FOREWORD TO THE AMERICAN NATION

The second edition of this book owes its appearance to the American nation and to the interest they have taken in Technocracy. The author expresses his grateful thanks to them in general, and to the American publishers of the first edition in particular, for having brought his work so opportunely to notice at the present crisis of the world's affairs. Had Thorstein Veblen lived but a little longer he also would no doubt have felt the joy of living in this present age. For in what earlier period of history would truths so upsetting and so contrary to the established order have had a chance of impartial examination until those originating and those offended by them were all 'safely dead'?

Since the British edition appeared the financial system has undergone in America another of those periodic collapses which are the inevitable as they are now the most conspicuous feature of modern so-called banking. The choice is now actually before the American nation whether to make this kind of "banking" safe for the banker, according to the strictest canons of British, Continental and International systems, or safe for the American nation.

The two things are not the same thing, as is so easily assumed by the banking interests, but are in fact exact opposites. The only way banking to-day can be made safe both for the banker and the nation is for the nation to be the banker. The state of Europe at the present time, and of its once proud nations reduced severally to internal chaos and many to despair, is eloquent of the rule of the banker. Here, what is dangerous to the banker is considered altogether too dangerous for the nation to be allowed even to discuss, and the public are most carefully and elaborately shielded from any real knowledge of the preposterous humbug which it was one of the objects of this book to elucidate.

America, almost alone among the nations now, has any freedom of choice of its rulers and the world looks to her as its last hope of destroying what has become easily the most powerful tyranny and the most universal conspiracy against the economic freedom of individuals and the autonomy of nations the world has yet known.

We are always being told, and the Technocrats have already been told, that plain speaking is calculated to destroy the public's confidence which is so necessary to the banking system 'just when it is beginning to be restored.' It may be doubted whether any amount of plain speaking could effect more in this direction than the banking system has already done for itself. Admittedly a private banking and money-minting system cannot function without the public's gullibility. Even in that it has now surely "touched bottom with a bump and the only direction it can go is up." Let us hope it will "go up" for good. As for the public's confidence, what better calculated to restore it than to put behind a national system the whole wealth and credit of the nation. What a change that would be from the *reputation* for integrity and bottomless affluence which is the private banker's whole stock-in-trade. The rest he derives from the public without even requiring the bark of a mulberry tree as Kubla Khan did.

Modern science can unravel secrets vastly more intricate and well concealed than that of a modern money system, and when unravelled they do not need more than ordinary common-sense to see through. The simple question which the scientist asks about the mysterious appearances and disappearances of anything—"Where does it come from and where does it go to?"—suffice whether we deal with matter, energy or money. However voluminous the writings of those who have essayed to teach the public the mysteries of money, these are the questions that are *not* asked and the inference is that the orthodox money experts either cannot or dare not answer them.

The public, however, need not feel any alarm that a scientific money system in place of the present relic of barbarism would occasion them any interference in their business and domestic affairs. It would mean that they then would have the system most of them now believe they now have. Just as the general public do not know or believe now that irresponsible private mints are now creating and destroying money arbitrarily at the rate of thousands of millions of dollars many times a year, they would not be at all inconvenienced in any legitimate social activity if the quantity of money and the price-level stayed put. But they would be saved a vast toll of secret and unsuspected pocket-picking. And anti-social speculation with their money without their knowledge.

All the difficulties and objections which those living on the private issue of money raise to a national system are in fact those that would disappear with the present system. The industrialist and agriculturalist are its dupes not its beneficiaries. The only defence ever urged in public of this secret minting of money which is called banking, is that it enables new men and enterprises to be financed, existing businesses to be expanded and agriculture to be tided over a period of bad years at the expense of and without the knowledge of the community, and that this would not be possible except for the private banking system. The defence is utterly absurd. In fact under a national system this would be the natural and normal result without social injustice rather than an unauthorised private tax on the body of citizens for the immediate benefit and ultimate ruin of a specially favoured few.

For it must be remembered that the new men so financed, the existing businesses so expanded and the hard hit agriculturalists so "assisted" *do now actually pay interest for the loans they are supposed to receive*, just as though they were real loans instead of a new creation of money at the expense of the rest of the community. There is not the slightest reason why they should not get what they are supposed to pay for. There may have been a difficulty in byegone times when the only money was real gold and silver. But it stands to reason that if the nation issued all the money required just as fast as it could be issued without increasing the price-level,—and that is just as fast as there were goods and services to exchange for it,—there would be an abundance of money instead of a scarcity, to lend and borrow as well as to spend and invest. This is the natural consequence of a scientific age in which there never would be any fear of shortage of wealth to distribute, if the money system did its proper part in distributing it. That is the only real issue—Are people artificially to be kept poor by the money system or allowed naturally to prosper?

Thorstein Veblen, whose 1921 book "The Engineers and the Price System" has only become known to the author since the appearance of the second British edition of this book, adumbrated a Soviet of Technicians, which is believed to be one of the sources of the doctrines of the Technocrats. Its irony, to-day at least, needs no accentuation. It is a satire for all time on this age, great only in its science and science the hired-man!

But as in his other, and hitherto more widely known, works (and the criticism might equally well be applied to all the "red" sociological and political literature of Socialism, Communism and Marxism) he never probed into the physical underlying reasons for the inversion which has overtaken Capitalism—starting out to rebuild the world with the inanimate power, of which human "sweat of the brow" is merely an insignificant bye-product, and ending his turning that power to the destruction of what it has created. His "Vested Interests," the growing sabotage of competitive industry by "Captains of Industry and Finance," and "Elder Statesmen" are personified expressions of deep underlying ignorance of physical necessities his analysis stops short of. One has in this book, as in the rest of the revolutionary literature, simply to take it for granted that capitalists, big-business men and financiers,—down logically to the humblest individual of the investing public trying to "save" in a world in which wealth rots,—are all inhuman devils by nature and of necessity, and then everything else follows from that as the night the day.

This criticism may seem odd coming from the author as he has been himself accused—and by no less a person than by Mr. H. G. Wells—of assuming the same about the banking hierarchy. In any case, looked at either way, it is a delightful example of the *argumentum ad hominen* which has been translated as "No case! Abuse the plaintiff's attorney!" However a word more in explanation of the apparent inhumanity of scientific criticism may not be out of place.

The scientific attitude with regard to these questions differs entirely from the sociological, as it is not in the least concerned with motives, intentions or protestations but only with consequences. Reform to-day literally has to hack its way through an interminable jungle of wordy and irrelevant controversies before it can come out into the daylight.

Those who want to understand how a conjurer performs his tricks should take the advice of one conjurer to another, and watch *the other hand*, not the one to which the attention of the audience is being so volubly and persuasively directed. But as regards the scientifically trained mind, it is mercifully deaf. It is not so much that it disbelieves in all the interminable protestations of high-minded and altruistic social motives and intentions of Scotsmen, Quakers, Jews, Christians and who not, as that it simply does not hear them, so intent is it on how the mechanism *works*.

The mechanism of Nature has us all still in its grip, as it has had from the days of the first man though it has taken humanity a very long time to disentangle the mechanism from the highly picturesque and melodramatic personifications man has invented in explanation of his plight. The upholders and detractors of Capitalism alike are still envisaging it in the thoroughly old-fashioned human guise of god and demon, but in this book angels and devils give place to the underlying mechanism. The one and only way to control a mechanism is, not by edicts and legislation, but by understanding it. Science has started civilisation on a new road in which the old economic terms of wealth and debt, capital, labour, money and the like have assumed new meanings, and before we start political and sociological controversies it is as well to know that we are all speaking the same language.

FREDERICK SODDY.

Oxford.
March 11th 1933.

PREFACE TO THE SECOND EDITION

The almost instantaneous rise to world prominence of the new American doctrine of social and industrial salvation known as Technocracy has resulted in this book, which first appeared in 1926, going suddenly out of print. A new edition has been peremptorily demanded, and to meet it as expeditiously as possible, the original has been reproduced intact, save for minor proof-corrections, with a prefatory addition, explaining its relation to Technocracy, as the author understands it, and to other cognate schools of thought. The opportunity has also been taken of developing further some points and features, for the benefit both of the new reader and of those who have already read the first edition, in accordance with experience gained from numerous lectures and discussions on the subject. One particular question dealt with last, the relation of the author's Virtual Wealth Theory of Money to the older Quantity Theory of Money, with which it has a superficial resemblance, has also been dealt with in this way. But the reader of the work for the first time will naturally hardly be in a position fully to follow this until he has made himself acquainted with the newer theory as expounded in the original work.

It looks as though the times were ripe for a great intellectual renascence synthesising all the partial and scattered contributions into an established body of doctrine, based on "the still almost unknown science of national economics and as far removed from disinterested controversy as the propositions of geometry." This book emphasises rather a flaw in the monetary system, than "a flaw in the price system" which Technocracy affirms. Both still await impartial examination and judgment. It has been the author's belief, strengthened and matured with the passage of the years, that to a slip in accountancy—a mistake which when pointed out is as obvious as an arithmetical blunder—is to be traced the whole hell's brew which the scientific civilisation' has become. In that unexpected quarter, I think, will be found "the fatal destiny which makes human misery eternal." But whether it is the whole solution or not, its instant correction would seem to be a necessary first step to a saner world.

Oxford, *February 1933*.

PREFACE TO THE FIRST EDITION

The introductory chapter of this book describes how it came to be written, and the summary at the end sets forth the chief positive conclusions arrived at. Although it is not a novel, but rather, a serious treatise upon what is sometimes called "The Dismal Science," the habit of glancing at the end before starting the book is by no means to be deprecated. Intended for all sorts of readers sincerely anxious to understand the causes of modern unrest in the political and economic sphere, the summary will explain better than a brief preface the goal to which the book is directed. It is as well to take a look at the wood before plunging in among the trees, or the view may be dismal indeed.

It is an attempt, rarely made nowadays, by a specialist in one field of knowledge to solve the problems in another. In science, we recognise that the border-land between related subjects is usually the most fruitful field for new discoveries, and also that it is not unknown for entirely new subjects to start from and be based upon more or less minor advances in subjects apparently unrelated to them.

This inquiry commenced with the attempt to obtain a physical conception of wealth that would obey the physical laws of conservation and be incapable of imitating the capricious behaviour of the subject-matter of psychical research. During the progress of the investigation, a new theory of money gradually took shape, and in time constituted itself the corner-stone of the whole superstructure. Just because this theory, unlike others, did not pretend to correlate price with the state of trade or quantity of goods being produced, it was recognised that the problems of stimulating production and abolishing poverty and unemployment were distinct from the purely monetary problem. One could "stabilise stagnation." The solution was in due course arrived at, and the general conditions were worked out for the progressive economic expansion of a community, without change in the value of money or alternating fits of boom and depression. As was to be expected, the solution, when found, proved to be most ordinary incontrovertible common sense, requiring nothing more than that to prove it.

Every accession to the quantity of wealth immobilised in a productive system must be paid for by abstinence from consumption. The owners, the time being, of money contribute a part—usually a small part—unwittingly. The rest must be met by genuine permanent surrender of rights to consume. These conditions observed, the revenue of wealth can be permanently expanded, in a scientific era, to an almost indefinite extent. It is because the genuine initial abstinence is burked that the existing system is what it is. This, in brief, is the solution of the economic paradox.

Acknowledgments are due to a larger number of authors, for material help in the understanding of these problems, than it has been possible to refer to specifically in the text, as well as to numerous correspondents and friends who have discussed the writer's conclusions and drawn his attention to many of the pregnant passages in the literature quoted, of which otherwise he might have remained in ignorance.

FREDERICK SODDY.

January 1926.

ADDITION TO THE SECOND EDITION

Dedicated
to the Law Officers of The Crown
of The British Empire

TECHNOCRACY AND THE NEW ECONOMICS

Technocracy claims that by the use of the inanimate energy of Nature and by means of machines and mass production, man has become independent of his own physical exertions for his maintenance, the so-called "iron law of scarcity," upon which the older economics was founded, has been abolished, that poverty *and* unemployment at one and the same time is now a horrible anachronism, that the average income and expenditure of the whole American nation could easily be multiplied many times with less hours of labour and more of leisure, and that the banker is out of date as the ruler of a scientific and technological civilisation.

In this it is similar to the thesis developed in the present books save, possibly, that I was and am more conservative both with regard to the extent and the rapidity with which the average scale of living can be augmented. It is the doctrine which in Great Britain calls itself the New Economics. Ever since the War there has been developing a school of thought, more or less independently on both sides of the Atlantic, believing in a new economics of abundance rather than in the old economics of want. In Great Britain, Major Douglas, who initiated the Social Credit Reform movement—which is criticised rather than expounded in this book—is the pioneer as regards the total change of outlook which the new view demands. But all new economists regard Arthur Kitson, to whom this book was dedicated, as the doyen of the movement through his reiterated attacks during the last forty years on the fallacies of modern monetary systems. The influence of the American efficiency engineers, who have given Technocracy its distinctive statistical foundation, as well as those of Thorstein Veblen, now described as the "Father of Technocracy," has been felt, but rather as echoes and reflections than directly, the latter through the confused medium of warring political and sociological antipathies.

But whereas in Great Britain the new economists, with the possible exception of the Douglas School, have been rather like isolated voices crying in the wilderness, in America they have now the ear of the nation. The spectacle of want and despair, with 13 million unemployed, in the richest of the nations, so familiar to us in the Old World, has there, as we have always hoped and expected it would, brought instantly into the forefront the broad issue whether the machine is to be allowed to enslave or liberate humanity. We are so much nearer the "iron law," and the traditions of resignation, subordination and sacrifice it enforced, that the people here still see no remedy for what has been (and therefore must always be!) the traditional lot of a large part of humanity. Even in America, probably, there are still hardy believers in the doctrine "Blessed is he who expecteth little, for he will not be disappointed."

POINTS OF UNANIMITY

All new economists, including in the term the Technocrats, are quite agreed on the complete possibility of immense improvement in the standard of living at the cost of much less expenditure of time and "diligence" or "watchfulness" (not to use the misleading, because obsolescent, term "labour") and at a gain of the corresponding hours of "leisure." Some of us think that term also obsolescent if it is to connote nothing better for the majority of people than it does to-day. Even here probably wide divergence might be discovered as to exactly how much "leisure" would remain if the majority of people flung themselves as whole-heartedly into developing their intellectual and cultural aptitudes (with all the attendant paraphernalia of universities, academies and the like which that involves) as they now do, in their relatively limited time, into amusement. We are all, again, in complete agreement as to the necessity of there being an equitable redistribution of this "leisure," for example, as between those who build and teach in universities and those who are to have the "leisure" to "work" there. The system of an overworked middle with voluntary and involuntary leisure at the two ends, has got to end, and the sooner the better. But I am still probably alone in the belief that this would automatically look after itself if the monetary system were honest and incapable of being tampered with, and I therefore escape the most insoluble part of the problem as to how this just redistribution is to be secured. It is not that I burke the issue so much as that I feel the problem is insoluble until this first step is taken, and then it can be dealt with if and as it is necessary.

On what might be termed the diagnosis of the trouble, again, new economists are in general agreement that undoubtedly the source is to be located in the very nature of the modern monetary systems, as they have become. We all scorn as an intellectual absurdity the facile slogan of "Machine *versus* Man" and the theory it implies that men live to work rather than work to live. For us in one way or another it is "Money *versus* Man." It is sinister that what was the original slogan of the ignorant and desperate Luddite rioters should be becoming more and more adopted by supposedly highly educated and intelligent people. If, by lightening the labours of living, science increases production beyond the capacity of the distributive mechanism, it is the distributive mechanism that must be overhauled or scrapped, not the productive mechanism, and the distributive mechanism of a monetary civilisation — in contradistinction to the earlier patriarchal, serf, clan, feudal forms of communism—*is* money.

POINTS OF DIFFERENCE

On the question whether the money system should (1) be scrapped, (2) greatly amplified and extended, or (3) simply corrected to subserve what it was invented to do, that is distribute what there is to consume and use, irrespective of quantity, the widest differences of opinion are revealed. It would seem, in fact, that the time were now ripe for the authoritative exponents of the various systems to explain them and to answer all relevant questions arising to a *disinterested* and *trained* jury of eminent thinkers, accustomed to dealing with abstract and scientific thought, and to leave it with them to advise which of the ways should first be tried out. They should be regarded as alternatives, not complementary but mutually exclusive, and any attempt to compromise and combine parts of them would almost certainly result in disaster. It is notorious in these questions that those who have formed definite conclusions and promulgated concrete schemes cannot rightly appreciate other and mutually destructive proposals. At the same time the proposer of each scheme should have the right to challenge any individual member of the jury as being not disinterested in, or sufficiently familiar with, the general habits of thought necessary to understand the implications of his proposals. It would be as absurd to try the case before a packed jury of those whose conduct was under revision and whom it might be necessary to dispense with, as of people accustomed only to word-spinning and with no knowledge of realities.

Of the three classes above distinguished the Technocrats (though the writer has only second-hand knowledge of the proposal, and does not understand it) would appear to put themselves in the first by their attack on the "price-system," and their proposal to do away with money and to use "energy-certificates." The outside world, at least, still awaits precise information as to what exactly is proposed, and how the products of industry and agriculture are to be distributed to individuals under this system, and it would be idle at the present time to anticipate this by any premature criticism.

THE DOUGLAS SCHOOL

The Douglas School in England, through its proposal to sell goods below cost and to make up the difference to the manufacturer and vendor by an issue of "Social Credit" (which, so far as I understand it, is new money), appears at first to be closely allied to the Technocrats. But, so far as I understand the proposals that have been put forward, they seem rather to fall in the second class—namely, a great amplification and extension of the system of creating money as credits, but to the consumer rather than the producer.

Up to a point the remedy is easy to understand. The great over-production of capital, though what already exists is largely lying idle, is obviously to some extent traceable to the existing system, whereby producers, by depositing collateral security and paying interest, can have money created temporarily to enable them to produce at the expense of the whole community. But in modern monetary systems there is no money created, or even no regular machinery for creating money, for distribution. Every student of the subject now knows that it is just as necessary to supply money to consumers to enable them to consume as it is to producers to enable them to produce, and the putting of the new money always into the producer's side of the system is one undeniable factor in causing production to outrun distribution.

But this is not the real spear-head of either doctrine, which has penetrated, at least for the moment, the very citadel of "Capitalism." In the words of the one, owing to fewer and fewer workers producing ever and ever larger quantities of goods "the purchasing power distributed by industry is becoming increasingly insufficient to distribute the products of industry." Or, as the other claims, with the technical development of production, the traditional method of distribution by wages, etc., has broken down, and it is a pure illusion to suppose it can ever be restored. Not one-half the unemployed in America would be re-absorbed by a return to the earlier maximum peak of prosperity, and we are rapidly approaching the time when the majority will be out of work. Both condemn the existing wage-system or price-system as already impracticable and as ultimately absurd. In this I am the cause of sorrow, if not of anger, among my brother new-economists as here my position is much nearer that of the older economics than the new.

My own objection to the Douglas scheme in part is one of degree, as to how much new money is needed, having in mind the impossibility of withdrawing again money *given*, in contrast to the possibility when it is only *lent*. But a deeper division exists, arising out of the theme expounded in this book—the energy theory of wealth, and the real nature of Capital that follows from it as communal debt rather than wealth. Hence the necessity of writing off from the possible output of distributable wealth all capital produced as dead loss. It is a subtraction from rather than an addition to the flow. The much-discussed A+B theorem of the Douglas School seems to regard Capital conventionally as wealth rather than debt, and if so it reduces the practical proposal to issue Social Credit (or new money) on anything like the scale apparently contemplated to one of simple inflation. Of such schemes I am told a Berlin organisation studying the problem has collected about two thousand.

In this second category also are to be classed all schemes of banking reform, retaining as now the power over the creation and destruction of money in private hands but altering the methods of doing it and the ostensible objective, or, alternatively, to nationalise the banks and leave them to continue much as now, as I would put it, to wreck socialism as they have nearly wrecked individualism. Clearly it would be even more idle for me to attempt to expound them than the Douglas proposals.

THE AUTHOR'S SCHEME

The third method of correcting the monetary system to make it distribute, in effect re-creating a distributive mechanism, since the *raison d'être* of all money systems is now absent from ours, is the method I have from the first advocated in this and other books[1]. It cannot claim to be supported yet by any "school", though it has its individual converts. Broadly, it takes its stand on the conclusion that the whole of the benefits supposed to be conferred on the community by the monetary system, whatever they may have been once, are now an illusion and as dishonest as tampering with weights and weighing machines. With the growing distinction between the *acquisition* of wealth and the creation of it—between Demosthenes and Bishop Berkeley (p. 104)—all this monkeying with the quantity of money by pretending to lend it and creating it, by pretending to be repaid it and destroying it, appears in the first place as of no real physical significance whatever from the national standpoint. It results merely in some people acquiring at the expense of and without the knowledge of others. In the second place, it makes the distribution of wealth at a constant price-level, or indeed at any price-level, an impossibility. The supposed advantages it once had—stimulation of production as distinct from consumption—are now a disadvantage, but it may seriously be doubted whether any consequence not, on the balance, evil has come from it from the standpoint of the nation as a whole. If there are famines and vast natural or human cataclysms, such as wars and pestilence, it is better to face them *without* the additional and equally devastating catastrophe of a variable money unit, which merely gives short weight to one set of people and overweight to another—the last straw, surely, in the way of "assistance."

It would revert to the purpose for which money was invented and to the axiom with regard to its issue in all monetary civilisations precedent to this one. It would destroy utterly, without leaving a single loophole, the power of private people to create and destroy money at will. It would substitute a scientific national monetary system, leaving everything else as it is, and it claims that the recovery of the patient would be swift and complete. As in the case of the last Czarevitch, it is the doctors called in who cause the disease in anticipation of the call, and the disease itself can be best described as the secret administration of a drug which leaves its victim unaware of what has undone him.

---

[1] Compare, *Money versus Man* (Mathews and Marrot, London, 1931).

WEALTH, CAPITAL AND MONEY

Though, in this book, the positive contribution to the subject from the standpoint of immediate practical politics is contained in the suggestion to revert to a monetary system for the distribution of all that science and human diligence is able to make out of the raw energy and materials of the globe, the reader may be warned early that the analysis of the impasse depends on conceptions of Wealth, Capital and Money, utterly different from those held or avowed before either by economists, sociologists, business men or politicians or from those at the basis of the conflicting stale controversies between Capitalism, Socialism and Communism. It is, personally, extremely interesting and flattering that the viewpoint with regard to Wealth and Capital appears to have been adopted by—or, at least, to have been of some influence in—the independent work of the Technocrats, but as regards Money, though time is working wonders, I think I can still call it my own.

The reader will find in the opening chapters an energy theory of wealth developed which calls here for no extra elaboration. But he must bear in mind the nature of Capital (*Agents of production* as defined on p. 80) following from this, of already consumed wealth, and—since wealth, no more than fuel, can really be consumed twice in the normal way—Capital is an irrecoverable loss and communal debt rather than communal wealth. A very apt illustration is the position of the

Railways in Great Britain to-day which are not yet bought or paid for from the descendants who have inherited claims derived from whoever abstained from consuming in order to let those who produced them consume. Controversial as the question of the identity of the original individuals who did the abstaining may be, there is no real controversy about the abstinence. Contrast with these the motor highways, paid for as built by an excessive tax on motorists, four times as high as in any other country in the world. This makes one believe that Great Britain, as the oldest sufferer from the delusion that capital was communal wealth rather than debt, still leads the world, in its intuitive beliefs at least if not in its avowed attitudes. It is therefore very significant that the same ideas have also now taken firm root in America, judging at least from the accounts of Technocracy and its principles that have come through, illustrated as they are by many striking illustrations of the fecundity of *debt* rather than of wealth.

CAPITAL AS ALREADY CONSUMED WEALTH

As regards the more eminent orthodox economists (all orthodox economists are necessarily eminent, as otherwise they would be incredible), they seem to be still in the unhappy position of knowing all about the impossibility of consuming cake twice, at least intuitively, but still believing in the dizzy virtues of compound interest. It is now rather among new economists (in the Douglas proposals, and the A+B theorem) that these misconceptions seem to linger in the sphere of national economics. Because new wealth may be obtained for capital, by getting some other individual who wants it to take it in exchange, this must not blind us to the fact that a nation cannot turn its capital wealth back into consumable wealth again, or eat its ploughs if it is short of bread.

A reviewer of the first edition of this book, with far-sighted humour, quoting from the preface that the solution of the economic paradox was "the most ordinary incontrovertible commonsense requiring nothing more than that to prove it," prophesied that it would be rejected by every student of economics. He himself, however, supplied the clue. He said that Marshall, who "in his great work defined economics as how a man gets his income and how he uses it" (p. 115), characterised the distinction between "consumers' goods" and "producers' goods" (in this work distinguished as wealth for consumption and use and Capital, or as Wealth I and Wealth II) as "vague and perhaps of not much practical use"—a distinction without a difference, in fact, just as J. Stuart Mill dealt with the same question (p. 105). Quite so, when we consider how an individual gets his income, but not when we consider how a nation does. Once this fundamental point is appreciated the turmoil of present-day political and social controversy about Capital appears almost devoid of meaning.

"WEALTH IN THE PIPES"

Arising, however, from this difference of viewpoint, the orthodox economists seem to have committed a definite error of accounting which vitiates their whole effort to account for the monetary system, and why it is behaving so erratically and spasmodically. When one passes from the conception of wealth as a "realised amount" to the more elegant conception of it as a "periodical receipt" (p. 84) or flow —and on the energy theory also one is, of course, really dealing with flows—we must not omit to account correctly for what may be termed the wealth in the pipes, meaning the total amount of partially produced wealth in existence corresponding with any given rate of delivery or revenue ("volume of trade"). Thus the great American oil industry[2] uses 100,000 miles of pipe-lines, which permanently hold three-quarters of an American billion (1,000 million) gallons of oil. The *quantity* of three-quarters of a billion gallons of oil has to be put in, but does not come out, though the oil does. We may say this quantity of oil is not burnable, though the oil is —that, though the oil is always passing through from production to combustion, three-quarters of a billion gallons are *as good as wasted so long as the supply is maintained*.

A certain rate of flow of wealth from production to consumption demands a certain quantity "in the pipes" in the semi-manufactured or partly grown condition, and if we are to increase the flow we must increase this lost quantity in proportion. Because the rate of production, unlike that convenient fiction "the velocity of circulation of money," about to be dealt with, depends on such things as seed-time and harvest and their industrial equivalents rather than on bankers pretending to lend money.

If this quantity is not honestly accounted for by someone abstaining from consumption to an equivalent extent, it accounts for itself dishonestly, by the something-for-nothing money trick, and lowers the value of every one's money by changing the value of each unit. Omission to do so renders it perfectly idle to try to keep the index number constant. The sufficient proof in these days of disbelief in physical miracles is that *there is nowhere else it can come from*.

The banker, as he has become, affects to treat the quantity of consumable wealth which is not consumable, and which is necessary to fill the pipes, as consumable wealth, just because it can be drained out to repay him, thus dislocating the whole service. But that is not quite good enough.

The point may appear a trivial one, but it is the key of the whole problem of how to keep a value of money constant while increasing the rate of flow to the maximum extent possible of the state of civilisation. Its consideration in Cap. XI, prior to the fuller treatment of the real nature of Capital Accumulation in Cap. XII, to which identical considerations as regards irrepayable abstinence apply, may cause the reader, if not put on his guard, unnecessary difficulty.

---

[2] *Nature*, April 19th, 1930, p. 589.

MONETARY CIVILISATIONS

Monetary civilisations arose out of and displaced the earlier communisms because they allowed a greater degree of individual economic freedom to men, though not to women. Monetary civilisations are, at least as so far developed, essentially male civilisations. They may fail or need revision on the latter count, but they only need to be practised to secure the former without reverting to communism. What we know has fallen, or is in danger of falling, with a reversion to the former type, simply because modern money does not play the game[3]. The essential rule is that whoever, in the way of business, receives wealth for money—itself now intrinsically valueless—must give up the equivalent, and this is simply enough secured by his having in the preceding transaction given up for the intrinsically worthless money the equivalent of wealth. But it is not *and cannot be* observed with credit-money, falsely so called, in the first issue of new money, and as a direct result the whole scientific civilisation has been brought about as near ruin as it is possible for it to go.

It is *only* in regard to its *first* issue (and final destruction, if it is ever destroyed) that modern money is in the least difficult to see through. In the *first* exchange of new money for wealth, the issuer, whoever he is, gets something for nothing, *and cannot help getting something for nothing*, unless the community has to go to all the wasted effort of incorporating something valuable, such as gold, in the money token. With regard to bank-notes there may once have been some plausibility in the belief that it was the credit of the bank that caused them to circulate, but to-day one can hardly imagine a State so corrupt that its credit is not vastly superior to that of any corporation. But when it comes to the money created to lend and destroyed when the money is repaid, the users of it neither know who created it nor how it was created. It differs from all the rest *only* in the *first* transaction in which it exchanges for wealth, and the *last* in which it is decreated, and, indeed, what does "all the rest" now amount to?

---

[3] These points are excellently brought out in a recent book by D. W. Maxwell, *The Principal Cause of Unemployment* (Williams and Norgate, 1932).

KINGSHIP

Modern money is a game with counters that cannot be started until each individual pays real wealth for the counters into a common pool, and *there is no common national authority in charge of the pool*. In the days of absolute rulers this indispensable functionary was typified by the ruler's effigy on each token to indicate it was "genuine". Indeed, in times of peace at least, the main justification for the central authority was just this necessity of protecting the nation's medium of exchange from those who would multiply it by spurious imitations and to maintain faith between debtors and creditors by keeping the value of the money up to the standard. In America they may still have no use for kings, but, equally with countries that have them, they are in just as dire need of somebody responsible to take charge of the pool. Much as some of the early English kings may have betrayed this trust, in Great Britain for a century Royalty has a uniform record of conscientious devotion to the public service, and the Royal Family works probably harder in the public interest than most of the citizens. It would seem natural here to re-enforce the prerogative of the Crown over the issue of money, which the cheque system has rendered a dead-letter.

A NATIONAL MINT

Almost all the proposals that have been made in this field are for the extension of the practice of issuing and destroying money to municipal banks, mutual aid societies and the like, or to nationalise the banks without in the least altering the existing flaw in the money system, but rather exaggerating and multiplying it to an absurdity. The proposal in this book is to re-establish the National Mint as having control over the issue or destruction of all money, i.e. legal tender, and, if necessary, proceeding against all substitutes by specifically illegalising them. The rate of new issues would be controlled by a panel of statisticians, presided over by the Supreme Head of the Realm, who would have status similar to the judicature and functions analogous to the official testing institutions which standardise the national weights and measures. In Great Britain the average rate at which new money is issued (that is the excess of "loans" over "repayments") has been £1,000 an hour, every hour of the day and night, for the past 226 years. The present average rate is probably at least three times this. It would be the duty of the statistical authority to say at what rate the new issues should be made to preserve the index of prices unchanged. Nowadays, the tendency would be uniformly in the one direction, the fall of prices through production outrunning distribution.

The past issues in Great Britain are of the order of two thousand million pounds. It would require the wealth of two thousand millionaires to repay the citizens what they have given up to the pool for money counters, which I termed first in this book the Virtual Wealth of the nation. But, alas! the "wealth" of the millionaires turns out on examination to be virtual, if not Virtual, and to consist mostly of claims to wealth like those of the citizens themselves. What business any individuals or corporations have to assume entire responsibility for a nation's currency, or what they can do but harm, is difficult to imagine, least of all in such a civilisation as ours has become. In fact, the historian will probably trace as one of the most important reasons for the stranglehold on industry, and the economic development of the nations which we are experiencing, the total inadequacy of any such individuals or banks, however "wealthy" or trustworthy, to undertake liability for the national currency. It is like trying to finance a national central electricity scheme from a penny savings bank, and getting instead nothing better than we now have.

DEMOCRACY AND THE ISSUE OF MONEY

Yet as President Wilson learned too late in 1916: "A great industrial nation is controlled by its system of credit—our system of credit is concentrated. The growth of the nation and all our activities are in the hands of a *few men . . . who can chill and check and destroy our economic freedom*."

If he had called a spade a spade, and instead of talking of a "system of credit" had revealed what the term conceals, and said the "creation and destruction of our money," even a bright child with no more than a school knowledge of history could have understood him.

So ends Democracy in an absolute stranglehold by a few unknown men! At least we have a right to know who our rulers really are, even if it means their unearthing again as much of their re-buried gold as will make them crowns. To seek them out is to find no one in the least resembling the sort of person a great scientific empire or republic would have voluntarily chosen to throttle them, but a number of pettifogging relics and penny bankers mopping and mowing about gold! Away with them! Let the great nations get on with their job.

THE LAW!

But how? A revolution would not leave us any nearer to but much farther from our goal. It is now in the absolute power of the citizens to put an end to these nefarious practices in the simplest and most unexpected way—namely, by invoking the law! It only remains for a sufficient number of substantial people to get together and refuse to pay their taxes on the ground that owing to the private issues of money on a colossal scale, a large fraction of the whole tax is bogus, to make a clean sweep of all the webs woven to entangle humanity by the magicians who have discovered how to get something out of nothing and, moreover, to make it bear perennial interest. The Law Officers of the Crown cannot proceed indefinitely against the wretched counterfeiter of a false note for high treason rather than for theft and wink at the defraudation of the taxpayer by the same means to an annual extent of over a hundred million pounds. But Anglo-Saxon law being what it is, it is highly undesirable that any individual should attempt to do this, without at least very full and adequate financial backing, or a premature defeat might establish a precedent which would settle the legal aspect of the question to the end of time.

HOW THE SYSTEM WOULD WORK

Assuming the necessary first step safely accomplished—and it is, as with all monetary problems, the first step that counts—there would then be the interest of some thousands of millions a year for the relief of taxation, plus the yearly increment in the quantity of money, amounting now to many tens of millions a year, and the added advantage that the payment in perpetuity of the interest on these yearly increments would also be avoided.

After the prolonged period of deflation we have been passing through, it would be natural to put these new issues into the system at the consumer's side, so that the first exchange—the only one that counts—takes out some of the gluts of wealth in the system.

Like the passage of oxygen to the blood in the lungs, in which each cell gets its due share, the new money would thus confer new purchasing power on every individual member of the community in proportion to his holding in the pool, and no scheme could possibly be juster or more equitable than that. The very term used by orthodox exponents of monetary science—*monetary policy*—is sufficient to condemn them. For whoever would talk of a *weights and measures policy*, or think it fair to say "that poor fellow is a deserving case, give him twenty ounces to his pound, and that rascal need only have twelve to make it square."

Later on, if appetites outrun supply, and it became necessary to stimulate production, they would more naturally be put in at the producer's side, as, for example, by redeeming permanent national debt and so liberating new wealth for expenditure in new capital production, not forgetting the "wealth in the pipes" already considered. This also is as just as before, as the citizens are saved for ever after paying further interest on the debt destroyed. The nation is, in fact, "saving" to pay for the cost of new capital, a necessity which the application of individual economics to nations has formerly neither provided for nor even allowed (p. 287).

CAPITAL REDEMPTION

The first step taken, the second, the gradual redemption of the communal capital debt, explained in Cap. XIII, calls for no further comment, except to say that in my belief (having regard to the conservative estimate, relatively to the technocrats, which I take of the possible rate of useful technological expansion), I think these two steps would suffice for a long time to come. But it is perhaps well to state a little more fully the reasons for this.

The redemption scheme in effect makes all securities terminable after a definite term, and with the return of a total sum definitely greater than that invested according to the rate of tax, as can be worked out by anybody from the Tables given (pp. 307-8). Once one grasps clearly that capital is wealth already consumed and is, at best, only of limited life, the real problem is to unburden from the shoulders of the nation the dead debt, not to discourage but rather to encourage the sinking of wealth in the production of fresh capital. True, if somebody likes to erect a rayon silk factory capable, almost without any one working it (which seems an impossibility even from the standpoint of the new economics), of supplying more artificial silk than the world wants, that is their affair. The index number standard, under which goods not wanted fall in value *relatively* to those that are wanted as now, is all that is needed to stop such folly. But if leisure is to be other than mere sloth and idleness, in my opinion even the scientific production system will have its work cut out to supply its infinitely diverse requirements. Some of the technocrats' figures seem germane.

"As our society is constituted in America, but 7 per cent of the energy output is devoted to the direct provision of sustenance. Ninety-three per cent is used to keep our social scheme going."[4]

This, then, is the author's scheme for the salvation and regeneration, not to say rejuvenation, of the scientific civilisation, and those who read the book ought not to find much difficulty in understanding its theoretical basis. Of course, it can be decked out and embroidered to suit the fancy of any section of the public without in the least affecting its potency, so long as the decorators and embroiderers understand that it has a basic principle that it is not possible to compromise upon. That is the principle of money itself—that no one shall receive it in the way of business without giving up the equivalent of wealth for it. Let us give up our belief in conjuring tricks, if not at Christmas parties, at least in the world of business and economics, and the attempt there really to get something for nothing. Play the money game with an open pool and a responsible croupier, if not a real king.

---

[4] *The A.B.C. of Technocracy*, Frank Arkright, 1933. Hamish Hamilton, London.

NATIONAL OLD-AGE LEGISLATION

With the truer realisation of the precise nature of wealth and of capital accumulation which the energy theory of wealth gives, their capacity for harm largely disappears. There arises the hope that it may even neutralise that "principle of death" which Trotter (p. 337) has recognised as hitherto inherent in the very nature of civilisation, here diagnosed as the conflict of inborn instincts of acquisition (rather for future security than for either miserly or ostentatious reasons) with the physical impossibility of accumulating wealth.

It remains also to add little as to the international aspect beyond that already said. If each nation faces and solves these problems internally, the international and external problem would disappear also. But the mere union of the autonomous States under the world rule of the banker can at most stave it off for a moment and threatens an eclipse of economic freedom not in one State but in all. As before, neither the whole world nor even the whole universe is capable of "assuaging an infinite thirst." The mathematical artifice which the Hindu mathematicians invented for the facilitation of reckoning (p. 101) has sent civilisation off the rails just as the square root of that artifice is now sending physics and astronomy on the endless pursuit of absurdity. We may be thankful for the engineer that there, at least, we must still keep at least one foot on the ground. But we must keep both feet there, if nations are to have an economy that enables them to grow to old age and yet live (p. 118).

THE QUANTITY THEORY OF MONEY CONTRASTED WITH THE VIRTUAL WEALTH THEORY

It is as invidious for an author of one theory of money to criticise a rival theory destructively as for one manufacturer to decry another's goods. It is psychologically more subtle, if less informative, to proclaim what one's own will not do, as in the case of the celebrated soap that "won't wash clothes." But the odium has to be faced for the sake of clearness.

The Quantity Theory of Money[5] (p. 244) attempts to establish a relation between the purchasing power of money, that is, the amount of goods the unit of money will buy, or *its reciprocal*, *price*, that is the amount of money that has to be paid for a unit quantity of goods, and three other magnitudes—namely, the quantity of money in circulation, the velocity of circulation and the quantity of goods exchanged, or "volume of trade." The relation is that prices must vary proportionately with the quantity of money in circulation, and with the velocity of circulation, and inversely as the quantities of goods exchanged.

Actually in practice price means the index number of price-level (p. 242[6]). The quantity of money in circulation is a vague expression (see pp. 244-9), as the only definite quantity is that in existence, in the ownership of somebody, not, of course, reckoning quantities in joint ownership as more than one quantity (pp. 112 and 166). The velocity of circulation is vaguer (see pp. 162, 263). It is defined as the number of times "the quantity in circulation" is exchanged for goods in a year. But by multiplying the last two quantities together, the vaguenesses neutralise and we get the quite definite quantity of goods exchanged for money in a year or the volume of trade. This and the price-index and the quantity of money in existence are definite, though the latter to-day could scarcely be said to be independently ascertainable.

The so-called equation of exchange, "The sum of the products of quantities of goods exchanged multiplied by their respective prices," equals "total money changed for goods," or "volume of trade" equals "product of quantity of money in circulation multiplied by velocity of circulation" seems to be what the mathematician would call an identity like "twice two" equals "four," since the assumptions made in considering how much of the money is in circulation must of necessity affect in the inverse manner the velocity of circulation. So that only the first equation is real—that the sum of all the goods bought multiplied by their respective prices equals the total money changed for goods.

If this is correct, it is not remarkable that statistical studies have confirmed the quantity theory to a very high degree of accuracy, as anything else would be an impossibility. True, if the quantity of money available to buy a certain quantity of goods is altered, price as the quotient of the money by the goods bought with it, must alter with the quantity of money. Though all the painful implications of this are not usually understood until after long and bitter experience, it is merely a definition of price as determined by index number. Since it is physically impossible to increase the quantity of goods in existence by increasing the quantity of money available to buy them, any increase in the goods available necessarily lagging behind by at least the minimum time to produce them, the above must be true on *any* theory of money.

---

[5] *Vide* Irving Theory, *The Purchasing Power of Money* (p. 18) (Macmillan and Co., New York, 1922).

[6] References are to this book.

PRICE

Price is essentially a relation between two quantities, the one a quantity of money and the other a quantity of wealth. On my theory the dual relation which brings in the psychological as well as the physical factor is got by considering the price not only as how much money is required to buy goods, but also as how much goods the owners (for the moment) of the money are prepared to do without or give up solely of their own volition (without interest or other inducement except their own convenience and necessities).

The quantity theory merely tries to get over the difficulty that every theory in this field encounters, of relating a total *quantity* of existing money with a *rate* of distribution of wealth (volume of trade), much as in earlier attempts, I think, by taking into account the time required for the money to circulate. But the so-called "velocity of circulation," defined as the average number of times the money changes hands in a given period, is more of a will-of-the-wisp even than the old time of circulation.

As developed in Chap. XI, from the standpoint of national economics, the economics cycle proper boils down to two *interlocked* operations, payments by producers to their employees and themselves for producing new wealth, and then the payment of the same money by the same people and other consumers to get the wealth out of the production system *after* it is made. All simple exchanges of finished property are only of individual importance. It really does not matter whether A or B, C, D . . . owns the racehorse, the estate, the factory, the stocks and shares, or what-not. The velocity of circulation of money can be enormously affected by people on a stock exchange rushing about buying and selling shares and buying them back again *ad infinitum* without any direct effect on the periods of seed-time and harvest and their industrial equivalents, or upon the rate at which new wealth can be made for distribution, which determines the fate of nations.

These spectacular and, nationally, profoundly regrettable speculative activities merely effect the distribution of *money* and *capital* between individuals, not the new creation of wealth except on the rebound. How much of so-called trade and commerce, especially in the foreign and international market, is in a similar category, having little to do with genuine production and distribution and arising out of mere change of speculative owners, is a very important enquiry[7]. So many of the existing difficulties arise from the facilities which speculators and *entrepreneurs* now possess for getting money created for them and destroyed again when they have done with it, that it would be waste of time to take them into account in a system postulated to be worked by genuine permanent national money of constant value in goods, and in which every transaction in which it changed hands would connote a corresponding exchange of equivalent wealth.

This is indeed the key-note of the treatment of money in this work. The objective is to find the conditions under which a monetary system will distribute all there is to use and consume without boom or slump and at a constant debtor-creditor standard of money (p. 241). It is not to follow the vagaries of the present system which are of as little scientific interest as the behaviour of an instrument in which some one was always tampering with the calibration to make it read either high or low.

To finish at least with what it will not do, the Virtual Wealth Theory of Money makes no pretence, of itself, to establish a relation between the quantity of money and the "volume of trade." But by the aid of the further principle of conservation (a veritable mariner's compass in dealing with realities)—indeed, by little else than the trite consideration that the mere existence of any quantity of wealth is evidence that some one has produced it (and presumably been paid in consumable wealth for doing so), and that no one as yet has consumed it—it is possible to lay down the conditions that must be observed if the revenue of wealth of a community is to be expanded by scientific advances *without* change of the price-level. The virtual wealth looks after itself. The independently variable quantity of money has to be made to follow and keep in step with it, if the price-level is not to change. If the analysis here given, "depending on incontrovertible common sense," or what has here been termed "the wealth in the pipes," is correct, it requires nothing more than the powers the State now has of remitting or imposing taxation to issue and destroy money and therefore to keep the index number constant. If its private issue and destruction were prevented, the most important factor causing it to vary now would be eliminated and its regulation would be a relatively easy task. I have yet to be convinced that this is not all that would be necessary for a long time to come.

---

[7] Compare *The Principal Cause of Unemployment*, D. W. Maxwell (Williams and Norgate, 1932).