Business rationalisation : its dangers and advantages considered from the psychological and social standpoints three lectures given at the London School of Economics, under the Heath Clark bequest to the National Institute of Industrial Psychology / by Charles S. Myers.

BUSINESS NATIONALISATION

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THREE LECTURES
GIVEN AT THE LONDON SCHOOL OF ECONOMICS
UNDER THE HEATH CLARK BEQUEST TO THE
NATIONAL INSTITUTE OF INDUSTRIAL
PSYCHOLOGY

BY

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PREFACE

MOST of the numerous books which have been written of late on Rationalisation treat it from the financial, economic and mechanical aspects: many of them neglect entirely the important influences of the human factor. My training, experience and interests have led me to approach the subject from the biological, psychological and social points of view. This I endeavoured first to do three years ago in a course of six lectures on "The Human Factor in Business Organisation" which I was invited to give as Muirhead Lecturer in Social Philosophy in the University of Birmingham. Subsequent experience and reflexion have, I hope, resulted in maturer views which I have expressed in the present volume.

If the first (or pivotal) chapter proves difficult to those of my readers who have received no biological training, I suggest that they may find it easier if they return to it, after having read the second and third chapters which deal more directly with business problems.

CHARLES S. MYERS

July, 1932

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BUSINESS RATIONALISATION

CHAPTER I

THE SIGNIFICANCE OF RATIONALISATION

In the title of this chapter there are two words of uncertain meaning—"significance" and "rationalisation." "Significance" may denote either "meaning" or "importance," and I have chosen this word deliberately because I want to use it here in both of its senses. "Rationalisation" has been defined in a variety of ways. But when we have traced it to its origin and have followed its development, and especially after we have compared its evolution with that of living organisms and of groups of organisms, we shall, I believe, reach a position in which we can give it its best and fullest meaning and realise more precisely both its inevitability and its limitations. I will ask you, therefore, to begin by considering with me the evolution of Rationalisation from the biological standpoint.

Let us start with a comparison of the "one-cell" organism with the "one-man" business, on the one hand, and of the "many-cell" organism with the "many-men" business, on the other. The uni-cellular organism performs all

the typical functions of life. Its mechanical energy is derived—as the mechanical energy of all forms of life is derived—from the breaking down, into simpler substances, of the complex substances which it manufactures from simpler ones. It takes in food, digests and assimilates it, and it discharges what it cannot absorb, thus building up living matter. It breathes in oxygen, which by oxidation of this complex matter is the main ultimate source of its energy, and it gives out carbonic acid and other waste products. It is irritable—or sensitive—to stimuli. It executes movements and it reproduces itself.

In the multi-cellular organism, these various functions of nutrition, respiration, irritability, mobility and reproduction, have become specialised in different groups of cells arranged in tissues, systems and organs—its muscles, tendons and bones specialising in movement, its lungs in respiration, its kidneys in excretion, and so on. Each individual cell within the multi-cellular organism usually retains at least to some extent the originally wide functions of the whole unit from which it has been differentiated; each assimilates, breathes, excretes and reproduces itself. But each has specialised in some one of the various functions of life, which has now become its dominant, and often at first sight its sole, function.

A similar process has taken place in the evolution of business. At the one extreme, we have the most primitive business conceivable, where

one and the same single individual gathers his material, prepares it and distributes it. At the other extreme, we have the most highly organised concern, divided into purchasing, producing and distributing "systems" or departments, and these further subdivided into smaller sections, each comprising a large group of individuals, and each group performing some particular specialised function.

The universe of living organisms is a two-fold one—comprising a universe of blind mechanisms and a universe of purposeful adaptation, recuperation, order, ends and values. The former is intrinsically blind to purpose, and involves a degradation of mechanical energy; the latter implies direction and is characterised by a purposeful building-up of more complex forms (physical and mental) from the simple, and by the differentiation of many clear-cut, apparently simpler forms from fewer, vaguer, complex ones. So far biological science, abstracting mechanical activity from this two-fold whole, has concerned itself solely with that activity; but it is becoming more and more widely recognised that there is nothing *super*-natural in directive activity because it does not lie within the abstracted mechanical universe—however ignorant we are of its nature and however impotent we are to explain it. Biologists are beginning to realise that chance variations and their accidental suitability to the environment of the organism are insufficient to explain the evolution of living

forms, and that the purposeful activity which we experience in ourselves is not less real and important than the mechanical activity which we experience in the lifeless and living world. Vague and slight as it is in the humblest organisms, directive activity becomes more and more fully developed and more and more highly specialised within the nervous system of the most complex organisms, becoming there the supreme unitary, co-ordinating and integrating entity which we call the Ego. But even in man there is always a large amount of autonomy left not only to lower nervous levels but also to his different organs. Specialisation is never so complete as to reduce these organs to the condition of mere mechanical automata. The nervous system is not responsible for, and cannot control, every single action of every single cell throughout the body. The various cells still preserve certain adaptative powers and powers of direction, just as they preserve to some extent other functions characteristic of life, despite the fact that they have become specialists in some particular function.

But the greater the degree of differentiation of function, the higher becomes its possible development and the less becomes the power of individual autonomy within the living organism. Thus the effects of injury to one part of the brain are much more severe, and generally its powers of restoration are much more restricted, in higher than in lower forms of animal life.

Specialisation of function inevitably means the greater dependence of the whole organism on the presence, integrity, and health of its more highly differentiated parts.

The evolution of businesses has taken place by integration and co-ordination of formerly separate units—rather than, as in the evolution of forms of life, by differentiation and subdivision within an originally single unit. It has, therefore, seriously suffered from a failure to imitate this just-mentioned retention of the originally wider functions of its originally individual units. Each cell, each group of cells, in any complex living organism retains, in some degree, as we have seen, the manifold functions of a uni-cellular organism. Each cell assimilates by taking its food from the blood, it breathes by taking up oxygen from the blood and by giving up carbonic acid to the blood, it excretes by pouring its waste products into the circulatory system, it reproduces itself as a rule in the processes of growth and repair, and it exercises direction partially co-ordinated with the direction exercised by the whole organism—all these functions being exercised to a subordinate extent in comparison with the special function which has been imposed on it. But in the complex businesses of to-day, an individual worker, or a particular department, machine shop or clerical office, may be left utterly impervious to, and completely isolated from, what is going on in other departments, shops or offices of the same concern, and may be totally ignorant of

the history, reputation, or general policy of the whole concern. He resembles the old inhabitant of some large town—rarely to be found at the present day, though common two or three generations ago—who has never moved out of the little quarter in which he was born. In particular, directive activity may have become so differentiated by what is termed "functionalisation" that the bulk of the employees and their departments are hardly more than mechanical automata whose activities are directed and controlled by a separate group of ambulatory officials, sharply demarcated as a specialised directive organ of the whole concern.

Now I am well aware of the dangers of a comparison between social and biological units in their development. But in these particular respects, I maintain, biology presents a useful and too often disregarded lesson to the world of business. There is, indeed, an old saying that the true gentleman should know everything of something and something of everything; but under modern conditions the expert is in danger of knowing more and more about less and less. The lesson to be drawn, then, from our biological comparison is that specialisation must not be permitted to proceed to the extreme point when interest and concern with other vital matters are wholly lost.

But instead of such excessive "functionalisation," business organisation may exhibit the opposite error, that of excessive "departmentalisation." Here each department, or each shop,

is almost a water-tight compartment, with its own manager as autocrat who pursues his own more or less independent policy. Between these extremes comes the likewise unsatisfactory "line-and-staff" method of organisation, where a line of officials of increasingly subordinate rank is established in each unit, the heads of these units being responsible to the highest ranks of management, which provide a general staff of experts on various problems having only advisory powers but no executive authority.

Later in this book I shall have occasion to refer in greater detail to the disastrous effects of these and other errors in organisation. I mention them here ony to draw attention to the important lessons which business organisation may learn by observing the lines which Nature has adopted in the evolution of living organisms. Despite certain inevitable disadvantages, the higher forms of life have succeeded in the struggle for existence. As I have already mentioned, they have suffered, for example, loss of plasticity and adaptability compared with the plasticity and adaptability enjoyed by the lower forms of life. A lower organism shows far less disturbance and permanent loss of function than a higher organism when any part of it is injured or removed.

The same holds for the more complex, as compared with the simpler business. The simpler business possesses a far greater flexibility and resilience; the more abundant and more

complex the machinery of a business, the greater is the difficulty of adaptation to the changing demands of new conditions, requirements and tastes. The huger the concern, the more difficult it becomes to preserve the enterprise and initiative which characterise the directive activities of the smaller businesses. The smaller concerns are able to enter into more intimate and direct relations with their customers; they readily fulfil new, small, or special orders which must be neglected by the larger concerns; they pick up much small business which the larger concerns must despise. They resemble the active little motor-car that can "nose" its way to the fore and utilise narrow lanes in the competition of traffic, whereas their bigger brothers are comparable rather to the huge lorry over-burdened with mass products and are impeded like a steam-roller by their own unwieldy size.

Just as the simpler living organisms have survived in the struggle for existence, despite their competition with the more complex forms of life, so the small business fulfils special social functions which cannot be eclipsed by those of the larger concern. Each has its uses and advantages in the evolution of society. It is absurd, therefore, to suppose that huge business organisations are likely to supplant the smaller concerns entirely. Each of them has its uses and drawbacks, depending on a variety of conditions. Each is liable to its own inherent dangers—extreme simplicity and minute size in the one

case, extreme complexity and unwieldy size in the other. And each is liable to a common danger—that of conservatism.

The conservatism of the smaller business is due largely to reliance on the (too rare) play of intuition and to the insufficient rule of intelligence. Intuitive behaviour—with its "feeling" that such and such a decision is the one to make—is characteristic of the simpler living organisms. They act—and act successfully—but they are not aware of the reasons for their actions. Intelligent behaviour, on the other hand, as we all know, is more characteristic of the highest living organisms. Intelligence involves reasoning, justification for decisions and the ability to plan ahead; and these in turn involve explanations of and improvements in technique and systematic research. Too often, intuition divorced from intelligence means unwise change. On the other hand, intelligence, divorced from intuition, means the slow and laboured sequence of deliberation, decision and resolution before actions can be embarked upon. The highest living organisms owe their success in the struggle for existence to the high development of their powers of intelligence. But intuition—the foundation of unreasoned decisions—is, nevertheless, preserved as an invaluable. factor in mental evolution.

In the evolution of business the same opposition of intelligence and intuition occurs, the simpler businesses depending mainly on the

latter, the more complex on the former. The dominance of intuition has as its sequel the carrying-out of processes by guesses, in utter ignorance of the reasons for so doing. Not that such action is necessarily unsuccessful: I have been told of an instance where it took a year or more of the highest technical research to formulate scientifically the valuable methods which had been traditionally used by a certain aged operative in a certain manufacturing process. His forbears may have arrived at these methods by a series of trials and errors, but probably also by a series of intuitive guesses that such and such methods would prove successful.

Nevertheless, intuition is to be no more despised in the life of business than it is to be despised in the life of the individual organism. Such judgments and decisions are essential in business. But intelligence, working far more slowly than intuition, must necessarily replace it when decisions have to be made not by single individuals but by committees, and when they have to be communicated from one department to others, explained to them and justified. Intuition, moreover, is not only speedy; it is also characterised by powerful conviction and by a compulsive and "all or none" character. It is best suited to the adventurous autocrats, the old "captains" of industry. Intelligence is not only relatively slower: it is also characterised by rational and "graded" characters. It must necessarily enter more prominently into the larger businesses,

where we have "statesmen" rather than "captains" of industry, intent on trade statistics, budgetary control and problems of research and improved technique. Thus the more complex the concern, the less facile must be its movements; whereas the simpler the concern, the more impeded and antiquated are likely to be its movements by the force of tradition and through the neglect of systematic planning and research.

Life, as I have already insisted, is not merely an aggregation of mechanisms, but is also characterized by non-mechanical directive activities which are most highly developed in the most complex organisms with the most highly integrated "selves." Business, too, is a mechanism —a man-made mechanism. But into it also enter the "vital" and "human" factors of ends and values. In the early days of the simpler business concerns, these were apt to be limited to the making of profits. It is a characteristic of modern business, especially of the more complex businesses, not only to consider purely economic ends but also to take a far wider and larger view, to develop a far broader human understanding and a "civic sense" of satisfying also social and moral ends and values. Business and its conduct are coming to be regarded not merely as the concern of the employer, the director and the shareholder, not merely as the concern also of the employees, not merely as the concern even of the consumers, but as the concern

of the entire community, even of the whole international world. For this reason also, the free play of unconscious intuition is becoming more and more subject to the rule of conscious intelligence.

Through the increasing play of intelligence in business has arisen what has come to be known as Scientific Management, characterized by the replacement of guess-work, traditional, or purely haphazard methods of business conduct by methods based on systematic knowledge and research. Ignorance of the costings of, and of the times required for different processes is dispelled by systematic investigation. Instead of each member of the management, from general manager down to foreman, being burdened with a vast number of multifarious functions to perform, he is enjoined to specialise in a smaller number of managerial duties. Instead of being allowed to pick up his methods of work as best he can, to adopt out-of-date or other unwise methods of work, or to form no definite habits of working at all, the employee receives a careful training in the most suitable working methods revealed by previous investigation. Instead of using the traditional form, weight or quality of tool or implement, he is provided with that which research has shown to be most suited to the conditions of his work. Instead of his engagement and discharge by a process of trial and error, the qualities required by an employee for the most successful performance of his work are

ascertained by systematic inquiry, and measures are taken before engagement to insure, so far as possible, that he possesses those qualities. Instead of payment being made to the employee on some traditional or unscientific basis, efforts are made to devise some scheme which shall serve as an incentive to production.

This was the kind of research organised by that pioneer of Scientific Management, F. W. Taylor, in the United States of America. The bad reputation which it soon acquired among the workers was largely due to the tactlessness of Taylor's genius, to the misguided enthusiasm of Taylor's imitators and immediate successors, to the abuse of it by many American managers, and to the rapid changes in the status, attitude and relations of the worker and employer which have occurred since his time. The dangers of Scientific Management persist to this day; to these I shall refer in the next chapter. But they have been largely removed by closer attention to the "human factor" and by the realisation that Scientific Management depends for its success on more than the routine application of abstract schemes and mechanical principles—above all, on mutual good understanding and co-operation between Management and Labour.

So far we have considered the evolution of the individual living organism and of the individual business concern. It is now time to turn to the evolution of colonies, packs, herds or societies which individual living organisms so frequently

form, and to the comparison of these biological and social combines with the combines of individual businesses. In both we shall find a consequent differentiation of function and structure.

The Hydrozoa are aquatic, chiefly marine organisms; they are nearly always soft and gelatinous, and they include such creatures as the hydra, the jelly fish, the sea-blubber, etc. The typical genus of one family of the Hydrozoa is known as Hydractinia, the polyps of which grow in the form of colonies in shells and show a moss-like structure. Each polyp constitutes an individual organism of the whole colony, pursuing a largely independent life; yet it is dependent also on the other polyps of its colony, and is modified structurally so as to perform special duties. Thus in any one colony of Hydractinia, certain polyps are endowed with a mouth and tentacles, and are known as "nutritive" polyps; other polyps of the same colony, which are mouthless, are variously known as "reproductive," "protective" or "sensitive" polyps, according to their special functions and the corresponding modifications which they have undergone in their structure. Thus the protective polyps are thorn-shaped, whereas the sensitive polyps are long and slender, adapted to the functions of scenting food and danger which they have respectively to perform.

In Physalia, the Portuguese Man-of-War, another member of the same class Hydrozoa, the

individuals constitute far more definitely a single organism, no part of which can be removed without serious damage to the harmony of the whole; and there is in all probability a rudimentary nervous system for the more effective reception and inter-communication of stimuli and for reaction to them.

The more highly developed individual organisms, instead of thus developing as colonies, become socially united into flocks, packs, herds or societies. Some of these combines are permanent; others are only temporary, e.g. when birds flock together merely for migration to new fields of enterprise. Some of these combines are formed for certain purposes, others for others; e.g. deer and sheep combine mainly for defence, wolves and certain eagles mainly for attack, beavers and certain beetles mainly for constructive work. In some combines, especially in those of insects, certain individuals become specially modified in form or size, or in sexual or other features, according to the nature of their work within the combine. Some combines are leaderless, whereas others acknowledge and are dependent on a leader.

Among the members of leaderless societies the communication and co-ordination of individual activity, mental and bodily, are due largely to the play of intuition, sympathy, suggestion and instinctive imitation. But with the increasing development of intelligence and, hence, of rational deliberation, the superior decision, foresight,

initiative and adaptability of certain individuals, as well as, at first, their physical superiority, determine their prestige and their acceptance as leaders, with consequent obedience and discipline imposed on those who submit to be led. But alike in leadership and in submission to it, the intuition which reigns in leaderless communities does not wholly disappear: although supplemented by intelligence, it remains a most important factor for success, alike in leadership and among the led.

Let us now turn to the various grades and kinds of combination of individual businesses. Some are quite loose, temporary and informal, involving rather a tacit understanding than a formal union. Such "gentlemen's agreements," as they have been often termed, may relate to the places where each concern is to sell its goods (comparable to the territory chosen and appropriated by a flock of birds); or they may relate to the prices at which each concern is to sell its goods (comparable to the use of animal combines for mutual defence or attack). Such a loose understanding may in time develop into a more permanently and more formally constituted "association" or "syndicate," provided with a secretariat and determining not only the regional distribution of sales and the prices at which goods are to be sold, but also the allocated quantities, or quota, of total output which each concern is allowed to produce (comparable perhaps to the sharing of food among members of a family).

Such an association or syndicate may further develop to a stage when it receives and delivers the tenders of its individual member-firms for contracts, negotiates joint contracts for its members, and even determines which of these members is to tender or to offer a reasonable tender, and thus which of them is to accept a given contract.

So, little by little, we may pass from a combine which functions merely as a price-fixing and output-fixing "ring," to what in its most developed form acts as a "cartel," the central body undertaking all sales, purchases, general transport arrangements and marketing, determining what classes of goods each concern shall manufacture according to the suitability of its factories, and pooling the knowledge and research of each concern.

More and more, too, as the central body increases in growth and influence, the individual existence of formerly independent concerns may become reduced until, as in the "trust," complete amalgamation has taken place, either by common fusion and by the formation of a new "holding company" which offers its shares in exchange for those of the formerly separate concerns, or by the merging of all but one of the concerns within that one concern which is known as the "merger." J. & P. Coats, Ltd., afford an example of the merger type of amalgamation, making, it is said, eighty per cent of household sewing-cotton and most of the thread used for manufacturing and other purposes. In

certain markets, their distributing branch (The Central Agency, Ltd.) sells not only their own products but also those of another large combine, the English Sewing Cotton Co., with which they are believed to have an understanding not to interfere with one another's business.

Thus in the combines of individual businesses, as in the combines of individual living organisms, we meet with all degrees of closeness of combination, varying from loose or permanent associations, in which the combining bodies preserve to a large extent their original individual independence, to amalgamations involving the total loss of such independence.

But in the biological as well as in the business worlds, associations are not limited to those individual organisms or concerns which are identical or nearly identical in character and activity. The phenomenon known in natural history as "symbiosis" illustrates quite another kind of association, where two very different kinds of organism live together for their mutual, or at least for unilateral, benefit. In the world of business this is known as "vertical" combination, in contrast to the "horizontal" combinations which we have been hitherto considering. In the living world the class of lichens is characterised by a symbiosis of fungi with algae; various insects and plants associate together for their common good; on certain deep-sea fishes live colonies of luminous bacteria by which the fish are guided in their movements; the roots of

leguminous plants house bacteria which build up from the soil nitrogen compounds utilised by the plants. In this way the products of one organism may be of service to another which permanently lives with it.

So, too, in the vertical combines of business, symbiosis may be carried out to such an extent that one huge concern comes to embrace several originally independent concerns respectively occupied in the manufacture and marketing of diverse products arising in the course of the passage of raw material to the finished article. For example, certain artificial-silk-making companies own chemical works, weaving, knitting and other factories. Certain iron and steel manufacturing companies possess their own coal mines, ore mines, coke ovens, quarries, etc. Sometimes vertical combines have extended far beyond what might at first sight seem to be their natural sphere, besides being complicated by horizontal combines. Thus Lever Brothers own certain tin mines, have interests in paper manufacture, and undertake the sale of fish, in addition to their vast horizontal combine for the manufacture of soap and similar products; and the Imperial Chemical Industries Trust now controls about one hundred different companies, in which the original manufacture of soda and other chemicals is now associated with that of dyes, explosives, fertilizers, non-ferrous metals, lime and other products. As a rule, the fixity and rigidity of these vertical combines are

inevitably greater than in the case of horizontal combines, and their dangers are correspondingly increased. Against these must be set the advantages gained by the abolition of possible obstruction on the part of other horizontal combines, the readier flow and transport of materials and improved organisation generally.

The organisation within horizontal or vertical combines follows the general lines of Scientific Management. But Scientific Management was originally applied to the individual business concern. When its principles are applied to combines (which by their very nature are necessarily concerned in mass production), the term "Rationalisation" is now generally used in place of "Scientific Management." Thus Rationalisation includes what in the case of individual businesses is known as Scientific Management, viz. the scientific organisation of labour and management. But it goes much further than Scientific Management in that it involves closer co-operation not merely between individual employees or departments within any one concern, but also between more or less closely associated or amalgamated concerns. Moreover, Scientific Management is occupied primarily (although not wholly) with increased efficiency of existing products, whereas Rationalisation is also and especially concerned with the simplification of the often needlessly numerous varieties of any particular products which have been already placed on the market, and likewise with the

standardisation of materials, machines, products and their packing within the combine.

But one of the most important objects of Rationalisation with which Scientific Management in the independent firm cannot be concerned, is to reduce wasteful competition by eliminating the weaker industrial concerns through purchase and subsequent suppression, by allocating or rationing the output of a given product for each member of the combine, by fixing their respective areas of the sale of a given product and thus abolishing the waste of cross-sales, by determining the price at which any common product of the combine is to be sold, by establishing common costings systems, by effecting common arrangements for the purchase of raw materials and for the marketing of the products of the concern, by spreading over the whole combine any losses involved (e.g. by price-cutting in the export trade), and by pooling the results of technical, commercial and economic research.

Rationalisation has thus not only technical, but also commercial aspects. It is engaged in extending the principles of Scientific Management of the smaller independent concerns to the most efficient working of the huger combines of concerns in every conceivable aspect and phase of business. Whereas Scientific Management may be compared to the integration, differentiation and co-ordination of function within a single multicellular organism, Rationalisation is

comparable to the integration, differentiation and co-ordination of function within a colony of multicellular organisms. Not only should Rationalisation include the scientific organisation and the scientific study of the best technique of production and distribution, but, as was insisted by the International Economic Conference which met at Geneva in 1927, and by the Conference of the International Management Institute which met there in 1931, Rationalisation must also consider the satisfaction and the contentment of all grades of employees in their work, the steadiness of employment, and the general conditions of work and life which favour the maintenance and improvement of their personality. It must further consider the needs of the consumer and ultimately of the entire community, securing to the former lower prices and goods more carefully adapted to his requirements, and to the latter greater economic stability and a higher standard in conditions of life.

Thus ideal Rationalisation demands the consideration of business not only in its own purely selfish, technical and commercial aspects, but also in its wider economic, social, and generally human (psychological and physiological) aspects. And it has been argued that unless all these aspects are considered, we are dealing only with a pseudo-Rationalisation of business affairs. True Rationalisation, therefore, implies that in vast combines management can no longer be conducted selfishly and solely by the old-time

employer. Indeed, in them the functions and personality of the single employer have often ceased to exist. The employer has become a board of directors responsible to vast thousands of shareholders; and the general manager, the acting head, is tending to become himself an employee, a highly salaried officer of the board of directors whom he advises and by whom he is controlled. All classes of employees are now being more and more frequently given at least some voice in at least some aspects of management. Not only may they be represented in the higher councils of management, but we can also see the beginnings of the representation of consumers and of the State or general community on the boards of certain "public utility" concerns.

The outstanding risk, as we shall see later, in this multiple representation and conflict of manifold interests, is the loss of unitary leadership—the replacement of one head by many heads, and not uncommonly the control of business administration by financiers who tend to be rashly over-speculative in the creation of combines and obstructively over-cautious in the later developments of their enterprise. A single leader, as our biological comparisons insist, is essential not only for a single business organism, but also for a huge organisation of organisms. The leader of such an organisation may, and does, refer suggestions to committees of specialists and accept suggestions made by them. But

just as a committee cannot act without a head or leader, so various heads of committees cannot co-operate without a leader. The growth of specialisation, of financial, technical and scientific knowledge, and, consequently, of departments, committees and discussions, within a huge business organisation can only mean that its effective size is dictated by the effective physiological and psychological limits of the controlling and directive powers of a single leader: and its limitations are those of the exercise of the leader's personality, genius and intuition. Otherwise the government of these huge business organisations must come to resemble the government of a country with its Prime Minister and members of a cabinet, heads of their various departments, in which desire for security, the playing for safety, fear of being in advance of public opinion, and other causes of resistance to change, replace too often the initiative, enterprise and readiness to accept responsibility which have always proved so essential to and so characteristic of the profit-making activities of smaller businesses.

Associations of employers, like associations of employees, were originally founded in self-defence and purely for self-interest, in order to regulate previous suicidal competition—in the one case in the selling prices of output, in the other case in the selling prices of labour—which threatened to be fatal in their respective, equally bitter, struggles for existence. At one

time efforts were made to avert the economic and social dangers of unfettered trusts and trade unions by legislative restrictions. But experience has shown that the increasing publicity of agreements and good and common sense, as reflected in the growth of public opinion and in the powers of public authorities, are generally far more effective than prohibition and stern State legislation in tempering and regulating these and other dangers to society. It is thus that the importance of the psychological and social factors in modern business life are receiving increasing recognition. To their past and present neglect are due, as we shall see in the next lecture, many of the serious dangers of Rationalisation.

CHAPTER II

SOME DANGERS OF RATIONALISATION

THE aims of combines of business units have changed with the progressive development of Rationalisation; and, correspondingly, their psychological and social dangers have changed. Originally the chief object of all industrial associations—whether of employers or of employees—was to increase earnings, in the one case by controlling prices and markets, in the other case by controlling wages and other conditions of work. The dangers to the community of such purely selfish financial objects in the early conduct alike of rings and trade-unions were similar, and have even to-day not wholly disappeared: earnings are liable to become extravagantly or economically excessive; individual differences in efficiency may not receive due recognition; adequate incentives to efficiency, improvement and progress may be abolished; and stereotyping or deliberate restriction of output may result. In all these ways the community may suffer, directly or indirectly, despite the increased earnings and spending power of certain individuals or classes within it.

But to obtain financial success solely by the control of prices and sales soon ceased to be the characteristic aim of business combines. Monopolies, it was found, were as hard to maintain as

they were hard to create; and in the end excessive profits or inefficient service to the community resulted only in renewed and still more acute competition. Consequently, there came about an endeavour by the combines not to restrict output, not to augment its selling price, but to increase and to cheapen output—by mass-production, by "simplification" and "standardisation" of output and by integration and specialisation in organisation. And gradually this stage in the development of combines passed to another when it became recognised that much extravagant wasteful competition was preventible and must be abolished; that to avoid the disasters of over-production, output must be regulated in accordance with demand; and, ultimately, that not only the interests of those directing the financial prospects of the combine, but also the needs and welfare of the employee, the consumer and the general community demand full consideration if Rationalisation is to be conducted successfully. It is in regard to these aims that we come to study to-day some of the dangers which confront the realisation of true Rationalisation—dangers besetting the employer, the employee, the consumer and the community.

For all of these classes, mass-production—an almost inevitable characteristic of business combines—has certain dangers. For the employer it means the expenditure of large sums on highly specialised machinery which is bound to

deteriorate with use and is liable at any time to become obsolete. A machine is generally devised for some almost unique process; and when the manufacturer orders several machines of a special kind, he is apt to be placing "all his eggs in one basket." If a slump comes along, if the saturation point of demand is reached, if improvements in technique occur, or if, through the caprices of fashion or the vagaries of taste, some new demand replaces that for which a given machine has been devised, the latter remains idle or it has to be scrapped. There may be such narrow margins of profit on mass-production, the initial and overhead costs may be so high, that financial failure may be threatened when the machine becomes useless or is unused; and it may be difficult, if not impossible, to march with the times and to "scrap" expensive out-of-date machinery for later improvements in it. These are inevitable dangers which affect the business, the consumer and the community generally. They clearly indicate that mass-production is best suited for the most stabilised products of industry, and that it may be positively dangerous to the least stabilised.

The results of mass- and machine-production on the quality of the product are, and must be, dependent on circumstances. The increased uniformity and precision of the latter may be a very considerable advantage, as compared with the usually greater variability and inaccuracy of the hand-made product. But the "shoddiness"

of certain mass-produced articles is well-known, and they are more liable to accidental defects unless inspection is sufficiently careful before the articles have left the factory. I remember well seeing a quantity of defective manufactured material lying in the yard of a large concern which had purchased it. The manager informed me that when this material was first subject to mass-production, the makers took good care to hold back any defective articles, but that later they could not resist the temptation of including them in their sales. I asked naturally, "But why do you not return the defective stuff?" "I cannot do that," he replied, "because the ring is so powerful that other makers would refuse me further supplies."

The effects of mass-production on the employee are well-known. Instead of being a manual worker, he becomes merely a machine worker. He makes only a small part of a product instead of the whole. His work becomes more mechanical and monotonous, or more unnatural and thus mentally more strenuous. He is tied to his machine either as an automatic machine-feeder who has lost all his former possible craftsmanship, regaining relatively little in exchange, or as a machine-controller in whom boredom becomes replaced by the strain of frequent acts of attention and adjustment. Fluctuations in the demand for labour are often greater in huge concerns, and the replacement of manual labour by machines must almost invariably mean an

immediate increase in unemployment. All these dangers are inevitable in the progress of mass-productions; but many of them are exaggerated, remediable or only temporary. It is surprising, for example, to find how little monotony is felt by the employees in a routine operation, if only suitable employees are engaged on it. It is surprising, too, what unexpected interest an employee may take in some apparently monotonous task—one which appears monotonous to the ignorant outsider only because he has never engaged in it.

Moreover, many routine machine operations, at first performed manually, come later to be performed mechanically. Much of the machine-feeding, formerly performed by hand, is now carried out by purely automatic devices. The machine-feeders will in time be replaced by growing numbers of machine-minders, where higher qualities of skill and foresight are demanded. Indeed, there can be no doubt that with the increasing use of machinery the proportion of skilled to unskilled workers is increasing, even although the number of unskilled workers and the total number of workers needed diminish. Two problems, therefore, arise—what is to become of the unwanted duller worker who has not the intelligence to become a skilled worker, and how is the lessened demand for human labour and the consequent unemployment to be met, which arises from the growing replacement of manual work by machinery?

These are problems which true Rationalisation must ultimately face. It may well be that machine-invention often evokes a demand for new kinds of labour in unforeseen directions—multitudes of railway employees, chauffeurs, garage attendants, car-licence issuers, cinema attendants, film-studio personnel, lino-typists, newspaper sellers, electric-lamp workers, electricians, etc. But neither the employee nor the community will be satisfied with the high probability that the introduction of machinery and mass-production, although necessarily causing immediate unemployment, will result finally in an increased demand for the product (owing to its cheaper selling price), in new occupations opening up, and consequently in an increased demand for labour. There is a growing recognition of the immediate responsibility of an industrial concern for the undeserved unemployment of those who are thrown out of work by the operations of Rationalisation, whether it be by the introduction of machinery, or by the closing down of superfluous or inefficient concerns by the rationalised combine. Neither the employee nor the community will be satisfied unless industry does all in its power, e.g. by reducing the hours of work and thus increasing the number of employees, to meet the worker's (especially the foreign worker's repeated) complaint that he is being mercilessly overdriven, overstrained and prematurely worn out by the machinery which he has now to control. Neither

the employee nor the community will be satisfied unless industry does all in its power—and there is much that it can do—to replace the interests which the worker has lost in his former manual work by those which he can gain in his work at a machine. Although, for example, he may be unable to pride himself on the *quality* of his machine work, he may nevertheless be encouraged to take pride in the *quantity* which his machine turns out, or in the rareness of machine stoppages or of spoilt products for which he may be held responsible.

No doubt we are only too ready to praise the good old times, to over-estimate the more favourable conditions and to overlook the less favourable conditions of work which obtained when manual work was conducted in the cottage or slum home, before factory and machine work came into being. We forget the improvements which have taken place in lighting, ventilation, hours of work, wages, standards of living and opportunities for leisure. And we fail to foresee the further possibilities which may await us in the future—e.g. of still shorter hours of work, of still greater opportunities for leisure—as industrial production and prosperity increase and as machinery reduces the demand for labour. At the same time it is true enough that the former small-scale village industries, and even our old-time methods of agriculture, are being annihilated with the increase of machinery and mass-production and with the consequently cheaper cost

of output, tillage and transport. Peasants are being almost forced to exchange their more corporate, co-operative life in the villages for the relatively cut-throat competition of the towns. Thus not only the worker but also the general community suffers.

One other ill-effect of mass-production on the general community has yet to be considered. On the one hand, mass-production brings such products as boots and shoes, cycles, motor-cars, and gramophones, within the means of the masses who could not formerly afford to pay for them. On the other hand, it tends to reduce us nationally and internationally to a common level of mediocrity, all using the same machine-made products, and to discourage individuality and man-made products. Surely, however, this is but a temporary condition. Surely, for example, sooner or later the gramophone encourages in the more musical the desire not only to hear better music, but also to hear music actually played by *human* performers in place of hearing a *mechanised* copy of it. We must remember that 95 per cent of the world's wealth is utilised by the poorer masses of the community, and that in many respects the standard of living of the worker to-day reaches a level higher than that of his King of but three centuries ago. And we must realise that an older nation may prefer to specialise on better-class, more highly individualised, more expensive goods, importing most of the commoner varieties from other countries

where lack of tradition, individuality, taste or craftsmanship, or the exaggerated worship of money affords a better soil for the development of mass-production methods.

The same difficulty attends the "simplification" of products in which Rationalisation is also properly engaged—that is to say, the reduction in the needless number of sizes, shapes and other differences which are to be found in everyday commodities. Carried to an excess, such reduction may result in dis-service to the community, hindering originality and progress and stereotyping a given product. Nevertheless, when we consider how many varieties of a given product have arisen by mere accident, by customers' whims or by lack of system, when we consider how many of them are needless, have been preserved by tradition and involve a useless waste of energy and money, we can only conclude, as indeed we were compelled to conclude in the case of mass-production and machinery, that caution, not opposition, is needed in the future development of simplification, so that we may avoid the dangers of too uniform habits (in the community or as between different communities), which breed a too mechanical, insufficiently individualised, humanity. We have once again to bear in mind that the rising standards of living which result from true Rationalisation, bid man assert his individuality and render him dissatisfied with the common machine-made mass-product, where the hand-made article is

finer and more beautiful and possesses greater individuality.

The simplification of products, which we have just been considering, is closely associated with yet another characteristic aim of Rationalisation —that of "specialisation." Instead of many businesses making a number of identical products or parts of a product, a combine of businesses allots the manufacture of one product, or one part of it, to one factory, another to a second, another to a third, and so on. Such differentiation of function, which occurs, as we have seen, in combines within the biological world, is here imitated by Rationalisation in combines within the world of business. The chief dangers which beset the extreme specialisation of manufacture are those to which attention has been drawn in the growth and specialisation of machinery. These are liable to occur more especially in the manufacture of articles which are likely to change in character or demand owing to vagaries of taste and fashion or other causes, or where the methods of manufacture are likely to undergo radical change. Increased specialisation of products means diminished flexibility and plasticity, and is apt to lead to increased conservatism.

Besides aiming at specialisation of product, Rationalisation aims also at specialisation of the consumers and at specialisation of the duties of workers and management. Under Rationalisation, the market is divided among different members of the combine. That is to say, the

selling areas of formerly rival concerns are now clearly defined; and if customers wish to use the services of these concerns, they are no longer at liberty to choose between them, but are bound to deal with the one to which the area in which they live or work has been allotted. Here, again, is a certain danger. If, on the one hand, the products of individual member-firms of the combine retain a certain individuality after its rationalisation, the consumer may suffer from inability to choose the particular variety of product which suits him best. If, on the other hand, the products of individual member-firms of the combine are made identical by the standardisation and simplification enforced by Rationalisation, again the customer may suffer from undue stereotyping of the product and from excessive reduction in its varieties.

But the greatest dangers of specialisation occur when Rationalisation applies it to the workers and to management without adequate consideration of the "human factor." Its application to the individual business concern was first systematically attempted by F. W. Taylor, under the name of Scientific Management. The disrepute and disfavour into which it fell initially was mainly due to the neglect of the human factor. Taylor was right in insisting that *truly* Scientific Management neither drove nor overworked the worker. But when by his experiments on the best methods of shovelling at the Bethlem Steel Company's Works, he was able to reduce the

number of shovellers from about 500 to 140; when he tried to drive out the less efficient workers by introducing systems of payment which made it impossible for them to earn a living wage; when he told his workers "You know just as well as I do that a high-priced man has to do exactly as he's told from morning till night," and that they had to "bear in mind that each shop exists first, last, and all times for the purpose of paying dividends to its owners;" when he endeavoured to force all workers into adopting what on false physiological and psychological grounds was termed "*the one* best way;" when, not without reason, they began to fear that all craft knowledge was being taken from them and vested in management, and that they were being reduced to the level of mere automata, subject to the commands of numerous shop "bosses," each a specialist, in his way—it is hardly surprising that the workers protested and rebelled against such so-called Scientific Management.

In recent years these objections have largely been overcome by the omission of certain parts of Taylor's system, by the wiser application of other parts, by the inclusion in Scientific Management of the principles and methods of Industrial Psychology and Physiology, and by a better understanding on both sides of the functions and inter-relations of Labour and Management. In recent years there has been a far closer co-operation between these two as regards Scientific Management; the interest which the employees

can take in the welfare of the concern, and in the science of their special occupation, is no longer neglected.

Mainly through the increasing influence of, and the researches carried out by, the industrial psychologist, it has become recognised that there is no "one best way" of carrying out work, that different styles are suited to different workers, and that the principles of training should be based rather on the prevention of the worker from acquiring undoubtedly bad habits of work, than on forcing him to adopt a uniform method which may be unsuited to him. It has become recognised that one cannot hope to arrive at a good method of work by observing a number of expert workers, and by combining the good methods adopted by each of these in carrying out a different element of which the whole operation is composed: the biological whole is more than the mere sum of its different parts. The old ideas are fast dying out that the worker is to be considered and treated as a piece of mechanism; that craftsmanship must be maintained as a secret system of unorganised traditional skill devoid of scientific basis; that pay is the sole adequate incentive to satisfactory work; that what benefits the employer must be harmful to the employee, and that what benefits the employee is the maximum possible number of persons employed on a given job.

Taylor was an engineer. His legitimate object was to reduce to law, and, so far as possible, to

mathematical formulae, all the traditional knowledge concerning methods of work, to improve on such knowledge, and to substitute exact knowledge for mere opinion, by research, observation, and better organisation. He was impelled towards this aim by the low morale and low productivity obtaining among the workers under his charge. His engineering training led him to carry out pioneer and valuable research into, and improvements in tools, appliances and machines, planning and routing, the movements of the worker, and the distribution of his hours of work and rest. But initially at least he showed insufficient regard for the human factor. A product of his time, he adopted the current practice of foremanship, at war with workers and trade-unions, and intent on forcing production to its utmost limits without taking adequate pains to secure the employees' good-will. Although he recognised that Scientific Management was impossible without mutual understanding and co-operation between Management and Labour, its early difficulties were the direct outcome of his failure to secure these essential conditions for its success.

Taylor's efforts to functionalise management resulted in the worker being subject to a forbidding number of different "bosses." He established route clerks engaged in the order of the work, instruction card men engaged in filling in cards of the cost and time of the work, "gang bosses" engaged in setting up machinery, "speed

bosses" engaged in choosing and specifying tools and in determining other factors making for the greatest speed of work, inspectors engaged in maintaining the quality of work, "repair bosses" engaged in the care of machines, and others engaged in preserving shop discipline. Is it any wonder, then, that the worker rebelled against such excessive interferences, and that he feared not only increased unemployment but undue wearing out owing to excessive speeding-up? Is it any wonder that with the transfer of his craft knowledge to Management, with the compulsion to adopt the working methods dictated by Management, and with the increasing specialisation of his work, he feared that he would become a mere automaton, everlastingly engaged and only employable on one single operation?

Let me cite the experiences of the Taylor system as narrated by a British craftsman, who "worked in some shops where attempts were made to enforce it in all its nakedness. An extremely complicated system of premium bonus was taking the place of piecework and straight time or hourly work—a system so intricate that few mechanics understood its working, a fact which in itself earned their intense hatred and opposition. Time limits were fixed by means of charts, drawn up by experts and based upon time and movement study, a small percentage (arrived at by guesswork) being added to the time limit thus computed, to allow for the inevitable delays, rests, tool breakages, etc. Attached

to each machine was a chart indicating what feeds and speeds should be employed on different metals, and "feed and speed" men were detailed to ensure that the mechanics were running at the proper speed according to the chart. All emery wheels and grindstones were removed from the shop, and men were not allowed to grind their own tools. Tools, already ground to theoretic angles on special machines by unskilled men, were issued from the stores, and when a tool became dull the operator was expected to return it to the stores where it would be changed for another. No man was permitted to leave his machine except to obey the laws of Nature, and even then he was timed! Labourers were supposed to do the running about for tools, gauges, jigs, and fixtures. . . .

"There is individuality in grinding a tool. A man may be perfectly competent to grind his own tools to his entire satisfaction, but no man can grind my tools as I like them ground. So, what we did was to ignore the regulations, and if we wanted to sharpen a tool, we simply cajoled the tool-room foreman to allow us to touch it up ourselves. If the time-limit on a job was excessive, we went 'ca'canny' to hang the time out, and if the time was insufficient, we also adopted 'ca'canny,' and lodged a complaint with the foreman. Should the 'feed and speed' man attempt to interfere, we either threatened him with, and sometimes applied (if we were big enough) physical violence, or we politely invited

him to increase the speed himself, knowing full well (having provided for it) that as soon as he did so the job would be spoilt. When the bonus clerk came along to time the job with a watch, it was not difficult to persuade a clerk who knew nothing about such things that the metal was 'tough,' by manipulating the tool so that it would not cut. The charts disappeared from the machines, despite the vigilance of the management. Harassed by the employers and bullied by the employees, the 'feed and speed' men had such a rotten time of it that no one could be persuaded to accept the position. One I knew personally became mentally deranged, and another worried himself into an early grave. By such tactics—passive resistance and sabotage—the system was rendered almost unworkable. The emery wheels were put back into the shops, 'feed and speed' men disappeared altogether, the complex bonus system gave place to one more simple, and wise rate-fixers began to arrange time limits in consultation with the men."[1]

Such over-functionalisation, which is apt to enter not only into Scientific Management but also into the wider activities of Rationalisation, has its dangers likewise for all ranks of Management. The foreman or the shop manager is no longer alone responsible for the conduct of those of whom he is in charge. He resents the

[1] "Scientific Management and Industrial Psychology," by W. F. Watson. *The English Review*, April, 1931, pp. 445, 446.

worrying, complicating interference of other more highly specialised officials, the transfer to them of many of his former duties, and his restricted liberty of action and management. Even the highest departmental managers and works managers of a highly rationalised combine may be heard to complain that they are ordered to-day to do this, to-morrow to do that, by still higher, perhaps by financial, authorities, and that they are being treated like pawns in a game, of the meaning and strategy of which they are too often needlessly kept in utter ignorance.

Specialisation, too, is apt to result in a number of independent departments, acting selfishly, jealously, and without adequate consideration for the others' requirements. This lack of co-ordination is especially common between the productive and distributive sides of an industrial concern, each of which may pursue its activities regardless of the other's. If a department is too water-tight it will be intent on keeping down its own expenses, neglecting the efficiency and needs of the whole concern. Two examples of this which have come under my notice may be worthy of mention. In a certain factory, the important work which my Institute could do in improving human efficiency and production was clearly recognised by one of its departments; but the true ground of the objections which the departmental manager raised was only later traced to his unwillingness for his own department to be saddled with the cost of the work.

In another factory, a considerable sum had been spent in lighting a shop before it was found necessary, owing to unforeseen circumstances, to move benches and implements to fresh positions, so that the lighting became highly unsatisfactory, and efficiency was plainly and admittedly suffering from the now unsuitably distributed illumination. Lighting, however, was the function of the lighting department, which refused to increase its expenditure by further work.

Here we see the same dangers of extreme functionalisation as would occur in a living organism whose digestive system failed to adapt itself for the benefit of the entire individual. It is the old story of the stomach which struck work rather than work for the nervous system which seemed so lazy. The remedy clearly lies in a more powerful nervous system—a higher directorate which will control the inevitably selfish tendencies of the specialised organs (i.e. the highly functionalised sections) of the whole concern, and will co-ordinate their separate activities either by encouraging or by enforcing closer and wiser inter-communication.

Not infrequently extreme specialisation and stringent functionalisation in rationalised concerns defeat their ends in other ways. My Institute has occasionally experienced difficulty in finding who was considered responsible for defective work or for bad conditions of work. It has also met inter-departmental committees

who were interested not in the measures to be adopted for remedying such defects, but in bitter disputes among themselves on the question of responsibility for them. Sometimes the Institute's recommendations have not been adopted until after lapse of two or three years, owing to the large number of committees, or the various levels of authority, by whom they have in turn to be considered and passed. For the same reason, in highly rationalised concerns it has sometimes taken several weeks before permission could be obtained by the Institute to make trial of its often simple and usually inexpensive recommendations.

Yet another danger of extreme specialisation consists in the loss of valuable incentives to good work. We have already seen that originally the main object of a combine was a purely selfish one —to increase its profits, without primary regard to efficiency of work or to the needs of others not directly concerned in the earnings of the business. So, too, originally the main, if not the sole, incentive offered to the employee was a financial one. The one was a necessary corollary to the other. For so long as the employers were concerned merely with profit-making, so long would each employee be with equal selfishness concerned merely in getting as much money as he could out of the concern, regardless of its interests, ignorant of its policy, and heedless of its reputation. Such selfish incentives can result only in his refusal to co-operate in times of

depression or over-pressure; they need to be supplemented by others of a more social nature.

Extreme specialisation of work has hitherto tended to produce an employee who knows nothing of what goes on save in the small sphere of labour in which he is engaged. Clearly, the remedy lies in giving the novice some knowledge of the history and aims of the concern, and of the previous and subsequent operations undergone by the material on which he works, from its raw state to the finished product—in instructing him, in short, in all matters which will encourage interest in and loyalty to the concern, and will help him to realise the particular social service to the community which he is performing.

One incentive, above all others, which is apt to diminish in extreme specialisation, is that of promotion. An able employee is only too likely to be lost within a huge concern in some relatively small department where the opportunities for promotion are consequently rare. Moreover, the specialised nature of his work may unfit him for promotion elsewhere, unless his more general abilities receive sufficiently early recognition and attempts are made from the outset to give him a wider training. Further, a false economy in certain combines, especially after their initial amalgamation, may lead to an undue diminution of certain managerial posts, thus reducing the expected opportunities for further promotion. Or, as I have also seen, high managerial posts may be found for others who would otherwise

be discharged, for which they are utterly unsuitable, because different abilities, new qualities are required for the different functions of the new posts consequent on business combinations.

Generally speaking, the dangers of specialisation can be met only by improvements in "integration"—of which, so far as Rationalisation is concerned, the former are the outcome. Scientific Management, as we have seen, began to apply specialisation to a single concern which was *already* an integrated unit. But Rationalisation had first to integrate (or combine) a number of originally independent units, before it could apply its methods of specialisation. For this reason, and also because of the huge size of the integrated unit, the dangers of imperfect integration are considerably greater in rationalised businesses. A highly integrated living organism possesses a highly developed nervous system which is characterised by well-nigh perfect co-ordination, direction, initiative and adaptability. These are precisely the qualities which need to be preserved and developed in the process of Rationalisation. And just as the highest levels of the nervous system relegate (as we have seen, pp. 4, 5) a certain independence of action to lower nervous levels, so Rationalisation must avoid the dangers of excessive bureaucracy, in which all initiative, freedom of action, and willingness to undertake responsibility have been discouraged and repressed save in the most exalted ranks of management. Such excessive

concentration and remoteness of leadership react not only on all grades of employees but also on the consumer, who likewise appreciates the advantages of the personal touch in the conduct of business.

Huge combines may fail because they are the work of adventurous financiers ignorant of business technique, whose only aim is that of momentarily successful speculation. The plans which they conceive and adopt may wholly neglect the special situations of the individual concerns which they seek to combine. Huge combines may also fail because they have been the creation of a business genius whose ambition or arrogance has finally resulted in the creation of a unit of such vastness that it is beyond his wonderful powers of control, or who dies leaving no one of equal generalship to carry on his remarkable abilities as leader and co-ordinator.

The huger the combine, the more skilled (and the more highly paid) must be its general. Good captains of regimental companies, even good colonels of regiments, are not hard to find. But when it comes to the generalship of armies, the larger their number, each of which requires a single controlling master-mind, the more difficult is it to find the suitable commander-in-chief. So it must be in the direction of businesses. There are plenty of men, suitable men, for the control of small concerns. But they become ever rarer, the larger the combine; for here their duties are very different. And when, as is happening to-day,

such large combines become more and more numerous, a demand is being made for the supply of good leaders, which it is humanly impossible at once to satisfy. It may be, of course, that Nature will once more assert her well-known powers of adaptability by providing such *raræ aves*, just as a "race" of chauffeurs was evoked, no one knows whence, after the appearance of motor-cars, or just as a "race" of fairly efficient commanders was so surprisingly produced in the course of the Great War.

There are other dangers of integration in the huge combines of previously separate businesses, which deserve mention. It often results in the construction of extravagantly huge factory and office buildings which suffer in flexibility, and can only be re-sold, should necessity arise for this, with the greatest difficulty. The modern tendency in the United States, at all events, is to avoid these disadvantages and at the same time to secure better management and supervision, by the erection of a number of smaller premises where necessary, for the occupation of rationalised concerns.

A further difficulty in huge concerns lies in the formulation of a common and appropriate policy in such matters as production, routing, and personnel. If put forward from a centralised bureaucracy, too remote from intimate acquaintance with the varying conditions obtaining in different units of the whole, they are only too apt to be "paper schemes," theoretically ideal,

but in practice useless because of their neglect of certain interfering factors. The human factor, in particular, is apt to receive insufficient consideration; indeed, headquarters are usually too remote to take it into proper account, to realise its variations, or even to foresee and appreciate the consequences of its neglect. The play of the human factor in the problems of production and distribution can seldom be weighed and judged *a priori* from the managing director's arm-chair. Even the laws of mechanics and of economics are abstractions never accurately obeyed in every-day life and practice, owing to the entry of unforeseen or immeasurable complications. How much more difficult, indeed how impossible, must it be to generalise on the reactions of human beings—manager, worker and consumer—unless special observations and, where necessary, special experiments are made to furnish the information required! Thus the dangers of undue specialisation and integration can be avoided only by the allocation of a duly adjusted proportion of direction and control between central and more remote units.

Finally, we have to consider one important effect of Rationalisation—the necessary diminution of competition and the psychological and social dangers to which it may give rise. The time has passed when the play of unrestricted competition was regarded as sacred. We have already considered certain dangers associated with restricted competition—e.g. artificially high

prices and lack of progress. We have already observed (pp. 8, 9, 35) that huge combines are not suitable for all kinds of business and that, under present conditions at least, there is ample room and, indeed, need for the smaller concerns. But no one who regards the evolution of business, of societies and of individual organisms historically, can doubt that it is as impossible to stay the further useful developments of Rationalisation as it is to revert to hand-made instead of machine-made products, to primitive instead of advanced social institutions, or to the unicellular instead of the multicellular organism. It is true that when two or more huge combines are competing with one another, the rivalry may be more bitter and intense than that between smaller business concerns. But the Rationalisation of business is certain to develop further, both extensively and intensively; indeed, it must be regarded as one of the essential features in the future development of the capitalistic system. Integration must increase and competition must diminish. We may view with favour the abolition of extravagant and wasteful competition. But how can we expect diminished competition to be eternally confined within these modest limits? And what are likely to be the ultimate psychological and social dangers of such wider diminution?

In its most ruthless practice, competition is synonymous with warfare; it implies success to the victor and death to the vanquished. Among

the individual members of a nation it once took the extreme form of what we now term "murder." Among the individual nations of the world, it still persists in the form of what we term "warfare." Such cut-throat killing has tended to be replaced by cut-throat competition. But, being a survival or, as some would say, a sublimation of the same pugnacious instinct, the result is much the same—success to the victor and ruin to the vanquished rival. In direct opposition to this instinct of pugnacity stands the instinct of protection, first, perhaps, appearing in the attitude of parents towards their offspring, and later in good-fellowship between members of a herd or a society and in the relations between employer and employee, as evidenced for example by the provisions made by society or employers for education, unemployment, co-partnership, ill-health, and old age. Consideration for others tempers the antagonistic desire for self-advancement.

Must self-advancement always mean the defeat of others? Must willingness to work always be generally dependent on the necessity of gaining a livelihood? Must the abolition of competition inevitably mean the death of initiative, enterprise, and progress? These are the problems that await solution; and their solution depends on the future developments that await humanity and society. Must self-glorification generally imply the purely selfish advancement of the individual? Or may it, in generations to come, relate to the reputation he has gained, the

esteem and respect he has earned from the community, for the social advancement which he has brought about by his efforts?

It may be urged that the struggle for existence —with all its attendant good and evil—has always hitherto been regarded as a necessary biological law. But may not knowledge and intelligence come to replace the humbler instincts of internecine pugnacity and struggle in the process of weeding out the unfit? May not Science determine what individuals should be born and what individuals should be destroyed? May not Rationalisation still further develop its activities of suppressing inefficient, out-of-date, or otherwise undesirable business concerns and of calling others into being—not merely for the sake of the success of any one combine but also for the sake of the nation, nay, for the sake of humanity as a whole? Who can say whether, in the progress of national and international relations, competition will be ultimately replaceable by scientific control—whether in the evolution of Society the usefulness and industriousness of the individual, of the business concern or of the combine may not be determined largely by social approval as well as by the fear of suffering and deprivation of liberty as a punishment for ill-doing and indolence?

CHAPTER III

SOME ADVANTAGES OF RATIONALISATION

THE derivation and the first use of the term "Rationalisation" are wrapt in obscurity. Some have attempted to trace them back to the notion of "ration." Even though this be incorrect, rationing remains one of the essential processes of Rationalisation. The mere amalgamation of businesses does not by itself constitute Rationalisation. Improvements in mass-production, machinery, time-study, personnel organisation, etc., do not suffice. These are the concern of Scientific Management which aims thus at securing cheaper and greater production. Rationalisation includes Scientific Management, but it goes further: it aims also at avoiding overproduction; it aims not only at avoiding waste within the single concern, but also at avoiding waste within a whole combine of concerns—waste, ultimately, throughout the industry, the community and humanity generally. Rationalisation is only complete when production is pooled and business knowledge is pooled; when production is regulated and prices and sales are regulated; when inefficient and extravagantly wasteful concerns are brought in or bought up and closed down. All to obtain a reduction in the waste of material, effort and time, and, it

may be hoped, an increase in general prosperity and happiness.

In a properly rationalised combine, then, the constituent individual concerns are no longer permitted to produce and to sell how much and what they choose. The allocation of a specified quotum (or quantity) of production to each member of the combine avoids the dangers of over-production, with its consequent waste and the need to dump abroad large quantities of output perhaps below the actual cost of production. But the fines imposed for exceeding these quota must not be, as they are often at present, insufficient to deter producers from exceeding their respective quota. The producers must be strictly regulated in their actions according to what seems best to the common directorate. Thus they lose their former rivalry and become friendly by concentrating each on some special manufacture or quality of manufacture, instead of competing against one another by making an identical variety of goods. By such "specialisation," methods of production are improved, the grading of different qualities of output is assisted, and the cost of production is lowered.

A similar result follows the "simplification" and "standardisation" of material. Only a limited number of types of product are thus manufactured; useless or needless types are suppressed; the complex programme of production is reduced; improvements in technique,

e.g. in the construction of machines, in chemical processes and in organisation, thus become possible; and once again methods of production are improved and costs are lowered. For the manufacturer, simplification and standardisation mean greater productivity and skill, less waste and the easier acquisition of proficiency by the operative; less capital is locked up in material and in spare parts; a simpler costings system results; and the effects of seasonal variations are lessened. The retailer has now to carry a smaller stock; his risks are reduced in respect to the perishing of his stock or its passing out of date; he is able to reduce his staff with the diminution in the varieties of a product which are manufactured; selling becomes less complicated, and purchasing of stock becomes easier; a reduced capital outlay is now possible; he commits fewer errors and he needs less space for his goods. To the consumer, judicious simplification and standardisation bring the advantages of improved quality, reduced selling price and, hence, greater purchasing power; prompter delivery; and easier, cheaper maintenance of what he buys.

Rationalisation assigns different selling areas to the different concerns within the combine, if they are manufacturing identical goods. Thus the needless waste arising from cross-sales is abolished, where factory A has hitherto had to pay the cost of transporting its goods to area Y in which factory B is situated, while factory B has been involved in the similarly needless

expense of selling its goods in area X in which factory A is situated. Rationalisation reduces the costs of distribution by effecting common transport arrangements, by abolishing much needless rivalry in advertisement and in competitive commercial travellers selling the same goods. Rationalisation also improves marketing conditions by improving the gradings of any product, by steadying the market through its regulations of distribution, and by foreseeing and making arrangements for inevitable variations in demand. By common action, the rationalised concern can effect economies in the cheaper joint purchases of raw material, machinery, and other appliances.

All technical and statistical knowledge, and all scientific research acquired by the members of a rationalised combine are pooled. Research becomes improved in quantity, quality, and co-ordination; useless over-lap and needless repetition of research are prevented. In the absence of Rationalisation, individual firms are apt to be frantically engaged in cutting each other's prices, so that insufficient money is available for research or for carrying out the improvements in machinery and other technique which such research may indicate. Indeed, ruthless competition may lead ultimately to enforced reduction in the quality of output supplied and in the wages offered to the operatives.

Where there is a mere federation or other loose association of employers, selling prices may be

fixed at a needless high level owing to the inefficiency or expensive working of certain member-firms. But the properly rationalised combine purchases such out-of-date or extravagantly run concerns with the express object of abolishing them; or after inducing them to enter the combine, it compensates them with the same object. The result of such Rationalisation is that the weaker industrial units are wiped out, not as at present by a process of gradual decay or exhaustion after ineffective competition, but by a timely, purposive action on the part of the associates in the whole combine. A lingering, costly, wasteful and painful death of a harmful member of the industry is supplanted by a rapid surgical amputation of that member. When to this result are added the further results of Rationalisation in improving the quality of output, cheapening production, abolishing cut-throat competition and needless waste in distribution, in increasing expenditure on technical and statistical research, in pooling such knowledge and in steadying demand, the advantages rendered to the conduct of business, to the consumer and to the entire community may become enormous.

The formation of vertical combines not only encourages the utilisation of waste products. Not only does it ensure the steadier and cheaper supply of raw material now produced by the combine. It enables also (as occurs in all combines) the losses on capital in one direction to

be balanced by the gains in some other direction which may arise owing to fluctuations in the profits and sales of the different manufactures within the combine. These and other advantages are secured by a common, wider use, and an easier flow of capital. Similarly it facilitates the transfer of all ranks of workers from a temporarily less successful to a temporarily more successful business, thus assisting the problems of unemployment. Unemployment may be reduced also in the horizontal combine, in so far as a highly capitalised, large-scale concern can more easily afford to retain its employees during a temporary depression than can the employer of a small-scale business. The vertical combine may ultimately abolish the present extravagant costs to the community arising from the many grades of "middle men."

When one combine enters into discussion with a rival combine in order to reduce needless competition between them and the extravagant waste resulting therefrom, there is generally far greater mutual confidence than that which occurs in a similar meeting of smaller business concerns. Experiences are more freely interchanged, cards are laid more openly on the table, and a far wider perspective is maintained. These advantages are still more obvious in the case of international business combines. With the linking up of commercial and industrial concerns throughout the world, warfare between nations, the early flames of which are so often fanned by commercial and

industrial considerations, is made increasingly difficult. The guerilla of hostile tariffs must tend to be reduced with a freer international flow of capital, goods, and labour. Dumping must tend to be abolished. There must result a fuller knowledge of foreign demands, a fixation of the total world-production needed, a progressive stabilisation of values, and an increasing improvement in and equality of international welfare.

Unfortunately these advantages of Rationalisation have been by no means invariably realised in its actual practice. Too often Rationalisation has been confused with mere amalgamation. Too often it has been selfishly or imperfectly conducted, or it has been applied to concerns which were unsuitable or at all events unripe for combination. Too often the true nature and objects of Rationalisation have been mis-conceived or ignored. Combines have been established merely to seize control of prices and sales or to gather the unwholesome fruits of adventurous speculation. Inefficient or extravagant members of the combine have been allowed to remain within it, unscrapped. Antiquated machines and methods of production and wasteful methods of distribution have been maintained unchecked. No attempts have been made to arrange specialisation in output or in areas of sale, or to allot quota of output, among different concerns within the combine. Extravagances, instead of economies, in management have resulted. And the

financier, the shareholder, the management, the consumer and the general community have all suffered in consequence; and not least, the rank-and-file of workers.

Trade unions themselves have felt an increasing need to co-operate more closely with one another, each union no longer acting as a monopoly to protect its own special craft. The increasing introduction of machinery into industry has facilitated the transfer of labour from trade to trade and from industry to industry, because of the ever-increasing similarity between mechanised operations. The old regulations restricting the kind of work for each craft or trade union are becoming recognised as impossible and as harmful to all concerned. Trade union leaders are beginning to realise that cruel as Rationalisation may sometimes be, at least in its present stage of development, it is nevertheless natural and inevitable in the evolution of civilised society, and that wasteful labour must be displaced, where necessary, to make any concern efficient. They are beginning to appreciate the advantages of bargaining with the "big" employer, in that he is usually more enlightened than his "smaller" brother. They have even (rightly or wrongly) voiced the opinion that Rationalisation, properly conducted, enables the worker to enjoy higher wages and to purchase at reduced cost; that it diminishes imports and increases exports; that by improving trade it reduces unemployment; that it betters the protection and insurance

claimed by the worker; that ultimately it replaces the lower and more strenuous kinds of mental and physical labour by work of a higher kind; that it brings the capitalist into increasingly close relations with the masses of the people; and that it leads to greater co-operation between management and labour and to wider and more intimate national and international relations.

But combined with these approvals, certain fears and reservations are always expressed. Thus, William Green, who succeeded the late Samuel Gompers in the presidency of the American Federation of Labour, states that "Labour is interested in the successful management of industry because it reasons that, with the introduction of economy processes in the development of efficiency and increased production, the cost of manufacturing and production can be reduced *without lowering the standard of workers or reducing wages*. Labour," he says, "firmly believes that, if the cost of production of commodities must be lowered it should be accomplished through the promotion of efficiency in workmanship and management, the elimination of waste, and the introduction of economy processes." (It is noteworthy that the report of President Hoover's committee of eighteen industrial engineers on the waste occurring in six main industries in the United States, attributed over half of it to management, less than one-fourth to the rank-and-file of

workers, and the smallest fraction to external influences: the human factor was proved to be all-important.)

So, too, the General Federation of Trade Unions in Germany declared that Rationalisation is necessary, but that it must not neglect the co-operation of works-councils, the abolition of ornamental directors, the reduction of prices, and the raising of wages.[1] In a similar strain the International Federation of Trade Unions declared at their Paris Congress that the conditions stipulated for their support of Rationalisation were the co-operation of workers' representatives and the policy of expanding markets and of raising the workers' wages. That is to say, they feared the results of monopoly in fixing prices and reducing production so as to maintain excessive prices, with its accompanying effects of reduced employment, lessened consumption, and social disservice. And they realised that low wages were inevitable in the face of uneconomic competition, low prices, booms and slumps, wasteful methods, and excess of production.

Similar cautions were formulated in 1927 by the World Economic Conference of the League of Nations in its report on Rationalisation. In their opinion the dangers of Rationalisation to Labour and, hence, to the general community, lay in increasing unemployment and in neglecting generally the human factor in Labour problems.

[1] Cf. W. Meakin, *The New Industrial Revolution*. London: Gollancz, 1928, pp. 213–228.

The Conference urged, therefore, that (*a*) suitable measures should be provided for cases where, during the first stages of its realisation, Rationalisation may result in loss of employment or more arduous work, (*b*) special attention should be paid to vocational selection, guidance, and training, the due allotment of time between work and leisure, methods of remuneration, giving the worker a fair share in the increase of output, and, generally, (*c*) that care is necessary "not to injure the legitimate interests of the workers," and that attention must be paid to "conditions of work and life favourable to the development and preservation of his personality." The Conference further recognised that Rationalisation requires, "so far as regards the organisation of Labour in the strict sense of the term, the co-operation of employees and the assistance of trade and industrial organisations and of scientific and technical experts."

There is diminishing need in this country to stress the importance of these cautions. At one time the employer tended too readily to adopt the easier economies of over-speeding the worker, lengthening his working hours, and reducing his wages. But now there is a fairly general realisation that bad working conditions, inadequate training and leisure not only make for social ill-health and low culture but also react on the efficiency of the industry itself. The dangers of primitive industrial conditions in our civilized society can hardly be better exemplified than by

quoting the statement made by a girl worker in a tin box factory of Canning Town, London. "They have to sweat you when they start a new business if it is a small one. When they get on a bit and come under the law, then they can do for you some of the things they ought to do because they have made a bit of money out of you and can afford it."[1]

With increasing Rationalisation, business is regarded not only as having for its object the making of private profit, but as being concerned, even to its own advantage, in increasing the welfare of the employee, the consumer, and the entire community. It is like a Cabinet of Ministers, each of which has to consider not merely the needs and efficiency of his own department, but also the demands and welfare of the entire Nation. The conduct of big business is becoming regarded no longer as a private affair but as one exposed to the limelight of public opinion. It can no longer risk the dangers of senile obstructiveness or of the inefficiency of nepotism either in the higher or in the lower ranks of management. It dare not in the near future face inflicting the injuries of ring prices or of unduly restricted production on the general community. It dare not obtain the reputation of making excessive profits. Under present capitalistic conditions business cannot be run at a loss; but large concerns may

[1] Quoted from *The Indian Peasant Uprooted*, by Margaret Read. London: Longmans, p. 54.

temporarily retain unwanted employees during times of depression, not only because of the advantages which will accrue to the business owing to the readier availability of these employees when the depression has passed away, but also in order to avoid the disastrous effects of increased unemployment on the general community and, hence, on themselves. The selfishness and abuses of huge semi-monopolist business must wane; the too rigid opposition between Capital, Management, Labour, and the General Community must soften, as the duties of business management come to include responsibility for the welfare and interests of all grades of workers and likewise of the consumers.

But we must accept the fact that there is no one royal road in the future conduct of business. Rationalisation may in some instances be unsuitable, and in others require modification or tempering according to special conditions. We learn these lessons very easily from our pyschological and biological approach to the subject. We find many individual men who succeed in life but who differ enormously in their mental makeup and consequent conduct. So it is with different business concerns. Again, as we have already insisted, there are many lowlier organisms in this world which succeed in their struggle for existence and persist despite the evolution of higher organisms; despite the fact that (nay because) they are more simply organised, they are admirably fitted to their environment. The

humble unicellular protozoon and the apparently unworthy parasite do not disappear with the evolution of complex organisms and the complex combinations of individual organisms.

Carried to an excess, Rationalisation may develop in directions incompatible with the present state of human nature: it becomes irrational Rationalisation. Either an insufficiently organised, or a too highly organised business may suffer ruin, just as a too highly individualised, or a too highly socialised community may suffer through the limitations and frailties of human nature. The dangers of premature and excessive Socialism find their counterpart in the dangers of premature and excessive Rationalisation. Rationalisation, indeed, may be alternatively viewed either as the fore-shadow or as the preventive of Socialism—preventive in the sense that at present it conserves to some extent the initiative and enterprise of pioneers which are liable to be lost in the ultimate working of pure Socialism.

We must, therefore, recognise that Rationalisation is in no sense a sure universal panacea for the ills of business, that few industries may be already suited to full measures of Rationalisation, that industrial and commercial combines may not always make for individual or national prosperity, that in some instances Scientific Management of the single concern should be sought instead of Rationalisation of a combination of concerns, and that in some instances

even Scientific Management may be misapplied. There may even be cases where the old individualistic system of contracting-out is preferable, with its possibilities (hitherto so seldom developed) of preserving more intense and extensive initiative, responsibility, and interest which are so apt to be lost in the functionalisation and departmentalisation embodied in Scientific Management and Rationalisation.

But whatever be the lines of the future development of business conduct, one important study is common to them all and is a *sine qua non* for their permanent success—the study of the human factor. This factor concerns not only the individual at his work. It enters also into his pre-occupational education—the determination of his suitability for entry into a central, secondary, or technical school or a University, his specialisation in literary, scientific, domestic, or other forms of education, and, finally, his choice of a career. It enters into the bridging over of the gap between leaving school or college and his entry into industry or commerce, into his selection by and introduction to the firm and into the training which he receives there. It enters not only into the study of the best movements of the worker, his posture, the arrangements of his materials and implements, the lighting, ventilation and temperature to which he is subject, methods of payment, causes of needless irritation and boredom, the best distribution of hours of work and rest.

The twelve years' experience of the National Institute of Industrial Psychology has shown that the human factor is concerned with far bigger and wider problems, the solution of which is impossible merely on mechanical, economic or financial lines of approach. Thus the engineer may construct a machine which is perfect mechanically but in which the needs of the worker are left out of consideration: it may involve personal risks; its levers may be placed in positions involving needless, tiresome reaching; its pedals may enforce an unhealthy or awkward posture, or their operation may result in a jar throughout the body of their users as they reach the ground. Again, the lay-out of a shop or factory may be perfect mechanically, but those operations which demand the best illumination may be allocated to the darkest parts of the room or building; the space allowed per worker in a shop or office may give him a cramped feeling or be the cause of needless small interruptions and irritations throughout the day, the summation effects of which are psychologically very far from negligible. The human factor enters into the recruitment of labour, the budgeting for its requirements, the encouragement of suggestions, the realisation and removal of causes of discontent, the provision of adequate incentives, the early recognition of good and indifferent workers, the organisation of satisfactory schemes of promotion and remuneration, etc. It enters into the timing, costing, planning, progress, flow and

control of production, into such problems of distribution as the design and display of products, methods and schemes of advertisement, etc., and into the co-ordination of production and distribution. The organiser who sits down in the arm-chair of his office to elaborate schemes on paper utilises his high general intelligence and special abilities of organisation and his consequent capacity to work out abstract schemes of thought. But thereby he is only too prone to neglect the human factor. For organisation depends not merely on technical knowledge and on intelligence; it is not merely a mechanical Science, but also a human Art. And as in all arts, pure craftsmanship is insufficient. Management cannot be acquired, as proficiency, say, in law can be acquired, by the remote study of a number of "cases." Each "case" must be studied individually and close at hand; hence so commonly a too centralised business organisation breaks down. Intuition is needed not less than intelligence; the world is not wholly governed by the logic of cold reason; and intuition, like the artist's genius, requires the most intimate contact with the existing situation.

When we bear in mind that the manager is chosen chiefly for his knowledge of technical and commercial details, and the foreman chiefly for his knowledge of craftsmanship and machinery, the need for a special class of person trained in the principles and methods of industrial psychology and physiology, and engaged in helping to

solve problems in which the human factor plays an important part, becomes essential in the modern developments of industrial and commercial businesses, whatever be their scale, large or small, combined or independent. The old days of the personal touch between employer and employee are no longer possible in the modern huge concerns. They gave way to a traditional stage in which the employee no longer counted as an individual but came too often to be regarded as an inanimate cog in a vast inanimate profit-making mechanism, only to be scrapped, like the rest of the machinery, when it had become useless. We may see the same stages in the life history of our Army. In early-Victorian days, the officer in peace time seldom came into really close touch with his men; relatively rarely he knew their names or their personalities. Among the mercenaries of earlier times, on the other hand, the officer knew his men far more intimately. The situation, however, in the army of to-day has reverted to this earlier one; and so it must change in our army of industrial and commercial workers. The impossibility and, hence, the disappearance of the old personal contact of employer with employee need not involve the abolition of the essential advantages of such contact. In the huge combine, the old employee can no longer be the "friend of the family" which he was in the smaller, long-established, private businesses. He himself refuses to-day to be considered their "faithful

servant" at a lower feudal level; instead, he demands the recognition of different levels of equally important social functions. He requires still the human contacts between different levels; and a new body of men must be introduced to carry out and to continue these contacts. There is no necessity to adopt the pessimistic attitude of maintaining that with the advent of huge businesses and combines of businesses, the average employee's individuality and personality must be left out of account, that his interests and grievances must be neglected, that he must be lost amid the huge crowd of his co-employees, and that he must be reduced to the level of an automaton, fearful of taking initiative or responsibility, discouraged from making suggestions towards improvement, receiving neither approval nor promotion for signs of ability or excellence of work. The dangers of Rationalisation, like its advantages, are obvious. But many of them are far from being irremediable, if only the human factor receives expert consideration. Rationalisation must not base its claim to be of social service on the ground merely of increasing material prosperity. Increase in amount, and reduction in cost, of production are socially useless unless they conduce to hygienic, cultural, and ethical progress—the advancement of the physical, mental and moral welfare of the community and of entire humanity.

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