting from the "age-long cycle" to which Sir John Boyd Orr referred in his lecture, our first finding is that the export-import system, far from strengthening it, has further intensified the damage done to it by urbanization. To-day our food is largely produced by systems of farming which are inherently unbalanced, both by their concentration on one or two export products and by the non-return of organic matter from the point of consumption. The food itself is nearly always stale by the time it reaches the consumer, and has to be so processed for bulk handling and transport as to lose much of its value as a vehicle of vitality from soil to man. In fact the

[1] The first statement was actually made by the Ministry of Food; the second is implicit in the extent to which it directs and subsidizes the milling industry.

system is enormously wasteful, both of soil fertility and of food values.

If, on the other hand, we take as a biological "norm" the mutually-helpful association of plants, animals, and men in a system of mixed husbandry adapted to local requirements, we perceive that the quantity and quality of life (including human life) can be raised to levels far above those attainable by the profligate export-import system with all its ingenuity in devising substitutes.[1] Certainly there is a law of diminishing returns which must not be overlooked, and there are probably now some regions which, by any known standard of husbandry, are over-populated. But these considerations constitute arguments for a gradual redistribution of population rather than for further disruptions of the food-fertility cycle by mass-movements of foodstuffs.

There is in fact a good deal of reason to believe that there is a natural system of balances and affinities whereby each region, considered ecologically, can provide at least the essentials of life for a human population. It is of course necessary that the latter adapts and intensifies its standard of husbandry in conformity with increases in its numbers, so raising the fertility of other species, both in and on the soil, to match its own. A semi-arid or sub-arctic region has naturally a very much lower capacity for supporting human population than has a naturally-fertile region such as Britain, say, or Ceylon. But it is very significant that the human communities with the highest standard of health and resistance to physical disorders seem to be those living entirely on indigenous resources (even though these are physically very limited) without resort to the technical aids of modern civilization.[2] These communities eat their foods as nearly as possible whole, and in so far as they can practise agriculture at all, they adhere strictly to the "closed cycle" type of husbandry, returning all wastes to the soil.

Even a large semi-industrialized community can, by careful, husband-like management of its natural resources, achieve a population/land ratio far above present Western standards. Japan, for instance, has as many people per square mile as

[1] Such as artificial "fertilizers" and synthetic vitamins.

[2] Examples are the Hunzas of N.W. India, the Tristan da Cunha islanders and the Esquimaux; the evidence is admirably summarized in Lady Eve Balfour's book, *The Living Soil*, though there are many others on the same subject.

Britain, and can cultivate agriculturally only a sixth of her land-surface; yet she is now feeding her population almost without food-imports, mainly because her cultivable land is so farmed as to support approximately five times as many persons per 100 acres as British farming (for all its modern equipment) can support. Admittedly the Japs live more frugally than we do; but observers report them to be healthy and vigorous despite their recent military defeat,[1] so that the explanation clearly lies less in their real standard of living than in their standard of husbandry.

An interesting example in our own country of the fundamental simplicity of the nutritional problem, by contrast with the modern tendency to complicate it with technicalities, is provided by the monks of St Bernard's Abbey in Charnwood Forest (Leics.). These men lead relatively arduous lives and attain a high degree of physical fitness on a home-grown diet of whole-meal bread, fresh milk, and dairy produce, fruit and vegetables. They actually dispose elsewhere of the meat and eggs which they also produce; their simple diet is sufficient for good health because grown and eaten in accordance with biologically-sound principles.

Granted that few of us would want to live precisely as do the Japs, or even the monks, there seems to be here a scientifically-valid and economically-feasible answer to the "export or die" theory, a powerful argument for the systematic break-down of large urban clots of humanity into smaller and more nearly self-supporting communities, and, incidentally, a possible long-term solution (the only humane one) of the world food problem. If there is "not enough food to go round", is it not primarily because the natural cycle round which it should travel has been broken by acquisitive economies operated in complete disregard of the laws of life?

As regards Britain, there can be no doubt that we have all the natural factors required for an intensive agriculture, producing by mixed husbandry the mixed diet we need. We cannot of course grow exotic products such as oranges and rice: but these, however desirable as supplements, are certainly not essential to a

[1] *Vide* a broadcast in New Zealand given by Sir Stanton Hicks, professor of Human Physiology at the Adelaide University and Director of Catering to the Australian forces during the last war (*N.Z. Listener*, 20 June 1947).

healthy person on an adequate diet of fresh, wholesome staple foods. The quantities in which we can produce this diet depend almost entirely on the extent to which we are prepared to adjust our economy so as to put into the land the two things it most needs—husbandry and humus. Even commercial farmers who have to think in terms of profit-margins rather than total production agree that the latter could be raised far above its present level. Mr Roland Dudley, for instance, a well-known Hampshire farmer, said recently:

> During the war you will remember that our boys brought reports of the enormous amount of food in Denmark. A very excellent agricultural journal sent over a very reliable expert to find out what the economic position in Denmark was. He found that during the war, without any imported feeding stuffs, with a lack of fertilizers, and with practically no machinery at all, the Danes were producing food at the rate of just under two persons per acre per annum. We have 30 million acres in this country and a better climate than Denmark. We have more facilities and many other things which the Danes have not. So do you mean to tell me that it is impossible to produce food for more than two persons per acre per annum?[1] (The British population is now about 50 million.)

Mr Dudley's estimate was not just speculation. He has recorded that on thirty-five acres of poor land on his own farm he grew during a seven-year period (1936–42) sufficient wheat, pigmeat, and milk (calculated from dried grass yield) to provide 8,116 calories a day per acre, equivalent to rations on the present scale for two and a half persons per acre.[2]

Mr E. H. Gardener, addressing a Nottingham meeting as Deputy President of the National Farmers' Union, said in 1948:

> Obviously if 45,000,000 people are going to live off 32,000,000 acres, one man has to be fed off approximately two thirds of an acre. Is it possible to do it? It is possible to do it, but not on our present diet, or the diet we would like to have.[3]

Most of us would like to have the rich and highly varied diet

[1] (London) Farmers' Club meeting, 1 May 1947.
[2] *Farmer and Stockbreeder*, 2 February 1948.
[3] *N.F.U. News-sheet*, No. 28.

which the more prosperous minority of people in Britain enjoyed before the last war, when all the world thrust its foodstuffs upon us. But that is not the point. The point is that there is no insuperable obstacle to our achieving economic independence and security as regards essential foods whenever we elect to develop our agriculture to that end, leaving exotic and supplementary foods to be obtained by external trade if we so desire. An agricultural chemist, using his own line of approach, has reached a similar conclusion. Col. George Pollitt, writing during the war,[1] calculated, down to the last ounce of protein and pound of nitrogen, that "Britain Can Feed Herself" simply by using sufficient chemical "fertilizers" and mechanical equipment, his proposed dietary being similar to, but rather more generous than, the 1937 level. So whether one adopts the biological or the chemical assessment of resources, there is probably no need for Britain—or any other nation at present levels of population—to "export to live".

Moreover, the economic norm conforms to the ecological norm. Other things being equal, the real cost of food is increased by growing it at distant points and passing it through an expensive apparatus of transport and trade to the consumer. More man-power and more materials are required. Few foods can be sent long distances without careful packing and/or processing; and neither ships nor trains run themselves without fuel. There is also a greater loss of fertility (which has to be made good sooner or later) and sometimes of the food itself. There may be some saving in man-power effected by specialization for export; but against these must be set the cost of remedial treatment necessitated by this departure from good husbandry.

What has made imported food *appear* cheaper during the last hundred years has been the fact that for a time two things were *un*equal, namely the higher and more easily exploited fertility of the new virgin soils as compared with the older farmlands, and the superior bargaining power of industrial communities as compared with agricultural communities. Both these factors are being levelled up, and the reversion to "normality" is being reflected in money-prices. Since the last war, imported foods have cost Britain little less per unit, and in some cases (notably wheat) rather more, than she has paid her own producers.[2]

[1] *Britain Can Feed Herself*, George P. Pollitt (Macmillan, 1942).
[2] The Ministry of Food's reticence on the subject of the prices it pays for overseas

The real question for almost any country—Britain not excepted—is not whether it can afford to develop its home agriculture, but whether it can afford to import anything it can grow for itself.

These considerations no doubt apply with greater force in the case of food than they do in the case of manufactures, the raw materials for which must often be imported, thus necessitating some exports in exchange. But there are, broadly speaking, only two ways, short of naked exploitation or pillage, by which any community can obtain its essential requirements—by producing them at home or by trade with other communities. The former method is direct, secure, and lends itself to social and economic planning. The latter is not only hazardous and liable to interruption, making planning difficult, as witness the extent to which Britain's budget has been upset by the sharp rise in world food prices. It involves a complicated chain of activities, all of them adding to costs. In the case of our own food supply, for example, it means buying and importing raw materials, manufacturing them into goods, mining the coal to drive the ships and factories, exporting the goods (after the market has been obtained by salesmanship), buying foodstuffs and shipping them home. No wonder we have difficulty in finding enough man-power to keep our economy going!

Associated with the nineteenth-century belief that international trade is essential for world prosperity, one usually finds the idea that it is essential for international peace. Certainly there have been some pre-requisites of peace of recent years, such as the supply of food and new equipment to war-ravaged Europe, which can be met only by shipments from wealthier countries, such as the U.S. But that is hardly trade. The notion that international relations are improved by international traffic is hardly borne out by experience. On the contrary, competitive trade and international indebtedness have been fruitful sources of friction, while the injury done to national economies, either by over-concentration on exports or by the dumping of imports, has caused much hardship and social discontent. It would be a

purchases makes close comparisons difficult; but during 1947 and 1948 it has been paying in total subsidies almost as much on imported foods as on home-produced foods. During this period, the home farmer has been paid approx. $2.00 a bushel for wheat, while the price paid for American and Argentine wheat has been substantially higher, at one point reaching $3.20.

more reasonable deduction from modern history to say that the *less* inter-dependent nations are the more likely will they be to keep the peace.

Obviously there will be a need for some international trade for a long time to come, though in proportion as economic stability is achieved this need will tend to decline. The "new" countries will be increasingly reluctant to export soil fertility in the form of primary produce or to do anything which will check their own industrial development. Australia, Canada, New Zealand, South America, South Africa, are all likely to retire large areas of sub-marginal land and to devote their agricultural activities primarily to the feeding of their own growing populations. But they will still have considerable surpluses, and some of these, such as Australian merino wool and Canadian cereals, will probably remain as genuine surpluses, though gradually contracting in volume. Similarly, industrial populations will feel less and less inclined to compete in staple manufactures, especially if Asiatic competition develops, so long as they can obtain their food requirements by fostering home agricultures. But there may well be an expansion of exports in the finer manufactures, such as electrical equipment and machine-tools, in which specialization is warranted by the high degree of technical research and skill required. And of course there is always the luxury trade in such things as perfumes, millinery, cigars, fine wines and spirits, and the supply of the more localized raw materials such as nickel, molybdenum, natural rubber, and shellac.

For better or for worse, but on many counts for the better, the conditions which drove the prairie-farmer to tear the guts out of his land to feed Lancashire, and the Lancashire cotton-operative to toil long hours in the mill to clothe Indian coolies, are passing, if indeed they have not already passed. Far from trying to restore them, it should be our main economic objective to use new knowledge to evolve better ways of living than ever was possible by exports.

XVIII

WHAT SHALL WE DO WITH MONEY?

IF MONEY-CAPITALISM is being replaced by "managerialism", and if events are enforcing a return from money economics to real economy, what is to become of the money system? It cannot be left floating around to adjust itself, as money-capitalism left the persons it displaced, or we shall get financial problems as complex and intractable as the social problems which money-capitalism has bequeathed us. Obviously it, too, must be managed. It is, to a very large extent, managed now. But on what principles should this management be based?

These principles may emerge with greater clarity if we begin by asking ourselves, in quite simple terms, what it is that we want money to do. There is, after all, no mystery about money; it is not a delicate organism, the vital requirements of which must be studied and supplied. It is simply a piece of economic apparatus which can be, and should be, adjusted to the vital requirements of the social economy.

Setting aside for the moment all technicalities and minor considerations, we want money to be:

(a) *an efficient medium of exchange*, or economic lubricant, for which purpose it must be a stable and efficient (though abstract) representation of real wealth, so as to provide an alternative to direct barter of goods and services, and a means of exercising justly a claim upheld by society.

(b) *a stable measure of value* or common denominator, in so far as values *can* be measured and compared, for which purpose its own nominal value must be related to some form of real wealth, the value of which is generally agreed upon.

These two functions, it should be noted, are closely related and interdependent. If there is too much money in circulation for the requirements of exchange at the agreed nominal values, then inflation occurs and the wealth so exchanged tends to be over-valued in terms of money; each act of purchase is correspondingly penalized, and those with fixed incomes suffer hardship. If,

on the other hand, there is too little money in circulation, then deflation occurs and wealth tends to be under-valued in terms of money; each act of sale is correspondingly penalized, and those who produce goods for sale find themselves in difficulties which soon lead to contracted production and unemployment.

Thus money, if its use is really to promote social well-being, must be efficient simultaneously as a medium of exchange and as a measure of value. It is not difficult to understand how readily Adam Smith's concept of money as providing a "nominal price" broke down in practice, or how, in a free economy which became increasingly dependent on exchange as specialized production developed, power came to be concentrated in its money-mechanism.

Much of this power, of course, has been psychological, tracing back to the time when money consisted almost exclusively of metallic coins, and therefore had both intrinsic and scarcity value. It is from this deeply-rooted idea that money has a value in itself and is always in limited supply that the financial system (itself essentially abstract) has built up its position of economic authority. This position has enabled it to charge hire (interest) for the use of "credit",[1] which society as a whole has created, and make a virtue of cheapness—that is, the spreading of money as thinly as possible—long after any real arguments for such practices have disappeared. It was to uphold this idea of the "reality" of money that one of the first rules of "sound finance" laid it down that paper-money should be freely convertible into coin (usually gold).

This convertibility meant in practice that the volume of money circulating in the social economy was regulated, not by the real needs of that economy, but by the ratio between it and the level of gold reserves which the financial system considered prudent from its own point of view as an issuer of credit. So great was the power thus exercised (in ways largely unknown to the public) that the money-technicians were repeatedly able to enforce deflationary policies, despite their attendant hardships, as a means of avoiding loss of "face" in their own mechanism when it failed to adjust itself adequately to the economic situation.

[1] Basically, belief in the ability of a borrower to discharge his obligations (credit-worthiness), but also in the ability of society to provide goods or services in exchange for the money borrowed.

The convertibility technique has, of course, proved self-destructive. For during the last thirty years of war and economic confusion, the greater part of the gold available to the West for monetary purposes has inevitably been drawn into the vaults of the country with the largest natural resources, the greatest industrial potential and the least war damage, namely the U.S.

Few countries to-day make any pretence of relating their currencies to gold-stocks—still less of rendering their currencies convertible; nor are they likely ever again to do so. For, so far as domestic currencies are concerned, it has become perfectly clear that their convertibility into gold is much less important than their convertibility into real wealth. But gold still comes into the international picture as a common denominator in a world of paper currencies, the relative values of which are constantly varying. Regarded in this light, i.e. purely as a nominal measure of value, gold may still have some merits. But quite clearly it cannot again function as a means of settling international balances unless the gold-holder (i.e. the U.S.) (a) is allowed gradually to buy up for gold the economic assets of the other Western nations, or (b) takes the unprecedented step of distributing the precious metal gratis in order that these nations may once more "sit in" at the old game.

Ever since the crisis of 1931, Britain and a number of other countries have been able to side-step this difficulty by the use of a sterling area in which, for various reasons, British credit has been acceptable without gold backing. But if there is really to be a reversion to multilateral international free trade on the lines at present envisaged, this useful expedient will of necessity come to an end, a point which is well realized on both sides of the Atlantic. This is one more argument against economic internationalism, at any rate in the old sense of the word.

So preoccupied have we been with the consequences of a faulty money system, that it is only by studying that system as a whole, from the historical and ideological angles as well as from the technical angle, and by viewing it in relation to the functions which it is supposed to perform, that we are able to perceive where the fault actually is and why it prevents money from performing those functions. Put simply, the fault is to be found in the idea that money is "something in itself", that it

imparts value to real wealth, and that economic efficiency can be derived simply from monetary techniques.

That is why the "nationalization" of a money system, however desirable it may be in other ways, does not in itself guarantee that the system will be subordinated to social needs. All which that step accomplishes is the final transfer of management from money-owners to money-technicians; and these latter, being of necessity specialists, will almost inevitably be concerned first and foremost to uphold the status and preserve the inviolability of their mechanism. So long as the idea persists that the exchange-value of money in terms of real wealth is self-derived, so long will there be money-power—potentially, if not actually, antithetical to the development of a true social economy, since it requires the subordination of the real to the abstract.

The first effective step away from this idea is the discarding (or at least the discounting) of the Smithian philosophy that has regarded all "goods" as commodities deriving their value from the process of exchange. For only then is it possible to perceive that while many "goods" are in fact exchangeable, and in some cases interchangeable, their real value arises from their intrinsic merits ("goodness") rather than from their exchangeability. The truth is, of course, that it is "goods" which impart exchange-value to money, and not vice versa. For without "goods" money is worthless, while "goods" themselves can at a pinch be bartered without resort to money or by the use of extempore "money" such as cigarettes. There have been of recent years demonstrations of both these phenomena, but it seems doubtful if the full lesson has yet been learned; otherwise we should not have schemes of "social security" which stop short at the distribution of money.

The second step is to stabilize the exchange-*rate* (purchasing power) of money within the social economy at such a level and in such a way that it functions efficiently as a measure of value. Clearly money cannot be stabilized effectively in terms of money (e.g. price-levels). The exchange-rate must be related to real values, so that money becomes in fact as well as in theory truly representative. While we may never be able to define value as precisely as we can length and volume, we should nevertheless try to define it in terms of "goods" (not necessarily commodities) of constant real worth. This definition must be established

independently of the supply position at any given moment; otherwise planned increases in production of the "goods" most needed will always be thwarted by a falling tendency in their relative value. (This, incidentally, is one of the obstructions to the Food and Agriculture Organization's efforts to increase world food production.)

The fundamental importance of this relationship of money to something of real value was always one of the most effective arguments in favour of a gold-based currency. But the value of gold was never real in the sense that the metal is an essential of life; it was derived primarily from scarcity, and that very scarcity has now rendered it useless for monetary purposes. What is now needed is a standard which is as generally-acceptable as gold, but derives its acceptability from the reality and universality of its value as an essential of life.

While there are clearly technical considerations to be taken into account before such a principle can be translated into practice, it is difficult to believe that a better standard can be found than *food*—to be more precise, the staple foods of the country in which the money is used. Just as these foods maintain the flow or current of physical nutrient from the soil to the human population, so should the monetary currency maintain the flow of wealth within the human economy.

Besides the biological validity of such a standard, staple foods have certain practical advantages as a monetary base:

(1) They are a prime necessity, hence pre-determination of their value in terms of money introduces a factor of stability at the point where it is most needed—in the foundations of the economy.

(2) They have a constant real (i.e. nutritive) value. They do not become obsolete or out-moded, nor does the quantity required by each person vary greatly from time to time. It is true that there is a factor of quality which is not easily assessable; but it should be possible to establish standards sufficiently accurate for the end in view.

(3) They vary less than almost any other form of material wealth in real cost of production, since this cost arises less from technical processes of conversion, which are subject to change, than from natural processes of reproduction which are more or less constant.

It is not suggested, of course, that foods should be used *as* money; that would be neither practicable nor desirable. Nor is it necessary that money should be freely convertible into them on demand, though the maintenance of a national food-reserve would give the currency a psychologically valuable backing. All that is suggested is that the unit of currency should be stabilized in terms of quantities of staple foods of standard quality (e.g. £1 equals 1 cwt of wheat or 8 gallons of milk), re-adjustments being made from time to time as required, though under good management this would not often be necessary.

Such a step, since it would stabilize the most important item in the cost of living, would provide a sound basis for a general stabilization policy. This policy would seek to relate rewards to the social value of function, prices to actual costs of production, and the volume of money in circulation to actual current needs. Clearly food production would require to be placed well up the scale, as also would fishing, mining, iron and steel, and building. Such priority is in any case inevitable if economies (especially in industrial areas) are not to suffer increasingly from sheer shortage of primary necessities, but is extremely difficult to bring about in the absence of a money system related to real values. In agriculture, for instance, price-fixing in terms of money of fluctuating purchasing-power (though no doubt preferable to the open market) fails to provide the economic background of long-term security required for good husbandry and, therefore, the necessary steady increase in production. The producer is too much at the mercy of the methods adopted for calculating prices from a mass of unstable factors.

There is needed, moreover, some system of stabilizing prices which does not involve large government trading departments or a spate of official regulations and orders, with its inevitable undercurrent of Black Market transactions, while a system of unlimited subsidies scarcely commends itself except as a purely emergency measure. There is much to be said for an adaptation of the buffer-pool system which was developed during the inter-war period for certain primary commodities and employs the same principles as the Exchange Equalization Scheme and, for

that matter, the "open market" policy of the Bank of England. By employing such a system, administrative supervision of the wholesale movement of staple foods would become largely unnecessary. A Price Stabilization Commission would be established as a public body and equipped with the appropriate funds and facilities. It would buy for reserve whenever supplies tended to outstrip effective demand and prices tended to fall below the official level; it would sell from reserve whenever there was a shortage and prices tended to rise above the official level. Should reserves accumulate unduly, the surplus could be distributed through the social services (e.g. to large families and old-age pensioners); should a persistent shortage develop, steps would have to be taken to secure supplies (if possible) from outside sources. In either case, assuming that the cause was not merely seasonal, some change would be called for, either in farming programmes or human diets, or possibly both.

Such a system would be extremely difficult to operate in terms of world markets—either the buyer's markets that prevailed during the inter-war period, or the seller's markets that prevail to-day. But it would appear to fit well into a managed social economy producing its own essential requirements and adapting its economic apparatus to that end. For it would be a factor making for equilibrium, not only as between the supply of, and demand for, foodstuffs, but as between the volume of production and the volume of circulating currency. Commission purchases on a sagging market would distribute more purchasing-power; Commission sales on a short market would reduce it. At the same time, the stability of wholesale prices would (with the aid of a little publicity) enable these to become known to the housewife, who would thus be in a position to calculate just how much she was paying for distributive services.

The principle of stabilizing money in terms of real wealth is clearly inconsistent with that of stabilizing it in terms of human labour. The labour-value theory, of course, derives from Adam Smith,[1] and while it is distinctly preferable to the practice of self-valuing money, it fails to take into account the changes in the economic situation that have occurred since his day. It

[1] "Labour therefore is the real measure of the exchangeable value of all commodities." (*Wealth of Nations*, Book I, Ch. V.)

involves two very doubtful assumptions, (a) that wealth can be measured in terms of the human effort required to produce it, and (b) that such effort can be calculated in terms of standard units. It leads to labour being treated exclusively as a cost, and to its wholesale displacement by machinery without regard to the cultural or social consequences. It is in fact a part of the mechanical interpretation of economy.

It has, moreover, this practical disadvantage—that increases either in biological or technical efficiency (in so far as they are not absorbed by money capital as profits) tend to bring about a fall in prices. This perpetuates unstable relationships between money and real values, and benefits *rentiers* and pensioners at the expense of the producers through whom the increased efficiency has come; this in turn creates a demand for compensation—the re-transfer of purchasing-power through taxation for social services and subsidization of production. Both morally and as a means of providing incentive, there is a clear case for allowing producers to reap the benefit of their own increasing efficiency, provided of course that it is equitably spread between primary and secondary production, employers and employees. It is then open to the State to levy such contributions as may be required for the benefit of society as a whole.

There is another important relationship involved in, and expressed by, the money system—that between current consumption and capital accumulation for future production. Clearly there is a *real* relationship here. Natural capital (soil fertility and breeding stocks) must be maintained and augmented. The apparatus of industry, transport, and trade must be periodically renewed, adapted, and brought up to date. Buildings require reconstruction and perhaps replacement. Even the social stock of cultural, scientific, and technical knowledge can be regarded as capital which requires constant renewal by research and education. In other words, there is, in many essential activities, an appreciable time-lag between *in*vestment and *out*put; a proportion of wealth must, so to speak, be put temporarily out of circulation, and with it a corresponding proportion of purchasing power.

Money-capitalism sought to provide for the necessary degree of withholding or saving by endowing money with breeding-

power analogous to the reproductive capacity of living creatures. By treating money-interest as if it were a natural increase, and justifying it as "the reward of abstinence", a premium was provided for saving; and by varying the rate of interest (at first automatically, later by positive management) it was deemed possible to maintain a correct relationship between consumption and saving. This theory is obviously part of the idea of a self-regulating market-mechanism.

But while this practice may have succeeded in upholding the prestige of money, it failed conspicuously to meet social requirements. There are obvious reasons for this. The very natural human desire to accumulate purchasing-power (i.e. to "put by for a rainy day," or for some special requirement) does not necessarily operate in conformity with social needs for capital maintenance and construction. Nor is the rate of interest by any means an efficient regulator; it has largely been used for purposes quite other than the control of saving, and is in any case by no means the most powerful inducement to save. Nor, again, has there been much provision for directing the flow of savings into the most socially-desirable channels.

In point of fact there have developed two distinct classes of "investment" (i.e. vesting money in an increment-yielding mechanism); speculative investment in which the chief object is to obtain the largest possible dividend, even at risk of loss; and "safe" investment in which the chief object is to obtain security for the future, even at a low rate of interest. In neither case is there any guarantee that the social stock of wealth will be increased. In the first case, increment is obtained largely from changes in the market-price of stocks and shares (which may be largely fictitious) or from changes in the market-price of industrial goods and services. In the second case, it is obtained by a mild form of usury—the charging of interest on a fixed and secure debt—which in effect is a tax on the community.[1]

Here, as in so many other cases, the mechanism has come to dominate and distort the social function it is supposed to discharge; ends have been subordinated to means. For quite clearly the main (if not the sole) object of financial investment is to use money to breed more money, not necessarily to abstain from consumption in order to provide real capital for social purposes.

[1] Relatively few "trustee" securities are to-day productive of real wealth. To a large extent they represent debts incurred for State commitments (e.g. War Loan). The fact that such investments are held widely by taxpayers themselves, while it may palliate the consequences, does not make the system any more efficient, since it involves the passage of large sums of money through an intricate financial mechanism without productive function.

It seems to be time that a clear distinction was made between money-breeding and the real need for capital-provision. Personal saving should be regarded as a necessary and desirable phenomenon, and facilities provided for it which will assure the saver that the equivalent of the purchasing-power so accumulated will be made available to the saver as and when he desires. This would give the genuine saver more real security than the present system, under which the benefit of interest tends constantly to be wiped out by falls in the purchasing-power of savings. But it is difficult to see why saving as such should be automatically entitled to reward; it would be more logical to charge for the services rendered by the savings-institution. On the other hand, it might be socially-desirable, under certain conditions, that savings should be augmented by the State.

The relating of saving to actual capital outlay is clearly a function of management, not of a market-mechanism. Certain types of enterprise should be expected to provide their own reserves for capital expenditure, and many in fact now do so; in other cases, especially where there is an unavoidable element of risk, private investors are fairly entitled to dividends. But essential economic activities, which are subject to social control through price-regulation and so on, should be granted (under safeguards) the use of public savings for necessary capital expenditure, with provision for the gradual repayment of the loan, but without interest.

For instance, a firm operating department-stores can well be expected to provide its own capital, since the prices paid by its customers are dictated less by necessity than by free choice. But an agricultural estate, a transport undertaking, or a factory making goods in general everyday use, should qualify for access to public capital, provided of course, that the capital is used constructively and that the rents, fares, and wholesale prices charged are fair ones by social standards. Such a policy, too, would enable social capital to be invested not only in mechanical apparatus (in which it has tended to pile up during the Mechani-

cal Age) but in real capital assets which may not return an immediate cash income—homes, cultural and educational facilities, national parks, soil fertility, forests, and so on.

There remain the international aspects of money. Two questions obviously have to be asked and answered. First, is it possible for any one money system simultaneously to serve the needs of a social economy and those of international traffic? Second, if it cannot do so, should the former requirement be subordinated to the latter? Attempts to combine the two objectives (in the mistaken belief that only money with international standing is "sound") have been a major cause of the monetary breakdowns that have occurred ever since 1914. A negative answer therefore is the only one possible. For the two requirements are not merely dissimilar, but in some respects antagonistic. It may often be necessary, for instance, to restrict external purchases while simultaneously promoting domestic trade.

A domestic money system, as its name implies, serves the exchange needs of people having a common domicile and using a common set of values. It can and should be regulated with some exactitude by their common social authority (the national government), so that the monetary unit is accepted as a stable representation of, and claim to, a specified amount of local wealth. An international money system, on the other hand, cannot be more than an accountancy system. Tangible money does not (or at least should not) pass from one country to another, because it is current only in its country of issue. Even when the international gold standard was functioning, gold passed from one country to another, not as money, but *as a commodity*, the acceptability and interchangeability of which made it extremely convenient for the balancing of accounts. In theory, it is possible for all countries to have a common set of values. But in practice, such uniformity is virtually impossible, because there is no uniformity of living conditions or social habits, and attempts to enforce such uniformity arbitrarily only lead to "dis-location" of domestic money systems by subjecting them to external pressures. The interest-bearing loan system, of course, makes things worse, since a debtor country may find itself compelled, during the course of years, to tranship goods far in excess of

those obtained by means of the loan. If, on the other hand, it defaults, the creditor country may forfeit much of the value of the goods exported.

Even were it possible to demonstrate that international trade is of paramount importance, it would still be the case that a country has more to lose than to gain by gearing its money to an international system. Is it then possible to devise an international system separated from domestic systems? Undoubtedly, subject to two provisions. First, that all the countries participating are represented by national authorities and not by private commercial or financial organizations; and second, that such countries can agree upon a common *unit* value, simply for purposes of calculation. Such a system might be very useful. But unless and until it can be arranged, it seems likely that nations will continue to employ what are in effect bilateral trade-agreements based on physical needs, and such arrangements as Marshall Aid which represent transfers of real wealth from richer to poorer countries, largely on a non-commercial basis. The one thing they will not do, except under threat of force or starvation, is to surrender monetary sovereignty; for with that would go all hopes of planned social economies.

XIX

WHAT SHALL WE DO WITH THE MACHINE?

IT IS FITTING, at the conclusion of the Mechanical Age, to take stock of the machine itself, to survey the relations that have developed between it and mankind, to ask ourselves what we are going to do with it. For the machine is a "problem child" in the sense that while it has solved some problems it has brought other problems in its train, and seems to involve destructiveness as the price of its constructiveness.

Quite obviously the machine is not itself an evil. But an assertion that the only thing wrong with it is the way in which we use it is not much more helpful than an assertion that we must use it more and more because it represents Progress. For the truth of the matter is that Western civilization has become, not merely machine-using, but *mechanical*: there has been a reciprocal effect. Just as the husbandman, by the very act of cultivating the land, is cultivated by it, so the industrialized community, by the very act of using mechanisms, has itself been mechanized. That is the price that has been paid for the services of a giant whose very amenability to human ambitions has led those ambitions[1] by dangerous paths to the edge of an even more dangerous precipice.

Undoubtedly the power-machine has proved an economic asset, for it means that civilization now has at its disposal a source of energy which does not tire like that of men and animals, which is independent of the weather and the tides, which can be concentrated and multiplied almost to infinity. It is so great an asset that we have not yet fully appreciated either its potentialities—or its limitations. That is perhaps why we have so abused it.

For the machine *has* limitations, and it is as well that we should

[1] "Some water, coal, and oil is all we ask,
And a thousandth of an inch to give us play;
And now, if you will set us to our task,
We will serve you four and twenty hours a day."
(*The Secret of the Machine*, Kipling.)

recognize them. Being itself inanimate, it can neither create nor sustain life; it can neither reproduce nor nourish. It is productive only in the sense that it "leads forth" something from pre-existing materials; it is essentially a converter. No machine, however efficient, can turn out a volume of product greater than the volume of material supplied, while the consumption of fuel represents a dissipation of energy reserves.

Nor has the machine any sense of discretion or selection. It will perform the task it is set to perform, and keep on performing it; its behaviour is repetitive. In its inflexibility it is decidedly inferior to the human worker, or even the horse, as in its uncreativeness it is inferior to the humblest plant. The larger the machine and the more power that it incorporates, the less intimately, as a rule, can it be fitted to its task and its context, and the more it requires these to be fitted to it. The wider the harrow, the less closely does it follow the irregularities of the ground.

Hence mechanization tends to be a two-way process, an adaptation of the economy to the limitations of the machine as well as the adaptation of the machine to the requirements of the economy. Labour and materials have to be put into the construction of the machine; this necessitates capital investment, that is, the setting-aside of a stock of food and other requirements for the support of the constructors. Since these capital costs, plus those of fuel, maintenance, and operation, can be recovered only through services rendered, the economy has further to be adapted to make use of the latter. A mechanized clothing-factory, for instance, can make suits with a much smaller expenditure of human effort than can tailors. But whereas the latter make suits to fit their wearers, the factory can make only standard sizes; and unless a sufficiently large proportion of the community wear (and wear out) these standard-sized suits which do not really fit them and so do not last, the factory will be, not merely "uneconomic" in the sense that it "does not pay", but truly uneconomic in the sense that the labour and materials absorbed by it will not fully be recovered.

The machine then is no more an unqualified "good" than it is an unqualified evil. The services which it can render must be set against the demands which it makes; the energy it "saves" must be set against the additional consumption of fuel and materials which it involves; the disciplines which it imposes

(accuracy and regularity)[1] must be set against the dissatisfactions it causes—the diminished status and "interest" of the human worker and lack of quality in products.

It is claimed that "increasing efficiency" is continually tipping the balance in favour of the machine and making its increasing use indispensable to social progress. But this is not organic efficiency—the more perfect functioning of organs and organisms which results in better health, greater satisfaction, and increasing happiness. It is technical efficiency—increasing quantity of throughput per man-hour of labour; and this in turn means either an increasing intake and output, *or* a diminishing requirement of labour.

Now, a perpetual increase of intake and output was perfectly possible during the period of expansion, when the West was able to draw almost unlimited quantities of cheap materials from new territories and find almost unlimited markets in its own population-increases and in the unindustrialized countries. But that period is coming to an end; the new territories are becoming used-up and filled-up; Western populations are no longer increasing rapidly, while the whole world is becoming industrialized.

Western industry has suffered in the fairly recent past from contraction of outlets for output; it is suffering now from shortage of materials and fuel for intake; it may in the future quite conceivably suffer from both shortages simultaneously. Why then is the West not developing ways of adjusting its economy to the alternative solution—diminution of industrial labour? Because it has so closely adapted that economy to the requirements of the machine that industrial employment has become the main channel for the distribution of wealth, including of course the products of industry itself.

Thus the established industrial policy of increasing technical efficiency, with all that it means in rising wages and ability to sell in competitive markets, is coming increasingly into conflict with the new social policy of "full employment". The one depends for success upon the continual *dis*placement of human labour from the industrial mechanism, the other on its continual

[1] "But remember, please, the Law by which we live,
We are not built to comprehend a lie,
We can neither love nor pity nor forgive,
If you make a slip in handling us you die." (Kipling, *op. cit.*)

*em*placement in that mechanism. Nor can one policy, on the existing economic basis, succeed without the other. For without an expanding volume of industrial throughput there can be no full employment, and without full employment there can be no adequate outlet for industrial products. That is the industrial dilemma; and while the problem has been immensely worsened by the misuse of money, it arises in the first place from misuse of the machine.

The revolutionary consequences of this situation can of course be postponed—and are being postponed—in various ways. One way—which is mentioned because it is obvious rather than because it is commendable—is the occurrence of bouts of mechanized war at ever-diminishing intervals; an outlet is then found for industrial products by hurling them at the enemy, while the enlistment and maintenance of armed forces (who do the hurling) provides an unprecedented volume of employment. Another way is that of increasing "wants" by increasing the circulation of currency, backed by high-powered salesmanship. That way is open only to well-endowed nations such as the U.S., and will work so long as natural resources hold out. A third way is the unproductive expansion of employment by the creation of "service" jobs—military service, national and local government services, entertainment, luxury and professional services, and the vast "personnel" for supervision, inspection, administration, and co-ordination that large-scale organization always involves. This solution, though relatively harmless and now very popular in Britain, can last only as long as foreign credits hold out.

All three solutions are fundamentally unproductive of real wealth, unless the exercise obtained by a dog in chasing his own tail can be described as wealth. They do not even begin to assault the real problem of the twentieth century, which is the gradual shrinkage of real wealth at its resources—fertility and health in soil, plants, animals, and human beings.

It is demonstrably impossible to increase real wealth by destructive warfare. But it is equally impossible to increase it by selling machinery such as tractors to primitive cultivators, because no machinery can increase fertility, but may on the contrary dissipate it. It is equally impossible to increase it by selling families cars, radio-sets, and refrigerators, because such conveniences can do nothing to increase their health or fertility,

but may on the contrary lead them to neglect these. It is also impossible to increase real wealth by setting people to watch and control other people, to fill, collect, and analyse forms, and to make out reports and returns.

In this connection, the following extract from a speech made by a far from unintelligent Labour M.P. in advocacy of the importation of foreign labour[1] is decidedly illuminating.

> Let us remember that full employment is an economic experiment which is being tried for the first time in a free community. We have no past experience of that experiment, which I believe can work only if it is coupled with an immigration policy. Full employment means that people have a choice of jobs, and when they have that choice I cannot believe that there will ever be enough people who will choose the bottom jobs. There will always be a shortage of labour in the basic industries so long as there is full employment in a free economy, and that situation can only be overcome by a constant inflow from those nations where the standard of living is lower and where our bottom jobs appear to be jobs of luxury.

If these views are at all representative, it is clear that "employment" is no longer regarded as a contribution to the creation of social wealth, but rather as a kind of ticket entitling its holder to share in the distribution of that wealth. It has come to be regarded as an agent of consumption rather than of production. The mechanization of so many economic activities has built up the idea that the whole economy is in fact a machine, a machine on which the worker naturally wants to ride. Inevitably he or she has come to despise the "bottom jobs"—farm work, house work, mining—because, in the process of industrialization, these relatively "unmechanizable" occupations have become relatively ill-rewarded, arduous and hence "inferior" by quantitative standards of value. Nor is the proposed remedy a very constructive one, quite apart from the risks it involves of introducing human stock of types alien to our own. As the U.S. discovered years ago, the existence of an inferior class of immigrants and "poor whites" to do the "bottom jobs" creates social problems of first-rate magnitude, even though (like slavery) it may for a

[1] Mr R. T. Paget (M.P. for Northampton), in Commons debate on Displaced Persons, 14 April 1947.

time appear to pay economic dividends. A community so lacking in sense of values as to be reluctant to maintain its own homes, dig its own coal, nurse its own sick and grow its own food, is hardly likely to be regenerated in this way, which is all too reminiscent of the way in which Rome fell.

Thus the industrial dilemma has produced an *industrial paradox* —the more human effort is displaced by the technical efficiency of the machine, the more is absorbed in relatively unproductive, ancillary, machine-riding "employment". And this sponge of "employment" is soaking up workers, not only from "basic industries" like mining, but from basic occupations like agriculture, and from the home itself.

Unless war intervenes, we must sooner or later be faced with the second and only other way out of the dilemma—to take people *out* of "employment" and out of the service of the machine as its logical development dispenses with the need for their employment. This does *not* mean a rejection of the machine, but rather a true appraisal of its benefits, a decision to use it instead of allowing it to use us.

But what are we to do with the "displaced persons" if there is no "full employment policy"? Have we not already seen the consequences of unemployment and under-employment, even when destitution is palliated by "social insurance"? Industrial displacement should mean creative *em*placement, the restoration of human effort to those activities which constitute real living—the making, enriching and populating of homes, the evolution of genuinely co-operative community life, the restoration of grace and beauty to that which has been uglified, the development of personal health by the exercise of all the faculties, and above all, the re-integration of people and soil by the husband-like cultivation of the native landscape. These activities are not mere hobbies or "leisure pursuits"; still less are they "uneconomic". They are the basic factors in social economy, and it is only the industrial system that has made them appear otherwise. They are not luxuries which we can afford only by paying a tribute to the god of the machine; they are resources of wealth which were once drawn upon, and can always be drawn upon, without any aid from the machine at all.

In this new "Cultural Revolution" the machine can be made

to aid us, provided that we are quite clear in our own minds as to what we want it to do. The more it can be made to take over the purely *energetic* work, the routine tasks which involve neither creativeness nor intelligence, the more can human effort be released for the creative and intelligent occupations. To use human muscles for pumping water or carrying loads is patently uneconomic; so, conversely, is the use of a complicated machine for cultivating a plot of earth or for providing spurious re-creation. The industrial system long ago decided that to employ 100 men in making a supply of articles that could be "put through" by eighty men was uneconomic; it has had no compunction in throwing out the surplus twenty. But it is equally uneconomic to employ 100 men to cultivate badly a stretch of country that could be cultivated well by 200 and provide them with homes.

This is not to say that the resettlement of surplus urban populations can be carried out on purely quantitative lines—by mass movements of people or the mass construction of new communities; even manipulative devices, such as the purposive alteration of wages and prices, the guidance of capital investment and the provision of training courses, though extremely useful, are of limited application. The main objective should be to reverse the centripetal attraction of people (which has been ideological as well as economic) from home to tenement and from field to factory, and to invest the re-colonization of the home-land with something of the glamour once associated with emigration to the New World.

There are several ways in which this might be done. One is by gradually withdrawing from industry and other urban occupations, not necessarily those who fall out of employment, but those who have the qualities and the desire to become homesteaders. Naturally these people would require facilities, financial assistance, and organization[1]; but such outlay would be capital invested productively. Another way is by moving the more suitable industries out into rural areas and progressively reducing hours of work, so that greater diversity of occupation and better opportunities for home-making are possible. Another way is to

[1] A preliminary period of apprenticeship is indicated. It might well be desirable, for instance, to restrict applications for full-time holdings to those who have worked on the land for, say, at least three years. In any case, existing farm workers should have priority.

apprentice young people (say, up to the age of thirty) to farmers, small holders, and country craftsmen, with a promise of assistance when the time comes for them to set up on their own. In any case, there is much experimental work to be done, both in forms of social organization and in discovering how far the new aids (including machinery) can be made to serve husbandry, the home and the crafts without distorting natural relationships.

In this way, an increasing proportion of people would begin to obtain, not only better living, but *cheaper* living in the sense that the closer linkage of wealth-production with wealth-enjoyment would reduce the present dissipation of energy by elaborate processes of conversion and compensation.

XX

HOW CAN WE RESTORE AGRICULTURE?

THE MORE that one reflects on the philosophy, methods, and results of the Mechanical Age, the more paradoxical seems the description of its economic system as capitalism. For while it has undoubtedly accumulated great stocks of money capital (largely in the form of debt), technical knowledge, and equipment, this accumulation has been at the expense of real capital.

The progressive dissipation of mineral reserves is serious enough. But even more serious, because it is cumulative, is the depletion of that vitality without which living creatures are but inert matter. A contemporary American writer has remarked that few modern agricultural research workers have ever seen a really fertile soil.[1] It would be equally true to say that few medical research workers have ever been able to study really fit persons.[2] In fact an overwhelming proportion of scientific work in both fields has to be devoted to the treatment of sub-fertility and sub-health. It is this long-term run-down that has rendered farmland so liable to drought and erosion, plants and animals so susceptible to disease, and food so scarce; it is showing itself in lack of human vigour and stamina. And however indispensable repair-work may be under existing conditions, it will not of itself suffice to get us out of the downward spiral of debility upon which we seem to have entered.

Such a situation demands the re-building of real capital, and this re-building must begin at the point where the spiral appears to make its steepest descent and Western civilization makes its worst showing—*the soil*. Too often has "maintenance of fertility" been appended as a sort of afterthought to agricultural policy, even as agricultural policy itself has been appended

[1] Edward H. Faulkner in *Uneasy Money* (University of Oklahoma Press, 1946), p. 105.

[2] It was primarily to overcome this difficulty that the Pioneer Health Centre (Peckham) was started.

as a sort of afterthought to economic policy. The plain truth is that we can be no healthier or wealthier than the land we live on. The biologically effective portion of this land is nowhere more than a few inches deep (and over large portions of the globe is non-existent), so that our whole civilization rests on its thin and delicate crust.

The restoration of soil capital is essentially a biological problem, fertility being neither a chemical nor a mechanical process but a biological function. But an intelligent application of biology demands an intelligent attitude towards life and the terms on which it is enjoyed. The first, and in some ways the biggest, change must be in our own selves. Odd as it may sound, civilization will never get a good standard of living out of the soil until, like the best type of peasant or farmer or land-worker, it tries to put more into the land than it takes out. In other words, the restoration of agriculture depends upon the restoration of a land-sense; it requires the right social and cultural climate.

Most people of the West, it is true, now live in cities or at any rate have acquired an urban outlook. But it is far too readily assumed that they are uniformly and permanently indifferent to the condition of agriculture and interested only in cheap food. Such generalizations are insulting to the intelligence of the large and growing proportion of townspeople who do in fact take a lively interest in agriculture and are so ready to be instructed on the subject that they all too often absorb misinformation. If these people could be shown that agriculture is the great medium of *re-creation*, culturally through the nurture of plants and animals, physically through the food it supplies, socially through the antidote it provides to urban frustrations, there is little doubt what their response would be. But so long as agriculture is presented to them as a kind of industry, so long will they apply industrial and commercial criteria. Thus they may fail to realize, until perhaps it is too late, that cheap food means sooner or later scarce food, and that scarce food is a major symptom of soil debility, no more to be overcome by the distribution of technical aids and instruction than an overdraft at the bank is to be overcome by a distribution of cheques.

A similar misconception is the very general belief that the remedy for malnutrition can be found in the re-expansion of

international trade and a constant increase in industrial employment, the object being to provide consumers with more money to spend on food and so, indirectly, stimulate agricultural production. The Hot Springs Conference,[1] for instance, decided that "the first cause of hunger and malnutrition is poverty," while F.A.O. recommends as a general principle that the nutrition of "backward" countries can most readily be improved by assisting them to transfer population from agriculture to industry.[2]

This is a curiously circuitous and involved line of reasoning. For while there was undoubtedly in the inter-war period a widespread inability among industrial consumers to buy sufficient food, or food of the right kinds, this inability arose very largely out of the inability of agriculturists to buy industrial goods. A mere increase in size of the industrial and commercial superstructure will do nothing directly to render agriculture better able to support it, nor will an increase in the volume of circulating money itself ensure that food growers will receive fair prices for increasing production. There are to-day dozens of different ways in which consumer purchasing-power can be spent (including charges for processing and distributing food) which have little connection with agriculture. So long as the grower of food stands at the tail-end of the queue and receives only residual purchasing-power, this roundabout method of financing agriculture is bound to prove abortive.

The right point at which to put more money into the food system is at the bottom, where the food originates. It is no use telling the working farmer that he will receive whatever consumers can afford, or whatever urban governments may think expedient at any given moment. Before he can begin to rebuild the soil fertility and the breeding stocks from which improved nutrition is to come, he must, to some extent at least, reorganize his farm and lay out capital, which generally has to be borrowed. He can scarcely be blamed for hesitating to commit himself in this way unless he has firm assurances that he will receive adequate prices for a long time ahead. All too often in the past has increased production brought prices tumbling about his ears.

[1] United Nations Conference on Food and Agriculture at Hot Springs, Virginia, U.S., in 1943.

[2] *Vide* Report of the Preparatory Commission on World Food Proposals (Cmd. 7031).

Such prices, moreover, must be based on costs that experience has shown to be necessary and normal, not costs calculated by economists as being technically feasible under ideal conditions. Only when he gets such an assurance can the farmer cease to be a marketman, gambling from year to year, and begin to be wholly a husbandman, farming *up* to the full potentialities of his land, not *down* to a price.

A commendable, if somewhat belated and imperfect, appreciation of these facts no doubt underlies the "price support" policy in the U.S., the 1947 Agriculture Act in this country, and comparable legislation in most of the Dominions. But price-stability, though an obvious pre-requisite of agricultural restoration, is by no means the only one. Money itself has no fertilizing value; it must first be translated into those two basic elements of good farming—humus and husbandry; and here again it is not the farmer alone who can save the situation. Before balances can be restored, the city must adopt as a regular habit the return to the land of some at least of the organic matter it draws in.

It must return, too, some of the human life it has been taking away, especially that young life which agriculture so badly needs, and which has already begun to look agriculture's way again. The growth of Young Farmers' Clubs, or their equivalent, in many of the Western countries is a very hopeful sign; but social policy will have to go much further than this if it is to solve the problem of "too many consumers—too few producers". Farming is not just a matter of putting in seed and feed, and taking out the product. It is made up of an infinity of little jobs created by the requirements of plants and animals under constantly changing conditions. That is why long-term agricultural policy demands closer rural settlement—more husbandmen as a pre-requisite of better husbandry. And this, though it should help to provide outlets for the rising tide of land-hunger in the cities, may conflict with the industrial idea of productive efficiency. For rising output of food per acre, and hence rising intake of food per consumer, may quite possibly mean falling output per person in agriculture.

Rural repopulation will itself help to remove one of the biggest disabilities under which agriculture has laboured. Just as potent as meagre rewards and indifferent housing in bringing about the "urban drift" has been a sense of isolation, a lack of contacts,

social life, and alternative occupations. The necessity for two men (or one man and a girl) to undertake three men's work has done quite as much as low cash wages to breed a feeling that farming is a sweated industry.

But agriculture alone, even with intensive cultivation and a rising proportion of small holdings, will not suffice to fill villages and hamlets once more with the busy, many-sided life they once knew. They are the natural location for most of the ancillary industries of agriculture, from the making of thatch-spars to the construction of threshing-machines; and in reviving and re-locating these there is an opportunity also for reviving the old crafts which have so much cultural value and which, in that they use local materials to meet local needs, represent a very real form of economy. Such re-development is quite apart from the ruralization of manufactures now congested in the towns.

Agricultural mechanization has, on the face of it, many attractions; no sensible person would deny that there are certain more or less mechanical jobs that can and should be done by machinery—pumping, threshing, grinding, hoisting weights, and so on. But there are two fundamental considerations which are often overlooked. The first is that the really important processes—that is, the growing of crops and livestock, and the maintenance of fertility—cannot be mechanized at all, because they are essentially organic. The second is that the introduction of machinery at one or two points in a long series of operations, though it may have practical advantages, does not necessarily result either in a saving of total labour or in an increase in total product. The stacking elevator, for instance, though admirable as a means of reducing human fatigue in hay-making, seldom reduces the number of men required on any given farm, and does nothing to enable more fodder to be grown.

The theoretical answer to this conundrum of course is "full mechanization"—the use of machinery for *all* major operations. But quite apart from the fact that for a number of such operations no really suitable machine has yet been invented, it is clear that the high cost of such "full mechanization" not only narrows the uses to which land can be put, but can make it financially impossible to employ the full number of men required for the multifarious little jobs that add up to good farming. In some

countries (notably the U.S.), mechanization has in fact resulted in widespread human displacement from the land.

At the present time, farm machinery has its uses as a temporary substitute for the human beings who should be on the land but are not. But because it has no biological value, and because its extensive adoption can militate against the mixed husbandry and closer rural settlement which are essential for higher levels of fertility and food-production, it cannot be regarded in any way as a solution of the main agricultural problem.

Nor is there any quick remedy to be found in changes in land-tenure. For there was as much truth in Arthur Young's contention that "the magic of ownership turns sand to gold" as there is in the socialist contention that "the land belongs to the people"—and as many pitfalls. Absolute freehold leads often enough to the mortgaging of land and to undesirable traffic in it. Public ownership, in so far as it means centralized State administration, is quite unsuited to the rural idiom.

In such matters it is as well to subordinate doctrine to practical issues. Clearly the land belongs to the people (that is, the indigenous population) in the sense that the people belong to it, i.e. are part of the same ecological pattern. But the mere form of legal ownership can do little to substantiate that relationship, for ownership cannot well be exercised (in a real sense) except by a person. What society in effect requires, and is entitled to demand, is that its land is put to the best possible social use. Yet this object, so far as agricultural land is concerned, can be achieved (paradoxically enough) only if the persons cultivating it are able to feel that for all practical purposes it is their own.

Provided that these two requirements—of society for right land-use on the one hand and of the cultivator for security on the other—are kept clearly in view, various kinds of tenure seem possible and should be used in accordance with local customs and the type of land-use.

In many regions there is a good case for the preservation of the "estate" or group of holdings under one administration, not so much for farming operations as for the maintenance of capital improvements and of a balance between farming, forestry, and other land-uses, possibly also for the co-operative use of heavy equipment and a marketing system. The "land lord" or local

leader-manager has many important functions which are by no means dependent on the legal possession of land, though in the past usually associated with it. Such estates or groups are important, moreover, as providing an environment for small holdings. In the past, small holdings have often been deemed "uneconomic" simply because as miniature individual enterprises they were not easily adjustable to the economic pressures exerted by the financial and industrial systems. But on many types of land they are more economic than large holdings in that they promote more intensive land-use and provide more root-hold for the rural population.

There is, too, this very practical point, namely that rural repopulation will be greatly handicapped if it has only wage-work to offer, except to the relatively few with sufficient money capital for a large holding. The type of man and woman who is most likely to be drawn back to the soil, and who will unquestionably be of most value when there, is by no means attracted by such a prospect. What these people want, and it is a perfectly natural want, is an opportunity of securing a place of their own when they have sufficient experience. Agricultural policy, therefore, must not stop short at making the large holding efficient and profitable. It must seek to provide, in ever-increasing numbers, small holdings of different types—from little subsistence holdings for those who are still wage-working for at least a part of their time, to family-farms which can provide interesting occupation for growing youngsters. There are not wanting signs that a reaction against urban values and industrial wage-systems is beginning to shape itself among the younger generations; and while one or two so-called "urban amenities" (such as electricity and cheap transport) can with advantage be incorporated in rural living, it would be disastrous to urbanize the countryside or to industrialize agriculture in the belief that they would thereby become more attractive.

In a country such as Britain small holdings can as a rule be created only at the expense of large holdings; but closer subdivision seems to be inevitable if we are to achieve better land-use. For while there are some good large farmers (just as there are some types of land which can be farmed well only in relatively large blocks) such men are by no means common. And if intensive farming can be given economic security, the arguments in

favour of extensive farming are correspondingly reduced. It is better from every point of view that a man should be able to earn £10 an acre on 50 acres by good farming than that he should skim £1 an acre off 500 acres by cheap farming.

In all aspects of agricultural rehabilitation, it is essential that we should keep clearly in mind that agriculture is at bottom a sociological function. What we must *re*-store in the first place is natural capital—fertility—capacity to *re*produce, and in the second place the flow of wealth (income) from this capital, through plants and animals, to human beings and so back to the soil. Both postulate the creation and maintenance of direct, vital relationships between the associated living creatures that make up an ecological pattern. That is why agricultural development should, as far as possible, follow the lines of localized economies.

There are few things we want more at this time than a generally-agreed code of husbandry, of "good farming", of sound land management. Yet we shall never get such a code in terms of specific techniques or cost-accounting. For husbandry can fully be understood only as a counterpart of housewifery—a continuous balancing or harmonizing of organic resources with organic needs according to individual and local conditions. Husbandry is essentially a pattern of management, the quality of which can be assessed only by its long-term effect on the vital resources of the ecological pattern to which it is applied.

XXI

BRITAIN'S RÔLE IN THE TWENTIETH CENTURY

THIS BOOK ends naturally on a national note, not only because the writer himself has always been conscious of the ties of blood and soil, but because he is convinced that the regeneration of Western economy as a whole can come about only through the prior regeneration of localized economies.

If a further reason were required, it could be found easily enough in the state of tension and anxiety which prevails in Britain at the time of writing, and to which the term "crisis" is freely applied. Britain has encountered and survived many crises in her long history. But the situation which now confronts her is not just a transient emergency, such as can be overcome by bold decisions and extemporized adjustments. It represents a steady undermining of the whole position which our country has occupied for over a century and which the great majority of her people have come to regard as permanent. Indeed the immediate outlook, if measured in terms that we have been taught to regard as decisive, is so grim that it is only by standing off a little and taking stock of our real assets that we can begin to study the future and envisage with any degree of confidence the measures it will require.

To say that regeneration begins at home, that our first and most urgent task is to set our own house in order, is not of course to assume that we can cut ourselves off from association with other nations and reconstruct our economy in a vacuum. But it does seem more and more clear that we cannot discharge our responsibilities as a nation, unless we ourselves regain national health and vigour. A sick man is very little use in a football team, however anxious he may be to play for his side.

We British have a tradition of world leadership in which we may legitimately take pride. Over a period of some centuries, this little island has not only sent forth its people to colonize new countries and its inventions to equip them, it has given both new

and old countries many practical demonstrations in the arts of sound government and social development. Rarely have we ourselves given birth to new philosophies, but rather have we been the pioneers of practice, receiving (sometimes reluctantly) the ideas of others, divesting them of their more idealistic extremes, tempering them to fit times and places, and relating them to the actual needs of living.

Just as Norman feudalism and French liberalism were hammered into workable shape on the British anvil, so now it should be the turn of German socialism.

To no small extent, this gift of realistic application springs from a national character in which Celtic, Saxon, and Norman elements, being kindred and complementary to each other, have become blended. But, lest we flatter ourselves unduly, it is as well to remember how much the development of this character owes to our unique ecological setting. An equable yet bracing climate, a topography richly varied yet facilitating easy intercourse, an insular situation adjacent to the main continental block which has enabled us to adventure and trade yet remain free from invasion for nine centuries—all these have constituted (and still constitute) a natural endowment beyond price. For they have enabled us to develop without serious interruption a truly native and essentially kindly way of living. Indigenous roots, well bedded in a fertile soil, have provided constant resources, both spiritual and material, of national vitality.

It was this indigenous vitality and resourcefulness, rather than any special aptitude for industrial or commercial pursuits, that enabled us to grasp the opportunities presented in the nineteenth century by the defeat of France, the new technological inventions, the expansion of world traffic, and the opening of the new territories. It was social and economic self-reliance at home that made possible an out-thrust of such vigour, that we became for a time not only the workshop of the world, but its merchant, carrier, and banker as well.

To hold that the economic superstructure which we fashioned out of those opportunities has become indispensable for our well-being, that because a certain policy once brought us prosperity there is no other way in which we can prosper, is to confuse cause with effect, to insist that lateral growth is more important to the tree than roots and stem. To reiterate that we

are "an industrial nation" or "a commercial nation" as if all Britain were factory-cum-shop, is both defeatist and unintelligent. There are other ways of living than by selling technical and commercial skills; and the fact that we were foremost in seizing the opportunities of the nineteenth century in no way inhibits us from seizing the opportunities of the twentieth, provided we re-cultivate our own sources of strength, and recognize how fundamentally the twentieth century differs from the nineteenth.

It is true—and the fact is daily being borne in upon us—that in the process of exploiting past opportunities we drew more heavily than was wise upon our resources, rearing too top-heavy a super-structure upon weakened foundations. But that is simply a measure of the extent to which we have to re-balance, re-vitalize—literally, *re-organize*—our economy, so that it becomes once more related to our own resources instead of being geared to increasingly inefficient mechanisms of international traffic. That means undoubtedly a period of austerity. But austerity is already with us, and officially blessed. And it is better to practise austerity in non-essentials in order to increase the supply of essentials than to practise austerity in essentials in the hope of increasing the supply of non-essentials. We should, no doubt, dislike having to dispense with American tobacco, films and fiction. But if the labour released from the manufacture of goods for the American market were invested instead in the improvement of farms and the building of homes, the temporary hardship would be worth while; for it would increase our stock of real capital, from which would issue a natural increase of wealth, health, and happiness.

Before new growth can begin, however, there must be a pruning of superfluous top-hamper. On the material side, there is a great mass of debt capital against which few real assets can be set; this is already in process of devaluation by a "cheap money" policy. But we shall probably discover also that a good deal of industrial and commercial equipment is superfluous.

It is, however, on the philosophical side that the most radical changes are necessary; for until we get our economic strategy right we shall continue to dissipate our energies in tactical mistakes. The first idea that calls for revision is that of substitution, and in particular the belief that the artificial can effectively replace the real. Many of our inventions have genuine utility

as aids and accessories. But when we assume, for instance, that a machine can replace a skilled craftsman, that industrial techniques can replace husbandry, that a mixture of processed foods can replace a wholesome diet, that mass-entertainment can replace cultural expression, or set "courses" can replace real education, we are in effect reducing life to form and formula and thus frustrating its fulfilment.

The second idea is that because a mechanism appears to save energy at any one point, or for that matter at several points, its employment is necessarily a gain. This is a natural consequence of machine-mindedness and often leads to the adoption of indirect methods in cases where direct methods would be truer economy. We specialize production in order to gain the technical efficiency of mass-throughput, and dissipate the effort so saved in the elaborate system of distribution that is required. We import raw materials to work up into goods to export in exchange for things that we could perfectly well have made or grown for ourselves in the first place. We centralize administration in order to facilitate control, and clog the channels of productive initiative with bureaucratic apparatus. We are in danger of subscribing to a belief that the bigger and more complex a thing is the more efficient it must be. Once we can rid our minds of these intellectual hangovers of the Mechanical Age, we can begin to study our social economy in terms of realities and to reconstruct it in terms of twentieth-century conditions.

We have, for instance, within the United Kingdom, all the primary resources required to provide the essentials of life for our existing population. Our soils and climate are in the main highly favourable for intensive agriculture; and there seems very little doubt that were we to take our farming as seriously as do, say, the Danes or the Dutch, we could provide ourselves with diet better than we now obtain, as well as a great deal of the leather, wool, and tobacco we now import. We have an abundance of coal, from which can be obtained petrol and an ever-increasing variety of industrial materials as well as fuel; we have iron-ore, china clay, and building materials; we could have a good supply of timber if we envisaged forestry as a major aspect of land-use and not simply as a commercial proposition. It is true that Britain is deficient in certain minerals: but these represent *industrial* rather than *vital* needs.

Obviously we cannot develop these resources without putting into them much more labour than we do at present, and this labour can come only from industry, commerce, and administration; in other words, conversion and distribution. But seeing that primary wealth must be brought into the economy before it can be converted or distributed, and that prospects of obtaining it in adequate supply and on favourable terms from extraneous sources are tending to diminish, it seems clear that its production must have effective priority. This in turn will necessitate new wage- and price-relationships; farming, mining, fishing and other basic occupations will need to be better rewarded than factory- or office-work.

Such a change may fairly be described as revolutionary. For whereas throughout the Mechanical Age, and especially in Britain, the tendency has been to adjust primary production to the requirements of the industrial-commercial superstructure, and to regard cheap food, coal, and raw materials as socially desirable, it has now become necessary to adjust the superstructure to primary production. Standards of productive efficiency will be determined less and less by price-competition and technological change, and more and more by physical needs in relation to resources. This transition is already taking place in mining and building, and will have to be recognized in agriculture at an early date if we are not to experience serious privation.

It is true of course that what have been called "siege economics" represent an extreme case which may never in practice exist. The Dominions, for instance, can and doubtless will continue to send us considerable quantities of primary produce; our colonial territories can supply certain tropical products which we cannot grow here; and there are still useful possibilities of trade with other nations. But everywhere local consumer requirements are on the increase, while natural resources (even where not seriously depleted) offer little scope for further exploitation. We shall be wise to regard our own resources as the starting-point for any improvement in our standard of living, and extraneous supplies as merely supplementary. The days when all the world poured primary produce into our markets are over; it is becoming increasingly difficult even to "go shopping" with advantage.

Primary production of food, coal, and materials from indigenous resources represents the husbandry of our national economy. The housewife's side is no less important. For it is only through homes that real wealth can be transformed into human health and happiness, into the personal qualities from which the national character emerges and upon which our national status (in fact our survival *as* a nation) depends. Nor is this aspect of our economy to be envisaged only in quantitative terms—housing, birth-rates, the supply of gadgets and facilities. For what we are considering here is not just volume of consumption or rate of monetary income and expenditure per unit of a human mass, but the quality of life as it is actually lived in family and community.

In this country we are singularly fortunate in that a comparatively even distribution of resources makes possible a comparatively even distribution of population. The existing concentration of people in large cities and industrial areas is largely artificial—a product of economic forces to which we need no longer submit. Apart from a few mountainous areas, we have no regions which cannot provide (or obtain from close at hand) the food, building materials, fuel and power, and even many of the raw materials, required for a considerable resident population. There is therefore no physical reason why we should not begin to move in the direction of localized economies, endeavouring to build upwards from indigenous resources rather than expand laterally in conformity with a standardized plan. It is only in this way that we can bring primary production of wealth into more direct relationship with human needs, and at the same time foster the development of human initiative, skill, and sense of responsibility.

There is of course still plenty of scope in such a pattern both for manufacturing industry and for general trade. But these would tend to become secondary rather than dominant factors, ancillary services rather than instruments of economic power. Once it can be realized that, for instance, a glove-factory cannot perpetually be selling more gloves at lower prices and providing higher profits and wages, it becomes possible to have a glove-factory in every region, providing the local inhabitants with good-quality gloves at stable prices and its directors and employees with opportunities to live and establish homes in an

atmosphere of security. In the same way shops, markets, and banks would tend more and more to serve local requirements instead of being mere cogs in a world system of trade and finance.

While such a policy of Husbandry and Homes presents a means (and in the writer's belief the only means) of surviving the economic revolution of the twentieth century, it does not, at first glance, suggest very much in the way of opportunities. But that is because we have become accustomed to looking for opportunities of the nineteenth-century kind—quantitative expansion and increments of power.

For Britain at least, and possibly for the West as a whole, opportunities of that order are no longer available. There are no more new territories awaiting colonization, no more new markets awaiting our industrial goods, no more new sources of supply. Situated as we are, between two huge empires whose quantitative strength is enormously greater than our own, any competitive struggle in terms of power-economics must ultimately result in our exhaustion, if not annihilation. Yet the Dominions, Europe, even perhaps the U.S., still need our leadership. We can no longer give such leadership by exporting our people, our goods, or our methods. But we can still give it by practical demonstration.

It is a truism that the capacity of Western man to invent and multiply instruments of power has outstripped his capacity to use them beneficially. In learning to conquer and acquire, he has forgotten how to live. In consequence, the instruments of power become all too easily instruments of death and destruction. The future of the West—indeed of the whole world—depends upon the emergence of a nation with sufficient courage, vision, and competence to evolve a way of living that will provide a *positive* remedy for this situation. For all negative means, in that they involve the use of power to check abuse of power, are, in the last resort, sterile.

The precise forms which this new way of living will have to take cannot well be foreseen, much less laid down in advance, though an attempt has been made in these pages to suggest the direction in which we ought to travel. But there are certain general objectives which would appear to be basic, in that they

represent the terms on which alone Western civilization can achieve survival through revival.

(1) The re-development of a philosophy of life—which may need some positive re-statement of Christianity in terms of living.

(2) The re-integration of people and soil, so that the cycles of fertility and nutrition may function vigorously and healthily.

(3) The sublimation of human labour as social functions, so that the pressures and dis-satisfactions of industrialism may give place to a genuinely co-operative society.

(4) The harnessing of machinery, technology, and science to this economy; i.e., the subordination of mechanism to the organism, of the manipulative means to the cultural end.

(5) The cultivation of creative and satisfying relationships between the human person and society, and between society and its natural context.

Britain, almost alone among the nations of the West, has the traditions and the circumstances necessary for cultivating such a way of life, provided always that she will give her native genius a chance to fulfil itself. Within the sea-moat which is still one of her chief defences, she has an even-tempered and resourceful people with few alien elements, a fertile soil still relatively undepleted, sufficient equipment, and most of the materials for her own needs. These assets constitute our real capital. What is needed to develop them into an enduring order of society is a "social capitalism" that will conserve vital resources, establish true values and cultivate creative relationships. For without these our civilization will perish, as other civilizations have done, and at no very distant date.

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