THE PRINCIPLES OF RATIONAL INDUSTRIAL MANAGEMENT

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BY

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"TRAINING IN FOREMANSHIP AND MANAGEMENT," "FOUNDRY ORGANIZATION AND MANAGEMENT," "ENGINEERING WORKS REORGANIZATION"

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TO

GEORGE AND NETTE DICKSON

FROM

F.E.G., I.D.G., J.J.G.

AUTHOR'S ACKNOWLEDGMENTS

I ACKNOWLEDGE with pleasure my debt to Professor Elton Mayo of Harvard University for the encouragement I received from him. His work in America, together with that of his assistants, has in my opinion done much to expose the crude shortsightedness of pseudo-scientific management, and has indicated along what lines management research should develop.

It will be observed that I have drawn largely from the works of numerous authorities on sociology, psychology, economics, and logical method. I owe much to the writers of these works.

Numerous friends have read and criticized the manuscript and have given me much encouragement, Dr. V. Cofman prominent among them. To Mr. A. S. Andrews, of Sir Isaac Pitman & Sons, is due special acknowledgment for his patience with two difficult subjects—myself and the book.

PREFACE

THIS book attempts to do two things: first, to expose the pretences of what is called "scientific management" and, second, to institute a reasonable basis for balanced management practice. Writing as one who has worked under "scientific management" as machine operator and tool setter, with it as foreman, works manager, and general manager, for it as organizer and consultant, and, on more than one recent occasion, after it as repairer of the damage it had done, I find the task of exposing the poverty of its meaning and method an easy one; the task of finding in the combination of the high personal values of pre-scientific management and modern knowledge a sensible management philosophy has not, however, been so easy. This latter task has necessitated nearly three years' research into biology, psychology, economics, sociology, and logical method with, as object, the setting up of a statement of principles of management on which management practice could be based.

Before outlining the main conclusions of the book, I would like to make it clear that I, in company with many other students, regret that the word "scientific" should ever have been tacked on to the methods and procedures of this cult of industrial activity. As is shown later, the cult has never claimed to be scientific by virtue of its use of growing scientific knowledge, but by virtue of its use of scientific or inductive method. In my opinion, however, it is too late to attempt to clean off the mud which clings to the name "scientific management," and it would be better dropped entirely.

The main conclusions of the book are as follows—

1. Although scientific management is based on the use of inductive or scientific method, its largest effects have been derived from the application of well-established

economic principles backed by sharpened observation and measurement aided by stop watches and other devices and mechanisms.

2. The oft-quoted "factual analysis" and "codified knowledge" of this school of management are empty of significance if it be not recognized that fact collection and codification are very minor aspects of the management task; management's task is a function of management's experience, reasoning, and character applied to the interpretation of facts in terms of the whole management situation and, what is of more importance, to the integration of factual codes and procedures with industrial group sentiment and purpose.

3. The assumption that the search for exact knowledge by the use of scientific method, plus the instruments of that method, make management scientific, is, to be blunt, plainly ridiculous. Scientific method is only a tool of management, an important one no doubt; there is, however, no virtue in scientific method as such; its virtue or its vice is a reflection of the ability and the character of its user. The further assumption that because management uses codified knowledge, management is therefore scientific, is in much the same category as calling a poet a scientist because he uses codified knowledge of the principles of versification.

4. The relationship of management to science as a whole is such that science will afford a background for management practice in the form of generalizations which are the result of controlled observation of individuals and groups; scientific knowledge, so far as I can see, will not be a substitute for management's capacity for decision on the correct procedure to adopt towards a particular individual or group in a particular situation.

5. To the specialized sciences the attitude of management is critically co-ordinative and, therefore, philosophic.

6. Because of its narrow worship of scientific method and its consequent ignoring of the psychological and social values of

industrial fact, the scientific cult has caused much avoidable industrial conflict by imposing technological procedures on industrial groups without reference to the significance of group emotional and mental structure. Further, it has developed organized "ca' canny" in industry among the workers.

7. This cult has contributed nothing to the problem of industrial group analysis and synthesis; its technique is confined largely to costs and output engineering.

The foregoing seven points are critical and, I feel, they will be met with the rejoinder that is usual when trouble appears on the horizon of scientific management; namely, that scientific management is not understood by me and, in any case, scientific management does not mean only what I say it means—it means, also, a "square deal" for the worker. Well, let me add point eight to the foregoing points.

8. The "square deal" of scientific management has never been expressed as a definite code of progressive worker welfare; my own frank opinion is that the idea of the "square deal" is used more as a verbal code to put across specialist techniques than as an ethical principle.

In the hands of Taylor, the founder of the school, scientific method became a vitally useful factor in industry, but it was the very thing the scientific methodists decry, personal knowledge and ability amounting to genius, which made him successful. If he had been a fool or a knave, the method would probably have remained generally unknown in industry until a greater man became aware that it could be successfully applied. Taylor did not invent scientific method; he recognized its value and brought to its use an outstanding native genius. At the risk of being judged heretical, I may add that he overstressed its value and, as discoverers of specialist fact have often done, he attempted to cap the business economy with it. In this I may be wrong but, mark this, it was Taylor's experience, character, and power of reasoning which built scientific management; we

can admire these without subscribing more than normal regard for his methods and systems—methods and systems the narrow worth of which is admitted freely.

To-day a wider management outlook is needed, an outlook subservient to no cults, whether they be scientific or political. The book, then, makes the following further propositions—

9. There is a need for a return to the high personal values of pre-scientific management while developing a rational method for the solution of industrial, material, and human problems. This method I have attempted to state, combining in it the values of scientific method. It is demonstrated throughout the book by reference to high authority and to experience that scientific method is of limited value when applied to the interpretation of human values.

10. It seems essential that the overstress of "scientific" procedures in management educational syllabuses be modified by reference to the contributions of bio-psychology and sociology and, further, that Method be accepted as a central subject of management education. At the moment, excellent though these syllabuses are in terms of the teaching of commercial and producing codes and procedures, there is too great dependence on the teaching of means rather than of meanings.

11. There is a need for stressing the principle of authority and obedience in management; that is, there is need not only for obedience of authority by employees but, also, for obedience by management to the whole purpose which industry is serving. This is an angle of management which has not been studied, perhaps because of its somewhat stern significance and its demand for self-discipline in terms of a serving code.

12. Management as a whole serving body should be prepared to accept the social responsibilities arising from the operations of the economic institution and should develop an attitude wider than that required to keep this or that part of the institution effective only in the narrow financial sense of the word. For example, it is fairly obvious

that industry is both willing and able to supply the community with what the community needs for adequate living, but owing, it seems, to the operations of an ineffective financial mechanism, industry suffers from cycles of famine and plenty which, in the quoted opinions of many of the world's greatest authorities, are the prime cause of unemployment, strikes, and class hatred, and destroy the possibility of the economic security the people have a right to have. The effects of this state of affairs are daily felt in industry; will, then, management be content with the study of internal procedures only while other people solve or try to solve this and other problems which affect industrial effectiveness? If management remains loyal to "scientific" procedurism, it will be content to take a narrow view of industrial effectiveness, but if it is prepared to widen its philosophy it can, by virtue of its standing as a serving body within society, do much which will win back for it the leadership it lost when it forgot the social significance of industrial effort and, in response to the advance of scientific management, became a vehicle for organizing industry only for bigger and better profits. That management only serves the purpose of technological organization and no longer leads the workers is generally true, just as it is generally true that it is faced throughout industry to-day by opposing leadership which resents the narrow economic purpose which is now served by management's activities.

13. There is a need for positive integration of economic purpose with whole social purpose. With increasing differentiation of social functions it is clear that the economic institution has increasingly been judged effective or ineffective only in terms of the short-time monetary returns on its operations, rather than in terms of the service it performs for the community. What is not clear, except to a small body of progressive industrialists, is the ultimate consequence of this short-sighted outlook.

It will be seen from what has gone before that what I have chosen to call *Rational Management* is much more than merely a rejoinder to the narrow formalism of what is called "scientific management." All human conduct is managing conduct disciplined in terms of ends sought and the means used. Scientific management is really personal conduct which may or may not accept reasonable purpose, may or may not be disciplined in terms of purpose, does involve use of scientific method, but may or may not use it rationally. Rational management is personal conduct based on intelligent acceptance of the disciplines arising from its service of the dual purpose of industrial social and economic effectiveness and on adoption of a rational, unbiased attitude to the problems of industrial production and distribution and to the contributions of the sciences to the solution of these problems.

It will be observed that I have not only attempted to set up a statement of principles for management guidance but that I have also attempted to lay out a management educational syllabus in line with the findings of the book. I have laid myself open to powerful criticism by attacking the cult of scientific management, but, too, I have laid myself more open to trenchant criticism by my advancement of a management syllabus. Nevertheless, I feel it is better for me to leave the ranks of those who write reams on the weaknesses of management education without daring to erect an educational structure in place of the existing one; thus, I hope this contribution will be accepted in the spirit in which it has been made, for there is no one more aware than I of the splendid efforts that have been made by various bodies to assist industry by assisting management education.

My faith is that the industrial system, in the hands of a wise management, can become a splendid instrument for social good without losing one iota of its effectiveness—whether or not I have suggested a basis for this wise management is for the reader to judge. JAMES J. GILLESPIE.

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THE PRINCIPLES OF RATIONAL INDUSTRIAL MANAGEMENT

PART I

AN ANALYSIS OF THE SIGNIFICANCE OF MODERN MANAGEMENT

CHAPTER I

MANAGEMENT A RATIONAL ACTIVITY

MANAGEMENT, in its primary sense, is a form of conduct directed to the expression of purpose through control of factors external to the seat of purpose.

This definition is basic and covers such purposeful activity as self-management, management of a country, a house, or a business. The object of the definition is to establish a general foundation on which we can build definitions of particular aspects of management activity; to arrive at these particular definitions, and especially that one which will cover industrial operation management, is the purpose of this chapter.

The term *rational* contained in the chapter heading may be taken to denote that the activity which it qualifies is the result of reasoning; reasoning, to quote George Santayana, is efficacious reflection. Past experience in the form of concepts, that is, in the form of general ideas, is unified with present conceptions, and these, with the vital impulses, are modified by reflection; when the reflection is efficacious the resulting activity is rational.[1]

[1] *The Life of Reason*, Vol. I, George Santayana (Constable & Co.).

It is part of our task in this chapter to analyse the meaning and validity of particular types of industrial management; as the "scientific" type of management will be brought under close scrutiny, and as its name and its procedure, according to its protagonists, are derived from the use of scientific method (inductive logic), it is essential that we be quite clear on the relationship of what has been called rational activity to the scientific activity of this school of management. The other two schools of management, called *traditional* and *systematic*, respectively, have historical value only and, therefore, need not be related at present to our proposition that management is rational activity.

The logician defines reason as the power to draw inferences, that is, the power to think about the relationships of events and objects and to arrive at conclusions about them; to state the conditions of sound inference is the function of logic. The logical processes are called, respectively, deductive and inductive; deduction is a logical mode of arriving at the truth of particular facts by systematically relating them to general propositions; induction is a logical mode of arriving at general propositions by systematic observation and examination of particular facts. To state the two processes more academically—

> Deduction includes all reasoning in which, from given particulars, we draw a conclusion supposed to be contained in their meaning, while induction includes all reasoning in which we reach a conclusion from observation of facts. Induction is therefore the interpretation of facts, while deduction is the interpretation of sentences assumed to be true.[1]

When we state that management is a rational activity we infer that it is the capacity of management for efficacious reflection or reasoning which is of prime importance, and that inductive or scientific method (that is the method which

[1] *Scientific Method*, F. W. Westaway (Blackie & Co.).

most concerns us here) is, though valuable, of minor importance. If the faculty for reflection is high and the logical data are factual, the resulting activity will be rational; if the faculty for reflection is low and the logical data are factual, the resulting activity will probably be irrational. Inductive or scientific method requires for it to be effective that there be considerable experience of the facts being dealt with and an insight which, according to Professor Wolf, cannot be formulated at all.[1]

It is our proposition that the inductive method, and the experience and insight it requires, are factors in efficacious reflection and, therefore, in rational activity. It follows, then, that the scientific type of management, based as it is on the use of scientific method, is comprehended in the term *rational management.* Why it should be thought necessary to establish a term other than that of *scientific management* will become clear when we examine its significance in modern thought.

The following is a report of the finding of a group, under the leadership of Captain P. J. Pither, meeting for the purpose of discussing the welfare aspects of industrial personnel—

> The group criticized the use of the term "scientific management." They felt that its use is liable to give rise to misunderstandings in the minds of employees, who think they are being regarded as impersonal units in efficient production, rather than human beings. The group suggested, therefore, that the word "scientific" should be discarded.[2]

The second quotation supplements and strengthens the previous one; it results from an investigation by S. B. Mathewson and six others who worked as labourers, machine operators, etc., and lived in typical employee environments—

[1] Article on "Scientific Method," *Encyclopædia Britannica.*
[2] *Industry Illustrated,* Vol. V, No. 5, May, 1937.

> Scientific management has failed to develop the spirit of confidence between the parties to labour contracts.[1]

How true these quotations are will be seen further on in this chapter.

MANAGEMENT FACULTY

The faculty necessary for the management of any situation will depend on the complexity of the situation and the purpose to be expressed through the situation; conversely, the management of any situation and the expression of purpose will depend on managing faculty.

The validity of this brief proposition is evident to every student of management though, because of its obviousness, it has seldom been precisely expressed, nor have the consequences arising from its application been considered.

The faculty required for management of an inflexible situation in which there are only a few recurring factors will be much lower than for a flexible situation in which there are many factors. Again, if the situation contains only inert factors (as the material in a stores) it will be much easier to manage than a situation containing inert and dynamic factors (as a group of machines operating on material); if, further, the situation contains a number of purposive factors (as a group of working machines each one of which is controlled by an operator) the managing faculty must be considerable. In the last instance, we have a situation somewhat similar to that of the department foreman who is in charge of, say, thirty machines and thirty operators. That of a works manager is more complex, in that he has to control numerous situations for the expression of the production purpose. The general manager has the maximum number of situations to control, and the situations, unlike those of the works manager, are quite dissimilar; thus,

[1] *Restriction of Output Among Unorganized Workers*, S. B. Mathewson.

there is the market situation, the finance situation, and the production situation, all within the total business situation.

In any situation such as those described above, what is desired is that each of the units within the situation should be unified in terms of the purpose for which the situation exists. Now, the power to relate events and objects and to unify these in terms of a conscious purpose is the power of reasoning. Kant defines reason as "the power of synthesizing the conceptions provided by intellect into unity by means of comprehensive principles." This, we could almost say, is a definition of management.

There is neither space nor need for us to labour the point that the management process is a rational process, nor that the management of a situation will depend on management faculty—the point will be generally acceptable.

However, the matter cannot rest there, for, as our earlier proposition states, the complexity of any situation is a factor in determining the managing faculty required, and we have not yet considered the effect on a situation of the presence of a group or groups of people. It will be agreed that the effect will depend on the nature of the group or groups; in other words, there is no one successful pattern of management activity capable of being effectively applied to groups of varying nature.[1] A group of primitives who are of low intelligence will require quite different managing from a group of intelligent craftsmen; indeed, it may be hard to find a manager capable of managing both groups, as will shortly be seen.

A major difficulty arises from the fact (to be dealt with in Chapter III) that group behaviour is quite different from individual behaviour. How far this is true is indicated in the following reference to a crowd—

> Its acts are far more under the influence of the spinal cord than of the brain. In this respect a crowd is closely

[1] A proof of this is given on pages 53–4.

> akin to quite primitive beings. The acts performed may be perfect so far as execution is concerned, but as they are not directed by the brain the individual conducts himself according as the exciting causes to which he is submitted may happen to decide.[1]

The foregoing is a generalization but it is true, in part, of any active crowd or group; the size of the group being a factor, as is its habitual attitude to discipline, and the intelligence and training of individual members of the group.

Lawrence of Arabia, a genius in the handling of people, states better than any other authority the essence of the management of complex situations in which groups of humans are present when he says of war method—

> The algebraical element looked to me a pure science, subject to mathematical law, but inhuman. It deals with known variables, fixed conditions, space and time, inorganic things like hills and climates, and railways, with mankind in type masses too great for individual variety, with all artificial aids and the extensions given our faculties by mechanical inventions. It was essentially formulable. . . .
>
> This was enough of the concrete; so I sheered off ἐπιστήμη the mathematical element, and plunged into the nature of the biological factor in command. Its crisis seemed to be the breaking point, life and death, or less finally, wear and tear. The war philosophers had properly made an art of it, and had elevated one term "effusion of blood" to the height of an essential, which became humanity in battle, an act touching every side of our corporal being, and very warm. A line of variability, Man, persisted like leaven through its estimates, making them irregular. . . .
>
> The "felt" element in troops, not expressible in figures, had to be guessed at by the equivalent of Plato's δόξα and the greatest commander was he whose intuitions most nearly happened. Nine-tenths of tactics were certain enough to be teachable in schools; but the irrational tenth was like the kingfisher flashing across the pool, and in it lay the test of generals. . . .

[1] *The Crowd: A Study of the Popular Mind*, G. Le Bon.

Writing of the psychological factor in command, Lawrence says—

> Some of it concerned the crowd, an adjustment of its spirit to the point where it became useful to exploit in action, and the pre-direction of this changing spirit to a certain end. Some of it concerned the individual, and then it became a rare art of human kindness, transcending, by purposed emotion, the gradual logical sequence of the mind. It was more subtle than tactics, and better worth doing, it dealt with uncontrollables, with subjects incapable of direct command. It considered the capacity for mood of our men, their complexities and mutability, and the cultivation of whatever in them promised to profit our intention.[1]

Lawrence writes of the purely mathematical element in command and of the biological, felt, and psychological elements. The algebraical element is one which can be dealt with by the aid of logical method, the others escape from the rigidity of logical structure. The felt element is, it appears, the vital contact with group sentiments and traditions. The understanding of these can be helped by study of social anthropology and social psychology but, in the last analysis, the felt element can be used only by one who can respond to it and who can shape his purposes so that they do not clash with group feeling.

The psychological element may be summed up as the integrative force which manifests through what is sometimes called "the born leader." It is a capacity for unifying the moods and minds of men. This greatest of human capacities requires fine perception, and something which Lawrence and other great leaders habitually neglect to state: high example from the leader. A willingness to participate in group discipline, indeed, to accept a stricter discipline, and the showing forth of a strength and nobility of character not possessed by any member of the group; these, with

[1] *Seven Pillars of Wisdom*, T. E. Lawrence (Jonathan Cape).

unswerving belief in the cause he serves, are the marks of the enduring leader.

Later, we shall return to the specific qualities of leadership.[1] Meantime, we shall consider the value of experience.

THE VALUE OF EXPERIENCE

When the scientific type of management was first launched there was a reaction against "rule of thumb" method or the method of experience. Thus, F. W. Taylor, the virile founder of the scientific school, defined scientific management as "the substitution of exact scientific knowledge for opinions or the old rule of thumb or individual knowledge."[2] Such reactions as this are not unusual in the sphere of human activity and the history of science and philosophy is full of them.

The *traditional* school of management was represented by managers who, it is said, depended on personal ability and personal experience in the carrying out of their tasks. Our present problem is whether or not this dependence on personal values rather than on exact scientific knowledge is right or wrong.

It is evidently erroneous to suggest that the personal element can be taken out of management, and logical method, scientific or otherwise, be substituted. If management were a process controlling inert factors, a fixed procedure aided by slide rules and tape measures would suffice. But management deals with inert and vital factors and these two are quite different. As Professor Shaw remarks—

> When logic deals with inert matter in whatsoever form, be it of macroscopic or microscopic proportions, it proceeds with security, since the forms of matter appear to be as regular, as fixed, as those of the mind. When, however, logic attempts to deal with living matter, the irregularity and independence of vital phenomena become baffling.

[1] Chapter IV.

[2] F. W. Taylor, before a Committee of the House of Representatives.

> Deduction can achieve practically nothing; induction, which should be more at home here, can accomplish little more than to arrange the phenomena along irregular lines which do no more than wind their way to some remote conclusion. . . . Until the inductive logician realizes that knowledge, whether theoretical or practical, stands in need of a consummate act of thought . . . his approach to knowledge will ever be but furtive.[1]

Now, the problem of the scientist, whether he be investigating the atom, cutting up a frog, studying animal behaviour, or analysing the group soul, is very different from that of managing a group of people. The scientist has one fixed subject, be it inert or vital, while the manager has many subjects; moreover, the scientist is attempting *to collect and interpret facts*, the manager is trying *to collect, interpret, and apply them*; in this latter difference, and what a vast difference it is, lies the key to the value of experience and personal knowledge.

Experience is not merely contact with objects or events by the senses and memory of these contacts, for, in the modern sense of the word, it includes the imagination and the reason brought to bear on the knowing of the object or the event.

Leaving aside psychological definitions of experience, we may call it the knowledge we gain from living; it is something individual, it belongs to each of us, a wealth all our own. It will be obvious that to quarrel with experience is to quarrel with knowledge, for, without experience, we would be like sods. Experience is essential, not alone in the broad meaning of the term, but in the handling of phenomena to discover what Taylor called "exact knowledge." As Westaway remarks of the use of experience in scientific or inductive method—

> It is experience alone which will teach us to break up, and how to break up, complex phenomena into its parts, to

[1] *Logic: In Theory and Practice*, C. G. Shaw (Pitman).

> combine them together again in various ways, and to observe the effects which result from these different experiments.[1]

This writer is speaking of non-human phenomena; how much more value, then, must experience have in the handling of complex industrial problems? Obviously, the experience must be such as the situation demands. It is possible to codify and file the results of experience on shovelling and cutting tools (as Taylor did so well) and on costs, prices, best forms of formal organization and control, and the like; in a situation where these are codified and filed, personal experience in the beginner need not be so high. But it is not possible to codify and file the best way to handle human beings who not only create situations which continually vary, but each of whom presents a complex and profound situation in his or her self. Even if it were possible to codify and file exact scientific knowledge about the handling of human situations, there still remains the problem of applying it.

Individual knowledge and experience are essential in the management situation, for on the individual falls the task of managing such exact scientific facts as there are in the total situation. The author and, no doubt, many readers could give examples of the truth of the foregoing; the following came directly under the author's notice—

Quite recently a certain company in the south was to be organized into scientific ways. An expert came along and applied the scientific principles of definition, analysis, measurement, experiment, and proof to certain operations, but before he had been on the job very long the workers were on strike. The expert had, no doubt, much exact scientific knowledge about operating speeds and feeds and outputs, but he applied the knowledge in the wrong way and at the wrong time to the human factor.

[1] *Scientific Method*, F. W. Westaway (Blackie & Co.).

SCIENTIFIC METHOD OR RATIONAL METHOD?

The part which scientific method plays in experience is, in many instances, a valuable one. It can be likened to a sieve which sorts out the dross from useful material; it cleanses the result of experience so that we may get what is valuable. Thus, it is a tool of reasoning. It will not enable us to reason, but it may tell us if, in a particular case, our reasoning is sound. The use of the term *in a particular case* is worthy of attention, for, it should be noted, the very procedure of scientific method limits it to particular cases; it cannot rightly be used in the analysis of phenomena which involve economic and social factors. Professor Wolf, writing of the treatment of such phenomena by the use of deduction and of induction (scientific method), says—

> It is not safe to trust purely deductive reasoning, because there is the risk of overlooking all sorts of modifying or counteracting factors, so that the concrete result may be very different from that anticipated on deductive grounds. And, in the kind of cases here contemplated, it is also unsafe to put implicit trust in the induction alone, because they are based on a comparatively few instances observed with difficulty under circumstances which are extremely complicated, not varied in the way required for the cogent application of the simpler methods of induction, and altogether beyond the control of the investigator. In such cases one does the best he can by the aid of both deduction and induction, and if the two modes of procedure converge towards the same conclusion, then one's confidence in the result is naturally greater.[1]

But the matter goes much further than this, for not only does humanity touch business at every point, but it impregnates business with vital meanings and motives, with ethical interests and purposes which cannot exactly be judged in terms of material laws. "The facts are that you were off work for *y* hours this week, and as to carry his overhead

[1] *Essentials of Scientific Method*, A. Wolf (Allen & Unwin).

costs a man should work $x + y$ hours you will be penalized in accordance with the business facts," said the manager. "But my wife was dying," said the man. "I'm sorry, but we judge on business facts," said the manager. "And the facts say . . ." Then a prolonged strike resulted.[1]

Who will measure the values behind the facts of human behaviour? Who will read the scales when the external facts are contrary to the laws and procedures of effective business but the purpose behind the facts is good? Not the disciple of objective measurement, not the person whose creed is exact knowledge; for in this there is little exact knowledge. Yet authoritative writers on modern management and management education insist, in effect, that "definition, analysis, measurement and proof are the keys to every problem which face the world in the conduct of business enterprises."[2]

Any method worthy to be associated with the name *management* must attempt to give guidance, not only on fact collection, but on fact application to complex groups of people, for management is an applied activity. The method of sociology is not scientific method in the accepted meaning of the term because scientific method, that is, judgment on observed and proved fact, is of modified value in the understanding of human relationships.[3] What, then, is to be the method offered to those who require not merely abstract understanding of humanity, but assistance in guiding and controlling human efforts and interests for a specific purpose? Whatever the method, it will not be formulable in the shape of exact laws, it will be founded on reasoning, and it will be a method peculiar to management—that is certain.[4]

[1] This is an illustration from an actual case where a bitter strike followed the penalizing of a man who lost time from work owing to his wife having cancer; see page 141.

[2] *Management of To-morrow*, L. Urwick (Nisbet).

[3] See Chapter III, page 29.

[4] See Chapter X.

THE SUCCESS AND FAILURE OF SCIENTIFIC MANAGEMENT

The status of what we may for purposes of analysis call "scientific management" can best be seen from authoritative literature on the subject.[1] The interested reader will find not only a certain vagueness about what scientific management means but a very marked confusion of thought not particularly clarified in modern literature. For example, the following two definitions by acknowledged experts will show just what confusion exists—

Gilbreth says, "Dr. Taylor's functional plan of management founded upon time study is the *basis* for all scientific management, i.e. for types of management where scientific laboratory methods of analysis are substituted for the 'rule of thumb methods' that have been handed down by word of mouth."

The same authority says, "The great fundamental of scientific management is time study."[2]

Professor Roe of Yale says that scientific management consists of three things: (1) Accurate determination of the method and time in which a piece of work should be done. (2) Detailed instructions for (1). (3) Rewards and penalties to secure (1) and (2).

Many more quotations could be given from early sources; meantime, it is sufficient to note that the modern disciples of the cult are continually saying that time study has little to do with this type of management and the modern definitions are becoming more and more careful and less and less dogmatic as the fallacies of the movement are disclosed. It is interesting to note that the late Mr. John Lee tried to set up an opposing science of administration about twelve years past on much the same grounds as we reject scientific

[1] See under "Management" and "Scientific Management" in the *Encyclopædia Britannica*, 1932 edition, or the reports of the last Scientific Management Congress.

[2] *Primer of Scientific Management* (New York).

management, and that the basis of his science was the discovery of wide principles rather than either time study or scientific methods.[1]

In the field of formal procedures and mechanisms, scientific management seems to have done much excellent work or, rather, it has appeared to do so. One authority says—

> The contrast between scientific method and the older systems of management is the substitution, as far and to the full extreme which our knowledge allows, of an analysis and basis of fact for opinion.[2]

But has scientific management had its results from the application of analysis and fact finding? In actual fact, the largest results have come from the application of the biological principles of *differentiation* and *integration* or, as the economist knows them, of *specialization* and *co-ordination*. The functional foremanship of scientific management is an expression of the principle of *specialization*, the planning of work methods is an expression of *specialization* and *transfer of thought*, and the graphs, charts, and records which seem to be essential to this type of method are *co-ordinating* mechanisms. Professor Kimball, in an acute analysis of scientific management, says—

> Scientific management then involves no new principles. It rests upon sound economic laws that are well known and is, therefore, subject to all the limitations of these laws.[3]

To the student who has seen it at work it will be obvious that this method has sharpened the application of specialization and other economic procedures by bringing to the task sharpened observation and experiment aided by measuring devices (stop watches, cameras, special slide rules, etc.). Unfortunately, while so doing, it borrowed the outlook of static economic theory, what Dr. Lowe calls

[1] *Industrial Administration* (Pitman).
[2] *Management of To-morrow*, L. Urwick (Nisbet).
[3] *Industrial Economics*, D. Kimball (McGraw Hill).

"The comfortable working rule of other things being equal," instead of adopting "a more realistic hypothesis which describes how things in general change and interfere with things under consideration."[1]

It should be noted that there is no quarrel with the methods and tools associated with scientific management; disagreement is expressed, rather, with its basic postulates and with the narrow outlook it has fostered in many of its adherents. Perhaps the best example of unsupported assumption by the scientific school is seen in the Gilbreths' work [2] on time and motion study and their contention that all operations can be divided into seventeen "elements of a cycle of motion," and that in any operation it is possible to study the best motions of a number of operators and, by selection, build these up into a best way of doing the job. It is true that in terms of pure logic there is a best way of doing any job, but there is not a best way if individual differences are taken into consideration. Again, the idea that any skill is made up of basic elements of motion to which it can be broken down is an atomistic view of human behaviour which is unsupported by most psychologists and has much evidence to the contrary recorded by numerous research workers.[3] Yet another typical assumption is that "fatigue" is a general condition covering physiological and psychological states of the human organism and, too, states of particular muscles after exercise which manifest themselves as feelings of weariness and drops in output; Poffenberger illustrates that feelings of weariness are not related to output.[4]

It seems that drops in output may result from the impact of the total physical, psychological, and social factors in any

[1] *Economics and Sociology*, A. Lowe (Allen & Unwin).
[2] *Fatigue Study*, Gilbreth (Macmillan).
[3] For example, W. F. Book's *Psychology of Skill* (University of Montana, U.S.A.).
[4] *Applied Psychology*, A. T. Poffenberger (Appleton).

work situation; indeed, it may be said with some justification that the total work situation must be considered before the interpretation of facts derived from study of single factors within the situation be accepted. The grand underlying assumption of past and present scientific management practice is undoubtedly that it is possible to apply a system of analysis and synthesis to particular parts of a total business situation and to arrive at exact conclusions which are true of and applicable to the total situation. Its approach is supposedly scientific, yet its basic assumptions have been and are being challenged by psychologists, anthropologists, and sociologists alike.

The childish assumption that because management uses scientific method, management is therefore "scientific" is akin to an assumption that because management uses machinery, management is therefore mechanical. The industrial psychologist's attitude is given by C. S. Myers: "He does not neglect scientific methods of procedure, but he regards them as servants, not as his master."[1] If this be true of specialist industrial psychology, how much more true is it of management which has to integrate numerous specialist activities in terms of harmonious operation of the whole business situation?

It is interesting to note that more than twenty years ago Professor Graham Wallas warned the scientific school that their practices, owing to the predominance of the *a posteriori* methods of inductive logic, that is, judgment on immediate facts, would result in impatience with the wage system as a whole, and the growth of "ca' canny"; he suggested that the scientific school "make some use of the more or less *a priori* methods of general psychology and sociology."[2] Confirmation of this warning seems to be given by Viteles's review of twenty scientific payment plans; he agrees that

[1] A paper read before the Royal Society of Arts.
[2] *The Great Society*, Graham Wallas.

they generally led to increased output and to increased earnings, but also to voluntary restriction of output.[1]

The success of the application of inductive logic to material production factors has been considerable, but alongside of this success have been sown the seeds of distrust and suspicion of management as a whole, which finds repercussions throughout the whole industrial and social structure. This has been the result of four things: first, the acceptance of a short range hypothesis that immediate increased profit in single businesses for a few months or years was a sign of increased efficiency;[2] second, the ignoring of social and psychological factors in industry; third, the exploitation of the method by efficiency engineers with, as prime motive, personal gain; and fourth, lack of realization that "scientific method is a method of proof rather than of discovery,"[3] and that, in any case, it is not rightly applicable to the human factor.

A noticeable feature of what is called scientific management is that its disciples take for granted that it can be applied in every country regardless of racial characteristics and racial reaction to its formal technique. It is our proposition that, although the measuring and recording devices usually associated with this type of management may be used universally in industry (just as grocers' scales and account books are used universally in the grocery business), the management of the ideas for which the mechanisms stand must vary with the bio-psychological content of the whole situation. Thus, a body of men with little or no social traditions and strongly developed economic sense may accept four or five different bosses each with direct authority over the group in some particular way (Taylor's functional foremanship) if payment to the group is high enough, and another group with a developed social sense may resent the

[1] *Industrial Psychology*, M. S. Viteles (Jonathan Cape).
[2] *The Great Society*, *ibid.*
[3] *Scientific Method*, Westaway.

procedure, no matter what is the payment made. The author has experienced numerous examples illustrating the intrusion of social factors with sacrifice of earnings because of these factors, and, he feels, therein lies a partial explanation of the failure of the scientific cult in industrial management.

The study of human ecology[1] will give the student numerous proofs of the proposition that the procedures suitable to and acceptable by any racial group will depend upon racial tradition and custom, present social environment, physical environment, intellectual development, and acquired racial characteristics. This proposition is true in a narrower sense, for practical experience seems to prove that while girls and unskilled labourers will accept planned procedures based on the transfer of skill and of thought, the more intelligent, skilled section of the industrial workers may and often do intensely resent them.

Later on in the book we will deal more fully with the foregoing subject; meantime, it is essential we note that viewed as a thing in itself the formalism of the scientific cult is a good tool of profit making; viewed, however, in respect to a total industrial situation it may be, and has been in many instances, a destructive force. In other words, we must discriminate between the logic of any method and the logical utility of the same method in terms of the total situation into which it has to fit.

Taylor had a genius for integration as well as for production engineering, and, too, he had a powerful streak of idealism. The very things he seemed to condemn, personal knowledge and personal ability, were the factors which made his methods so successful and freed his work from strikes (a fact often advanced as proof of the truth of scientific management).[2] His success was in his genius, and the method was incidental to that genius—therein lies a true

[1] See, for example, *Human Ecology*, Bews (Oxford University Press).
[2] See *Encyclopædia Britannica*, 1932 edition.

commentary on the relationship of scientific to personal management and, also, the most fitting commentary the author can make on a great man.

RATIONAL MANAGEMENT

The attitude of rational management to the value of personal knowledge and experience is, in some respects, a return to the values of the much derided traditional management and a reaction against the narrow formalism of scientific management. It places individual knowledge, individual experience, and individual character highest in the scale of management values, but differs from traditional management by its insistence on rational attitude and rational method, and on obedience to the purpose of business. This last point is one which will later be given due consideration; meantime, it is sufficient to note that the principle of *authority and obedience*, which is true of all organized effort, does not mean only that the many should be obedient to the few but, also, that the few should be obedient to the purpose which the effort is serving; this point has received slight consideration in management treatises, nor has there been any attempt made to analyse its implications. It implies, in short, rigid self-discipline and high example to those managed—rational management incorporates the necessity for both of these.[1]

In a later chapter it will be made quite clear that business is a social function carried out by social beings in a socially differentiated institution, and that its prime function is to serve community; it will also be made clear that for the effective service of community the business institution must itself be effective and give a reasonable return on necessary capital. Thus, rational management insists that management be obedient to the dual purpose of social and economic effectiveness, and not merely to the profit motive.[2] Service

[1] Chapter V.

[2] See Chapter V or the Statement of Fundamental Principles, page 212.

of the profit motive only, through hasty and erroneous application of technological practices by engineers misled by the seeming magic of "exact knowledge" as a justification for ignoring social and psychological factors in industry, has lost management its leadership of the workers. It is the proposition of rational management that the leadership can be won back by the adoption of a rational purpose and by loyal obedience to that purpose.

The attitude of rational management to the sciences is dealt with in the next chapter; its attitude is philosophic, in that it tests the data of one specialized science against the data of the other specialized sciences, and relates the result to the total management situation. This, as will be seen, is not only a reasonable attitude but is an essential one.

In education, rational management insists on the application of the *principle of whole learning*. By giving the student a general knowledge of the whole meaning and purpose of industry, it suggests that he will be better able to act as a specialist without tending to throw the whole business mechanism out of balance by over-insistence on the infallibility of this or that method. In industry, the pure specialist on planning, time and motion study, accounting, budgeting, and other procedures and mechanisms may be a menace. Why he may be so is concisely set out by Professor Whitehead in his profound survey of the implications of modern science; the quotation is a long one, but as it explains the danger of specialization better than can the author of this book, it is worthy of full record here; incidentally, it explains why the attitude of rational management to the sciences is philosophic and critical.

> Another great fact confronting the modern world is the discovery of the method of training professionals, who specialize in particular regions of thought and thereby progressively add to the sum of knowledge within their respective limitations of subject. In consequence of the success

of this professionalizing of knowledge, there are two points to be kept in mind, which differentiate our present age from the past. In the first place, the rate of progress is such that an individual human being, of ordinary length of life, will be called upon to face novel situations which find no parallel in his past. The fixed person for the fixed duties, who in older societies was such a godsend, in the future will be a public danger. In the second place, the modern professionalism in knowledge works in the opposite direction so far as the intellectual sphere is concerned. The modern chemist is likely to be weak in zoology, weaker still in his knowledge of the Elizabethan drama, and completely ignorant of the principles of English versification. It is probably safe to ignore his ignorance of modern history. Of course, I am speaking of general tendencies; for chemists are no worse than engineers, or mathematicians, or classical scholars. Effective knowledge is professionalized knowledge, supported by a restricted acquaintance with useful subjects subservient to it.

The situation has its dangers. It produces minds in a groove. Each profession makes progress, but it is progress in its own groove.... Thus, in the modern world, the celibacy of the medieval learned class has been replaced by a celibacy of the intellect which is divorced from the concrete contemplation of the complete facts.[1]

Later, this author says—

The dangers arising from this aspect of professionalism are great, particularly in our democratic societies. The directive force is weakened. The leading intellects lack balance. They see this set of circumstances, or that set, but not both sets together. The task of co-ordination is left to those who lack either the force or the character to succeed in some definite career. In short, the specialized functions of the community are performed better and more progressively, but the generalized direction lacks vision.[2]

Thus, as Professor Whitehead indicates, a broad background of knowledge is required before the student be made

[1] *Science and The Modern World*, A. N. Whitehead (Cambridge University Press).
[2] *Ibid.*

a repository for facts about commercial and industrial processes, and for details about mechanisms and procedures. A wide philosophic outlook must be the characteristic of modern executives if the industrial institution is not to be disrupted by the specialist attentions of "exact knowledgists" and "scientific procedurists." Already, the too successful operations of these people have, in the words of Professor Mayo, been "to produce a considerable degree of social disorganization,"[1] and the most powerful and certain corrective is to recast our management educational syllabuses on a broader basis.

As the book unfolds itself the true significance of rational management will be clearer.

As was stated in the Preface—

> All human conduct is managing conduct disciplined in terms of ends sought and the means used. . . . Rational management is personal conduct based on intelligent acceptance of the disciplines arising from its service of the dual purpose of industrial social and economic effectiveness and on adoption of a rational, unbiased attitude to the problems of industrial production and distribution and to the contributions of the sciences to the solution of these problems.

If it be asked, why apply any adjective to industrial management? the answer is that such an adjective serves no purpose other than to re-institute in management philosophy the values of individual experience, character, and reasoning which were displaced by the theory of scientific management, and to indicate that management is subservient to no cults, scientific or political, but applies to all the acid test of efficacious reflection in terms of its serving code. Rational management will be as good without the name, or a better name may be found.

[1] *The Human Problems of an Industrial Civilization*, Professor Elton Mayo (Macmillan).

CHAPTER II

THE SCIENCES AND MANAGEMENT PHILOSOPHY

WHAT is "science"? Writers on modern management, in a worthy attempt to prove management to be a science, refer to science as being a body of codified knowledge, and reason from this that as management has codified knowledge, management is, therefore, a science. The following quotation will illustrate this attitude—

> Science has been defined as "an organized body of knowledge that has been accumulated on a subject." On this definition we can claim that administration is entitled to rank as a science.[1]

But is science a body of codified knowledge? It is doubtful if any scientist would like to hear his work defined as a body of codified knowledge. W. C. Dampier-Whetham says—

> . . . in general usage a more restricted term has been adopted, which differentiates "science" from other branches of accurate knowledge. For our purpose, science may be defined as ordered knowledge of natural phenomena and of the relations between them; thus, it is a short term for "natural science" and as such is used here in conformity with a general modern convention.[2]

There are as many definitions of science as there are sciences but, if we agree that the most difficult factor and the most important in business is the human factor, it is very questionable if there are sufficient grounds for calling management a science. Hepner says—

> Some personnel men have thought of themselves as scientists rather than as artists in dealing with men. Science has not yet been able to supply personnel men with

[1] An article in *Industry Illustrated*, May, 1937, by E. S. Byng.
[2] *Encyclopædia Britannica*, 1932 edition, article on "Science."

> enough tools and systems that would allow management to displace empirical artistry with scientific procedures.[1]

That scientific knowledge will supply an adequate background for future management practice is undoubted; the background, however, will be composed of generalizations which are the result of controlled observation of groups and they will not be substitutes for personal capacity for deciding what is or what is not the correct procedure in a particular instance. However, scientific management has never been "scientific" in the sense that it used scientific knowledge; it has claimed to be scientific in the sense that it used scientific method—a consideration of some importance.

It is obvious that if we care to call any activity which has codified knowledge behind it a "science," then we may call music, painting, or literature a science, as any teacher of these subjects will agree. In any case, management is the *application of knowledge*, not merely the collecting and the codifying of data; indeed, if we accept the scientific school's point of view that management previous to scientific management had not a basis of fact, then a basis of fact (codified knowledge) is not necessary to management as management.[2]

The relationship of philosophy to science is clearly stated by Westaway—

> Now, the tendency of specialists in any department of science is, naturally, to lose sight of the whole while paying attention to those particular modes of working which happen to be exemplified in their own sphere of investigation. The task of co-ordination is undertaken by Philosophy. Philosophy critically examines the hypotheses and conclusions of the scientific specialist.[3]

It will be obvious that management attitude to science is critically co-ordinative and is, therefore, philosophic, and

[1] *Human Relations in Changing Industry*, H. W. Hepner (Prentice Hall).
[2] See definitions of scientific management, pages 8, 13, 14 and 23.
[3] *Scientific Method*, F. W. Westaway, (Blackie & Co.).

that any statement of the whole management process based on scientific knowledge must be philosophic. The application of derived knowledge is an art, but though intuition may play a part in the application (as in the truly great leaders) it is essentially a rational art, hence our choice of the term *rational management.*

DIFFICULTIES IN SELECTION OF DATA

It is exceedingly difficult to relate the hypothesis of the specialized sciences to each other and arrive at a conclusion satisfactory to everyone interested in science. The task is made more difficult by the fact that within each of the specialized sciences there may be considerable disagreement on major questions; an outstanding example of this is the conflict of the "mechanistic" and the "vital" schools in psychology and biology, another is the conflict on the transmission of acquired characteristics in embryology.

To students interested in a management philosophy the effect of specialized research is best seen in the points of view of individual psychology and sociology on individual capacity for effective effort; as this matter is vital to such a study as this it will be well to examine it.

The scientific school of management worked on the principle of the "one best way" of doing a task, and by the application of systematic analysis and synthesis determined this "one best way" and insisted on the worker carrying it out. Individual psychology offered a check to this dangerous and unscientific practice by its insistence on the principle of individual differences: that each person by reason of hereditary differences and intelligence variations has different capacities which enable him to perform some tasks better than other tasks. On this principle has been erected the practice known as industrial psychology, that is, the practice of selection and training of workers on the basis of their special and general abilities, the general hypothesis being

that with such selection and training the best results will be had from each worker.

But, says the sociologist, individuals are not only different, they are alike. Factors in working effectiveness are the common social interest in adequate social living and the expression of the individual's social nature in the conditions of the work to be done and in the work itself.

Now, this latter contribution is sound common sense and will instantly appeal to the intelligent person who has worked with a group the members of which did not fit in with each other, or who has noted the great difference between effort applied to a job for duty's sake and effort applied because of interest satisfaction in the job. The noteworthy research directed by Professor Mayo into conditions of operating effectiveness at the plant of the Western Electric Company in America and reported in a monograph "Scientific Management and the Worker" bears this out. The monograph makes the following important and vital statement—

> There was no relationship between capacity as measured by intelligence and dexterity tests and actual output, nor did earnings account for difference in output. . . . Output for operators was a form of social behaviour.[1]

Later we shall expand on the social aspects of production; meantime, it is sufficient to note there are social aspects.

The study of economics may mislead rather than help the student. For example, the so-called economic laws of specialization and co-ordination are of signal importance to management, but these laws are special names given by the economist to the phenomena of *differentiation* and *integration* common to biology and sociology and, it may be said, to mathematics. It may seem that this creation of special names by the economist may have little significance, but

[1] *Scientific Management and the Worker*, Roethlisberger and Dickson (Harvard).

it is of major import, for, whereas integration of effort means the unifying of each special element in the effort so that the whole is a harmonic unit, co-ordination is known by writers on management as the arrangement of specialized units into a related structure. Co-ordination is static arrangement, integration is vital unification. The difference will be clear when we consider a highly specialized factory in which each worker is related through organization to every other worker and to the various authorities; this is co-ordination as understood by economically-minded management authorities. But the worker is not thereby integrated with every other worker and with the various authorities; indeed, he may be, and often is, a rebellious unit.

It is true the foregoing seems to play on words; nevertheless, the values attached to the words quoted are substantially true. The too slavish following of static economics by the scientific school of management is responsible for the great loss sustained by the over-use of structural co-ordination and the under-use of vital integration.

THE CONTRIBUTION OF THE SCIENCES

The contribution of the sciences to the management process has not yet been calculated. By this is meant that, so far, there has not, apparently, been made a deliberate survey of the sciences to discover what data they have to offer management.

If we accept the division of scientific activity into three great classes, chemo-physics, bio-psychology, and sociology, it will assist in the approach to a survey such as is mentioned by avoiding the necessity for special treatment of each specialized science. As, in fact, the purpose of such a survey is philosophic, the broad division given is all that is necessary.

From the realm of chemo-physics, industry has drawn and is drawing continuously for her supply of physical data on

products and processes, and on inorganic operating mechanisms. Thus, this department of science need not be considered by us, for it is very close to industry; how close is witnessed by the employment of competent physicists and chemists by numerous industrial companies.

The class term bio-psychology includes those sciences which are concerned with organisms ranging from microbes to mammals.

From the physical, as distinct from the psychic side of bio-psychology, the most evident contributions to management rest in the findings of physiology; these include data on physical fitness for work, effects of conditions of work on physical fitness, tests of physical fitness for work, and measures of physical satisfaction. On the psychic side of this great branch of science there is a wide field of individual psychology from which are contributed data on the conditions of mental fitness for work and measures of mental satisfaction.

There has not been an organized use of the data of bio-psychology by management, although Government, through the medium of the Factory Acts, has enforced basic measures for the promotion of healthy physical conditions. In many businesses, however, there is a valiant attempt being made to provide healthy physical conditions and to promote employee health through welfare activity. Perhaps the most vital contribution recently made is that on minimum adequate nutrition for all; this contribution is a central factor in the "plenty for all" planning schemes to be dealt with in a later chapter.[1]

The attempts made to apply the fruits of individual psychology to industry are confined to particular companies and the attempts themselves are the product of specialist groups concerned with industrial psychology.

In the class term sociology are included those sciences

[1] Chapter IX.

which are concerned with man as a social being having a continued tradition: social psychology, social anthropology, and political and industrial economics may be included in the term. Closely allied to these and impossible reasonably to treat separately are social philosophy and ethics, this because of the factor of value which runs through all social study. As Professor Hobhouse remarks—

> The heart of social life is human purpose, and purpose is to be interpreted not like an event in nature through its causes but in terms of its wisdom or unwisdom, its goodness or badness, in a word its value.[1]

Ethics is concerned with the study of conduct and it aims "to give a systematic account of our judgments about conduct, in so far as these estimate it from the standpoint of right or wrong, good or bad."[2] In general, ethics insists that there are certain fundamental "rights" which must be satisfied if society is to be adjudged moral: conditions of food, labour, and housing which shall ensure every child being physically well born, and equal education for all are, students of ethics say, two such "rights." The problem of management in its social and economic aspects is to consider (*a*) if the attainment of these "rights" is practical and (*b*) what circumstances require removing or altering to attain a state wherein these "rights" will be satisfied. Thus, we could say that ethics may give management the broad moral principles governing not only its wide social and economic obligations but, as will be later mentioned, its day-to-day obligations in business; obligations to which it must subscribe if it is not to be merely a tool for the advancement of economic efficiency at the expense of, perhaps, whole social good.

Social philosophy is a source yet untapped by management; the author, however, has received considerable help

[1] *Social Development, Its Nature and Conditions*, L. T. Hobhouse (Allen & Unwin).
[2] *Ethics*, Dewey and Tufts (Bell, Ltd.).

from the works of social philosophers on problems of industrial authority and obedience and on sanctions of industrial procedures. The contributions of this branch of thought will, it seems, remove much of the vagueness from management philosophy; vagueness illustrated by the supposed "law of the situation" referred to by scientific methodists when faced by problems of employee sanction or non-sanction of formal methods.

Formal industrial economics is largely represented in the methods and procedures of industrial operation. Specialization of human and non-human factors has gone on at an increasingly great pace with the development of machine production; this representation has been partly unconscious, that is, has been in the nature of growth, and partly conscious, as witnessed in the efforts of consultants and efficiency engineers.

Social psychology in industrial management is largely confined to treatises on the instincts; the larger problems of social grouping and social behaviour are hardly touched upon. There are, however, a number of valuable works on group behaviour among young people which lead one to hope that shortly the social psychologist will turn his attention to industrial groups; even so, the works in question offer management much food for thought.[1] The value of social anthropology as an indicator of the relationship of group traditional structure to logical economic structure has only recently been touched upon by Professor Mayo in America and by his assistants.[2]

THE SCIENCES AND MANAGEMENT EDUCATION

If one cares to scan the various syllabuses concerned with management education it will be observed that they are

[1] See, for example, *Experimental Social Psychology*, Murphy, Murphy & Newcomb (Harper & Bros.), and *Handbook of Social Psychology*, Murchison.

[2] *The Human Problems of an Industrial Civilization*, Elton Mayo. *Leadership in a Free Society*, T. N. Whitehead (Oxford University Press).

composed round the subjects of industrial mechanisms and procedures with the sciences stressed only in that particular department having to do with industrial economics. There is, true, a light stress on worker selection and training and welfare, but of sociological subjects there are none. There is not, either, any attempt made to teach *Method* in the handling and solution of industrial problems.

That it should be so is not surprising when it is considered that management education has largely been the province of people other than philosophers, sociologists, and logicians. The work done has been excellent in itself, but it has lacked in breadth and vision, in the integration which can come only when specialist thought is passed through the test of philosophic inquiry.

THE NECESSITY FOR ORGANIZED USE OF SCIENTIFIC DATA

The use of scientific data by specialists interested in one or other special branch of science is not only of limited value but is dangerous. This is only too well witnessed in the specialist scientific engineers who exploit only economic principles and, as will later be proved, disintegrate any industrial co-operation previously in existence. Management must be wary of the specialist, for it is in his nature to claim that his method is the panacea for all industrial ills. As Professor Hobhouse says—

> The philosopher and the sociologist are common sufferers from the tendency of new discoveries in special sciences to popularize an idea or a method and extend it perhaps by far-fetched analogies to the whole field of thought and human life. People cannot even make discoveries—quite real and genuine discoveries—in morbid psychology without attempting to annex the whole realm of mind in their name.[1]

Management, in its philosophic role, is subject to the ills

[1] *Social Development, Its Nature and Conditions*, L. T. Hobhouse (Allen & Unwin).

quoted above, and only management can present an organized front to them. Industry is more and more becoming functionalized, and specialist planners, accountants, timing engineers, and production and sales specialists are a commonplace, as are people making claims for the merits of this or that method of labour organization, labour selection, graphic or card control, and the like. It is not unusual to find one or other method specialist in control of a business, because, sometimes, of a bias in higher management outlook, and because, at other times, of sheer ignorance of management's true function in relation to the whole business situation. Management must use the specialist only after moulding his specialism to suit the total management situation; this is true of scientist and system seller alike. If management does not rise above specialized thinkers and methodists, then so much the worse for industry.

The formation of a body of managers, either within or without an existing management organization, who would call upon the assistance of experts from each of the branches of the relevant sciences, could accomplish something of good; or the employers could assist by organizing a national group. This latter suggestion is unlikely to bear fruit, the former is the more hopeful.

PART II

BASIC ASPECTS OF MANAGEMENT AND ORGANIZATION

CHAPTER III

THE INDUSTRIAL SIGNIFICANCE OF SOCIAL BEHAVIOUR AND PURPOSE

As it is our proposition, yet to be proved, that economic activity is a social function carried out by social beings within a socially differentiated institution, it will be apparent that any thorough study of industrial activity will commence outside of the formal boundaries of industry. Such a study, to be fundamental, must begin with an inquiry into the significance of individual and social behaviour, if we are not to make the mistake of thinking that what is sometimes called "economic behaviour" is merely a kind of inflexible response to a monetary stimulus. The fact that people in work are the same people out of work, and that their outlooks, sentiments, and traditions are not left at home when they go to the office or factory is evident, yet it has not, in the past, been clearly expressed in management thought. How far this is true, and the consequences arising from its too slight expression in industry, will be clearer as we proceed.

There is still an idea that the economic institution is a product of the work of a comparatively few men and that organized economic activity is a product of people with enterprise and capital. As one of the author's students put it, "modern economic activity owes its being to the influence of inventors and the services of capital." When asked where he got the idea from, he produced a book dealing with

industrial economics; the book propagated the not uncommon idea that the business structure is what the metaphysician would call a "thing-in-itself" and that it is possible to study it as something quite apart from social life. This idea, which is in the same category as that of the "economic man," suggests that it is possible to understand trees and flowers without considering their roots or, to put it another way, that one could understand why and how a clock goes by studying the movements of the hands. That these analogies are not far-fetched can be proved by any person sufficiently interested to examine, say, a random half-dozen books having to do with industrial organization and management.

Whatever the influence of this or that external factor, *the interests of humanity are the cause of all social activity, and social evolution is a result of human interest evolution.* Included in the term social activity are all forms of business activity. Interests are the driving force behind behaviour, interests in food and clothing, in books and music, in politics and ethics; the interests may be instinctive as in the lower animals, or they may be brightly lit up with the fire of self-conscious genius, but, if we would understand behaviour of any kind, we must know the interests behind it. This is a recognized axiom of the bio-psychological and social sciences and need not delay us further.

THE PROBLEM OF HUMAN BEHAVIOUR

At the beginning of his studies of social organization (and in this term is included economic organization) the student who desires to build his industrial philosophy on a sound foundation of knowledge is faced with two alternatives, two lines of thought, the acceptance of either of which will colour his whole outlook. On the one hand there is the mechanistic school, which regards human conduct purely as motor response to stimulus; on the other hand is the school which

believes human conduct to be conditioned by ideals beyond the range of mere response and stimulus: the good, the true, and the beautiful are such ideals.

If the mechanistic theory be accepted, the student, if he becomes a manager of people, will be an extreme disciple of the scientific method school; he will attempt to explain behaviour in terms of cause and effect and, with the *behaviourists*, will aim at the deriving of formulae which will explain human behaviour in any given instance. If the alternative theory be accepted, the student will include the element of purpose in all his explanations of human conduct.

It is difficult to describe the meaning of mechanistic theory, for there is not one but many theories, each of which, if mechanism be followed to its logical conclusion, could be described as a resultant of the responses of the theorist's motor structure to external conditions. Thus, there is the mechanist who proposes that behaviour is the result of the interplay of instinct, modified by experience and external conditions; another type of mechanist, the behaviourist, throws the instinct theory overboard and proposes that, "given the relatively simple list of embryological responses which are fairly uniform in infants," he can "build any infant into any kind of man given control of external and internal conditions."

There is something pathetic about this last theory; given this and given that, I could do so and so. It suggests a common jibe which used to be prevalent in machine shops in the North: "If that chap had a decent machine instead of the one he has he would do much better—if he could work a machine."

The foregoing and similar theories should not be mistaken for science; they are simply hypotheses erected on a more or less limited basis of fact, the facts, in these cases, being derived largely from objective observation of animal behaviour. Here it is manifestly impossible critically to

examine the basis on which these theories are founded. It is noteworthy, however, that they are the theories of specialist thinkers concerned with one or other aspect of life and that philosophers, whose function is to correlate specialist fact, either modify them or reject them entirely. This, of course, proves only that when a whole view is taken the mechanistic facts appear not to retain their original import.[1]

It seems as if these mechanists overlook the magnificent range of human potentiality, and, too, the fact that human conduct has significant meaning; meaning which can completely alter the value of conduct. If, for example, the factor of pugnacity be taken: in one person it leads to war, in another to crusading for peace—both activities have the same base, but the expression depends on the purpose which acts as a determining factor as to which course behaviour will take. It is true that pugnacity is modified by other instincts and by intellectual experience (if the mechanistic *instinct theory* be accepted and the mechanistic *behaviourist* theory be rejected), but, it seems, man's conduct is modified by remote purposes, purposes which, in their higher form, have their seat not in experience, but in the inner self responding to the moral laws of its being. Muirhead puts the matter clearly when, speaking of consciousness, he says—

> . . . it does not approach the world as a passive receptacle, or a *tabula rasa*, on which the world to be known imprints itself. From the outset it is an active principle of interpretation, to which the world comes as a system of signs, like the signals received by the clerk at a telegraphic depot, rather than as a reflection in a mirror, or the impression imprinted by the seal upon the wax. Moreover, the standard of interpretation is furnished by itself; and the world which it builds up out of the material supplied

[1] The reader is referred to A. B. D. Alexander's *Short History of Philosophy* (Jackson, Wylie) for the philosophic viewpoint, or C. E. M. Joad's *Guide to Philosophy* (Gollancz).

it from without is a memorial to the fundamental principles it brings with it to the work (i.e. to the chief features of its own inner nature), rather than to any world that exists independently of it.[1]

There is little doubt, however, but that each of us has inborn forms of behaviour, usually called "instincts," the utility of which seems to be the promotion of individual survival and protection of the species.[2] These instincts are variously classified by different authorities. The following is a general classification—

Instinct	Emotion	Action
Combat	Anger	Destroying
Constructiveness	Creativeness	Making things
Repugnance	Disgust	Avoiding
Fear	Fear	Escape or "freezing"
Nutrition	Restlessness	Seeking food
Acquisitiveness	Greed	Ownership
Curiosity	Wonder	Exploration
Appeal	Insecurity	Moaning and weeping
Parental	Pity	Rescue
Self-assertion	Masterfulness	Leadership
Self-submission	Humility	Deference
Gregariousness	Crowd emotion	Social

To these the sex, play, and other instincts could be added When the instincts combine, complex sentiments arise. Thus, the combination of fear and anger gives rise to hatred; scorn is a combination of disgust and anger; loathing is a combination of disgust and fear, and so on. The instincts modify each other and, say psychologists, they are modified by the force of social customs and of individual intelligence.

The part which intelligence plays in behaviour is considerable. As intelligence develops, conscious aims become more important and, in time, intelligence is able to grasp the meaning and end of behaviour. Thus, although the

[1] *The Elements of Ethics*, J. H. Muirhead (John Murray).

[2] The author realizes that books on management which suggest that the "instinct theory" gives a full explanation of conduct are unsatisfactory and that in any case organic factors are not now held to be so important as personal and social factors.

end of behaviour may be the satisfaction of interest or want, the means of attainment vary with each person according to his intellectual strength and, too, his accumulated experience.

Social tradition may be a powerful factor in behaviour, for when a man's intellect and experience tell him his interest would best be served by a certain course of action, tradition may forbid it; again, social tradition may repress the expression of one or more of the instincts; this repression is one of the major subjects of psycho-analytical practice.

If, now, we combine the matter of the last three paragraphs with the disputed factor of purpose, of which more will later be said, we may conclude that *the interests which lead to behaviour are largely determined by mutually modifying individual and social instincts varied in expression by the force of social tradition and by the intellectual experience of the individual and the influence of ideal purposes.*

HUMAN SIMILARITY AND DIFFERENCE

Quite recently, there has been, in the most progressive departments of management thought, considerable stress on the principle of individual differences. In the previous chapter it was mentioned that the extension of this principle to industry has given rise to industrial psychology, which study is concerned largely with the selection and training of industrial personnel on a scientific basis. The principle, though correct in one respect, is erroneous in another in that it ignores human similarities and the effect of such similarities in both social and industrial grouping. The principle, from the practical point of view, would be better stated thus: *As human beings are fundamentally alike in their physical and psychic characteristics, their fundamental interests are alike, but as each person, by reason of hereditary differences and difference of experience, varies in some respects from other persons, the individual's expression of fundamental interests*

and the ability to satisfy them differ in some respects from those of other individuals.

It is human similarity which causes people to form whole social communities, it is human difference which is the cause of class differentiation; it is human similarity which binds a nation together in the face of an external enemy, it is human difference which is the cause of conflict within the nation. For the understanding of industrial co-operation, of industrial conflict, of base rates and rate variation, and of a hundred and one other questions close to the minds of management, this principle of human similarity and difference is of high importance. In a later chapter we shall consider its industrial import more closely.[1]

It will be noted that the last one in the list of instincts given in the previous section is the gregarious or herd instinct. It is accepted by a number of scientists that man is a social being because of his social impulses; other scientists, and social philosophers generally, suggest that as man becomes more rational he increasingly asserts himself over all of his impulses and tends more and more towards a higher form of sociality based on sympathy and friendship, and on the development of unselfish ideal purposes. But, whatever be the source of sociality, it may be accepted that *because of man's social nature and because his interests can be satisfied only in relationship with other human beings, human community is inevitable and necessary.*

GROUP BEHAVIOUR

What is true of individual behaviour is true of social behaviour, and the conclusion enunciated above applies to the latter kind of behaviour with such natural modifications as will arise when a group of people follow a group purpose. There is, however, no separating of the individual from social life, and when individual and social behaviour are mentioned

[1] Chapter XII.

they are terms of distinction of source of behaviour, and do not suggest there can be individuality without sociality. Anthropology, that branch of natural history concerned with the human species, offers us no evidence of purely individual living. Dr. Muller-Lyer states—

> The social origin of man is further confirmed by the fact that up to now not a single example has been found of human beings living in independent separate families. No matter how unfavourable the climate or unprofitable the ground, making the struggle for existence unduly hard, still the families remain in groups if possible, or being forced to scatter, keep in correspondence with one another.[1]

It is not, however, suggested that social or group behaviour is generally on a plane equal to that of individual behaviour; on the other hand, it is not suggested that group behaviour is essentially a product of social sentiments and traditional codes of ethics. This latter attitude is a product of too great leaning on analogy from social anthropology's findings on primitive group behaviour, an attitude which, when applied to industry, can lead to conclusions of modified value. Later on this matter will be treated more fully; meantime what is said in Part I about the difference between one group and another is here expanded.

It is true that in a primitive group, behaviour is largely a result of social sentiments and traditional codes and procedures, but, as group character increases, the effect of this is to modify behaviour by the influence of an increasingly high purpose. The character of a social group is the sum of its sentiments, its mode of thought, and its capacity for control, and the higher its character level the higher the standard of its behaviour. That this is so is apparent from the study of the behaviour of the individual and the effect of the growth of intelligence on the operation of the vital impulses; it follows, as a group is an inter-relation of

[1] *The History of Social Development*, F. Muller-Lyer (Allen & Unwin).

individual minds, that the mind status of the individual members of a group will affect the mind status of the whole group.

A common group may behave only in what is a blind, instinctive manner; it may fluctuate between rational and irrational activity, it may be controlled by a conscious but ulterior purpose, or it may be integrated in the conscious service of a high purpose. Again, the behaviour of a group will be determined to some extent by the character of its accepted leaders, a fact true in experience but ignored in many sociological treatises, the authors of which, perhaps, have reacted too violently away from the "great man" theory.

There are, too, occasions in which the behaviour of a group may be of a higher standard than of any individual in the group. A case in point is a meeting of a small group out of whose interchange of ideas a greater idea may appear, and out of this idea come a greater standard of behaviour. In general, however, it can be stated that the interests which lead to social behaviour are generally more primitive than are individual interests, and social behaviour is, therefore, generally less logical than individual behaviour.

It cannot be too strongly insisted that when the term "less logical" is used it does not follow that group attitude or behaviour is illogical, as is proposed by Whitehead when he suggests it is quite useless for industrial leaders to depend on logical appeal to their workers.[1] The reaction to any appeal will depend, among other things, on the character of the group and the purpose of the appeal. The problem may not be: is or is not logical appeal useful, but *is the logic backed by a purpose which appeals*? Thus, an executive may definitely prove that in terms of his business the use of time and motion study or of labour-saving devices is logical, but his logic may be rejected on the grounds of its limited

[1] *Leadership in a Free Society*, T. N. Whitehead (Oxford University Press).

scope and an opposing logic based on the broader ground of the effect of the new procedures, not on the group concerned, but on the whole group of workers in the industry, may be substituted. On the other hand, the group may be definitely illogical, as, indeed, many groups often are.

INDIVIDUAL AND GROUP BEHAVIOUR[1]

It was stated earlier that there is no separating of individuality and sociality. If, for example, the list of instincts given earlier be glanced at, it will be observed that part of man's deeper nature is gregarious, but the significance of what we may call socio-individuality goes further than that.

Individuality does not mean difference, nor does it mean only the power of self-determination and self-expression necessary to growth of personality, as suggested by Professor Maciver; rather does it seem to mean the total nature plus conscious awareness of that nature as contained in the Self, the ego. But self-consciousness does not isolate a man's nature from that of his fellows; in the primitive stage of development the need for fellowship is instinctive, but, as self-consciousness develops, the need becomes controlled and directed, in the highest stages, to service in community.

Industrial leaders often make the mistake of thinking, if they think about it at all, of the relation of the individual to his group as physical. Thus, the method of some organizers is to isolate a few individuals and convince them of the logic of new techniques in the belief that such individuals will sway the group. Often enough the method fails, for, as soon as these individuals get back to their group, they are absorbed in the total relationship, their logic may change, and the whole scheme be turned down by the group as a

[1] The point of view expressed in this section has been developed largely from study of the work of M. Ginsberg, L. T. Hobhouse, and R. M. Maciver.

body. Who that has managed men is not aware of the truth of this?

It is true there is a stage in individual development when the consciousness of social being may be thrown aside and the individual ruthlessly exploit his community for his own ends. It will be agreed that such people are not balanced beings, but are overloaded with one or other quality of self-seeking; or it may be, as Emerson suggests, that Divinity has weakened all of their urges but one, so that their whole nature may be concentrated on that one urge for the shaping of some remote social purpose.

Whether or not a person be self-seeking (and he can be that only in relationship with others) his social nature is in him and there is no denying of it for long. He may deny it in words and may be foolish enough to boast of his independence, but, as Comte bluntly puts it—

> The man who dares to think himself independent of others cannot even put the blasphemous conception into words without immediate self-contradiction, since the language he uses is not his own.[1]

The greatest individuals find their richness and fruitfulness only in community, in community they find the fulfilment of their being. The greatest communities are those which develop individual greatness in their members, for, in so doing, the life of community rises from a primitive need to a spiritual bond.

SOCIAL FACTORS IN INDUSTRIAL BEHAVIOUR

The purpose which generally motivates social groups is gravely misunderstood in industry by many executives. In the first place, they may not see each group of workers in a business as a social group with social characteristics and, in the second place, they magnify the power of one or other natural characteristic by appealing only to that

[1] *Positive Philosophy*, Comte, Book I (English translation).

characteristic in an attempt to increase the effectiveness of executive purpose; e.g. the financial appeal.

At this point we must be wary of generalizations arising, usually, from treating all social groups as of one character. For example, a group of not very intelligent, unskilled people may be cajoled into almost anything by offer of financial rewards, but the same group, if aware of the meaning and the value of craftsmanship, may refuse to carry out meaningless work so long as they have an escape from it. This, in passing, may partly explain why, in America, with its lack of trained crafts, it is seemingly possible to routinize human procedures by virtue of money offers more easily than they can be routinized in Britain. Taylor, when he carried out many of his noteworthy experiments on increasing labour productiveness, chose unintelligent men who, as he insists, did what they were told and did not question the means or the purpose[1]; the mistake which the disciples of Taylor make when dealing with normal groups is that they consider only the concrete facts of labour effectiveness and ignore the abstract qualities of intelligence and purpose in the individual; this, in passing, is a typical example of pure scientific method.

Again, it is possible to isolate an individual for experimental purposes and get results which are quite different from the results the same individual will produce when he is with a group, this largely because of the behaviour change mentioned at the end of the last section. The following experiment will make this clear in a manner which will appeal to thoughtful managers used to the handling of intelligent groups of people—

The author was engaged some years ago in organizing a Yorkshire engineering company, and it was desired to check up on the effectiveness of the labour in the machine shop.

[1] That Taylor chose unintelligent men should give disciples of his method food for thought, for it is notorious that scientific methodists have most strikes in the skilled industries.

The bonus rates were set usually from the times taken by a skilled man who was isolated in an experimental department and who, if quantity ordered justified it, turned off a sample job from each order on his machine. It was very noticeable on investigation that the actual times taken by this man were, on the average, 40 per cent lower than the average times taken in the machine shop. Fatigue and personal allowances compensated for, perhaps, 20 per cent of the difference, but the remaining 20 per cent could not be accounted for. The experimenter's machine was, if anything, older than those in the shop, and although his skill was higher than the skill of many of the men in the machine shop, there were a dozen men out of the total of twenty-nine who had equal and, in four cases, greater skill than he.

Further investigation proved there was an accepted code of earnings in the machine shop group and that this code was less than the management code demanded; moreover, although slight variations above standard were accepted by the group *if such variations were a result of higher skill*, rushing a job to make more money than the code allowed was strictly taboo.

The author was very interested in these phenomena and investigated the relationship of the machine shop group to the experimenter and found the general attitude of the group to him to be one of partial dislike, i.e. they did not generally dislike the man but disliked his specific activity, but, on the other hand, the group had the idea that it could handle the result of his activity. Particular attitudes ranged from pitiful tolerance tinged with a liking for the man as a man ("he's not a bad chap, but . . ." is how one expressed it) to intense dislike.

The man himself would say very little about the group, although it seemed he was not very happy in the works and liked to get out of them to meet his own cronies. The author and he spent some time together and it came out that the

man disliked his job, although he liked the extra money and the recognition of his skill by the management and, too, the fact that he could express his individuality better (these are not his words) by being in a slightly better job. The author, at that time, had not the wit to investigate the man's outlook further but shifted the ground of the experiment to another aspect.

The next step taken was to approach the four more skilled men in the machine shop and to suggest to each that he take the job; these, in essence, were the rejoinders[1]—

1. "Nothing doing, thanks. I'm sticking where I am. I could do with the money but . . . In any case, X is all right on the job."

2. "I could do the job all right but I am playing up to no bosses."

3. This person hesitated for a day or so and discussed it with members of the group, then turned it down.

4. Somewhat similar to number 1.

A curious fact which ultimately came out after some stop watch investigation of the experimenter was that he was turning in times higher than they need have been.

It would be dangerous to draw general conclusions from this limited experiment, and the reader may draw his own, keeping firmly in mind that the group was a fairly intelligent one. Indeed, one member of the group with whom the author became friendly had a balanced knowledge of economics, was interested in the psychology of religion and in mythology, and had a keen appreciation of poetry and literature with a native bias for the Irish aspects of the literary art.

While organizing in the clothing trade, on the other hand, the author found the girls somewhat indifferent to the application of new procedures, although they seemed to have a code of earnings varying with each girl according to

[1] From notes made nearly a year after the experiment.

whether she was single and lived alone, single and had someone to support, or was married.

Quite recently, in the South, the author was consulted on the organization of a foundry and engineering shop. Just previous to his going, three of the best moulders left to go to a mass-production foundry where earnings were much higher. All three came back to "the old shop" and to less money, and the author got them to talk. Here, in essence, are their reasons for returning—

1. Resented very bitterly the absence of craft skill and the prevalence of planned disciplines. Said he would rather work for a pound per week and know what he was doing than "slog his soul out" on meaningless jobs.

2. Just blasted the whole mass-production system. Seemed to miss the sociality of "the old shop."

3. Just smiled and said he didn't mind the hardness of the work but, well, it wasn't worth it.

These three men were fine workers and good craftsmen, were intelligent and, too, were quite reasonable toward the author's ideas for introducing new method.

The noteworthy Hawthorne experiment in America was on much more thorough lines, but the subjects were girls mostly, and the conclusions generally set forth by Whitehead in his book,[1] that the workers are illogical in their attitude to management logical procedures, and that the imposition of these procedures disrupts group structure, are too limited for general application, even though the book, in the author's opinion, is a noteworthy contribution to the new management outlook. However, the experiment, of which more will be said later, proved that behaviour in industry is largely social. The experiment was American, yet a recent book[2] by an American professor of Administration gives it one page; the other 300 are the usual rehash of Taylor-Gilbreth-Emersonism; *verb sap.*

[1] *Leadership in a Free Society*, T. N. Whitehead (Oxford Press).
[2] *Modern Management*, J. E. Walters (Wiley & Sons), New York.

SOCIAL PURPOSE

If an attempt were made to explain the purpose or purposes which moved the people in the examples mentioned above it would have to include factors such as satisfaction in work and satisfaction at home, but the purposes, apparently, vary with group character variations. Perhaps if one took samples according to the laws of sampling and classified them, one would arrive at a formula; the difficulty is that one can observe purpose only in its objective form, and then one is not sure if the purpose of to-day may not become something else to-morrow.

The trouble seems to be that when people study purpose they either confuse what they want purpose to be with what purpose really is, or, perhaps, their knowledge is so specialized they do not think deeply about things outside of their specific field. They would measure humanity with a stop watch or a movie camera, or apply to it the test of inductive or scientific method because, it seems, they believe that to use people they must have exact knowledge, so they set off with the hypothesis that they can get exact knowledge. In other words, they treat the subject as they want it to be, and not as it is and always will be. Professor Maciver sums up this attitude when he says—

> We are overmuch inclined to see in physical science the type and model of all science, and to imagine that measurement alone is knowledge. Purposes are incommensurate; the movements of thought among a people cannot be estimated by counting heads; the power of personality is not to be measured like the power of an engine; institutions are ideal constructions without quantitative length or breadth. The things most knowable are the things least measurable, purposes, passing desires, and the complex social world built out of their conflicts and co-ordinations. In truth, you can measure only what you cannot understand. You can measure only the external, that which lies outside the grasp of the imagination. But you can have no

> adequate interest in society unless you are interested in it as fulfilling human values. Its essential forms have been shaped by men's purposes, and its development is wholly dependent on the development of these purposes.[1]

What, then, is the purpose which moulds people into a community? Note that the purpose may or may not be a product of will. Now, the purposes, or interests, which move people vary; thus, a group of people may associate to propagate peace among nations, thus they have a *common* purpose; another group may associate to propagate the popularization of polo among the populace; this, also, is a *common* purpose. If, now, the two groups be thought of in relationship to each other their purposes are observed to be *unlike*. When, now, the purposes of two people or of two groups are such that the victory of one purpose means the defeat of the other, the purposes are in *conflict*. To these Professor Maciver adds *complementary* purposes, that is, interests which are partly like and partly unlike and involve reciprocity; and like purposes pursued by people independently of each other, that is, *parallel* purposes.[2] At the moment our concern is with common purpose, problems of conflict will be left until later.

It is obvious that all human beings have similar interests in certain things, interests in food, clothing, and shelter; in the pursuit of these and other organic interests men are all alike. Again, men are generally interested in protection of their livelihood and, perhaps less generally, in the promotion of their standards of health and knowledge. These may, for the moment, be said to be foundational interests in the pursuit of which a whole nation will join as one associated body. Another interest which is a natural one is the interest in sociality, in companionship, in doing things in common; and yet another, not so positive,

[1] *Community: A Sociological Study*, R. M. Maciver (Macmillan & Co.).
[2] *Ibid.*

perhaps, is the interest in expressing oneself as an individual in a social setting.

If we glance over this list of common interests and relate them to what we are ourselves and know of others, it appears that men are not interested merely in adequate living, but in adequate social living. Thus, we may say, *the general purpose motivating the community is adequate satisfaction of fundamental organic, cultural, and ethical interests, and protection and continuance of that satisfaction.* This is the purpose for the satisfaction of which people work in factories and offices, and included in it is satisfaction in work as well as from work, of which more will later be said.

It will be noted that we say above that the force which motivates the community is adequate whole living; if we relate this to the individual member of the community, keeping in mind the principle of individual similarity and difference, we may say that the purpose motivating the individual is adequate whole living within the community. Exactly what this signifies depends on the physical, emotional, mental, and other needs of the individual and it requires translation face to face with the individual in terms of the particular situation in which the individual operates. It is for this reason that the sciences can give us only generalizations covering "statistically averaged people"; it is left to the practising manager to interpret particular cases and to handle them in terms of particular situations.

CHAPTER IV

LEADERSHIP

THERE is some confusion of thought observable among writers on the relationship of leadership to management. Management is taken to consist of organizing and controlling all that is involved in operating a process carried out by a group of people, and leadership is supposed, generally, to be that factor in such management which guides the people concerned to carry out the process. Again, leadership is confused with that function called "direction," the activity of which is to state the aim and set the course of process activity.

Actually, management is seen to be a function of leadership if the meaning of management be traced to its source. For example, mere management of a situation in a specific direction is an instinctive function of the lowest forms of life, but leadership, management of a group situation in a specific direction under the guidance of a unifying influence, seems to be of later occurrence in the ascent of organic effective living. However, there is little purpose in attempting to initiate a change of vocabulary; it is essential, however, that the true meaning and significance of leadership be clearly known.

LIMITATIONS OF THE ASSERTIVE-SUBMISSIVE THEORY

So long, it seems, as the behaviour of organisms is inflexibly instinctive, leadership is unnecessary because each organism is a complete mechanism automatically managed. Reaction is only to those circumstances which set automatic responses in motion. When, however, the instincts become

plastic and adaptation to varying situations is possible, it is probable that the organism with greatest plasticity will lead the others in some respects; such plasticity, to be effective, would be associated with pure brute strength capable of asserting and sustaining the leadership. Thus, strength and superior cunning (adaptability to circumstance for one or other purpose) are significant factors in primitive leadership. Unfortunately, sociology has little to say of leadership as a factor in human progress, and anthropology has not yet arrived at the stage of valuing the leadership function in terms of group living; the author, then, offers what is said of primary leadership purely in the form of suggestion.

It will occur to the thoughtful student of leadership that primitive leadership is not merely an expression of one instinct, though such is suggested by some authorities on the subject. For example, the instinct of assertiveness is associated with leadership and the instinct of submissiveness associated with a desire to be led. Leadership, in its primitive form, is associated with the male sex which, generally, had what the biologist calls secondary sexual characteristics which enabled it to fight for and protect its mate and its offspring; greater strength and superior organs of offence and defence (as the antlers of the stag and the mane of the lion) are, it is said, such secondary sexual characteristics, as is the assertiveness required for mate selection and protection. It is reasonable to suppose that assertiveness was a common factor in maleness and that leadership resulted as an outcome of other factors, strength and superior cunning among them. This is in line with the findings of biology and is more reasonable than the popular assertive-submissive theory which is facilely tacked on to management.

Thus, leadership in its primitive sense could be defined as the capacity for overcoming and using others for one or

other purpose. Domination is a powerful factor, but domination without superior plasticity would quickly be replaced. Such instinctual plasticity arises from the need for meeting repeated new circumstances; that is, it is synonymous with the capacity for learning and remembering. The experiments of Yerkes bear this out: a number of frogs were placed in one end of a box, at the other end of which was a tank of water. The direct path to the water was closed by the use of a sheet of plate glass, and the frogs had to make a detour. At the first attempts the frogs blundered against the glass, but, after a number of attempts, about 100, the frogs invariably took the correct path. The experiments were discontinued for one month and when the experiment was again tried the frogs had not forgotten.

This plasticity is not equal in all the members of a similar species. W. Kohler experimented with anthropoids and demonstrated that some of the chimpanzees had greater capacity for adaptation and greater insight into the needs of situations than others. One, and only one, chimpanzee had the intelligence to join a number of rods together for the purpose of procuring fruit which could not be reached with the short rods lying about the cage.

It is certain that domination is a powerful factor in leadership in simple situations, but, it is logical to suppose, as situations become more complex other factors increase in importance. In an industrial situation which includes an intelligent group of people the leader need not have the open assertiveness which may be necessary if the group were of low intelligence; again, if the work situation were changed to a play situation, another type of leader would probably be chosen.

The author tried out a test in which a group of working girls were asked to choose the person in the group whom they would like to be their work leader; afterwards, a vote was taken on who was best liked in the group. The result

was that the person chosen as leader was also the person most liked; this person was not the best worker nor was she the most intelligent; but she had a cheerful, happy disposition in the face of trouble and was a friend to everyone in the group. A similar test carried out by the author among a group of engineers demonstrated that the person who would have been chosen as leader would not have been the person who was the most friendly; when asked whom they would choose to lead them in a strike, the group members chose a person who, in the friendship test, received only a few votes and, in the work leadership test, received about 25 per cent of the votes cast. The man who received the highest votes in the work leadership test received the third highest in the friendship test and the third highest in the strike test; he was a quiet, dependable man, with fairly high work skill (though not the highest), was a Quaker, and he was, though not highly intelligent, highly intelligible.

The author is attempting to carry out a series of tests on industrial group leadership in the absence of scientific data on the subject. It is obvious from what has been learned that the lists of leadership qualities prominent in some "scientific" textbooks on management ignore the fact that if one would understand the leader and the qualities necessary for leadership one must study the follower and the purpose to be served by the leader. As leadership is, so to speak, a function of group-problem solving, it is obvious that the leader's rational faculty must be equal to problem solution. To this we may add: the leader should be intelligible, he should have the capacity for wanting people to travel with him, he should be a worker of a high order, he should be capable of seeing the other man's point of view, and he should have the knack of keeping in close touch with the thoughts and feelings of those he leads. Just which of these factors in leadership will be predominant will depend to a large extent on the total situation in which leadership has

to operate. It is very nice to think that industrial leaders will be theoretically perfect, a balance of paternalism and integrative genius; but, in fact, in certain practical situations, theoretically perfect leaders would be very much at sea and, instead of requiring the admirable quality mentioned above, of making people want to travel with them, the faculty for making people travel with them whether they want to or not might be more required.

THE NECESSITY FOR LEADERSHIP

Given a situation in which there are people of varying capacity attempting to express a common purpose, there will be a necessity for an influence which will seek purpose expression by unifying the various capacities of the group in a specific direction. If we again take the comparative method of proof by observing animal behaviour, it will be apparent that in a group in which are animals of varying age and experience, and varying strength and cunning, it is a grim necessity that some one animal takes them in hand for defence and attack and food-seeking generally. If it were not so, the group would quickly perish. This necessity is met by nature which, in the first place, implants the dominance factor in, at least, the males of the group, and the leader takes his place by virtue of the display of a superiority in those characteristics needed for unifying the group in the meeting of group situations.

In the processes carried out by human groups, the same necessity for leadership exists, but it varies, as has been said before, with the complexity of the situations to be met and with the character of the group. In the following section will be examined the different types of leadership; meantime it may be stated that *in the pursuit of a common purpose by a community made up of persons of differing natures it is inevitable that there be leadership.*

TYPES OF LEADERSHIP

The most primitive type of leadership is that in which the faculty for direct domination is ruling. By direct domination is meant that type of domination which is authoritative by virtue of the superior strength of the leader who, so to speak, puts the fear of death in his followers by display of tooth and claw. This is quite different from the domination exerted by managers over groups by virtue, not of managing strength, but of having the power to cut people off from their livelihood. This we may contrast with pure *dominative* leadership by calling it *borrowed dominative*; that is, it is borrowed from the post held and from the situation as it exists.

The next type of leadership combines superior peculiar ability with domination: this is the type of leadership common among animals, over which the leader rules by virtue of his superior show of strength and his special capacity for meeting certain situations; this we may call *modified dominative.* In the human sphere this is well exampled among craftsmen who will allow one of their number who has superior craft skill to dominate them.

In human affairs one often meets leaders who rule mainly by virtue of a show of paternalism; they play, consciously or unconsciously, on the less positive of the instincts; on what may be called the "good nature" of the led. Sometimes the paternalism is genuine, sometimes it is a substitute for the dominance which is lacking. Thus, to those defined previously may be added *paternalism* and *substituted paternalism.*

A further type of leadership rules mainly by virtue of *intellectualism*, that is, by virtue of superior knowledge. One has an example of this in people who, because of high knowledge, hold posts over groups of less knowledgeable people. This could be called intellectual leadership.[1]

[1] The three main types of leadership could be classified as physical, emotional, and mental, respectively.

Actually, pure examples of any of the types mentioned would be difficult to find, although types exhibiting predominance of the specific characteristics of domination, paternalism, and intellectualism respectively may be found in any large business. Through all three main types of leadership runs the character factor, for, it is obvious, any one of the types may have a background of good, bad, or indifferent character, and may be motivated by good, bad, or indifferent purpose.

FAULTY LEADERSHIP

It is not unusual to find businesses which have a fixed policy of leadership expression. When, for example, the author was a foreman he used to receive specific instructions from the works manager to "drive the beggars." Later, when he became a works manager he, in one place, was being told continually by the general manager that taking a fatherly interest paid best; in this place welfare procedures were numerous. It is not, moreover, unusual to find books propagating one or other type of leadership with, to-day, the stress on shared leadership, that is, on management councils and the like.

Here is a rough analysis of a typical group from an engineering machine shop; it includes two labourers, five boys under eighteen years of age, four lads between eighteen and twenty-one years, and seventeen men, nine of the seventeen married. One of the labourers was a bright, alert fellow, the other was dull and below normal intelligence. The boys were, well, boys; with one exception they spent as little time at work as they could. Of the lads, two had good special skill and one of the two was quite intelligent, the other two had not so much skill and, again, one was quite intelligent. Of the single men, two were very good workers, two were moderate, and the remaining four were variable

according to whether the job was easy or difficult; intelligence was not very high in this group of eight (one of the labourers could have beaten them easily in a mental test), three of them were definitely dull, and the rest moderate. Among the married men, two were above normal works intelligence, five were quite intelligent, and two were not too bright. Leaving the boys and lads out of consideration, the results of questioning their attitudes to the job were: favourable, five, three of these married; indifferent, nine, five of these married; unfavourable, five, including the two labourers. One of the labourers liked the shop but disliked his particular job; the other, the dull one, was resentful of job and shop.

The foreman was skilled on machine work and was subject to fits of general paternalism and general domination with moods of indifference alternating, but, on the whole, he was paternal and fairly reasonable. With about ten men to handle he would have managed the place quite well, but, as it was, the general operative efficiency was about 60 per cent. But which ten would he have managed best? There is a pretty problem. With his particular temperament and method would he manage ten dull people or ten intelligent people best?

It seems obvious that different types of people will respond best to different types of appeal: the stupid, physical types to, perhaps, domination, the emotional types to paternalism, and the intelligent types to intelligence if, and here is the rub, the purpose for which work is done is satisfactory. A monetary purpose seems to satisfy duller people, but, as the scale of intelligence rises, the individual purpose widens. Again, social values in work are important; with dull people, immediate social values of work are important, with intelligent people wider social values are important. For example, the dull person will be happy if his work relationships are satisfactory and his normal needs met by money

payments; the intelligent person, the author has found, may accept unintelligent work for sufficient money to meet his needs *if the work has a meaning to him.* It is true these are generalizations, but they have some foundation in fact.

The fact seems to be that one type of leadership in certain circumstances may be the best and in other circumstances the worst. There is little purpose to be served by advocating a particular type of leadership for all situations. There is not, either, much point in asking a person to lead thirty or forty people if included in that leadership is the arranging and controlling of material factors in work, no more than is there much point in the rather silly modern theory that no man can control more than five other men. Given very simple work performed within a limited space an alert man can effectively control many more than five men; again, given men who are intelligent and are integrated for the carrying out of a commonly accepted purpose an alert man may, in certain circumstances, lead any number of men.

EXAMPLE IN LEADERSHIP

Much will be forgiven the leader of any social group if he exhibit a superior capacity for self-discipline in work and in character, and a willingness to defend his group against attack. This, perhaps, is a more potent force in leadership than any other, yet how little it is appreciated in these days of the enthronement of specialized knowledge as chief faculty in management. Much, too, will be forgiven the good-natured person who is bigger in some cogent characteristic than are members of his group and yet has a fine humanity.

Whatever be the type of leadership of social groups, dominative, paternal, or intellectual, the example set to the group should be such that, at least, respect is gained. Some thinkers suggest this is true especially of foremanship in industry, because the foreman is in contact with operating

groups. This is a fallacy and is responsible for the pandering to self among executives in many businesses. The foremen come in at eight in the morning, the works manager and office managers somewhere between eight and nine, and the general manager between nine and ten. What is lost sight of is that the general manager is a direct leader to his group of departmental managers, though a remote leader to the workers in the shop, and the works manager is a direct leader to his group of foremen, though remote, in the pure control sense, from the operating groups in the shops.

There will be more said of this matter later, for its importance is considerable enough to justify wider treatment than is possible in the scope of this chapter.

INTEGRATIVE LEADERSHIP

Given a group of people of varying ages and varying intelligence to manage, the problem of how to get the best from them still remains; note that we are not, at the moment, dealing with an industrial group but, for the purpose of finding a foundation, with a social group in the wide sense of the term. Varying degrees of domination may be needed for some members of the group (it is futile theory to pretend otherwise), others may best be managed by appeal to their emotions, and yet others by appeal to reason. If, of course, the purpose of management is one that arouses, or is likely to arouse, the antagonism of the group, it is probable that every method but domination will fail, and that will be successful only for a comparatively short time. Given, however, a purpose in which the group acquiesce and which the intelligent members of the group accept, that management will be best which unifies the abilities and interests of each person in the service of the purpose; such management is integrative.

There seems to be an idea that integrative management is a specific method (such as is dominative management),

and writers who, one feels, have never managed a mixed group of people quote how gentle integration of two disputing theories averted such and such a trouble. This is very pretty in books but, in practice, integration of the abilities and interests of a mixed group includes, if necessary, domination, paternalism, and intellectualism according to the type of people to be dealt with and the needs of the existing situation.

There is a close correspondence between our attitude on integration and that of Marston.[1] Marston suggests that only animals above a certain stage have the faculty for self-integration. He mentions four different integrative relationships between the whole organism and its environment. Submission integration represents a state where the self allies itself to the environment but is weaker than the environment. Inducement integration is similar to the submission state but the self is superior to the environment. Compliance integration describes a state where the self is in conflict with the environment but complies with it. Dominance integration refers to a state where the self is in conflict with the environment but is superior to it. If the reader treat the manager as the self and the total management situation as the environment he will have a fair description of the various methods used by managers to integrate effort and interest in the service of management purpose.

The highest form of integration is that in which a whole group consciously accepts the purpose laid down by the group leader and consciously acquiesces in the disciplines arising from the necessity for purpose expression. This type of integration is possible only among superior groups; it may be called *purposive integration*.

[1] *Integrative Psychology*, Marston, King, and Marston.

CHAPTER V

THE PROBLEM OF AUTHORITY AND OBEDIENCE

IN industry the problem of authority and obedience is similar to that of social sanction met with in social philosophy, with three differences: first, in industry the application of new codes and procedures requiring sanction goes on much faster; second, the industrial group cannot appoint the people who impose codes and procedures, as does the social group when it votes at election time; and third, the industrial group, owing to its division into small units in each business and owing to its contact with processes, can rebel more swiftly and in more manners against new codes and procedures that it does not like than can the whole social group. To these three, many intelligent workers would add a fourth, that the purpose of those who own the tools of production is more opposed to industrial personnel welfare than is the purpose of government to social welfare. It is our proposition that the fourth point, although generally true, need not be true in fact; however, that aspect of the problem can be left until later.

We have already stated that a man's whole nature cannot be split into social nature and economic nature, and that human behaviour as a whole cannot be divided into social behaviour and economic behaviour; thus, if it is required to understand industrial problems, they can thoroughly be studied only in a social setting. Understanding of the problems of authority and obedience will best be assisted by reference, in the first place, to bio-psychological aspects of behaviour and, in the second place, to social anthropology and to sociology generally. The reference to bio-psychology has already been made[1]; it now remains to refer to the social sciences.

[1] Chapter III.

THE NECESSITY FOR DISCIPLINE

Organization, whether it be self-organization or organization of others, presupposes discipline; the organization is the discipline, the purpose of the organization is the creator of the discipline. Whenever a group of people pursue a common purpose some kind of disciplinary procedure is necessary. For example, in such a simple matter as appears when two or three people are moving a piece of furniture, it is essential there be a known purpose and that the people concerned push all in the purposed manner and in the purposed direction; that is, the people must discipline their actions in terms of purpose. As the number of people concerned with the satisfaction of a purpose becomes greater, the necessity for discipline becomes greater, not, be it noted, the necessity for greater discipline.

It is not insisted that in all cases of group pursuit of a common purpose the essential disciplinary rules be imposed, and that the group be subordinated to such rules; all that is meantime suggested is that *the pursuit of a common purpose by the community necessitates disciplinary codes and procedures for the creation of social cohesion in the pursuit of purpose satisfaction.*

Those few writers on industrial management who concern themselves with the deeper problems of industrial organization quote what is called the "law of the situation" when discussing what it is people obey in industry; this kind of reasoning is only a refuge from knowledge of the facts, for there is no law of the situation. The facts are that the human race has been used to rules of conduct since its inception, and that social life is founded on disciplinary codes and procedures. Professor Hobhouse says—

> The life of the community rests on the system of common rules, and just as the community grows unconsciously and then begins to be made or modified by conscious effort, so do its rules grow unconsciously and then fall within the

> scope of deliberate purpose. The typical unconscious rule is custom. It is important to appreciate precisely what is meant by calling it unconscious. The man, whether civilized or uncivilized, who conforms to custom is not acting like an automaton. He is perfectly well aware of what he is doing at the moment. He knows what is expected of him, and he himself would expect it of another placed in similar circumstances. He knows, for instance, that he must give a week's or a month's notice, as the case may be, if he wishes to leave his employment, and he knows correlatively that he is entitled to the same notice if he is dismissed. He knows no why or wherefore, does not ask how the custom has arisen, whether it is the same in all occupations or in all places, whether it is just or reasonable.[1]

The development of codes and procedures into customary codes and procedures is of much interest to management and will help to explain why industrial personnel obey some codes and procedures and disobey others. A simple example which the author has often come across is the custom of grinding lathe turning tools in a certain manner (varying, often enough, from shop to shop and determined, largely, by the custom of the shop in which a man served his apprenticeship). Usually the custom is wrong in certain respects, but attempts to change it and to put tool grinding on a scientific basis usually meet with stolid opposition. The fact that the tool if properly ground will cut more effectively, and that the man concerned may earn more money, has little effect on the custom, especially among older men. In more than one instance the attempt to institute a new procedure of having the tools ground by experts has led to strikes. Quite recently, an amusing example came before the author when, after publishing a series of articles in *Engineering* on "Engineering Works Reorganization," he received two letters congratulating him on his sound common sense in suggesting that highly skilled men should be allowed to grind their own tools; this despite the fact that

[1] *Social Development*, L. T. Hobhouse (Allen & Unwin).

what was said was, in effect, that though the practice was ineffective, to avoid trouble it was better to allow the highly skilled men to grind their own tools. The letters, of course, came from skilled men.

In social life and in industry the development of new procedures into instituted customary procedures is similarly evidenced. In industry, true, they are often consciously instituted, as when a new method is developed and a standard order issued, while in society they develop more slowly and, too, decay more slowly; in industry, as in law, the procedures are usually well defined while, in society, the procedures have, in many cases, only the backing of sentiment. It is, however, in all cases of social living generally true that *as the necessary disciplinary codes and procedures become customary they take objective form and become the standard instituted codes and procedures of community living imposed by social leaders.*

In primitive times, it seems, there were no legalized codes and procedures such as we have to-day, and custom, backed by sentiment, ruled the tribes. How curious some of these customs were and on what beliefs they were founded is strikingly illuminated in various books on social anthropology, among which books those of Levy-Bruhl are, perhaps, the most readable. The reader will be aware of how unlucky it is supposed to be to wear another person's wedding ring; this is somewhat similar to numerous examples among primitives, quoted by Levy-Bruhl, of the belief that wearing the apparel of another involves the risk of catching the faults of the other. Again, the identification of the shadow or reflection with the soul among primitives, as in Valuwa, where there is "a deep hole into which no one dares to look," for "if the reflection of a man's face should fall upon the surface of the water, he would die," is a forerunner of the modern unluckiness of breaking a mirror.[1]

[1] *The "Soul" of the Primitive*, L. Levy-Bruhl (Allen & Unwin).

But primitive codes were built up not only on customs such as these but, also, on customs arising from necessity. Thus, the need for tribal protection and for daring in war gave rise to the customary and somewhat terrible initiation ceremonies undergone by young natives before they were allowed to become warriors (relics of which are to be observed in the army, in some select associations, and in workshops where the apprentice is "tried out" before he is accepted by the group). Again, the need for tribal health gave rise to the instituted codes which prevented close intermarriage, and so on. These codes and procedures, when customary, were imposed by the tribal leader with, to assist him or retard him as the case might be, a body of elders and a specialist on mythology—the witch doctor; these people made up the primitive state and represented war, law, and ethics respectively. It is of special interest that in the witch doctor is seen an example of what the industrial economist calls the "economic law of specialization."

The modern State is the formal expression of instituted social codes and procedures, and Government is the leader. Not all social codes and procedures are, however, thus instituted, for there are numerous instituted customs backed by social sentiment which are just as powerful as are legalized codes: these unwritten codes of behaviour cover situations extending from rescuing a comrade on the battle-field under fire to lifting one's hat to a lady. There are in industry many such unwritten codes and procedures and they are often very troublesome to management. In a later part of the book these will be fully treated; meantime, we may state as a general principle that *the institution of objective codes and procedures dispensed by social leaders involves the investment of authority in a few people and obedience to authority by the rest of the people; it involves, also, obedience from authority to community welfare.*

The foregoing is true of a whole community, of a social

or political movement, and of business generally. The latter part, obedience from authority to the purpose of community, should, as far as business is concerned, be a central code of management and express itself in rigid personal discipline; for the pursuit of a purpose by a group disciplines the leader no less than it does the other members of the group.

ACQUIESCENCE TO DISCIPLINE

When one studies the rise of many of the great institutions it is found that brute force and domination played a large part in their foundation and early growth; this is not entirely untrue of the rise of the present economic institution, and something of the spirit of domination yet remains. As has been observed in an earlier part of this book, the methods used must vary with the means to hand, and domination of one type or other may be essential under certain circumstances; its use, however, requires fine discrimination for, at the present day, consent to disciplinary rules rests more on a recognition that order and method are necessary, rather than on fear of punishment for offending the rules. The recognition may not be wholly intelligible in the majority of the people, but it is there nevertheless. Indeed, the success of any authority cannot be measured in terms of its own power to enforce obedience, but on the amount of obedience it receives, for *the imposition of objective codes and procedures requires social acquiescence which, if withheld, may result in social apathy or disobedience with consequent weakening of community and conflict with existing authority.*

In terms of whole community, power rests with the people and not with authority, for if the people be imposed upon too much and for too long they will withhold their consent to the imposed codes and procedures and by refusal to co-operate (a very common situation in industry), or by one or other form of direct disobedience, will ultimately

overthrow existing authority or, at least, destroy the unwelcome procedures. It is not inferred that the majority of the people do more than acquiesce in new disciplinary rules, that is, they do not consciously accept them for the furtherance of the purpose authority has in mind; rather do they measure them in terms of how they impinge upon their own present and future comfort, according to their standards of physical and psychic comfort, and acquiesce if they seem not to affect them overmuch and reject them if they do adversely affect them. The action taken, if rejection is made, depends upon the medley of beliefs, hopes, and fears which make up the best of us, and upon the relation of the people to the authority. Regarding this latter point, Professor Maciver, writing of State authority, says—

> The laws of other associations bind their members, but if you don't like the laws you can leave the association—unless the State forbids. If you disapprove of the laws of your club or business association or trade union or church, you can resign. If any such association tries of its own accord to enforce the law on you, it comes into collision with the powers of the State. It can probably do no more than deny you its special benefits and privileges. So with communal or customary law so-called. If you break the customs, traditions, fashions prevalent in your community, you may expect its disapprobation. It will boycott you, refuse to enter into social relations with you, but unless you break also the law of the State, it cannot otherwise visit upon you its displeasure. But if you break a political law, you do not merely lose privileges. The State will do more than deny its benefits, it will punish. It has behind it the united force of the community, the final sanction attached to no other kind of law.

A group or an individual is less likely positively to reject new codes and procedures if they are imposed by the State than by other associations or institutions. In industry, however, if new and unwelcome rules are imposed on an individual or on a group they may be sanctioned because

(*a*) the values of the total situation outweigh the disadvantages of the new rules, (*b*) the situation in terms of employment elsewhere and home conditions does not justify open conflict or leaving the particular business concerned. In the latter case the factor of necessity has stepped in but, given that the new rules are not ultimately sanctioned as customary, if necessity eases off there will probably be open conflict, even if on some more immediate pretext. If, in the case of a group organized and led by a dominative leader, there is a possibility of defeating the rule by concealed opposition there is little doubt that such opposition will arise. It is partly because of this that new schemes in business, while sanctioned because of necessity, often arouse no vital response. However, as we desire at present only to establish guiding principles, the application of the principles to business must wait until a later section of the book is reached.

ACCEPTANCE OF DISCIPLINE

It was mentioned above that, in general, the majority of the people in a social community acquiesce in the imposition of new disciplines rather than consciously accept them with a full knowledge of the purpose of the disciplines. It is not always so, for, not only is the tendency of society to develop through conscious co-operation, but there is in any large group a growing number of people who are conscious of and fully understand group purposes. Not only is this true of the whole social group but it is true of the industrial group and of particular sections of the industrial group. The presence of intelligent individuals in the industrial group who are fully conscious of the purpose of industrialists has a curious and only vaguely observed effect on industrial effectiveness, for, besides challenging the profit motive and substituting a wider motive, these people are usually leaders of industrial groups and present management with opposition

which management has not been educated to meet, opposition which is often illogical in terms of business effectiveness but is perfectly logical from the standpoint of group welfare and, it must be admitted, of whole social welfare.

It is futile for writers either to avoid this aspect of the industrial situation, to condemn it, or pander to it as their political hopes and fears decide. The facts are that management, through the exploitation of technological codes and procedures without regard to social factors in industry, and for the explicit purpose of making more profit, has lost any leadership it had and, in nearly every workshop where artisans are employed, is faced with organized opposition leadership, while, without, it is faced with the organized workers' unions.

The opposition of industrial groups, as will more fully be seen in the next chapter, falls mainly under two heads: (*a*) opposition to technological codes and procedures, (*b*) opposition to the apparent purpose of business. It may be thought that the first is industrial and the second political—experience proves it is not so, for the day-to-day attitudes of industrial group leaders are coloured by the purposes they have, and it is notorious, at least in the writer's experience, that those leaders who hold that business should be run for the community and not for profit, rightly take advantage of every conflict to point the moral they have in mind; the word *rightly* is used in the sense that exploitation of the profit motive only is not only poor logic but is, at the present day, dangerous doctrine. This point of view is held by nearly all sociologists and social philosophers and, too, by a small, but unorganized, body of opinion among progressive employers and managers. That it should be so is excellent for, in Britain, at least, it indicates that the line of socio-economic evolution may lie along the lines of closer co-operation between society and industry while retaining

in industry, until *practice* proves there is a better way, the service of a socially conscious capitalism which is prepared to adapt itself to the trend of social interests, not, be it noted, to the interests of minorities.

Coming back, for the moment, to the question of disciplines and the intelligent person or group, it is apparent that *as the intellectual experience of individual members of the community and of the community itself increases there is increasing need for authority to seek acceptance of new codes and procedures if organized conflict is to be avoided.* Subordination to discipline by leaders is apparently necessary under certain circumstances, not necessarily subordination by force; but with the growth of intelligence it becomes of less and less import. Professor Ginsberg remarks of persuasive in contrast to subordinative government[1] —

> . . . it will be conceded even by those who stress the element of domination in political affairs, that the change of tactics, spoken of above, from sheer compulsion to more subtle forms of persuasion implies that, on the whole in modern communities, there has been a growth or diffusion of intelligence and of the habits of self-determination, and a more widespread recognition that institutions are for men and not men for institutions.

In authoritarian organizations, either social or industrial, the imposed disciplines are expressions of the outlook of the leader or dictator, but in democratic organizations the imposed disciplines are so expressed that they arise out of and fit into the sentiments and habits of the governed. In the enlightened organization, the disciplines are accepted because, to some extent, of intelligent agreement as to the purpose of the disciplines. These considerations are of the most vital importance to industrial management for the avoidance of conflict and the winning of industrial co-operation.

[1] *Sociology*, M. Ginsberg (Thornton Butterworth).

DISCIPLINES AS CUSTOM

It is well evidenced that *as social codes and procedures become more customary, their objective form (the institution) tends to resist change and the majority of the people tend to accept the customs as habitual standards of outlook and behaviour and so set up an unthinking barrier to development.* This does not refer only to legalized custom, but, also, to customs which have their sanction in social sentiment only. The principle is true, it should be noted, of social groups in industry.

The full significance of the meaning of group codes in industry is little recognized, nor are the effects of destroying these codes by the imposition of new codes known. The industrial group has the characteristics of a social group (it is a social group) and its habitual standards of outlook and behaviour are expressions of common sentiments, traditions, skills, and intelligent purposes within an industrial situation. The group characteristics, in all but highly educated groups, change very slowly in response to external and internal impacts. The group leader (or leaders) is part of the group and tends to translate new codes and procedures in terms of the needs of the group situation and of group customary outlook and behaviour; in industry, management appears not to carry out this role of group leadership but, rather, carries out the function of group organizer in terms of an economic purpose; scientific management represents, in its literature and its practice, the essence of this management from without the group. The groups have become more productive but, too, as Professor Viteles instances, they have generally replied to organizing logics by organized restrictions of output; to this may be added organized opposition to management through group-appointed leaders within industry.

It is not the author's opinion that the problems arising from the clash of economic with social or group cultures can

be explained on mechanistic grounds, as seems to be done by some anthropologists interested in economic operation.[1] It seems to be true that the imposition of new codes and procedures on primitive native groups by white men who were incapable of "thinking native" has destroyed the groups in some cases (as in Melanesia, when head-hunting was suppressed) by destroying the driving force behind group life. The effects on the modern industrial group of technological code imposition by a management trained for that specific purpose depends, it is not illogical to suppose, on the intellectual and moral status of the group and of the group leaders. The unintelligent group may oppose the new codes by falling dumbly back on apathetic acceptance of the codes if it cannot fight them; the intelligent group, if it has to accept the new codes, will find expression by setting up and propagating a code which is not less sensible than the narrow codes of management and will afford a purpose to which the group can subscribe. The setting up of the purpose of social ownership of the tools of industry may, to some extent, be a case in point; the author has, at least, met with the declamation of this purpose as a counterblast to scientific procedures in many foundries and engineering shops although it was seldom met with among girl workers and labourers. The whole subject bristles with difficulties and is not to be resolved by disputation but by competent research by people able to comprehend the economic, psychological, and social factors involved.

There is not only conflict between economic and logical codes and customary codes, for it is well evidenced that *conflict within the community is inevitable because of differing interest expression among individuals and of the clash of developing individual interests with customary codes and procedures.* Within the structure of the social group there is continual disputation of minorities and majorities; the

[1] For example, in *Leadership in a Free Society.*

group tends to hold fast to its customary ways and punishes the individual who transgresses these ways; in industry, as will later be seen, the punishment of the person who transgresses a group code can be both cruel and effective. An outstanding example is that of the person who is a "boss's man," or who makes too many suggestions for technical improvements, or who breaks the group code of earnings.

CHAPTER VI

DIFFERENTIATION AND INTEGRATION

IT has already been mentioned that differentiation is a biological law and that economists have given its expression in industry the name "specialization." The "economic law" of co-ordination, however, is not similar to the biological reciprocal of differentiation, i.e. integration, but is indicative of ordered arrangement of differentiated parts, which parts may or may not be integrated with the body to which they belong. Thus, to take a simple example, if two men were moving tables, the economist might differentiate their activity by having one push and one pull, and co-ordinate the differentiated activity by stating exactly in what way each should act on each table, but this co-ordination does not necessitate that the two men will act as one harmonious unit, as any person used to managing people will agree.

This static translation of the vital principle of integration into a formal procedure is in keeping with the mechanist policy of the scientific management school in their efforts to ignore or deny the necessity for immeasurable personal values (for integration of people is an expression of high personal values working through leadership), and to set up purely logical codes and procedures as substitutes. This attitude of "what cannot be exactly measured cannot be admitted" (see Taylor's definition of scientific management on page 8) is typical of mechanist science of twenty-five years past (and of behaviourism to-day); indeed, it is natural that scientific management should be mechanistic, but there is very little excuse for its existence to-day.

It is here agreed that differentiation necessitates co-ordination, but it is insisted that *co-ordination is only the*

objective aspect of vital integration, a fact unrecognized by modern thinkers on management with one or two notable exceptions, chief among these being Mary Follet, a fine thinker whose work stands out from works on proceduristic management as a volume of Einstein or Planck stands out from a row of school textbooks on geometry.

DEVELOPMENT AND DIFFERENTIATION

It is a reasonable proposition that *normal development of social life is in direct ratio to the development of individual interests within the community and the integration of these interests with community interests.* By this is not meant that society is what it is because of the brilliance or goodness of a few or many people, nor does it mean that because a community is highly organized it is, therefore, highly developed. If the brilliant and the good people are treated, not as things in themselves, but as social creatures participating in social life with others less brilliant or less good (but perhaps more useful with their hands or more suitable for steady things) then the place of the brilliant and the good in total social development is admitted. If, again, a number of people are highly organized by an autocratic egoist it is unlikely that their general state could reasonably be called "highly developed."

In general, development is caused by individual differentiation and reciprocal integration of the differentiated factors into community effort. Mere co-ordination by authority without integration may operate successfully for a time but, sooner or later, chaos will result, i.e. chaos for the authority. If scientific methodists in industry would ponder the foregoing two sentences over for a time the author believes there might be much more harmony in industry. In the last analysis, it is not the stating and fixing of differentiated relationships which makes for enduring progress, but the integration of differentiated purposes with

common purpose. Professor Hobhouse, writing of a developed society, says—

> . . . it sets the consistent body of human purposes before each individual as the good, which he as a rational being must recognize and support, and within which alone can his own good be reasonably sought. The good of all others enters into his own, and by the same logic his good enters into theirs. Thus the rational system in the end is one of mutual furtherance, or what we have called harmony. Finally, its appeal is to rational conviction and not to extraneous motives or the compulsion of a superior. That is, its aim is a life of full partnership co-extensive with humanity, resting on the inward convictions of the free man, and in control of the conditions of its maintenance.[1]

What, it may be asked, is the lesson for industry in this section? It is a simple one: for so long as the chief objective of industry is profit only, while the purpose of community, including those people who work for salaries and wages, is adequate social living and protection and furtherance of that purpose, then for so long will there be conflict; further, as the purpose of community becomes more conscious, conflict will become more evident. It is not inferred, as is sometimes done, that the opposition of owner and non-owner purposes in industry is the cause of all social discontent; indeed, if the ineffectiveness of commerce, the co-ordinated but unintegrated twin of industry, be studied in its financial aspect, it is probable, nay, certain, that much cause of social discontent will be revealed.[2]

Pursuing the previous ideas further it can be stated that, *as the individual members of the community become more differentiated and as the community grows larger, there is increasing differentiation of community effort with consequent division into classes and associations occupied with the satisfaction of particular interests of the community and, with this,*

[1] *Social Development*, L. T. Hobhouse (Allen & Unwin).
[2] Chapter VIII deals fully with this matter.

differentiation of the tools used by the community. The resulting concentration of specialized effort on limited fields of endeavour increases individual and community effectiveness if accompanied by reciprocal integration.

Mark this: differentiation or specialization increases effectiveness only if there is reciprocal integration. If there is no integration, there is subordination, which may be acquiesced in for a time, but as people grow in mental stature there is inevitable conflict between the unintegrated interests and the interests behind the subordinating, and co-ordinating, authority. We are, of course, considering long-time tendencies.

CLASS DIFFERENTIATION

We have already stated, in effect, that *normal differentiation of the community into classes results from significant personal differences in character and ability and, therefore, of occupational interest.*

A normal class system, unlike the rigid caste system, is fluid, and allows for a continuous flow upwards and downwards on the basis of strength of character, intelligence, and ability. At present, wealth is, in some respects, the chief barrier to the upward flow of people from lower to higher classes although, with the advance of education and the raising of the standards of environment (as in slum clearances), this barrier is becoming weaker.

In actual fact, there is nowadays no sharp barrier between classes, and the existing paper classifications of people are never exactly true in fact. What, for example, is the working class? The people who do not work at something useful within the existing social structure are very few. But, it is said, the working class are those who actually produce commodities. What about the transport man, the dairy man, and the teacher; they do not produce commodities,

but they are socially necessary? Then the working class are those who receive wages, when wages are to be earned. This last has some reason behind it, but the name "working class" is an absurd one. There is a wage-earning class hired and fired by the hour, a class which is largely represented in industry but not in commerce. In commerce, however, there are thousands of lower-grade people very much worse off than the wage earners in industry, although that is no argument for hourly hiring and firing and insecurity of adequate income. Given salaries on a weekly basis and payment for holidays, plus the protection of the State during business depressions, the present wage-earning class would, even as things are now, present a sorry basis for propaganda of the communist variety. Nevertheless, excellent though such schemes be, the question of the rational manager yet is: but why the business depressions? Are they necessary? We shall glance at that problem later in this work; meantime, it is essential we note that bio-psychological differentiation of people is a fact but, mark this, it is also a fact that the *common* purpose of community is adequate social living and continuance of protection of adequate social living.[1] The conjunction of these two facts represents a point of view which will afford to intelligent management the basis for a sound philosophy.

From the principle of *differentiation* stated in the previous section of this chapter flow two others. *Occupational differentiation arises from individual differences and from increase of community needs within the limits of the environment in which a whole community or part of a community lives.* This principle admits the influence of environment on occupation, as coal mining only where there is coal, or fishing where there is water, but insists on individual differences as the normal factor in occupation.[2] *As specialized effort is concentrated on particular occupations, the tools used become*

[1] See page 50. [2] Page 38.

specialized in response to the needs of the occupation. This principle is self-evident.

THE CLASS CONFLICT FALLACY

With all due respect to social scientists and with slightly less respect to extremist politicians, it seems they take too much for granted when discussing class stratification within society, class consciousness, and class conflict. Perhaps it is because they discuss the subject from the standpoints of economics and political theory only and neglect the biological and psychological significance of class differentiation.

In any country pursuing its normal course of evolution there may be classes but no class consciousness nor class conflict. Because of differing interest expressions among individuals there will inevitably be conflict[1]; how far this conflict will go will depend on the integrative forces at work within the community. If the developing wants of any group within the community are not met, the wants will mount up like water accumulating behind a restricting wall until, with more or less violence, the restriction will be swept away. It is during the process of group frustration that "class consciousness" and class conflict develop. The consciousness, however, may not be of class but only of elementary and pressing wants.

It seems, further, that in any country developing along normal lines the conflict between individuals and the instituted outlook of the community[2] will be more intense than between common sections of the community and the powers that be. Indeed, the best proof of this lies in the poor success of those preaching class conflict within those countries which try to sustain a democratic outlook and their greater success in countries where self-expression is or has been retarded.

[1] This matter is dealt with in Chapter V on page 73.
[2] See page 73.

In the democratic countries the evolutionary trend is along the path of meeting the social needs of the poorer people as these needs reach the threshold of consciousness of the poorer people and are intelligibly expressed by their leaders; there is a tendency, however, to make democratic legislation a forecast of people's needs rather than a meeting of them; this way is the way of democratic planning and it is applicable to industrial legislation in its legal and its operating aspects.

There is no doubt that in terms of the ideal of equality there is, as has been remarked before, much to be done in industry and in society as a whole. But judgment in terms of an ideal of equality is quite different from judgment in terms of the make-up of a total social situation, the needs of such a situation, and the arithmetical and factual probability of meeting those needs. In any case, *equality* is one of those puzzling abstractions which lead to muzzy rather than clear thinking; if we consider equality as a state that should be, it follows that we think that men should be equal. Our attitude is brought out by Rousseau—

> I conceive that there are two kinds of inequality among the human species; one, which I call natural or physical, because it is established by nature, and consists in a difference of age, health, bodily strength, and the qualities of the mind or soul: and another, which may be called moral or political inequality, because it depends upon a kind of convention, and is established, or at least authorized by the consent of men.[1]

The upsetter of many idealists from the perches they mount to declaim against things as they are is the fact that the laws and institutions that operate in any society cannot be separated in practice from what men are and are capable of becoming. So is it with many declaimers of the theory of class consciousness and class conflict: in terms of an ideal

[1] *A Dissertation on the Origin and Foundation of the Inequality of Mankind*, Everyman Edition.

and good state which they accept as practicable, they look upon society and see justifications for the ideal and good state where they do not exist.

One somewhat bitter example of "class propaganda" is the quotation of strikes in industry as proof of a class war; this is a bitter example to management because, if we tell the truth, a large number of the strikes are the result of poor management selection and education. In the past six months five strikes in a row have resulted from the imposition by scientific management of time-study codes on engineering groups without consideration of the traditional and emotional outlook of the groups concerned; in one of these cases the author followed the "scientific methodists" and, with no trouble whatsoever, introduced time-study codes. Just how many of the strikes that take place are the result of management education in only specialized industrial and commercial procedures it is hard to say—50 per cent is not too high an estimate. The recent "bus" strike is a shining example of hundreds of men coming out on strike to force management to investigate fatigue conditions which should have been investigated before certain operating speeds were decided upon. In America, the numerous bitter strikes on the question of trade union representation are, in the author's opinion, an outcome of (*a*) poor total work situations and (*b*) management pig-headedness in the face of a social force.

That class conflict can and does exist under certain conditions is not denied; nor is it denied that class warfare resulting from conscious frustration of people's needs by other people is, so to speak, evolution reasserting itself. What is denied is the attitude of many social scientists that class conflict is common to all states of society. Differences of social level are not so productive of conflict on either the industrial or political field as are frustration of group or of individual physical, emotional, and mental needs: such

frustration of what is often developed essential need may arise from greed, stupidity, and bias on the part of the people who have power—the expression of these will, if unchecked, lead sooner or later to class conflict of a bitter kind; in the democratic countries, however, the essence of government is the general common interest in progressive diminution of rigid barriers between different sections of the community and the consequent increase of individual mobility. The result of this mobility is that individuals can move from one class to another according to their ability and merit: it is for this reason many thinkers suggest that equal educational opportunity is an essential in our present society, for it is unequal opportunity which is the prime cause of rigid class formation and resulting class consciousness.

INSTITUTIONAL DIFFERENTIATION

When we study anthropology for the purpose of discovering the rise of institutions, that is, of objective forms of codes and procedures, we find a general agreement on the process of differentiation, although on the explanation of process causes there is no such general agreement. What follows, then, is generally rather than particularly true, and, as our chief object is to discover general principles on which to erect a rational code of management, the treatment is essentially brief, the full explanation of the implications of these principles to management being left until further on in our study.

The simplest communities are composed of about one to five score people among whom differentiation, except in sex and years, is very slight. Sometimes such a group forms a closed community but, more often, there is gift exchange, visiting ceremonial, and intermarrying contact with other groups. In the primary group there is, apparently, no class differentiation and little differentiation of functions. The group usually has a chief of limited powers, although, in

some cases, the group leadership may be vested in a council of old men, a council which, in time, becomes a Government. With growing contact among primary groups one can visualize the appointment of each group head to form a wider Government; or one group, by virtue of its strength, dominating the others and its chief becoming hereditary ruler. Here we have the basis of the Government institution and the institution of Kingship. If we go farther into the matter we can observe differentiation of functions, as in the persons of the war chief, the peace chief, and the medicine man. In this differentiation we may glimpse the separation of the warrior code from the religious code and the occupation of some community members with matters other than procuring food.

There is not, as is enunciated by some writers on economics, a definite line of development preceding the existing economic institution; rather are there many lines, each exceedingly complex from the student's standpoint. It is, however, generally true to say that the economic aspect of community is inseparable from the method of holding property, and a line of approach may be made by considering the nature of property among primitives. In the primitive groups there is, it seems, individual property, as clothing and tools, and common property in land, the cultivation of which is done by a communal group with the fruits of cultivation going into the common store. On the other hand, there are in existence primitive tribes each member of which has his own patch of ground which is passed to his heirs, but the total community has a voice in its disposal. As with agricultural and pastoral groups so, it appears, is it with primitive hunting groups, the tendency being communal rather than private in the sharing of the fruits of effort. With increasing differentiation within the primitive tribes, it is not difficult to conceive of the division of its members into an owning class of superior strength or ability and a

common class, nor is it difficult to conceive of differentiation of producers, as distinct from leaders, warriors, and medicine men, into craftsmen.

In the primitive groups, trade or commerce is almost unknown, although the giving and receiving of gifts between tribes is of high importance; the development of the gift phase into regular barter ruled by customary understanding is a reasonable next step.[1]

The point we wish to make is that, in the first place, the obligations of the primitive people to the various authoritative functionaries were not written but were based on understanding; in the case of early gift receiving and giving, the procedures were relatively complex, but they, also, were based on mutual understanding between the parties. Thus, there would be governmental codes and procedures, magico-religious procedures, agricultural, pastoral, and hunting procedures, and elementary trade procedures, and as each social function became more differentiated its customary codes and procedures would become more objective and the authority for their perpetuation be vested in the hands of special persons; in other words, there would be a number of instituted codes and procedures and the objective form of these would be the governing, magico-religious, and economic institutions.

Although, in general, it is the tendency for customary codes and procedures to take objective form as institutions, it is not thereby inferred that all customs having to do with justice, for example, ultimately find expression in legal forms. Those customs which are based purely on sentiment may, in many cases, find no expression in legalized codes and procedures, no more than they may find expression in formal economic codes and procedures. Keeping this in mind we may say that, in general, *as occupational differentiation increases, the codes and procedures of particular occupations*

[1] The reader is referred to Muller-Lyer's *History of Social Development.*

increase, and, as they become customary, they take objective form and become institutions within the community.

It is not suggested that all modern codes and procedures that are objectively instituted and express themselves through an organization of some sort evolve slowly through the customary stage; far from it. The whole subject bristles with difficulty and, therefore, we are confining our thought to the great institutions; the State, Religion, Law, and Business.

THE STATE AS CO-ORDINATOR

We have already agreed, in effect, that *as differentiation of effort within the community increases, the need increases for co-ordinating codes and procedures to control the differentiated efforts in terms of community purpose.* If, for example, we consider the manufacturing section of the economic institution, we may observe attempts by Government to co-ordinate it in terms of community by the introduction of Factory Acts, and, too, we may observe the difference between co-ordination and integration by the displays of refusal to co-operate. To take one example, fencing of machinery to prevent accidents, the author has, on a number of occasions, observed factory inspectors give repeated personal warnings and written notices about necessary fencing without the slightest effect. The facts are that State methods in this respect are too formal, they lack vitality, and many managers look upon Government effort as intrusion into management's particular domain. Lack of education in elementary civics is largely responsible for the latter attitude.

In a wider sense, the ordinary co-ordinating mechanism is the State, and the Government is the initiator of co-ordinating means. We may put the matter this way: the Government passes an Act, the State accepts it as a Law, and it is added to the objective codes of the community of which

the State is the form. The State, that is the democratic State, is the repository of social protective mechanisms, and the Government, so to speak, keeps the machinery in order.

Just how the State serves society by its co-ordinative codes and procedures is of much interest. In the past, prior to 1830, there were police departments and defence departments, but no departments concerned with health and education; i.e. the State, so far as the man in the street was concerned, was authoritarian. Since then, the State has incorporated in itself codes of factory inspection, of sanitation, of commerce and manufacture, of education, general health, and of protection of the aged and the unemployed. C. Delisle Burns says—

> Parliament is no longer concerned with laws enacting or maintaining rights, nor with laws forbidding wrongs. Its time is devoted mainly to (1) the creation of new organizations for public services and (2) adjustments of the action of citizens with respect to these organizations. That is to say, the State is being made into a complete system of public service, and "authority" is coming to mean only the influence of expert knowledge or of common agreement.[1]

The foregoing is true of, at least, Government throughout the British Commonwealth and America, and its tendency is away from mere co-ordination towards vital integration.

The co-ordinative procedures of the State which affect the economic institution are on the increase. That it should be so is in the nature of the democratic ideal. By this is not meant that the State is infallible; what is meant is that the democratic State, as the vital representation of community interest, has the right to control the operations of any social institution within the community if by so doing the whole community interest will be served. This applies to employer and employed, and is illustrated in, for example, the taxing of excess profits and the breaking of a general strike. It is,

[1] *Democracy*, C. Delisle Burns (Allen & Unwin).

in short, the common interest which matters most, and sectional interests, if they threaten the common welfare, must give way if democracy is to develop.

In industry we have two opposing bodies of opinion which resent the democratic ideal of the State as, at least, co-ordinator. We have the communistic type of worker who insists that the State is a tool of capitalism and that the fact that the workers vote for Government is of no consequence, but who yet takes willing advantage of State protective and welfare procedures; indeed, he misuses the very freedom the democratic State gives him by openly abusing democracy. At the other extreme we have the employer who abuses the State for interfering with business, yet demands protection of business against foreign competition by the use of tariffs.

The State interferes with business largely because business managers as a body are not integrated with whole social purpose, but are content to measure the goodness or badness of industrial procedure in terms of immediate monetary value with, given that the extreme section of business managers had complete freedom, final destruction of their own particular system.

The business institution is only one of the institutions in the community and it must be realized that the common purpose of the democratic State is of more importance than the sectional purpose of employers and, for that matter, of trade unions. It is not suggested that all employers are solely concerned with profit, or that all trade union leaders ignore social factors other than those factors which affect their particular groups; what is suggested is that if both the worker and the employer sections of community can sincerely meet on the common ground of social service the course of social evolution will be free from the upheavals that have taken place in Germany, Italy, and Russia. In these three countries there is dictatorship and, although it is illogical for us to judge the social effectiveness of the

governing method in each of these countries without fairly complete knowledge of all of the facts, it is safe to say that the native character of the peoples of the British Commonwealth, and of the United States, is more suited to development through the expansion of integrative democracy than through subordination by dictatorship. If we accept this point of view, we imply in our acceptance that the furthering of the purpose of the democratic State should have the acceptance of intelligent men of all grades of society.

SOCIO-ECONOMIC INTEGRATION

One of the gravest effects of differentiation to an extreme degree is that the people who perform the differentiated tasks tend to lose sight of the whole purpose of the tasks and to look on life from the angle of the particular groove each occupies, and the greater the differentiation the more narrow the outlook will be. This, to some extent, accounts for the comfortable certainty about things on the part of the specialist scientist and of the specialist party man. The former may, as is indicated earlier, make a discovery and immediately try to cap the whole of humanity with it, and the latter, through moving among one type of people and listening to only one viewpoint, may blindly go on propagating doctrines as universal panaceas when, in fact, they are of limited value. It is not that the scientist or the party man lacks intelligence; it is, rather, that the scientist does not know enough about current philosophy and the party man of current sociology. The sincere business man who uses his business as a yardstick by which to measure all social phenomena is in somewhat similar plight to the scientist and the party man mentioned earlier; in his case the need seems to be a thorough course in social philosophy.

Again, differentiation may have the effect of so removing intelligent people from the purpose of the differentiated

effort that they quite unwittingly erect their own particular purpose or a similarly narrow one in direct opposition to whole purpose. The author has before him a report of a meeting of quite well-educated people whose purpose in life seems to be to get other people to sign a pledge that under *no* circumstances will they go to war. A little thought will show that these people probably have, on the one hand, a righteous dislike for war and, on the other hand, an utter lack of knowledge of social obligation.

A further danger arising from differentiation is that people will be forced into grooves for which their whole natures are quite unsuited, grooves which in a less differentiated situation would, at least, be broad enough to allow for some personal expression.

In the two examples quoted previously, the indication seems to be that as differentiation increases so should education become broader; in the last example, that of misplacement of people, the indication seems to be that as differentiation increases the method of selecting people for particular tasks should be such that each person, as far as is possible, will fit into the necessary job. For example, in industry the method of worker selection in any business should be as far advanced as differentiation is advanced. This latter point, in the author's opinion, is of first importance in the avoidance of industrial conflict and it will receive the consideration it deserves in the next part of this book. Meantime we may state as a general principle that, *as community interests become more differentiated, there is increasing need for integration of individual interests and abilities by the increasing use of adequate selective and educational method which will ensure each individual unifying his interests with whole social good and using his special abilities in the most effective manner possible in a social atmosphere which will give him full individual expression within the community.*

People can fully be integrated with others in the service of a purpose only if they know the meaning of the purpose; thus, education in social purpose is essential for those people intelligent enough to understand the purpose and to accept it. The State could do much in this and in adequate selection of business employees by using the machinery it has at present. The first need, however, is the integration of business with social purpose; given this, backed by proper employee selection method by the educational authorities, the integration of worker-employer effort would, the author believes, follow.

CHAPTER VII

THE SOCIAL FUNCTION OF THE ECONOMIC INSTITUTION

IT is strange that it should be left largely to the socialist to propagate the idea that economic activity is a social function which should be carried out for the purpose of social service. True, in the past few years there have been statements of similar content to the foregoing made by prominent industrialists, but the various labour and socialist parties have had the idea of economic activity for social good as the chief plank in their programmes since the rise of trade unionism. It is easy to prove (*a*) that economic activity is a social function and (*b*) that employers and their managers do not generally act as if it were a social function, but it does not follow that (*c*) the abolition of the motive which impels the organization of economic activity and the substitution of another motive would work equally well. We are not here denying that some form of co-operative organization of industry will ultimately exist—to do so would be absurd—but it is questionable if, with the community as it is, the immediate introduction of an untried scheme of running the whole business institution would work well.

If we are quite frank with ourselves it must be admitted that the business institution as it is run now is in a muddle. From the standpoint of logical method the present scheme is illogical, and some of the schemes put forward as alternatives are far more logical, but, as has been insisted throughout this book as an offset to the logics of scientific management, one cannot run social activity on logic, but on the understanding of complex human sentiments and customs. The logics of community are not the logics of textbooks, and any statement of a new system touching on community

living must start off with a study of the community; not with a study of what one thinks the community needs but of what the community is, and what the community will acquiesce in or accept. The Russian theorists started off with a logical programme and a logical purpose based on Marxian dialectic, and Lenin considerably modified the logics to suit Russian psychology; but even with these modifications the purpose is so far from acceptance after years of intense educational advertising that the bulk of what may be called the commoners respond to it so faintly that a piece-work system (note the personal profit motive) has had to be introduced and, if reports are correct, it has not worked very well. Now that Russian politicians are in difficulty in getting their purpose across to Russians is not a result of the logical insufficiency of the Russian Plan; it is largely a result of the same fault as is perpetuated by the scientific managers in this country—the belief that what is formally true is therefore applicable to human beings and is certain of acceptance by them. But we have enough troubles of our own without either criticizing or lauding Russia, and, in any case, it does seem that the labourists in this country have not the burden upon them of what H. G. Wells describes as the "heavy load of democratic and equalitarian cant upon the back of the Russian system."[1]

When we observe the purpose of socialist activity in this country we see that it is, in essence, little different from the expressed purpose of progressive business men. Thus, Mr. Herbert Morrison, speaking of the purpose of the Labour Party, says that—

> The purpose is to end poverty and social insecurity. To promote the orderly planning of British industry on the basis of social purpose and social accountability. To secure Britain's wealth for Britain's people. To end slumdom and ugliness in the life of our country.[2]

[1] *Shape of Things To Come*, H. G. Wells (Hutchinson).
[2] Speech at a London Regional Conference of the Labour Party.

Who, from the logical and humanitarian standpoint, will deny the validity of this purpose? Certainly not the intelligent section of industrial managers, although their ideas of the methods of social change may differ from Mr. Morrison's because their data are sociological and practical rather than political.

BUSINESS A SOCIAL FUNCTION

It is our proposition, not merely that business is a social function, but that, to put it in concise form, *the application of effort to natural resources for the satisfaction of social interest in the material needs of life is a social function carried out by social beings seeking adequate social living within a socially differentiated institution which is subject to the principles which affect individual and social activity.* In this statement is crystallized the point of view we have been developing earlier, and it is from this point we commence to look more closely into problems of economic organization. The statement includes the following propositions—

1. Economic activity has for purpose the satisfaction of social interest in the material needs of life; i.e. its function is a social one.

2. The activity is carried on by a section of society whose particular object is adequate social living.

2 (*a*). The section of society which carries on economic activity is not one mass of similarly constituted people, but is composed of people who have a common interest but have different expressions of that common interest.

2 (*b*). Values based on social and personal instincts and traditions are the prime cause of economic behaviour; these are modified by intellectual experience, which varies from individual to individual, and by individual ideal purpose, also a variable.

3. The economic institution is the result of differentiation within society.

3 (*a*). Authority and obedience are necessary within the institution but so, also, is acquiescence or acceptance of authoritarian purpose and of the codes and procedures necessary for the carrying out of that purpose by society as a whole (represented by the State) and by that section of society within the economic institution.

3 (*b*). The institution has a tendency to be conservative and to impede progress, and conflict between the conservative tendency and the interests of progressive individuals is inevitable. These progressive individuals may be outside or inside the institution.

4. The economic institution develops through differentiation in the effort to increase effectiveness.

5. Not only is co-ordination of the differentiated elements within the institution necessary, but integration of the elements in the service of social and economic effectiveness is necessary.

6. The part to be played by any individual within the differentiated institution should be in accordance with the principle of selection based on individual similarity and difference.

These points, in short, sum up what has been said in previous chapters, and they provide us with an immediate starting-point for our ensuing study.

ECONOMIC EFFECTIVENESS

For maximum service of community the economic institution must be effective. True, in the serving of social purpose, the fact that within the economic institution there may be necessary losses here and there (as in a new company, or one which it is necessary to run even when demand is low) must be admitted, but the institution as a whole must pay its way, at least. If it does not pay its way the result will be social loss. To put it simply, if the economic institution be engaged solely on making food for the community

and the total values invested in making the food came to £1000 but the total value of the food came only to £900 it would be said, under any system, that there had been a loss of £100. To put it another way, the relationship of the economic to the social institution is like that of a pump to the people who use water. If we imagine a pump in a deep well supplying a community with water we have two distinct, yet related, tests of efficiency: the community will be concerned with quantity and quality of water for the rate they pay for water; the engineer in charge of the pump will be concerned not only with quality, quantity, and income in water rate but with his costs per gallon pumped, that is, with pumping cost, maintenance cost, depreciation cost, labour cost, etc.

When we analyse the effectiveness of any mechanism we measure its output against its necessary input; so with the economic mechanism. Thus, as necessary capital is the measure of input in the form of material, equipment, and labour (physical and mental) values, the value of output should be, at least, equal to the value of input. Whether the capital value be counted in energy units, in pounds, shillings, and pence, or in any other suitable measure does not affect the calculation; by capital we mean, of course, the goods used for supplying consumers' goods: this includes buildings, labour-saving and labour-aiding equipment, stocks of raw and finished materials, payments for effort before the result of effort is realized, transport, communication, and the like. Thus, it is reasonable to state that *as the economic institution must for effective community service be in itself effective, and as necessary capital is the measure of total material, equipment, and labour values within the institution, the effectiveness of institution operation is measured in terms of its return on the capital necessary for effective operation.*

Among theorists there are many quaint ideas about industrial effectiveness. Thus, in Russia, the necessity for

authoritarian codes and procedures was overlooked and committees of workers ran the workshops with such a consequent drop in effectiveness that Stalin had to reintroduce strict management. Again, there is an idea abroad that under an ideal system there would be no surplus; it would go back to the actual producers. Here is a socialist point of view—

> The only charge against Planning in which there remains the least shadow of substance is that a democratic and socialist form of planning will find it difficult to secure funds for capital accumulation. It is obvious that the authoritarian economy in Russia has been guilty of over-saving rather than under-saving, but in this case it was possible to enforce the relative restriction of consumption by the bayonet and machine gun. Would it be possible to do the same under a democratic regime in which trade union influence was strong?
>
> It would be silly to deny that in a socialist community the pressure to raise wages in all industries would be sustained and grave. Nevertheless, if the natural desire on the part of each group of workers to increase the volume of their consumption is acceded to indefinitely, the rise in wages will eat into and finally altogether destroy the funds out of which the services of the Central Government and the building of new capital can alone be financed.[1]

This quotation not only clears the air as to economic surplus but, also, stresses the chief barrier to any logical plan, the psychological content of community.

THE PROBLEM OF PROFIT

Is it possible to run the industrial institution with only social service as the motive? Under present circumstances, no; under other circumstances, yes. Is it possible to run the economic institution for social service and retain the profit motive? The answer is affirmative, with a certain

[1] E. F. M. Durbin in *New Trends in Socialism*, G. E. G. Catlin (Lovat, Dickson & Thomson).

qualification: this is, that the profit motive be truly subordinate to the service motive. It is agreed, of course, that dictatorship by a minority may for a time force a majority to carry on a certain activity foreign to the present nature of the majority, but we may reasonably leave this out of our present discussion.

First of all, what is profit? Profit is, in general, a form of income containing elements of (*a*) salary or wages for actual work done, (*b*) interest for the service of money loaned, and (*c*) return which varies with the earning effectiveness of business, a return, in other words, for risk. Elements (*a*) and (*b*) are not called in question by intelligent critics, but element (*c*) is called in question. The author would here make it plain he is discussing the industrial aspect of economic activity and not the financial system which, if it is ineffective, and it seemingly is, can be altered without affecting the point at issue.

The problem then is, is there any risk in financing industry and, if there is a risk, should the people who take it have a chance of being rewarded? At this point some Board of Trade figures may be useful. For England and Wales the approximate figures are as follows for Bankruptcies, registered Assignments, Deeds of Arrangement, etc.—

Years	Cases per Year	Liabilities	Assets	Price Position
1908–14	6600	£9,900,000	£4,200,000	deflation
1915–20	2000	£3,900,000	£1,800,000	inflation
1921–25	6500	£18,600,000	£6,000,000	deflation
1926–30	6100	£13,700,000	£4,400,000	deflation

The foregoing figures do not cover the enormous writing down of capital which took place during those periods; for example, the writing down of £14,000,000 by Armstrong, Whitworth and Co. Ltd. It seems obvious that the losses and profits from capital risk vary with the price position,

but, it is freely admitted, they vary also with management competence, a factor which would not change for the better by virtue of the abolition of private profit making or losing.

It will be admitted that there are risks in the running of business, and it will also be admitted that whoever takes the risk should stand a chance of gain (note we are not dragging in moral issues, but are in the realms of arithmetic and understood common sense). We have already seen that the socialist believes in a surplus profit, but he does not believe in the surplus going to individuals. So far as this book is concerned, the formal logic of the State running business and taking the surplus is admitted, just as the logic of an ideal state (with ideal people) is admitted. But "facts are things that winna ding" and the logic of necessity is quite different from the logic of formal reasoning. The profit system is the commonly recognized system and it fits in with community nature as it is. Any change that is made must allow for the slow development of social sentiments and customs if it is to have the loyalty of the community as a whole. That in one, two, or three hundred years the community may be living under a form of socialism or of capitalism is of little account, so long as each step forward is a progressive one which is integrated with those already taken. If the community attitude favours co-operation, then let us move towards co-operation, but let us not mistake our own sentimental or logical bias for community attitude, nor, and here is a warning and a proof, mistake for community attitude that voting which now puts conservatives, then socialists, then conservatives again into Parliament. Voting results show attitude trends, but, in general, they vary with the immediate comforts of the voters.

Much criticism of capitalism is biased, just as much criticism of the plans of socialism is biased; nevertheless, there is too much of the futile and silly "capitalist grinds the worker down" propaganda among hysterical socialists and

communists. For example, since the year 1800 the purchasing power of wages has risen from an index of 25 with money wages at 49, to 195 in 1932 with money wages at 193. Again, real wages in the form of health, educational, relief of aged and unemployed benefits shared by the community have increased enormously. In America, the purchasing power of wages rose from 36 in 1840 to 199 in 1932. It is not pretended that this tremendous increase in the standard of social living was a gift by capitalists as a whole—whether it was or was not is beside the point; what is suggested is that the economic system as run at present has greatly raised social standards and there is no reason why, until a better system is evolved, it should not continue to do so.

The real struggle is not between the owners in industry and the workers in industry, but between the forces of differentiated conservatism and progressive integration. The owners and the workers in industry both suffer from increasingly grave periods of depression which remove the feeling of security from living; the removal of these depressions, and of other minor causes of conflict, is the next step towards stable socio-economic effectiveness. The common meeting ground for a drive towards economic stability is sincere belief, openly stated, in social service by industry.

CHAPTER VIII

GENERAL AND PARTICULAR CRITICISMS OF ECONOMIC EFFECTIVENESS

IT is our proposition that socio-economic ineffectiveness arises from (*a*) lack of integration of economic institution purpose with social purpose, (*b*) lack of integration of the major differentiated functions within the economic institution, and (*c*) lack of integration of the differentiated interests and abilities of people engaged within the economic institution. Point (*a*) we have already considered from the critical standpoint.

It is, in passing, interesting to notice the number of thinking people who subscribe in speech and in writing to the idea that the present economic system is disintegrating and that social chaos will soon be on us. If it is so, it is not because industry cannot make what people want nor that people do not want what industry makes; it is not that there is no mechanism for marketing the goods industry makes and people want, nor is it that there is no medium of exchange between producers and consumers. We have, in theory, all of the elements necessary for community satisfaction: an organized producing mechanism, a marketing mechanism which covers the country, a seemingly adequate medium of exchange, and the almost unlimited wants of community. The mechanisms exist to meet the wants; why then are the wants of people not met? Why should there be *disintegration* instead of *integration*? Is industry at fault? Is it industrial ineffectiveness which is the major cause of social disintegration? To judge from the attacks by, on the one hand, political critics, and, on the other hand, experts who stress the necessity for more science and scientific method, it would seem that industry as a

whole is in a mess. We shall show that the facts are indicative of quite an opposite impression.

THE INDUSTRIAL MECHANISM NORMALLY EFFECTIVE

For our present purpose, the study of the reason for lack of integration within the economic institution, we may broadly accept Mr. J. M. Keynes's definitions of industry and finance. He says—

> By Industry we mean the business of maintaining the normal process of current output, distribution and exchange and paying the factors of production their income for the various duties which they perform from the first beginning of production to the final satisfaction of the consumer. By Finance, on the other hand, we mean the business of holding and exchanging existing titles to wealth (other than exchanges resulting from the specialization of industry), including Stock Exchange and Money Market transactions, speculation, and the process of conveying current savings and profits into the hands of entrepreneurs.[1]

It is granted that many producing businesses, perhaps the majority of them, are ineffective in terms of the most modern conditions of work and methods of work and, too, in terms of standardized and simplified designs. Marketing, also, is in numerous respects shockingly ineffective in terms of modern industrial economics, more ineffective, if anything, than is producing. Wholesalers and retailers double the production cost of consumption goods to consumers, and thousands of competitive salesmen travel the roads piling up costs, not only of consumer goods, but of capital goods. Nevertheless, in terms of normal evolution over the past eighty years the industrial production of the world is advancing at a rate of about 3 per cent per year, and the production *per capita* at a rate of about 2 per cent per

[1] *Treatise on Money*, J. M. Keynes (Macmillan & Co.).

year[1] (discounting the Great War period), and, we may take it, despite the great room for improvement, that producing and, perhaps, marketing conditions are normal to the stage of economic evolution.

As the basic test of industrial effectiveness is its capacity continuously to supply society with the goods society needs, and as there is no doubt that the industrial mechanism can meet all normal and many abnormal demands made on it, we are justified in saying the industrial mechanism is generally effective. Further, the whole economically necessary producing mechanism is quite able to produce values greater than the values invested in it. Thus, in general terms, it passes the normal test of socio-economic effectiveness.

To those people whose creed is more scientific management, the foregoing remarks may sound like heresy. True, from the specialist standpoint, industry can be rationalized and scientized very much more than has been done, but if the problem be looked at socially, and the social consequences of the further application of scientific discovery and scientific method to industry be calculated, it may be that, other economic functions remaining practically constant, the final result will be social chaos.

It is agreed that the development of effectiveness in industry cannot stop; by its very nature it must follow the course of discovery, but there is little use in our saying to the workers, with our tongues in our cheeks, that if they will co-operate with us in increasing output per man hour they will reap not only an immediate benefit but a lasting benefit. When scientific management was first mooted it was claimed that "because of the vastly increased production per man when using these methods, unit costs would go down and consequently purchasing power would go up."[2]

[1] Quoted from *Prices*, Warren & Pearson (Chapman & Hall).
[2] *Industrial Economics*, D. S. Kimball (McGraw Hill).

This was merely an example of specialist effervescence, for scientific management has contributed nothing to the problem of purchasing power; indeed, it accentuates the problem of distribution by its insistence on increasing productive effectiveness while distributive effectiveness remains stationary. Again, to quote Professor Kimball—

> The great problem that confronts us is not that of production but that of economic distribution. More manufactured goods can be produced than can be used, and far more than is needed to make us comfortable. All the new productive processes that may be invented will throw little light on the problem of why, in many places, at the one time, storehouses are found filled with raw material, idle factories equipped with the finest tools the world has ever seen, and people walking the street without food or clothing, yet willing to work.[1]

There is no need for us to dwell much further on this matter except to translate the problem into the viewpoint of the industrial manager who, when the next slump comes, will walk his vacant shops during the daytime and each morning shake his head anew to the crowd of eager men looking for work at the gates of the factory. He will, perhaps, remember how the economists had declared that there would be a great slump and how all the experts had argued about how to avoid it, and little was done. Perhaps, on the other hand, the plain fact that it is production and consumption which are important, that here is a vast machine and thousands of men eager to make goods and there is society wanting goods, will dawn on those who control distribution. Lord Melchett, writing of fluctuations due to the present financial system, said—

> The world, situated as it is to-day, cannot easily expand or contract its standard of living, which this system demands, as in days gone by, when our methods of life were more rudimentary.

[1] *Ibid.*

> Now these broad generalizations come right back to the life of the ordinary citizen: his present and his future; the amount he can afford for the education of his children; how much he can pay for doctors; whether the house he is living in is above or below his means; whether he can afford insurance policies, etc., upon which his wife and children would depend if anything happened to him; whether he will have his salary reduced by a government or by a company forced to economize, or whether he will be axed out of his job (as I write I read that 13,000 men have been "axed" out of a railway company during 1931, in order to economize, due to loss of traffic, and to the stagnation in industry); and, above all, to the workman the simple question of his job, his wages, his rent and his "dole."
>
> Then, let us for ever do away with the inadequate economy based on antiquated notions. I am sure that the wit and need of man will devise something better.[1]

Later we shall see that the opinions of many authoritative economists and financiers agree with the foregoing. Of more direct interest, perhaps, to industrial executives is the following quotation from an article by the brilliant economist and statistician, Carl Snyder—

> We should no longer have an appalling and endless number of strikes and wage disputes and tie-ups and traffic blockades; for almost every strike and wage dispute grows out of a changing level of the purchasing power of money, and if this level of purchasing power can be made fairly stable, a large part of our labour troubles, so called, will disappear.[2]

There is nowadays very little criticism of the whole industrial machine by national and international experts; indeed, most of them would be very happy to leave it as it is for some years if, thereby, the problems of depression and unemployment could squarely be met. In industry, however, too much thought is given to organizing new techniques and to inadequate generalizing on the causes of

[1] *Modern Money*, Lord Melchett (Martin Secker).
[2] *American Economic Review*, 1923.

industrial conflict. This state of affairs is itself a result of differentiation, of specialization of tasks, and of specialized education in techniques and procedures. What was stated earlier as a principle is here worth repeating—

The general purpose motivating the community is adequate satisfaction of fundamental organic, cultural, and ethical interests and protection and continuance of that satisfaction.

It is the author's opinion that the greatest single direct cause of conflict in industry is the insecurity of employment and the "overdraft economics" which result in the body of employers being afraid to risk, for example, abolition of hourly employment and dismissal, non-payment for holidays, and the poor conditions in many businesses. This is not a theory, but is proved fact derived from the author's experience of organizing in numerous companies in five industries; to criticize and to recommend was easy, but to make the recommendations fit in with a dragging heritage of losses from the previous slump and fairly sure knowledge of another slump coming in a few years was well-nigh impossible.

Thus, if the specialist method of looking at industry as a thing in itself be adopted, it is plain there is much that is wrong from the standpoint of human and mechanical conditions, but if industry be looked at in terms of whole economic institution evolution and in terms of consumer service it must be admitted that it is capable of being very effective; that it is not effective is largely the result of the working of an over-differentiated financial system.

CRITICISMS OF THE FINANCIAL MECHANISM

The author has no desire to propound any particular theory of wealth distribution; here his sole aim is to indicate, from numerous authoritative sources, that it is true that the weakness of financial method makes workshops idle,

causes bankruptcies, and throws large numbers of workers on the street, and that, if industrial managers are to do their duty by those they manage, they must take an organized stand on this matter; indeed, it is their bounden duty so to do. The primary trouble is that the general attitude seems to be that "all a man wants to know about money is to make and spend it." Yet, according to A. E. Feaveryear,[1] there have been crises in 1763, 1772, 1783, 1793, 1809, 1811, 1815, 1821, 1825, 1836, 1839, 1847, 1857, 1866, 1890, 1914, 1921, and 1929, all, apparently, because of an unintegrated money system, but mainly because it has been allowed to remain unintegrated. For the continuance of these slumps the ignorance of money among industrial executives and others of like social responsibility is largely to blame. Sir Josiah Stamp has made the following point—

> With business men there is still a sneaking feeling that references to the price level or index numbers are academic and highbrow, not practical or immediate. They move unfamiliarly amongst its contentions, and feel uneasy as compared with the sureness with which they discuss comparative manufacturing costs or a fair wage, or sixpence off the income tax. When they listen to any close analysis of its problems, they claim curiously enough to be exempt from the necessity of understanding it, because they are essentially "practical."
>
> And yet it is the most bitterly practical of all questions.

In one book on money which the author was studying, someone had written in the margin that the job of business men was to produce goods and not to trouble about money theory. It is our contention that business is a social function and that industrial executives must accept some social responsibility for industrial depressions and consequent discontent and, as the whole question of industrial stability is integral with the question of purchasing power, their

[1] *The Pound Sterling*, A. E. Feaveryear (Oxford Univ. Press).

business has to do with control of the price level. Mr. Reginald McKenna, Chairman of the Midland Bank Ltd., has said—

> History has shown that apart from wars and religious intolerance no single factor has been more productive of misery and misfortune than the high degree of variability in the general price level. This may sound like an extravagant statement, but so far from being of the nature of demagogic outburst, it is clearly demonstrable from the course of events in various countries ever since money became an important element in the life of civilized communities. A stable price level is a thing to be desired, second only to international and domestic peace.

The greatest illusion about the price level is that most people look on the pound or the dollar as having a stable value; they obstinately persist in talking of commodity prices rising when it is the value of money that is falling. They regard money as the true wealth when, in fact, goods are the true wealth. There have been great civilizations without money as we know it: Egypt, China, Persia, and early Greece and Rome. When money was introduced into the two latter countries, Greece managed her currency wisely, but in Rome "money," as H. G. Wells states, "floated the Romans off firm ground"; indeed, not a few authorities suggest that the mismanagement of currency led, in large part, to the downfall of the Roman Empire. But apart from this, it will be observed that money is not the essential it is thought to be. Goods are the true wealth and the production and supply of goods to the community which wants the goods is the prime economic function; in terms of this, money, whether it be gold or energy certificates, must be managed. Unfortunately, differentiation has produced the banking specialist, who, it seems, looks at money in a different way; to quote Lord Melchett in a speech in the House of Commons in 1925—

> The President of the Board of Trade has been boasting that our national credit is extraordinarily good, but what is the use of that? If you are not going to use your national credit in a way that will help the unemployed, you will not be any better off than you were before. There seems now a growing tendency to regard all these questions from the point of view of the bankers of the City of London.[1]

Despite the opinions of level-headed experts, the unintegration of the financial mechanism with the needs of the community and the capacity of industry to supply those needs continues; just how much this is owing to the false belief that money is the chief wealth is shown in the reparations policy after the Great War, a policy which, in Germany at least, made money worthless and smashed the existing social system. Thus, one day a steak would cost a half million marks and the following day one and a half million marks. Two American professors state the effect of the money illusion on international debts and reparations as follows—

> What hope is there for the world so long as the leading Premiers of allied countries admit that Germany can pay only with goods which none of the Allied nations are willing to receive, and give support to their Parliaments in framing tariff measures designed to prevent German exports, at the same time insisting that recalcitrant Germany must meet the reparation obligation to the last farthing and the last sou. . . What hope is there for the world when statesmen and financiers alike, while lacking the courage to tell the truth about reparations and inter-allied debts, insist that nothing can be done as a practical matter "however desirable it might be from an economic point of view" because the people will not be satisfied to give up the supposed advantages of reparation and debt payment?[2]

We cannot here do more than glance at the major problem

[1] Quoted from *This Age of Plenty*, C. M. Hattersley (Pitman).
[2] "America and the Balance Sheet of Europe," Bass and Moulton, quoted from *The Story of Money*, N. Angell (Macmillan).

of money, and the reader is advised to study it.[1] If we look first of all at the question of what money is, we can trace it through barter of one good for another good and, from this, the development of convenient currency tokens, for example, tokens such as cattle or gold *which had an intrinsic value*. At first, the token was accepted *because of its value*, but, as time went on, it was accepted *because it worked as a medium of exchange*. Paper money such as we use now is in this latter category. To go further, the development of the cheque system from the written order on goldsmiths from Mr. X to give Mr. Y so much of the gold Mr. X stored with the goldsmiths, and of bank notes from goldsmiths' receipts for gold deposited for safety, led to banking. With the development of banking we had the added convenience of Mr. A owing Mr. B money and Mr. C owing Mr. A money, and the whole involved transaction being carried through by the bankers, who performed the necessary calculations and transfers, and credited the person to whom the final balance was owing. Thus, A, B, and C did not handle money at all. How far this system has developed may be seen from the fact that it is not unusual for over £40,000,000,000 to pass through the Bankers' Clearing Houses in one year.

Thus, money is simply a system the purpose of which is to assist the processes of production and consumption. In theory, at any rate, the credit money mentioned in the previous paragraph has a backing of gold and other coin; Hattersley says—

> Prior to 22nd November, 1928, British currency consisted of the metal coinage and Treasury notes issued by the Government, and the bank notes issued principally by the Bank of England. At the end of 1927 the total money

[1] The author suggests the following order of study: *The Money Mystery*, N. Angell (Dent); *The Business of Finance*, Withers (Murray); *Modern Currency*, Cannan (P. S. King); *This Age of Plenty*, Hattersley (Pitman); *Money versus Man*, F. Soddy (Elkin, Mathews, & Marrot); *The Economics of Unemployment*, J. A. Hobson (Allen & Unwin); *The Money Illusion*, Irving Fisher (New York); *Treatise on Money*, J. M. Keynes (Macmillan).

> in the country must have been round about £2,150,000,000, composed as follows: Bank created credit money (the reflection of bank investments, loans, and discounts), £1,675,000,000; Treasury notes, £300,000,000; bank notes of all kinds, £115,000,000, and the metal coinage, £60,000,000. About 78 per cent of the whole of the nation's money thus consisted of national, intangible, credit money. If we add to this the face value of the bank notes, we find that of all the money circulating within the community in the year 1927, at least 83 per cent was the creation of the banking system, and only about 17 per cent the creation of the Government. . . . In passing, it may be pointed out that since 22nd November, 1928—on which date the Treasury notes were officially replaced by notes of the Bank of England—only the 3 per cent of the money which consists of tokens intrinsically valuable is national money, the other 97 per cent is created and virtually controlled by the banking system.[1]

It will, at this point, better be realized that money cannot generally be called wealth, and that true wealth is in goods. Another point will be clear; this is that the bankers and not the Government virtually control the nation's money. They can create money by creating credit and they can alter the price of money by raising or lowering the price of credit.

We have already seen Lord Melchett's opinion of the banking system.[2] It is not our purpose here to criticize or laud, but it has to be admitted that criticism of the financial system is not only growing, but is growing more intelligent. Not only is there criticism of its management of money by means of the Bank Rate, but of its power to make money out of nothing. So far as we, as responsible people thinking not only of industrial but of social effectiveness, are concerned, the fact is that the financial system does not do the work it should do. Professor Soddy, whether or not the substituted

[1] *This Age Of Plenty*, Hattersley (Pitman).
[2] Page 109.

system he suggests be effective, speaks truly when he says—

> None of the world's real problems centre to-day around the mere provision of wealth. The difficulties arise rather in getting rid of even a small part of what can be made, without fighting for the privilege of either making or selling it. But to people who think, not in terms of energy and human endeavour, but in terms of token money, there seems to be nothing incongruous in the continuance of the acute economic suffering into which Europe has been plunged, nor any evidence of failure in the most elementary function of government in the spectacle of unemployment and poverty at one and the same time.[1]

The majority of economists are not so much concerned with bank organization as with instability in the price level, and most of them wish to do something or other with the gold standard, the supposed purpose of which, by reason of the intrinsic value of gold, is to keep prices stable, yet the standard itself has no fixed value, for its value rises and falls with its quantity and its own market price. D. H. Robertson, writing of gold fluctuations, says—

> The conduct of that standard (the gold standard) in the century before the war was far from exemplary. The behaviour of wholesale prices is not a completely satisfactory test; but taking it for the moment for want of a better, we find that in England between 1821–25 and 1846–50 wholesale prices fell by 25 per cent; between 1846–50 and 1871–75 they rose by 20 per cent; between 1871–75 and 1894–98 they fell by 40 per cent; between 1894–98 and 1909–13 they rose by 30 per cent. That the gold standard provided on the whole a healthy stimulus to industry in the second of these periods is possibly true, but largely fortuitous and due to unforeseen happenings both in the diggings of California and Australia and in the banking world of London.[2]

A most interesting and convincing book on the effect on

[1] *Money versus Man*, F. Soddy (Elkin, Mathews, & Marrot).
[2] *Money*, D. H. Robertson (Nisbet).

the price level of the value of gold is by Professors Warren and Pearson.[1] These authors remark—

> For many years men used stones as measures of weight and the human foot as a measure of length. These crude measures have been replaced by scientific measures but no unchanging measure of value has yet come into use. Gold is now the most generally accepted measure of value, but gold changes violently in value. Sometimes it will buy large quantities of other things and at other times it will buy but little, just as a horse will at times buy large quantities of other things and at other times buy but little.

These authors analyse the ratio of world monetary gold stocks to world physical volume of production over 75 years and express the relationship as follows—

$$\frac{\text{Gold}}{\text{Physical Volume of Production}} = \text{Prices.}$$

They further say—

> Price changes are even more important in their effect on the total production and national welfare. When prices are rising, industry is stimulated. Those who borrow to produce, or buy for sale on a later market, prosper . . . a spirit of optimism and good will prevails.
>
> When prices fall, most of these things are reversed. Buying is checked; unemployment occurs; borrowers suffer; and creditors lose because they are unable to collect. Farmers have hard times and are discontented. Agricultural legislation is demanded. Unemployed persons have to be fed at public expense.[2]

Now, although our sole object is to indicate the necessity for study of price levels by industrial executives, and to indicate that a stable standard of value would remove much social and industrial discontent, it will, at this point, probably be asked why, as we do not in daily practice use gold,

[1] *Prices*, Warren and Pearson (Chapman & Hall).
[2] *Ibid.*

the supply of and demand for gold should affect prices. The problem is international, as well as national, for gold is kept by most of the industrialized nations for the settlement of their balances; gold is the international "stable" money, and it enables the various countries which do business with each other to use a common basis for calculation and, at the same time, enables each country to hold an intrinsically valuable reserve for the meeting of any demands likely to be made on it by other countries. Thus, dollars are of no use in Britain, and pound notes of no use in America; the Britisher must change the dollars into pounds, and the American the pounds into dollars. How many pounds and dollars, respectively, will each get? As dollars and pounds are *both claims to gold*, both countries have, in effect, one money system.

Yet another factor to be faced in the study of prices is the effect of quantity of currency on prices, the general statement of this factor being that if currency increases, prices rise, and if currency decreases, prices fall, a fact not usually recognized. To quote Professor Cannan—

> I remember that at the time when a million a week was being added to the English Currency Note issue of 1914–18 and prices were rising rapidly, my late colleague, Professor Lilian Knowles, told me that she had made some remark implying that the two things were cause and effect to a bank clerk who was handing her a small portion of the week's output, and he replied with amazement, "What! More money raise prices?" Even the great bank chairmen, though generally ready to admit that in theory increase of currency tends to raise prices and decrease of currency to lower them, never seem able in the course of their long lives to come across any change of prices which they are willing to admit to have been the result of monetary policy. . . . In its brighter moments, too, the public is willing to admit of everything except currency that, a long way short of the point where it will become worth nothing, the value of a thing which is being increased in quantity without any

> corresponding increase in demand for it will decline with the increase, falling sometimes faster and sometimes slower than the quantity increases, but always falling. But people are so much more used to considering the pauses of the price-movements of each article separately, assuming all other things to remain unaltered, than to considering the prices of all taken together, that they cannot well grasp the idea of the unit of account embodied in the currency having a value subject to change like the value of other things, and therefore they are always prone to jib when asked to think of its value as falling in consequence of an increase in its amount and rising in consequence of a decrease.[1]

As variations in the quantity of currency can have severe effects on prices and, therefore, on industry, the question of rational control of its volume as a stabilizer of the price level by bankers is an important one. Of course, the basis of the quantity of money put out is the amount of gold—the "gold cover" imposes a relatively effective restriction on the amount of money issued—but, even if restriction is effective, the issued money rises and falls with the variation in value of its gold backing. However, even if our paper has a gold standard, it will not prevent deflation, that is, a fall in the price level; for, if there is difficulty in getting gold to cover its currency, a government may have to reduce its money issue, with a consequent drop in prices. To quote Hartley Withers—

> . . . the ideal to be aimed at would seem to be steadiness in prices; in other words, it is the business of finance to consider whether it cannot regulate the general level of prices by somehow maintaining more or less constant equilibrium between the production of goods and the creation of currency. If all currency creation consisted of bankers' credits, then it would clearly be possible for an ideal banking system, worked by ideal bankers, for the convenience of ideal customers, to produce the required equilibrium. . . . But, in the first place, the relations between bankers and customers do not at present permit

[1] *Modern Currency*, Cannan (P. S. King).

> this simple process of regulation, and, in the second place, as we have seen, the manufacture of currency, though to a great extent in the hands of bankers, is subject to conditions over which they have no control. One of these conditions is the amount of gold available. When the production of gold is rapidly increased, not only is there so much extra buying power in the form of coins struck from the gold, but since the increase in gold available enables bankers to issue a very much larger amount of paper credit against it, it follows that activity on the part of gold miners has, or may have, an effect on world prices which is much greater than the actual addition to currency which they themselves take out of the bowels of the earth. It seems at first sight absurd that at this stage of our economic civilization such an important matter as world-wide price movements should depend upon the pace at which a certain kind of metal is dug out by miners. . . .[1]

Although Mr. Withers realizes how futile this position is, he does not, apparently, favour going off gold and substituting a managed currency, largely because of the customary outlook of people as a whole. In earlier chapters[2] we mentioned this customary opposition to progress, but whether or not it is, in this case, powerful enough to upset a badly needed, new monetary procedure, it is not our function to say. Here, as in industry, the principle of social acquiescence stated earlier[3] holds good: the imposition of objective codes and procedures requires social acquiescence which, if withheld, may result in social apathy or disobedience with consequent weakening of community life and conflict with existing authority.

CRITICISMS OF THE INDUSTRIAL MECHANISM

That type of criticism which is directed to the end of cost reduction, whether the criticism be based on the grounds of economics or of psychology, can be ignored in this section of our study; as we have seen, the producing and marketing

[1] *The Business of Finance*, H. Withers (Murray).
[2] Pages 72–3. [3] Page 67.

mechanisms can, it seems, be fairly effective in terms of carrying out their supplying functions within the framework of society. We are concerned more with wider criticisms which have their base in a wide social outlook.

The first major criticism is that industry has been divorced in meaning from the whole social structure and that its prime objective is economic rather than social effectiveness. This matter has already been dealt with earlier and an attempt will be made to link it with other criticisms for the purpose of getting a whole viewpoint.

The second major criticism, in the author's opinion, is that there has been separation of the two mutual realms of working and living. To quote Thurstone—

> The most serious personnel problem is in the circumstance that so many people separate the two realms of working and living, as though they were necessarily antagonistic. Work is frequently looked upon as a necessary evil—a means to an end. The goal of personnel research is to harmonize these two realms as far as is possible by providing situations of productive work which are not hated as a necessary evil, which include opportunities for self-expression, the enjoyment of power, mastery, freedom, control, social approval, and self-advancement. Work should be a part of that for which a man lives.[1]

When we stated that what people want is adequate social living and that it is impossible to separate man's nature into "man economic" and "man social," we suggested that there should be satisfaction in work as well as from work.

The third major criticism is that the outlook of management on the development and imposition of industrial techniques is such that vital factors are being ignored with consequent grave results. Whitehead says—

> Economic science and the practice of business, like every other discipline and activity, are based on the assumption

[1] *Journal of Personnel Research*, 1924.

> of other things remaining substantially unaltered. In particular, both economics and business have tacitly assumed that the general run of human behaviour in the mass will remain sufficiently unaffected by commercial and industrial procedures. This assumption was perhaps reasonable when the developed techniques of business affected only a small part of society, but it has been my purpose to illustrate the inadequacy of this assumption to-day. It appears that business activity is very substantially affecting social organization in industrial communities, and that this organization is showing signs of diminished vigour in consequence. A vital factor, the run of orderly human association, has been neglected; and the only satisfactory solution is to recall this factor from the universe of things that can be neglected, and to include it as one of the relevant considerations in guiding human activities and, in particular, business activity. One obvious difficulty of this procedure is our ignorance of human society.[1]

This is a criticism of what is called "scientific management," and, from the angle of sociology, we have already subscribed to it although we may differ somewhat from Whitehead's conclusions. It is, however, worthy of notice that the criticism is not based merely on logical disputation but has its foundations on the excellent practical research work of the Harvard Group under the direction of Professor Elton Mayo.[2] This research work was carried out in the plant of the Western Electric Company over a period of five years. Just how important the results of this research are will be glimpsed from the details (see table on page 119) of the conditions which were varied in the Relay Assembly Room during the period of the research and the effects of these on production.

The amazing fact about these researches is that, despite the changes introduced, there was a continual upward trend in output. One would have expected that change number 12 would have resulted in a drop in output; the oppo-

[1] *Leadership in a Free Society*, T. N. Whitehead (Oxford Univ. Press).
[2] *The Human Problems of an Industrial Civilization*, Mayo (Macmillan).

site is the case. It is, further, noteworthy that there was an 80 per cent drop in absences. The investigators conclude that a new social orientation brought about during the period of the research was responsible for the results attained.

Period	Length	Conditions
1	2 weeks	In original room.
2	5 weeks	In experimental room without other changes.
3	8 weeks	Change from general to own piece rate.
4	5 weeks	Five-minute rest periods at 10 and 2 o'clock.
5	4 weeks	Two ten-minute rest periods at above times.
6	4 weeks	Six five-minute rest periods.
7	11 weeks	Fifteen-minute rest and lunch in morning; ten-minute rest in afternoon.
8	7 weeks	Above plus half-hour shorter working day.
9	4 weeks	Hour shorter working day.
10	12 weeks	As 7 above.
11	12 weeks	Above plus a five-day week.
12	12 weeks	Return to three (full working day, no rests, no lunch).
13	31 weeks	As 7 above but supply own lunch.
14	9 weeks	As above but with five-day week.
15		As 7 above.

This research is not only a most scathing critique of scientific management and kindred specialist techniques but is, too, the basis of a revolution in management method and, the author thinks, in management education.

If we gather these various criticisms together, it seems they have each the same story to tell: that the divorce of social meanings from industry in both its internal and external aspects is the root cause of much ineffectiveness. They each stress the point that work is a social occupation carried out by social creatures, and insist that social factors in work are of the utmost importance and, in effect, that management must be educated to the recognition of these and other non-economic factors.

It will be seen that the criticisms have, to some extent, supported the point of view developed in earlier chapters.

They must, however, be integrated with other reasonable criticisms if they are to be of maximum value.

THE CRITICISMS VIEWED FROM A BASIC STANDPOINT

It seems that the best test of any of these criticisms is to be found in terms of (*a*) its value as a commentary on factors barring the attainment of adequate social living in the economic and social spheres, and (*b*) its value as a positive contribution to the attainment of adequate social living; the latter is mentioned because such criticisms as have been mentioned usually carry with them various suggestions for the attainment of better conditions.

It is noteworthy that the most intelligent critics of the operations of the economic machine are content to touch on only a part of the whole matter under observation. We can example this from practice if we care to pick up any book dealing with the social and psychological aspects of business as a whole. Thus, most modern thinkers agree, in the words of Uhrbrock, that—

> Workers have three basic fears: fear of losing the job, fear of loss of earning power through illness or accident, and fear of a penniless old age.[1]

Most experts may generally agree further with Uhrbrock when he suggests that these fears may be alleviated by a guarantee of steady employment, paying good wages, giving sick and pension benefits, sharing profits, and, as Uhrbrock is careful to point out, improving worker attitude to the policies of management.

But, if the worker desires adequate social living and continuance of adequate social living both inside and outside the industrial sphere, can this be attained by only treating of industry and problems of industry? If, for example,

[1] *Journal of Social Psychology*, 1934.

management be educated out of the ways of scientific management and into the ways of a wider management, will this remove the fears of the worker? Will this give the worker the security he desires and the adequate necessities he needs for a full social life? Given a fully co-ordinated economic mechanism it seems that such a course would tend towards the desired goal. But, if other experts are to be believed, the working of the financial mechanism is such that it is likely, with the best will in the world, the schemes of the new management will be defeated. It does seem that the sensible course is twofold: the cause of management education must move alongside the cause of integrating the financial, producing, and marketing mechanisms.

CHAPTER IX

PROPOSALS FOR INCREASING ECONOMIC EFFECTIVENESS

WHILE it is obvious that management must develop a new outlook on the handling of industry as such, it is also obvious that any attempt so to do without consideration of factors in the way of maximum industrial effectiveness is akin to tinkering with industrial problems. Is it, however, the function of management to consider wide social and economic questions? Or should management carry on treating industry as its particular field and ignoring those external factors which bar the way to whole industrial effectiveness? It is a difficult question to answer, for, no doubt, there will be much opinion in favour of management as a body making its main concern the increase of industrial effectiveness in the producing sense of effectiveness, and leaving wider questions to the care of the specialists in these questions and to the State. But if it be agreed that an effort should be made consciously to relink economic with social life, and if it be agreed further that industry will be effective when it gives each person in society economic security and a desirable minimum standard of life, it is difficult for management to avoid some consideration of problems outside of but impinging upon industrial operation. To put the matter another way, industrial effectiveness is wrapped up with the worker's feelings about losing his job; if the financial mechanism so operates that despite management's best efforts in industry the worker will be sacrificed to the effects of a slump, should management stand by hopefully and wish for the best? Again, if it be agreed that what each worker desires is adequate social living, should management consider what this means and how, if at all, it is to be attained?

Management must itself answer the foregoing questions; meantime, it is obvious that such work as is being done by groups other than the managing group to tackle the whole problems of adequate living for all should, at least, be considered, for, if we are not to remain theorists and babble about ideals while doing nothing to question their logical utility, we should check up on the work of other people and, perhaps, lend a hand as far as lies within our power. With the object, then, of knowing what is proposed by various experts and groups of students to meet the problem of economic security and, too, of making industry servant to the community, the following is offered.

SOCIAL AND ECONOMIC REFORMS

We agreed earlier that the industrial mechanism is normally effective but that the whole economic mechanism is ineffective because the financial function has been allowed to lag behind the producing and marketing functions. Given that this is so, is it sufficient to stop at co-ordinating the various functions within the economic institution, or should deliberate planning for adequate social living for all be carried out? For example, if the assumption of competent experts, based on actual research, is that 44 per cent of the population of this country are suffering from malnutrition is accepted, should there be planning to abolish this bad state of affairs? It is obvious that if there are about twenty millions of the people of Great Britain under-nourished, the effect on the present and future effectiveness of industry must be considerable (a matter of direct interest to managers as managers), as it must be on the present and future of the nation (a matter of direct interest to managers as responsible citizens).

In the near past, the idea that poverty could be abolished and that there could be instituted a fair standard of living which would mean reasonable physical welfare for all was

regarded as a pleasant dream. Now, with the tremendous increase in capacity for production, a large body of intelligent people not only believe but attempt to prove that poverty can be abolished. These people belong to various political and non-political groups, the schemes of which extend from mild monetary planning to full-scale social and economic planning. The best analysis of the various planning schemes which the author has come across is that carried out by the Engineers' Study Group on Economics, Section B; twenty-four sets of proposals have been considered and the result published in a small booklet.[1] From this and from other work of the Engineers' Group much of what follows is derived, the work of this group being chosen because its efforts to approach the problems of planning for plenty are, in common with one or two other groups out of the many interested in planning, both thorough and unbiased. The analysis published by the group of the nature of various planning schemes is as follows—

1. Monetary	2. Industrial Planning	3. Industrial Planning and Monetary
Blackett	Macmillan	Bellamy
Consumer Money League	New Deal (U.S.A.)	Communism
Deane Plan	Political and Economic Planning	Conservative Party
Douglas		Fascism
Gesell		Jevons
Kearney		Labour Party (Socialism)
Keynes		Liberal Party
London Chamber of Commerce		New Britain
McGregor		Socialist League
Melchett		Technocracy (Continental Committee)
Soddy		

The proposals under "Industrial Planning" do not exclude

[1] To be obtained from the Hon. Secretary of the Engineers' Study Group on Economics, Le Play House, 35 Gordon Square, London, W.C.1. Price one shilling.

monetary planning but the industrial planning aspect is dominant. The main purpose of the classification is to distinguish between those who think prosperity can be reached by monetary reform only and those who think some control of industry is needed. The Conservative Party appears in Group 3 because of the planning activities now being carried on through marketing boards and quotas.

Without attempting to analyse the logical utility of the various schemes (this is well done in the booklet quoted) it is of interest to management to consider if any of the schemes are immediately practicable for the increase of worker security against depression. Nearly all of the monetary proposals could be introduced at once; the industrial planning schemes, on the other hand, would take considerable time to introduce. Of the monetary proposals, all but three (Keynes, Liberal Party, and London Chamber of Commerce) could be introduced nationally.

Although there is disagreement among the various backers of the schemes listed under the heading of "Monetary" there is a measure of agreement among certain of them which makes possible a grouping under those who believe that a shortage of purchasing power is the cause of depressions and those who believe the cause is lack of balance; the McGregor, Deane, and Blackett plans can roughly be classified in the latter group.

So far as we are concerned, what is of great importance is that there is agreement by all responsible thinkers on the subject of industrial and social prosperity that something must be done; there is not, however, much possibility of anything really practical being done until the intelligent section of the community take a strong interest in the matter. The necessity for strong, common interest in such questions is brought out in the following quotation of Sir Norman Angell—

> The thing which stood in the way of a much more rapid

> economic reconstruction in Europe after the war, particularly on the financial side, was not the fact of disagreement among experts. In certain vital policies they were in complete agreement. The difficulty was to persuade the public, which would have none of the doctors' counsel.
>
> Had the public been able to see certain economic truths, not more inherently difficult to understand than the microbic theory of disease, and about which economists do not differ at all, then some, at least, of the economic pestilences which have cursed us this last twenty years would not have come upon us.

Whatever is later said about social and economic planning in its wider aspect, it seems that if management is to be rational and is to accept its obvious social responsibilities (for there is no separating of social and industrial activity in fact) it must take an active interest in the solution of the monetary problem. The sufficient reason for the stressing of this particular aspect of the national problem of prosperity has been pointed out in the previous chapter and is here repeated in the opinion of an internationally known business man, Sir Josiah Stamp—

> When I have said quite seriously, as I have done on a number of occasions, that the problem of the price level is the most important single problem of the age, I have been accused of exaggeration and flippancy.
>
> What about trade depression in the basic industries, unemployment, labour unrest, class hatred, high taxation, and the rest?
>
> My answer is that the problem of the price level is fundamental to a solution of them all.

If Sir Josiah Stamp is correct, and there is little doubt that he is so, the moral for management is plain.

THE FUNDAMENTAL APPROACH

At the beginning of the previous section the question of adequate living for all was mentioned; the solution of this question is at the base of the efforts of those people who

adopt a scientific approach to the problem of prosperity rather than a political approach, and the question of whether or not there can be plenty for all under the present or some other system is a secondary consideration; the answer to this, in the author's opinion, is a function of the active and sincere interest those who manage the existing system take in the problem of the abolition of poverty.

Much work on this matter has been done here and in America, and it will be interesting and useful to consider broadly what has been done.

For what minimum desirable standard of plenty should planning take place? Given that standard is accepted in theory, how would it be accomplished? How would such accomplishment affect industry in its producing aspect? Given a desirable standard of plenty, would true harmony within industry be fostered? Would general industrial effectiveness be increased? We do not intend advancing personal answers to these questions but, rather, leave the answers to those interested in further studying the problems involved.

In the search for a minimum desirable standard of plenty the logical approach is through analysis of family needs in terms of maintaining perfect health. The work of the British Medical Association on the subject of nutrition and expressed in their booklet *Family Meals and Catering*, and of numerous authorities here and in America, offers much matter for consideration. The Engineers' Study Group on Economics has also made a valuable study of nutrition values [1] which gives in easily read form their own conclusions and the conclusions of others. The family budget, however, comprehends the desirable food budget and it is to this wider budget we will direct our attention. The following analysis of annual expenditure of average families will give some idea of the current thought on this subject—

[1] ***Food and the Family Budget.*** To be obtained from the Engineers' Study Group on Economics. (See page 124.) Price one shilling and sixpence.

ANALYSIS OF ANNUAL EXPENDITURE OF AVERAGE FAMILIES OF APPROXIMATELY THE SAME SIZE
(3·2 equivalent men, approx.)[1]

Items	Middle class families, Caradog Jones (J.R.S.S. 1928)	Required expenditure of working-class family in Manchester in Jan. 1931, to give standard of similar families in Detroit in 1929 (I.L.O. 1932)	E.S.G. Desirable Budget, 1935
	£	£	£
Food	184	82·7	95·5
Help and cleaning material			10
Rent and rates	65	32·6	55
Clothing	46	27·3	28
Fuel and light	20	19·6	21
Education	—	—	—
Medical expenses	9	5·3*	14†
Insurance	25	8·25*	
Holidays	40		10
Recreation, hobbies			10
Subscriptions, charities	5		5
Liquor,** smoking, sweets	11		28
Newspapers, etc.	4	55·35	2
Stamps			3
Phones, telegrams, wireless licence			
Travel	8		20
Depreciation and repairs to furniture and equipment	15		12
Total	432	231·1	313·5
Size of family, persons	—	4·5	3·72
Equivalent men	3·1 (Lusk)	3·27 (U.S.A.)	3·14 (C. & M.)

* Includes contributions by employers and State to social insurance.

† Excluding long-term insurance.

** The national expenditure on alcoholic drinks was £232·5 m. in 1932, £224·8m. in 1933 and £229·0 m. in 1934, of which at least 40 per cent was paid to the State in taxation. The 1932 figure represents a "family" expenditure of £19 10s. The corresponding figures for tobacco and sweetmeats were £12 and £4, respectively.

It will be noted that the sizes of families in "equivalent men" given in the three columns at the foot of Table 1 are estimated on the Lusk, U.S.A., and Cathcart-Murray scales respectively. It would have been preferable to use the Cathcart and Murray scale throughout, but this was not possible since the actual average constituents of the average families were not given for the first two columns. It may, however, be taken that the families, although estimated in "equivalent men" on different scales, are approximately the same in size.

[1] Quoted from *Food and the Family Budget.*

A comparison of this budget as laid out by the E.S.G. with an American Budget based upon the National Survey of Product Capacity carried out by Harold Loeb and associates under the auspices of the New York Housing Authority (1935) is interesting. The budgets are not strictly comparable but they are substantially so—

	4·12 persons		*3·72 persons*	
	$ (1)	£ (2)	$ (3)	£ (4)
Food (incl. alcohol and sweets)	990	198	894	178.8
Wearing Apparel	540	108	487.50	97·5
Housing (incl. cap. gds.)	958	191.6	865.50	173.1
Transport	467	93.4	422	84.4
Personal	290	58	262	52.4
Recreation	393	78.6	355	71.0
Health	165	33	149	29.8
Education	407	81.4	368	73.6
Social	65	13	58.50	11.7
Miscellaneous	95	19	85.50	17.1
	4370	874.0	3947.00	789.4

The Group which derived the American Budget analysed America's capacity to produce, and claim this is more than sufficient to provide the family requirements noted for the whole of the population. A 40 per cent increase in production above the 1929 figure would be needed to meet the budget.

The E.S. Group estimate from figures supplied by Mr. Colin Clark that the increase in the retail value of items mentioned in their budget and required to bring family consumption up to a desirable standard is £887,000,000 per year, about 27 per cent. The Group publish figures supplied by A. E. Feaveryear which suggest that to obtain the improved standard of living an increase of the national capital of 10 per cent would be necessary.

THE TEST OF PROGRESS

If we consider these and similar contributions to the problems of social and industrial welfare it seems that there

is sound justification for the efforts made to satisfy, in the first place, the physical and biological pre-conditions to a fuller expression of ethical values. Examining management attitude as expressed in books on organization and psychology, it appears as if there is a fine and noble spirit of the "Come on boys, let us integrate our varied interests and capacities and go all out for maximum production" variety, but, good though the psychological stimulus be, the biological pre-conditions are lacking. Indeed, the various technological and psychological techniques that are being boosted in industry are ineffective if the advance in their use is not accompanied by a corresponding advance in the direction of satisfaction of those needs required for maximum physical and psychological effectiveness.

Progress is balanced advance of the whole community in the direction of fuller expression of individual and social life. If a critique of technological progress in terms of this definition is required, that suggested by Professor J. Arthur Thomson is as good as any; he says—

> Increased productivity is a physical ideal—will it mean increased health? It has often meant a black country and a short drab life. Increased efficiency is an ideal for engines—will it mean increased freedom of the spirit? Increased health is an ideal for the animal—but man does not live by bread alone, he is a mind-body as well as a body-mind. . . . The principle of guidance is this—judge the physical in the light of the biological, and the biological in the light of the psychological, and the psychological in the light of the social.[1]

As is pointed out elsewhere,[2] the individual manager cannot do much within the orbit of his personal work situation to promote whole social balance, but management as a whole can do much. Each of the specialists clamours for our attention, but the problem is not one of this or that, but of

[1] *The Control of Life*, J. Arthur Thomson (Melrose).
[2] Page 137.

discovering the next concrete instalment in the expression of dual social and economic integration.

Here, without insisting that management takes any specific course, an attempt has been made to illustrate the need for wider effort and the means being taken by independent students. From what has gone before in this book it seems to be obvious that the advance of industrial techniques has affected social organization without there having been much consideration of what the effects are; and it seems, too, that the effect of the separation of economic aims from whole social aims tends, with the speeding up of specialist thinking in industry, to become graver as time passes. This state of affairs in which the economic organization does not regard its responsibilities in terms of whole social living is a dangerous one; how long it will continue to be so will depend to a large extent on the attitude of those responsible for managing the economic organization.

The consideration of the content of this and previous chapters is an expression of rational management outlook; the matter dealt with is, in essence, the real challenge to "scientific" management. No doubt, in time, the scientific methodists will discuss such questions as are mentioned earlier; whether or not such discussion will atone for their past narrow outlook and for the damage they have done in industry, time will tell. It is the author's opinion, that, so far as the intelligent British worker and the thoughtful manager are concerned, scientific management has "blotted its copy-book" too deeply for the stain to be rubbed out by a tardy change of front.

PART III

INDUSTRIAL MANAGEMENT AND ORGANIZATION

CHAPTER X

INDUSTRIAL MANAGEMENT

IT will have been observed that we have already laid a broad foundation for the study of economic management; it now remains to apply what has been said to the particular field of industry. Here, again, we depart from the customary outlook on this subject by stressing the high value of personal character and capacity and, as has been said earlier, returning somewhat to the values of traditional management and reacting against the procedurism, logical or mechanical, of scientific management. The principle of economic management is as follows: *As management is necessary for the carrying out of economic activity, and as the need for co-ordination of effort and integration of interest increases with increasing application of differentiation with a view to increased effort effectiveness, management will be most effective when it has capacity for, and disciplines itself to, the service of socio-economic purpose by integrating individual, personal, and social interests in the differentiated and co-ordinated application of effort, aided by necessary capital, in the explicit direction of socio-economic effectiveness.*

In earlier chapters we have tried to prove (*a*) the necessity for management in group activity [1] and (*b*) the need for co-ordination and integration as reciprocal to differentiation.[2] We have also studied the meaning of socio-economic

[1] Chapter IV deals with the meaning and expression of leadership.
[2] Chapter VI.

effectiveness. Our present task, because we have tried to get at the root meaning of our subject, is so much the easier.

SUBJECTIVE MANAGEMENT

Management has two aspects, a subjective and an objective. The first, subjective, is management in its personal aspect; it is management viewed as an emotional, intellectual, and moral force channelled for the service of social and economic purpose. Objective management is management applied to external factors which require controlling.

In the near past, the stress has been on the objective codes and procedures of management, and the subjective aspect of management has been dismissed by the listing of such virtues as honesty, grit, tact, and the like. It will, however, be remembered that it was earlier stated as a principle that the institution of objective codes and procedures involves not only obedience to authority but, also, obedience by authority to the purpose to be served.[1] Obedience to purpose presupposes discipline, and it is essential that management consciously disciplines itself to the socio-economic purpose of business. If, now, we survey the field of socio-economic activity in an effort to find the disciplines which management should accept we find—

1. The disciplines imposed by the necessity for personal organized and controlled effort.
2. Disciplines imposed by the necessity for keeping in touch with developing knowledge which will assist management in the solution of business problems.
3. Participatory disciplines imposed by the necessity for effective contact with the group managed.
4. The disciplines imposed by the necessity for an ethical code of management.

Elsewhere, the question of the method of self-discipline for

[1] Chapter V.

management has been dealt with[1]; here it is our object only to make clear that management's obligations do not begin and end with the making of profit, but go much further. The management task, if it is not to become an expression of formal method, must express the high obligations inherent in the management purpose. Thus, as a development of the general principle stated at the beginning of the chapter, we may say: *Management must accept the physical, mental, and moral disciplines involved in obedience to socio-economic purpose, and must adopt and sustain an unbiased, rational attitude in the treatment of all business problems and in the balanced application of developing knowledge to these problems.*

What this entails has been hinted at in the four aspects of management discipline set out above. In the last analysis, it means that the service of society through management of an effective industry is much more than a matter of learning to manipulate either facts or mechanisms; it has its roots in self-abnegation for an ideal purpose.

It will have been observed in the early part of this book that human behaviour is affected, not only by the instincts and by intellectual experience, but, also, by the influence of individual ideal purpose.[2] Management's purpose is an ideal one, worthy of the highest profession, and management must try to accept the disciplines arising from that high purpose. Other professions are so largely by virtue of scholarship, the management profession is so by virtue, not only of scholarship, but, above all, of the expression of that high willingness to serve which is the essence of enduring leadership.[3] All of this is involved in good subjective management.

OBJECTIVE MANAGEMENT

The principle of objective management is, naturally, a reflection of that of subjective management stated in the

[1] *Training in Foremanship and Management*, Gillespie (Pitman).
[2] Chapter III. [3] See Chapter I.

previous section: *Management must continually apply developing knowledge to business operation in accordance with the principles of rational method, and while so doing must set an example to those managed of rigidly disciplined effort rightly applied and controlled, and of intellectual and moral strength which will justify its claim to manage.*

This principle, in the light of what has gone before in this book, is self-evident. That part having to do with rational method is the subject of the following chapter; following on this is the explanation of the differentiative and integrative methods mentioned in the principle of economic management at the beginning of this chapter.

MANAGEMENT ETHICS

It is not our intention to state a number of ethical principles to which management should subscribe as a serving body; the principle of economic management stated earlier in the chapter states a serving principle which is in accordance with highest ethical thought. It is our intention, rather, to consider the ethics of the existing scientific cult of management and to suggest that there may be a professional code of ethics to which management could subscribe.

The gospel of efficiency as propagated by the scientific school of management thought is unethical because it arrogates a mean to the category of a desirable end. Efficiency for what? Bigger and better profits, apparently, with a saving stress on a "square deal for the workers." The meaning of a "square deal" is yet, so far as the author knows, awaiting elucidation into a practical policy by the protagonists of scientific methods in industry. A "square deal" for the workers may cover such a programme of reform as is outlined in an earlier part of this book[1]: equal educational opportunity for all, the removal of artificial class barriers by the selection and replacement of people

[1] Chapter IX.

according to their ability and merit, a guarantee of adequate social living and similar proposals may be grouped under the otherwise vague and somewhat hypocritical "square deal." In actual fact, the "square deal" of the scientific methodists is not an end but is a necessary means of limited value which makes more feasible the putting across of their efficiency codes and procedures. It is not, mark well, that scientific method is an ineffective tool of management, far from it; it is the thought system of those who have propagated it as an object of special veneration which is ineffective.

When we attempt to analyse the duties of management there appear two aspects of the matter. There is the duty which arises out of management's economic function and that which arises out of its social function. Each function seems to commit management to a course of action which, in the opinion of many people, is contradictory to the other. Whether or not this is so will be determined as our analysis unfolds itself; meantime, it is essential that it be recognized that the person who has taken the position of a manager of other people has by virtue of that fact accepted a course of activity which (*a*) requires that his other activities be disciplined or modified in terms of the management task, and (*b*) puts him under a contract to serve the expectations of others and to consider the effects of his acts on the welfare of others. This is true of all social callings, but it is of greater significance in those callings which endow an individual with power over many people than in those callings in which there is no direct power to affect the actual health and happiness of people. The first of these courses of activity demands such self-discipline as is mentioned earlier in the chapter, the second demands recognition of social welfare; the latter has already been included in various principles stated earlier, here it is our task to consider just how far management can reasonably express the content of these principles. We

are not at the moment concerned with management as an organized body of servants, for if there were such a body in existence it could, through its publications and its meetings and study groups, take a very definite stand on moral issues; we are concerned with the individual manager who is in charge of a business or of part of a business.

It will be obvious that the individual manager is not called upon to let broad questions of economic and social policy influence his judgment. The manager has a situation which demands that the operations which he manages be profitable, but, within the limits created by the situation of which he is a part, it is his duty to consider the rights of those for whom he manages and of those he manages and, on the consumer side, of those who trust in and buy the goods his company offers. His position does not demand that he be on the side of owners or workers; his first duty seems to be to the consumer, and between the camps of owners and workers he takes a middle stand, using as his guiding principle the idea of maximum consideration of the rights of both factors in the situation which he accepts.

Although the manager accepts a situation such as exists in the average business it does not absolve him from working for the removal of external factors which interfere with maximum effectiveness of the total business structure of which his particular business is a part. Such factors as an inadequate financial system, education by privilege instead of by right, lack of social security for workers within the business structure, false class differentiation, and standards of housing, clothing, and nutrition which do not ensure maximum physical health, are within the category of factors which interfere with the effectiveness of the business structure and which, in terms of social good, are unethical. It may be suggested that working for the removal of these unethical factors is not a pursuit of an ethical purpose because their

removal would increase business effectiveness and the increase of business effectiveness is really the end sought. This may or may not be so, but the difference between scientific and rational management is that the latter does not accept profit earning as *the* criterion of business effectiveness; it accepts profit seeking and earning as part of the total bio-psychological situation which it has to serve and accepts as the final criterion of business effectiveness the service it performs for the community as a whole; such a motive is ethical in content and in operation.

So far as the author can understand it, management is not and should not be concerned with political disputation on capitalism versus socialism or fascism versus democracy. Management's concern is not with preservation of capitalism or with substitution of some other "ism"; it accepts the present system as the workable and understood system and sees its duty to lie along the lines of progressive management within the situation as it exists. If, in the carrying out of a rational programme of management, it happens that the system alters, then management will still adopt the same attitude under the new as under the old system. What seems to be at present needed is a management organization which would protect the ethical code of management and, at the same time, express in a rational manner the ethical aim of management: maximum service of social and economic effectiveness. Through the operation of such an organization the individual manager would be able to transcend the ethical limitations of his particular business and to secure an active spirit of co-operation with his fellow managers for the furtherance of both business and social welfare. Attempts to secure even business co-operation in the past have failed simply because the spirit which motivated them has, often enough, been materialistic; given the acceptance of an ideal such as is mentioned above, there would arise, slowly but surely, a serving organization

which would re-establish the economic institution as the servant of society and, by so doing, reinstitute throughout business a common social purpose to which all intelligent people could sincerely subscribe.

CHAPTER XI

ESSENTIALS OF RATIONAL MANAGEMENT METHOD

WE have already observed in what respects scientific method is of limited value to management.[1] It now remains to enunciate a method which will comprehend the values of both scientific and general logical method and, at the same time, give some guidance on judgment of situations in which the human factor is present and on methods of knowledge application.

RIGHT AND WRONG THINKING

Thinking is the process which takes place when active, careful, persistent mental effort is applied to interpretation of the facts of a problem for the purpose of understanding it.

There are various mental and emotional processes which are grouped under the term "thinking," some of which have no claim so to be grouped. Four of these processes are of direct interest to us.

Musing. In this process, falsely called thinking, the attention drifts from one mental image to another with no settled purpose. Here the mind starts off with an idea of some sort and sails away on the easy tide of mood. Images come and go, shapeless and vague, each coloured with the emotion that holds us; and the whole is like a certain hued thread on which are loosely strung a row of multi-shaped beads. This is the state of the lotos eater—

> How sweet it were, hearing the downward stream
> With half shut eyes ever to seem
> Falling asleep in a half-dream!
> To dream and dream, like yonder amber light,
> Which will not leave the myrrh-bush on the height;

[1] Page 8 *et seq.*

To hear each other's whisper'd speech;
Eating the Lotos day by day.
To watch the crisping ripples on the beach,
And tender curving lines of creamy spray;
To lend our hearts and spirits wholly
To the influence of mild-minded melancholy;
To muse and brood and live again in memory. . . .[1]

Momentary Thinking. This, it must be confessed, is not an unusual method of management thinking. Unlike musing, momentary thinking has a purpose behind it, but the thinking is not sustained. This is the thinking of the snap decision manager, the fellow who when a problem comes before him sizes the problem up in his mind and jumps to a decision; he considers only those factors which are immediately apparent to him and ignores factors outside of momentary perception.

In business, this kind of thinking is a menace, and the manager addicted to it would be better employed on the bench or at a machine. An example from practice will show what it can cost; this incident occurred in an internationally known organization—

Among the employees was a long-service man who, in accordance with company policy, received regularly a bonus for good timekeeping. He had never missed getting the bonus until he began keeping bad time and, ultimately, became ineligible for it. When pay day came he was paid wages without bonus, and, on the day following, forty-five hundred employees were on strike.

Investigation showed that the employee's wife had developed cancer and during the three months preceding the strike she had been seriously ill. On the day on which he was penalized for absence he was attending his wife's funeral.

What brought on the strike was not the loss of the bonus, it was the lack of reference by the foreman to the purpose behind the man's actions. So obvious was this that the

[1] "The Lotos-Eaters": Poems of Tennyson.

strikers demanded that in future they be given a complaint avenue which would give them direct contact with the higher executives.[1]

Rationalizing. In this type of thinking the person concerned reads into facts just what will justify his own beliefs and weaknesses.

A common example of rationalizing one's own faults is seen in the high executive official whose profits are low and whose factory is inefficient but who advances a multitude of specious arguments to justify the loss of profit and his own incapacity to put matters right. Another example is the works manager who pins the blame for his incapacity on to sales, finance, or design; and yet another the foreman whose inefficiency is volubly rationalized by references to the poor service he gets from other foremen.

Reflective Thinking. This is thinking as defined in the early part of this chapter; indeed, it is of all the examples quoted the only mental process that can fairly be called thinking.

Good thinking is a discipline. The executive who desires to think clearly must bring the will to the task of self-discipline. Books on logic will not teach right thinking, nor will talking about common faults in thinking teach right thinking. As the Orientals say, if you want a light, talking about a lamp will not bring it, nor will a disease be cured by reciting all of its symptoms.

THE BASIS OF METHOD

Methodical thinking is distinguished from unmethodical thinking in that it has a definite objective and moves towards the objective in an orderly manner; it does not stray from the objective, each step is supported by preceding proved steps, and it omits nothing necessary to the right

[1] Elliot D. Smith, quoted from *The Science of Work*, Viteles (Jonathan Cape, London).

accomplishment of its purpose. But methodical thinking is not method as the scientist understands it; method, in the scientific meaning of the word, includes all technical methods of manipulating and measuring the phenomena being investigated; logical methods, on the other hand, are methods of reasoning about phenomena being investigated. It will be noted that we use the words "technical methods"; this is necessary because each science has its own peculiar method which may be supported by special scientific instruments. So far as management is concerned, appeal will be mainly to logical method, although, where it is possible to use instruments, appeal may be to scientific method.

One of the most amusing examples of pseudo-scientific method is the use of time and motion study technique aided by stop watches and cameras; this technique, in point of fact, in the hands of early efficiency engineers, was largely responsible for the use of the term "scientific management." The method includes close analysis of the task to be done by breaking the task into its elements (as bend, grasp, lift . . . job) and clocking each element a number of times while observing the efficiency of the motions involved in each element, perhaps by camera. After a certain number of observations are made, the study is carefully analysed for the best way of doing the job and a base time is calculated. When this is done, an allowance for fatigue, and other factors, is added, and the objective, to set an accurate time for accurate job performance, is apparently reached. The method is quite sensible if rightly used, but the manner of putting on fatigue and other allowances makes amusing the claim that it is a scientific method. The human factor in this, as in other similar instances where scientific method is used, upsets the fine calculations made by the observer. The putting on of the fatigue allowance is, in fact, an example of bad deduction by fervid inductionists, that

is, of reasoning from general to particular instead of, as in induction, from particular to general.

All method starts off with two assumptions: that *every effect has a cause* and that *any non-free cause which produces a given effect in one instance will produce the same effect in similar instances.* Thus, it is assumed there is order in nature, an assumption true in experience but not, however, to be confused with orderliness in nature. If there were no order in nature, if there were no uniform connection between events and causes, it would make very difficult all logical effort. To take a simple example, if a man were playing billiards and struck the ball in a certain manner so that a score resulted, he would, given other things constant, expect the same score if he struck the ball in the same manner again. Note, especially, the phrase *other things constant,* for the ignoring of constancy of factors often leads to wrong conclusions in industry, conclusions which are sometimes expensively wrong. This is called a *fallacious use of analogy.*

An outstanding example of fallacious use of analogy is the reasoning that because a certain system had certain results in one business it will have similar results in other businesses. The use of American systems of payment is a case in point. In America, the use of the Taylor differential piecework system is, say, very successful in an engineering works making turbines, but in a British engineering works making turbines the introduction of the Taylor system may cause a strike, even if introduced in the same manner by the same people as in America. What is not constant is the psychological make-up of the workers and the relations among the workers.

To take another case, the use of a system such as, say, the Bedaux system, which depends largely on stop watch analysis plus labour speed and effort rating, plus a points control system; this may be quite successful among girls

in boot and shoe, sweet, photographic utensil, and similar works, but when applied to works employing skilled engineers, foundrymen, or other fairly intelligent people, it may not be so successful. The factors here which are not constant are intelligence and craft skill.

Equally fallacious is the idea that because there are differences in many circumstances there is no real likeness between two situations. High executives often say, in effect, that their businesses are each so different from others that it is impossible to organize them as others are organized. For example, the manufacturing processes in a clothing factory are quite different in most respects from the manufacturing processes in a foundry, and, it seems, one could rightly argue that if the application of certain principles was successful in a clothing factory it would be impossible to apply the same principles with success in a foundry. Certainly, the principles may and probably would require different application, but, as both processes, for example, use labour effort, the principle of specialization is true of both; as both use material, the principles of simplified handling is true of both, and so on.

A not uncommon fallacy is that of non-observation of causes; indeed, of ignoring causes completely and substituting what is often superstition. Thus, in a foundry the metal from the cupola or furnace is bad for a day or two and the attitude may be that one can't do much about it, for cupolas are funny things and just have their off-days. Or an owner may be losing money in his business and vaguely, but nevertheless strongly, blames the Government or the Japanese or "just pure bad luck" when, in fact, if he carefully examined his selling, design, production, and financial method he would probably find the causes of his losses were largely in poor management.

There is some order in nature and it expresses itself through regularities or laws; knowing this, we are able to

search for the laws behind events and to refer many events to known laws. The use of the word *laws* must not be taken to mean either that the laws at present recognized by science are rigid, or that every aspect of nature's working is subject to laws.

This factor of cause and effect and that of uniformity in nature mentioned earlier can be expressed as guiding principles for management. *Every effect in business is the result of a cause*; this principle of causality is of vital importance for the avoidance of fallacies such as are mentioned above. *Any non-free cause which produces a given effect in one instance will produce the same effect in similar instances*; this principle of uniformity in nature partly explains, for example, the attempt in this book to set up principles of management.

PRINCIPLES OF RIGHT PROCEDURE

When one tries to lay down principles for management guidance one could, as has sometimes been done, merely quote from books on logic, but, alas, it is not so easy as that. For example, the author was having a talk with a friendly logician on these principles of management method and it was pointed out to the author that many of the principles were not principles of logic, an example being that in one principle the author insists that the person carrying out a procedure should have right experience to avoid fallacy. When it was pointed out that one *must* have right experience to collect and handle facts, the answer from the logician was that he agreed, but as logicians were concerned with method and took experience for granted it could not be included in method. It will, then, be understood by the reader that much of what follows is derived from general logic and general common sense; from sources as far back as Descartes's rules of correct thinking and, in modern times, from, for example, Welton's principles of methodical

thinking, the whole being adapted to the needs of management as the author understands those needs. Welton's rules of methodical thinking are—

1. Our thought should be purposive, that is, have a definite object.

2. We should make sure that our thought begins with what is true and pertinent.

3. Our thought should advance by related steps.[1]

These principles are good and sound and later find more definite expression in this chapter, but it would be futile to pretend that they are scientific method. Methodical thinking is applicable to science, philosophy, and metaphysics, to butchering, baking, and candlestick-making; what is really scientific method is accurate measurement and proof, and neither can yet accurately be applied to human sentiments and purposes, the very stuff of business effort.

If, now, we take the handling of business problems and attempt to enunciate principles covering problem-solving procedure, the first is: *The objective of any inquiry into a business problem must be clearly and definitely stated so that time and effort may be a minimum and results a maximum.*

Any lack of clearness as to what is the objective of our inquiry into a problem will affect the clearness of our solution. Lack of clearness as to objective is a common fault and it often leads to very wrong conclusions. For example, if the problem is the best way of running a business for reasonable profit, this requires explicit statement, and the effect of each element in the business on the explicit objective should be tested. In many businesses the objective is profit, but, owing to lack of clear thinking, various lines are often run at a loss because the "boss thinks this," or because "it might please so and so," and so on. Again, when reorganizing a business one may find the organizer

[1] *Groundwork of Logic*, J. Welton (University Press, London).

vaguely touching up a bit here, then a bit there, just because he has no clearly stated objective.

Closely allied to the rule of the objective is the following: *The problem to be solved must be stated exactly, all obscure terms must be eliminated, and the problem divided into its constituent parts to avoid waste of time or effort on obvious points, straying from the objective, and to assist precision of purpose.*

Let us say the problem is: how to increase effectiveness in a certain engineering factory. We could ask: (*a*) Is it profit-earning effectiveness? (*b*) What, if so, is the standard of effectiveness aimed at? What does the attainment of this standard signify? What are the chief functions the operation of which affect profit earning? What, as profit is difference between income and expenditure, are the sources of income, the method of getting income, etc., and the chief sources of expenditure, the methods used by each, etc.? By thus analysing the problem we may derive a fairly reasonable statement of what the problem is, what it means, the order in which it should be attacked, and the method of attacking it.

Given an objective and a statement of the nature, meaning, and method of tackling the problem, *the logical procedure should be pursued to the exclusion of any investigations which do not contribute directly to the objective; it should commence at the logical beginning, and it should be such that each successive step is supported by observed facts.* Fallacies arising from failure to recognize this principle are numerous. If, for example, we were reorganizing a material stores we could lay out the problem solution method as consisting of (*a*) the necessity for stores, (*b*) geographical relation of stores to the departments it serves, (*c*) material flow into stores, (*d*) records of material inward, (*e*) note of where records come from and go, (*f*) material handling in stores, etc. If we start off with, say, material flow into stores, we may reorganize the stores, then find they should be somewhere

else; this is not an unusual state of affairs. Again, we could chase off after point (*e*) and find ourselves absorbed in the problem of effective costing of material instead of in the problem before us. Yet again, we may decide that the crane in the stores is ineffective and suggest a new crane be got, yet, if we had considered the facts, it might be that the present crane requires only a new clutch.

Before actually carrying out a procedure *the limiting influences peculiar to the inquiry should be determined and consideration given to the effect on the inquiry of such factors as* (*a*) *permitted expenditure of time and money,* (*b*) *method of fact collection that may be used,* (*c*) *help available,* (*d*) *the relation of the business policy to inquiry development.* Take a simple case such as making a time and motion study of a necessary operation; we would ask: (*a*) Is the job worth timing in terms of its frequency and of its cost? (*b*) If the answer is "yes," what time can profitably be spent studying the job? (*c*) How many studies can we afford to take? (*d*) Should we use a camera or a stop watch? etc. The principle is true of any job, large or small; we must cut the coat as the cloth will allow us.

DANGERS OF INEXPERIENCE, BIAS, AND PREJUDICE IN FACT COLLECTION

The next two general rules are not specifically rules of method as method is generally understood, but are, rather, essentials of the correct pursuit of method. It has been stated earlier that, according to the scientific management school, the personal factor was something that could be replaced by the rules of inductive method and its judgments replaced by the codifying of exact knowledge.[1] The following gives the answer to that short-sighted proposition: *The person carrying out the inquiry should have sufficient definite knowledge of the subject under investigation to avoid fallacies*

[1] Pages 8 and 14.

arising from mal-observation, and, *observation for the facts of the problem should be free from bias and prejudice.* We could go further and say the person ought to have enough intelligence to handle the inquiry, but the two principles stated suffice to point the meaning.

Given somebody inexperienced, or somebody biased or prejudiced with a knowledge of method, as usually understood, the results will probably be worse than those resulting from the application of non-formal method by an experienced, open-minded man. Neither academic education nor intelligence can be substituted for experience, excepting in those rare cases where genius for leadership lurks.

Experience of the type of facts being investigated, as is pointed out earlier,[1] is essential even in scientific method, and, as in the majority of industrial situations there is the human factor, experience of the human factor is necessary. But the matter does not stop there, for experience of people working for a livelihood (of girls or of boys, of men or of women, according to the needs of a working situation) is necessary. The fallacy that playing as captain on the fields of Eton, or Harrow, or at the 'varsity is a proof of leadership capacity in industry is dangerously common among the "public school type" of writer on management, a fallacy based largely on either ignorance of the stresses and strains of industrial operation or on prejudice.[2] Of processes, experience may not, in certain circumstances, be necessary.

In the dismissing of workers for one or other alleged fault it is important that bias or prejudice be not allowed to exist. Too often, one finds foremen and managers prejudiced against certain men because the men "face up to them"; are more skilled in certain respects than they are, the executives, themselves; are politically or religiously of a different point of view; or are not members of a certain club, and so on.

[1] Page 9. [2] Type of leadership alters with type of purpose. (See page 58.)

In the buying of materials and of equipment it is also essential that the conclusion be based on the facts and not on opinion or on sales talk. So with the consideration of new methods.

FACT COLLECTION

What are the facts? is a question of the utmost importance to management. If I must decide on this or that problem, says the rational executive, I must have the facts of the problem. But let us be wary of becoming "exact knowledgists" or "basis of fact" worshippers; let us, above all things, preserve our balance by remembering that there is no inspiration in facts; it is the faith and the imagination and the experience that are in us which tell us the *value of facts*; indeed, in a specific situation two people can get quite different yet true values.

Here is a scientific way of looking at a wall-cress—

> Annual or perennial herbs—leaves alternate, sometimes, mainly basal; blades entire, toothed or pinnatifid. Flowers perfect, in racemes. Sepals four, corolla white; petals four surpassing the sepals. Stamens six; ovary sessile; style short; stigma two lobed. . . .

How does Tennyson look at it?

> Flower in the crannied wall
> I pluck you out of the crannies;—
> Hold you here, root and all, in my hand
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

Tennyson's facts are inner facts, the scientists are objective. We must discover values as well as know how to measure, weigh, and count, and values are translated not by any objective method, but by us.

Yet it is better to know all of the facts and to try to get

at their value than not to know the facts. Thus, in problem solution *the whole field of the problem should be analysed to its elements so that every fact bearing on the problem will be clearly observed.* The executive must be wary of taking a single group of facts and resolving them into a system; it is surprising how this fallacy can reduce our effectiveness. Things are not going too well in the works or in the office on a certain day, perhaps "the boss dresses us down," and we think, "Oh, this place is no good, it never will be right, I'm wasting my time here, it's no good trying . . ." Thus, we raise a false attitude covering the whole situation from a mere contact with a small part of it.

Perhaps the gravest fault in industry is the tendency to make snap decisions on a few facts or on no facts. Earlier there is given an example of a strike because of this fault.[1] For example, a man may not do a certain job very well and because of the apparent fact of the job not being correct is dismissed. Yet, the fault may have been in the design, the material, the machine, the tools, in wrong or vague instruction . . . or the man may have been worried about home affairs, or was ill, or he may have been on a machine he was not used to, and would have been more useful on another job . . .

It is a remarkable commentary on industry that, in general, when something goes wrong with a process or a machine, determined efforts will be made to find the reason; indeed, the physicist, the chemist, or some other scientific specialist may be called in if the matter is an important one (as is done daily in the testing of engineering, textile, food, and other material), but when something goes wrong with a human being there is no organized attempt made to find out the basic reason. Obviously, foremen and managers need training in, at least, rational method.

The following five general rules are extensions of the

[1] Page 141.

principle of right analysis and, as they are self-explanatory, they will be stated with only few comments—

Personal analysis should, where possible, be assisted by variation of the circumstances of problem observation so that the essential conditions of the problem will be made plain.

For example, if the problem were whether a certain person was capable of turning out good work at a good speed and we found that on one machine the facts were that he was indifferent we could observe him on another machine.

Where possible, personal analysis should be supported by the use of accurate instruments.

The facts gathered in the course of analysis must be put into writing.

Of course, we are referring to analysis of important problems.

If, in the course of an inquiry, the observer has to refer to documentary testimony, the experience and the integrity of the author should, where possible, be checked, the recency of the testimony should be noted, the testimony should be checked against the testimony of authors of equal experience and integrity, and consideration should be given as to whether or not the facts attested appear to be borne out by the known facts of the problem.

If, in the course of an inquiry, the observer has to take personal opinions from others, such opinions should, where possible, be presented in writing, and the facts behind the opinions should be analysed to discover if they truly justify the opinions.

Quite recently the author was sitting in the office of the general manager of a well-known engineering company and the works manager came along and suggested that as deliveries to customers were falling behind, and that as the hold-up was in the machine shop and the plating shop, these shops should go on overtime for a month. As a sporting proposition the author had a small bet with the general

manager that the hold-up of work would be at one or more particular points rather than in the two shops. Investigation showed (*a*) the plating shop welders were overloaded and (*b*) the drilling section of the machine shop was overloaded. If the overtime had gone on as suggested, the extra costs would have come out at over £250, plus the cost of increased unbalance.

The author has known men to be dismissed by works managers on verbal opinions by foremen, he has seen good methods turned down on verbal opinions by subordinate officials, and he has seen bad methods being introduced on purely verbal opinions. The remedy is simple: we must stop to reason.

FACT CLASSIFICATION

If, now, in any inquiry, we have collected all of the associated facts we must next follow the rule that *each fact in the inquiry should be clearly identified in terms of inquiry objective.* This, to put it simply, means that we should make sure that each fact has a bearing on the solution of the problem and that the meaning of each fact be stated. Again *the facts must be stated in a unit which is clear and definite in meaning and is consistent within the class to which the facts belong.* For example, on a drawing of a mechanism it is illogical to state some measurements in inches and others in centimetres.

The student will be aware of the advice often given, but seldom taken, that if we are in doubt about a decision we ought to write down all the facts for it and all the facts against it, and then attempt to estimate the values of each class of facts. What we try to do here is to create order out of the chaos of our thoughts and sentiments; that is, we classify the facts on a basis of utility to ourselves in order that we may be helped to a decision reasonable to our own well-being.

Scientific classification tends to become more and more objective and stresses the character of things themselves rather than their values to people; thus, in dealing with human values, scientific classification is not of very great help. For example, if the specific objective of a problem is to increase the profit of a certain business and an old man of 65 who could only potter about was discovered, he would, in the light of facts, go on the side of avoidable liabilities, and rightly so upon the standpoint of the specific objective. But if it be answered that his value is a psychic one, i.e. he is a symbol of the company's goodwill, then, if we are going to be scientific, we shall have to define this abstraction called "goodwill," and calculate its profit content against the profit content of dismissing the old fellow.

In most businesses, classification is utilitarian rather than scientific; thus, if a classification for the parts of an engine be got out, all of the parts of similar metal, shape, or size will not be classed together, rather will the parts be classified according to the sub-assembly to which they belong. There may, for example, be grouped in one sub-class steel bolts, leather washers, and cast iron cylinder ends.

Utilitarian classification may be of high value, although it may be impossible to measure and prove the facts as required by scientific method. For example, if the question arose of dismissing a certain person, the executive official responsible could ask for facts under the headings of the person's physical and mental fitness; his punctuality, thoroughness, accuracy, and speed; his length of service and conditions of service; his experience; his relationship to his fellows and to his foreman; number of dependants supported at home, etc. The executive official would then classify the collected facts and, by comparing them with other recorded facts, try to come to a conclusion of some sort. Obviously his conclusion, unless he be a robot type of manager, will reflect his own faculty for fair play, sympathy,

and intuition. True, the official can judge the man in terms of profit earning and be a scientific manager by so doing; for example, facts may show—

> Standard output, 1000 units. Man's output, 800 units.
> Standard quality factor, 0·97. Man's factor, 0·85.

Of course, in terms of profit only, the most profitable action may be to dismiss the man. Let us, however, add a few unscientific abstractions—

> Standard output, 1000 units. Man's output, 800 units.
> Standard quality factor, 0·97. Man's factor, 0·85.
> The man is dull, but is a trier.
> Man has four children: 1, 3, 6, and 9 years old.

The author, to his sorrow, knows of many scientifically organized businesses where the last two factors would not count in the minds of officials remote from working groups, although the foremen usually do their best to add human values to their decisions.

If we have the courage to apply methodical analysis to the problem of the man's output we shall arrive at an indictment of the inefficiency of the socio-economic process. Let us say the man in question is an engineer and, as is apparent, proves not to be very skilled.

> How is it he ever became an engineer?
> How is it his dullness was not discovered earlier?
> Who is responsible for his being in the wrong occupation, if he is in the wrong occupation?
> Was he trained properly or did he drift from one process to another as needed by the company he first worked for?

Of course, if the man be dismissed he will receive assistance from the State, assistance which, though usually put down to the account of good social organization, is a gross form of social waste in this particular instance.[1]

[1] See Chapter VI for the author's opinion of the cure for this type of event.

The principle of classification is: *The facts should be systematically arranged under the logical divisions set out when the problem was first defined or under such logical divisions as appear necessary so that complete understanding of all the facts in relation to inquiry objective is made possible and good judgment is encouraged.*

FORMAL FACT EXPLANATION

In the attempt to explain observed facts, scientists may refer the facts to known classes, known series, or known laws. Reference to class is exampled by the placing of a newly discovered flower in an existing botanical class; reference to series by, for example, the explanation of prehistoric remains by placing them in an evolutionary series, and reference to law by, say, the explanation of the bent appearance of a straight stick partially immersed in water by Snell's law, which states that the "velocity of light in a medium is inversely proportional to its refractive index."

In industry there is considerable use made by technicians of scientific explanation and we may thus state as a principle that *the classified facts should be referred to a known class or series of facts or to known laws for explanation.* It should be noted that before any formal classification takes place the facts may find explanation. *If the facts cannot be referred to a known series or to known laws, any hypothesis drawn from the facts should be verified by the use of recording instruments if it can be so verified, by comparing and/or contrasting with like and unlike instances, or by experiment.* This principle is of much interest to management.

Let us take our man of the previous section and suppose that the observed facts, when classified, lead the executive official to the conclusion that the man is of little use to the company and that, in terms of profit earning, he should be dismissed; this conclusion is purely a theory, an hypothesis,

and, as the theory is of vital importance to the man, it requires verification. The executive could—

1. Have the man timed on his particular job to find out if he may not be losing time because of some avoidable fault (this is not unusual).
2. Let the man know of the conclusion and give him a day's run on his own work to check results.
3. Try the man out on some other jobs to find if his effectiveness is always low.
4. Put someone else on the same job with exactly the same tools and material and find out if the result varies from that indicated by the hypothesis, etc.

The man of science, when testing an hypothesis, uses the five Canons of Induction, although these are not the only tests, but as these Canons can be applied profitably only when fact analysis is adequate and the facts can be observed under differing conditions, they are not of much interest in the solution of problems that are very complex because of the presence of animate factors. The general examples given above partake of the nature of the Canons; in the complete statement of principles at the end of this book they are formulated as principles of hypothesis testing.

Yet another method is the statistical method, the essence of which is to observe a large number of instances of the phenomena in question over a wide range and to enumerate positive and negative examples and variations between examples and so to attempt to draw a rational conclusion about the phenomena in question. This method is useful where phenomena are too complex for the application of the five inductive rules, but, in this book, much space cannot be given to it; the general rule is that *in the solution of a problem covering a number of factors too complex for adequate analysis, reference should, if possible, be made to collection of adequate samples of the data in question, and to classification,*

tabulation, and correlation of the data with a view to problem solution. The relationship of business activity to bank clearances, price of gold, prices of certain shares and like factors is usually shown statistically (in budgeting, for example). In business reorganizing, the method is much used during the survey period and, in normal business control, it is used for the derivation of comparative financial and operating ratios.

TELEOLOGICAL EXPLANATION

Here we are on debatable ground, for the scientific school prefers mechanical explanation, explanation in terms of efficient causes, rather than explanation by reference to purposes or ends. Thus, this book would be explained in terms of the author's reaction to industrial conditions modified by his ignorance, knowledge, and general character, these also being reflections of his environment and, perhaps, of heredity. The fact is, however, that the form of this book is modified by a very definite purpose which was in existence before the book commenced. However, the mechanist school, with few exceptions, have had to admit purpose as a factor in human conduct in, at least, biology and psychology, and, in the physical sciences, the whole matter of mechanical induction is in question. Purpose cannot be counted, measured, or tabulated, and, somewhat naturally, there is a tendency to deny or ignore it by scientific methodists.

However, we are not, in this particular chapter, concerned with disputation on purpose, for, it is evident, ignoring of purpose in its broad aspect of a motivator of work effort,[1] or of purpose in its narrower aspect, as in the individual or the small group, is fatal in industry. Conduct is affected by purpose, as when a group of workers put their earning

[1] The common purpose of community is adequate social living. See Chapter III.

capacity and their comfort on one side and go on strike for the purpose of defending a fellow worker who, the group believe, has been badly treated. The following example is illuminating. In a northern company the foreman was dismissed for making up a girl's wages to standard piecework earnings when, in fact, the girl had not been well and had earned much less than standard. The girls in the department came out on strike and stayed out for two weeks because they felt the foreman had tried to be decent to one of their comrades and the company had dismissed him for being decent. This was a case where an ethical, if foolish, purpose clashed with the company's economic purpose as expressed in its necessary rules and regulations. The girls won, and the company provided by a carry-over pay system for advances to necessitous cases.

Not one, but scores of examples in which, in terms of industrial economic objective, certain employee acts have been wrong, but the purposes have been right, and the forcing of the economic procedure has caused trouble, could be quoted. Disciplinary codes and procedures are essential, but so, also, is it essential that human conduct be not always weighed in the balance of pounds, shillings, and pence. It is not suggested that if a satisfactory personal purpose clashes with business disciplined purpose, the business should give way. On the other hand, if judgment on pure fact in terms of profit and loss indicates a course of action which will affect individual or group welfare by infliction of penalties, a reference to the purpose of the action or actions which call for the penalties should be made. This is not sentimentalism, nor is it very scientific, but it is sound common sense. It is fortunate that scientific management, with its numerous codes of behaviour and, in the larger companies, its remote control, has not eliminated the personal touch of the old traditional school of managers; true, it has in place of this introduced a mechanized welfare code which, though good

in some respects, is no substitute for the personal touch *so long as the conscious purpose of the worker is not integrated with the purpose of business.*

The principle covering reference to purpose may be stated as follows: *Where the problem has to do with decision on human conduct, the purely logical method of adjudging facts in terms of business objective should be modified by reference to the purpose which motivated the conduct in question, and decision should include recognition of the goodness or badness of the purpose.*

FACT APPLICATION TO HUMAN GROUPS

Elsewhere we have considered the conscious and unconscious resistance of human groups to new technological codes and procedures and have shown how the imposition of these codes and procedures, though logically correct in terms of producing effectiveness, may arouse bitter resentment against the whole producing system.[1] It is not, then, unfitting that we add to our statement of method the suggestion, not that logical codes and procedures be shelved, but that *if decisions on new codes and procedures arising from the application of logical method to business affect the human factor, they should be so applied that they fit into group psychological structure and will thus have group acquiescence* (*or acceptance if the group is intelligent*).

In the past eight months the author has observed a number of strikes because of the introduction of scientific time and motion study; the fault is not in the time and motion study but in the methods of application by scientific methodists. The author has been fortunate in that during nine years of organizing he has never had a strike but, if it be asked how is one to know what is the correct method of analysing the group psychological structure, only a vague answer can as yet be given. In the first place, the opinion and

[1] See pages 17–18.

co-operation of the foreman should be sought, although, if he is not respected by his group, such co-operation will do more harm than good. The following questions may then be posed—

Is the group knit together by common craft skills? If so, are these acquired by long or short period training?

Is the group a closely knit or a loose group, i.e. are they all friendly with each other?

Is the group permanent, semi-permanent, or does its structure change often with the infusion of fresh members?

Is there a group leader or is there competition for leadership? If there is a group leader, is he or she such by virtue of intelligence, craft skill, length of service, assertiveness in speech, all-round common sense, or —?

Have any members of the group been in shops where the proposed new codes are used? Has the leader been in such a shop?

What new procedures have recently been introduced and what was the reaction to them?

In actual fact, the matter of this book gives the author's outlook and it is idle to set out a list of leading questions; such questions as are set out may hint at the sensible approach to group reorganization.

The concluding principle, self-evident in view of what has gone before in the book, is—

Before decisions proved correct in terms of profitable operation are applied, the social effect of such decisions should be considered and the application should include recognition of business social purpose.

In the last three principles a complete break-away from scientific method is made; who among the scientific methodists will come into the open and deny the obvious necessity for such a break-away? Do not the very results of scientific management justify it?

CHAPTER XII

ACTIVITY ORGANIZATION

ORGANIZATION is disciplined arrangement; reorganization is disciplined re-arrangement. Industrial organization is disciplined arrangement of the relationship of dynamic human factors to inert material factors and of the accessory factors necessary for the effective expression of the relationship between the dynamic and the inert factors. A dominant factor in organization is the purpose motivating it; this purpose will modify the arrangements made. For example, if the purpose be to make x profit by supplying raincoats to a class of people able to pay sum y for their raincoats, then the factors x and y will be modifiers of the capital investment and, therefore, of the arrangement made and of the extent of the arrangements made.

PURPOSIVE ACTIVITY

When we come to consider the effect of such factors as x and y above, we enter the field of purposive activity, of which the principle is the following: *The purpose of business activity and the policy to be used for purpose expression should be clearly stated in writing and the policy expression through each aspect of business activity should be related to whole policy so that each of the activities within the business organization will flow in the specific direction of business purpose fulfilment.* To carry out this purposive activity is the function of management as expressed in the last chapter but one.

It will be noted that this principle follows the lines set out in the early part of our treatment of management method in the handling of business problems. It is inevitable it should do so, if business procedure is to be rational. If we attempt to apply this principle to, say, the flotation of an

engineering business it will be observed that, in effect, we are applying the rules of method. We may ask, what is the purpose in mind? What in the pursuit of this purpose are the necessary consumer factors, and labour, material, mechanical and financial factors? Given a potential market x, what will be the policy of market approach, what necessary labour (mental and physical) is required, material required, accessories required, finance required? What is the labour, material, accessories, and financial policy? We would then relate the whole differentiated policy to the purpose. In short, this is business planning for a specific object.

The fact that purpose modifies policy is of prime importance. Obviously, if the purpose be to supply a limited market, the organization will be quite different from what it would be if, with the same product, the market were, say, three or four times as large. Again, if the purpose be to supply castings, the business arrangement will be quite different from what it would be if the purpose were to supply boots and shoes. At this point, however, we must observe that while both castings and boots and shoes can each be effectively supplied in theory, the prime modification in each instance will be *management's capacity for expressing the purpose.* Given limited facilities and good management, a huge, effective business may ultimately be built up; given either limited or unlimited facilities and poor management, the business will not last. This is evidently true, and it again indicates that it is quality of management and not methods and facilities which are of greatest importance in effective business. Indeed, given an intelligent man with a dream in his brain and a pile of wood junk, who knows but the result may be a huge furniture, firewood, match, or other business, although his first policy may take him canvassing housewives to buy firewood billets?

Even so, where the policy extends over a wide field, it is

essential that the differentiated expressions of policy be related in a balanced fashion. For example, it is of little use changing sales policy without considering its effect on production and financial policy, and the ultimate effect on business purpose. Given that the whole policy is related in writing, as on a combination of written records and a business function chart, it will be comparatively easy to keep to the forefront of business activity the idea of balanced effort.

ACTIVITY SPECIALIZATION

A well-recognized principle of business organization is that usually called *specialization*. Earlier, we have observed that this principle is, in effect, the biological and social principle of differentiation; however, until management develops far enough to standardize its meanings, there is little purpose to be served in pressing the point at this stage of our study. In short, the principle of specialization infers that concentration of effort on a limited field of endeavour increases quality and quantity of performance. The principle applies to economic effort as a whole, as in the division of industry from finance; to industry as a whole, as in the division of engineering from textiles; and to particular industries, as in the division of engineering into mechanical engineering and electrical engineering. It applies also to effort, as in the division of people into professions and trades, and, further, to professions and trades, as in the division of the medical profession into various kinds of specialists and in the division of, for example, engineers into turners, fitters, and the like.

A fact not noted by writers on this subject is that specialization is not a law in itself, but is a resultant of human purpose expressed by differentiated human beings seeking to satisfy their wants within the limitations of their environment. Thus, all specialization can ultimately be related to

the principles of human cause and human similarity and difference as expressed earlier in this work.[1]

The following indicates the significance of economic specialization—

Geographical. As when labour forgathers in one place (country or district) to produce goods because of peculiar geographical advantages: climate, nearness to raw materials, and markets.

Trade Specialization. As when labour confines its efforts to a special trade or occupation: butcher, baker, candlestick-maker, moulder, engineer, doctor, manager, lawyer, teacher, financier . . .

Complex Trade Specialization. As when labour confines its effort to a particular aspect of a trade: pastry baker, bread baker; iron moulder in drysand, iron moulder in greensand, brass moulder; civil engineer, mechanical engineer, electrical engineer, heating and ventilating engineer; eye doctor, nose doctor, throat doctor (or specialist); French teacher, mathematics teacher, economics teacher; general manager, works manager . . .

Successive Trade Process Specialization. As when the necessary processes of a trade are split up into successive operations on which labour specializes its effort. This is the aspect of specialization which may result in a thousand or more processes on one product and a score or more on one product part; it applies not only to processes on production material but to office sales, and financial processes. Thus, a letter may be dictated by one person, typed by a second, folded, sealed, and stamped by a third, and posted by a fourth person. It covers, as well, thinking processes.

We may instance two examples of specialization of interest to executive officials—

Specialization of Trade Process Thinking. As when planners say what has to be done to a job and how, where,

[1] The reader is referred to Chapter XIII.

and when it should be done, and the working operator does it.

Management Specialization. Instead of a manager or a foreman handling the method of working, a planner may do so, and instead of his handling employment, an employment manager may do so. Again, instead of having one type of manager for each main business department there may be a works manager, sales manager, office manager and, in the works, there will be department foremen, each, perhaps, with peculiar skills.

At this point we may state as a principle that *as concentration of effort on a limited field of endeavour increases quality and quantity of performance, all of the manual and mental activity within the business organization should be specialized as far as is economically possible.*

Two further principles follow on the foregoing. The first of these suggests that *where economical, and as far as the personal equation allows, specialized activity should be standardized as to content, method, place, and time of application.* This principle implies that the result of specialized effort will be best if the effort is standardized in every respect. The second principle states that *elimination of excess manual and mental activity should be carried out so that the benefits of concentrated effort be gained and so that work will be done with the least physical mental cost to the worker.* These two principles are, in fact, extensions of that of specialization. The latter, it is interesting to note, is akin to the principle of "least effort" in dynamics; thus do we find that what were formerly thought to be fundamental principles are, in fact, not so.

TRAINED ACTIVITY

In the principle of trained activity we have combined numerous principles from modern individual psychology: *Training for the performance of any task should first be designed*

to give the trainee an idea of the meaning and extent of the whole task before training is specialized on each element of the task; the period of training should be adequate for proper learning, and throughout the training period stress should be laid on effective speed and rhythm and on accurate performance. We may profitably break down this principle as follows—

Training should first be on simple whole jobs which combine the elements of the job for which the employee is being trained.

Training is best distributed over a long period and not concentrated into a short period.

No one set of movements is the one best way for all employees owing to muscular and psychic differences in employee make-up, and allowance for the personal equation must be made.

For every type of employee there is an optimal speed and rhythm the use of which will give maximum production with minimum fatigue per employee.

Movements during the performance of a job should be selected so that their number, order, and sequence represent rhythmic, efficient operation.

It is easy to understand why formal scientific management's "one best way" of performing a task failed before the onslaught of industrial psychology. In terms of external analysis and synthesis (inductive or scientific method) there is a one best way, but the formal one best way is not the practical one best way for differentiated individuals.

It will be noted that immediately we bring the human factor into consideration the so-called scientific laws of economics are modified. For example, in terms of specialization it would seem that in the learning of a task it would be best to break down the learning process so that it concentrated learning effort on small elements of the task; the facts about effective learning appear to prove the contrary.

It is for this reason we have modified the statements of *specialization* and *standardization* by conditional clauses.

INTEGRATED ACTIVITY

What follows is an extension of the principle of human similarity and difference to business and the reader is referred to the treatment of that principle in an earlier part of this book[1]: *As each person by reason of hereditary differences and intelligence variations has different interests and abilities which enable him to perform some tasks better than he can perform other tasks, and as his general character development and consequent habits of thought and behaviour enable him to work better with some people than with other people, each task should be analysed in relationship to the whole task situation to discover what qualifications are necessary for its effective performance, and the person chosen to do the task should be so selected that his interests and his general and special abilities are effectively expressed in the whole task situation.* This principle, the author believes, is of vital importance.

Elsewhere it has been stated that the greatest single cause of avoidable industrial conflict is lack of integration of industry and finance within the economic institution. The second greatest single cause, in the author's opinion, is lack of reference to purpose and to social factors in the initiation and application of technical codes and procedures, and the third is lack of reciprocal integration as differentiation within industry increases. Usually, when direct conflict takes place, as in a strike, it is taken for granted that there are two opposing bodies of opinion, but, in actual fact, each of the bodies of opinion is composed of differentiated emotional and mental elements which are subordinated to the emotional and mental elements and the purpose or purposes of the leader. Often enough, it will be found that the leaders

[1] See pages 38 and 39.

are unintegrated with the interests contained in the whole job and consequent social situation; they have, by force of circumstance, been forced into jobs which not only do not satisfy the interests they have, but are definitely opposed to their interest expression industrially and socially. Again, they may be managed by people less intelligent than they are themselves or less logical; the results of this can be very costly to business.

One point which requires special notice is that we do not only state the *principle of human differences* as an adequate reason for rational individual selection for task performance, but we state the *principle of human similarity and difference.* This differs from the normal technique of industrial psychology in that it stresses social factors in work, a point mentioned earlier,[1] but here touched upon again because of its importance.

With the normal methods of employee selection there is an effort made to suit the peculiar abilities of the individual to the task to be done; there is not, however, any attempt made to suit the individual to the group with which he has to work or, if he be an executive official, with which he has to be in contact. The fallacy in this procedure lies in the fact that whatever the abilities of the individual, the expression of his ability will be modified by the outlook of the group with which he works. Indeed, as has been quoted previously,[2] in the average working group the production of operators will not vary directly with intelligence or ability, although, if the operators are integrated as a group and the group is integrated with operating purpose, the factors of intelligence and ability will have greater influence.

Perhaps, however, this point of selecting the individual to suit his group is truer of foremen and managers rather than of workmen; often the example of an unintegrated foreman has upset a good operating group and of an

[1] See page 25. [2] See page 26.

unintegrated manager has upset a whole factory. A good foreman or manager in a business will quickly integrate operating groups if he is empowered to state a purpose in which the group acquiesce and which group leaders accept.

The most effective activity is integrated group activity—

> Group activity integrating the acts of individuals towards a common goal, is not only the most productive type of human activity, but the most satisfying to the individual. To make the world a better place for the individual, then, we have to improve the organization of group activity. We have to take account of the motives and desires common to men, and also of the differing abilities of men, and so organize our social activities in work and play as to provide for each individual an outlet for his energies.[1]

But integration cannot be reached only through job specification and worker selection methods based on psychological research; the acceptive minority in industry require a purpose which is acceptable to them, the remainder, those who, it seems, will acquiesce in any purpose which does not interfere with personal and social comfort, require continuance of the adequate social living which is their objective in work. In the many, the major integrative force will operate when the insecurity of employment arising from the unintegrated financial-industrial systems is removed; in the few, who though few are the leaders and are therefore the most powerful, the major integrative force of security will operate only if combined with a satisfactory social purpose.

[1] *Adjustment and Mastery*, R. S. Woodworth (Baltimore).

CHAPTER XIII

THE OUTPUT PROBLEM

WHEN one begins to study what is often called "the output problem" it is notorious that there are numerous angles of approach from which one can choose: there is the scientific management or exact physical measurement approach, the scientific management-cum-worker welfare approach, the vocational selection approach, the conditions research approach, and the sociological approach. Now one and now the other is laboured, until the practising manager hardly knows whether he stands on his head or on his heels. The pity is that there have been excellent researches on factors in output and earnings which have been ignored or shelved, and of which, to be frank, no one author can be fully aware. It seems as if a co-ordinating body is necessary if management is to have full advantage of the excellent research work carried out here and abroad, and, no doubt, such a body will arise in time. What follows is, to be frank, only a glimpse of the information already in existence for management use.

THE EFFECT OF PROCEDURE IMPOSITION ON OUTPUT

What has previously been said of worker opposition to management codes of earnings and output is here illustrated by a number of differing examples.

The first example is drawn from a business employing girls and women making clothing. Piecework, that is, so much money per operation, was the system in vogue and wages for the week were made up on the Thursday evening and paid out on the Friday evening. Taking Saturday's hourly production from the rooms engaged on machine

work on trousers, jackets, vests, and overcoats as 100, the rate of earnings was as follows—

Saturday 100, Monday 110, Tuesday 115, Wednesday 125, Thursday morning 135, Thursday afternoon 170. These are averages taken over a period of one month during the busy season. The facts, incidentally, were substantially true of three similar companies.

A curious fact arose while the author was organizing. The girls and women kept in very close touch with the operations of the garment cutting room, and, if there was plenty of work, the foregoing averages in the machinery section remained true; if there was not much work the averages fell on most days except Thursday; that is, the day for making up the wages. The girls, as some of them put it to the author, liked to see plenty of work bundles on the floor. It seemed, in general, that not only fear of being laid off and not being taken back motivated the girls (they wished, apparently, to remain attached to their particular employments even if the money earned was small), but the actual presence of a large pile of work bundles ready for machining had a tonic effect on their competitive natures, while, if there were only a few bundles of unmachined garments, they fell back on group "ca' canny." The strange point is that the employees were on piecework and not on guaranteed day rate.

The author has observed somewhat similar phenomena among skilled and semi-skilled men in seven engineering shops. Towards bonus making-up time there was a general speed-up in the shops, although not with the same degree of intensity as was observed among the female workers of the first example. In three foundries where, unlike the engineering shops and like the clothing factories, no day rate was guaranteed, the author has calculated an average speed-up among moulders of 22 per cent on piecework making-up day as compared with the previous day's output.

In numerous engineering shops and foundries the author has been faced with group codes of earnings which were opposed to management codes and to which each member of the group was subordinated. In one shop in which the author was quite recently engaged as consultant on management method the following results emerged from personal and statistical observation in the machine shop—

1. Group earnings above day rate were recognized by the group to be about 25 per cent.
2. On Thursday, the day when bonus earnings were made up, production increased by 20 per cent, but the whole of the earnings yet averaged about 25 per cent.

On the other hand, the author has observed skilled groups where the earnings from day to day fluctuated very little about the recognized group standard.

Writing from personal experience as an unskilled, semi-skilled, and skilled worker on shipyard work assisting skilled men, as a machine operator, and as a tool setter, respectively, the author has personally taken part in the setting and maintenance of group earning codes and, on one occasion, broke such a code and incurred the severe displeasure of the group. The case in point occurred about sixteen years past, when the author was about 20, and he was intent on getting the money to take a certain correspondence course; the job which came along was the drilling and facing of four holes in flanges used in commercial car construction and, instead of making about 25 per cent as was usual on this "cake-walk of a job," he promptly made 87 per cent bonus. Until he had thoroughly apologized all round, his tools and accessories regularly went astray and he had a most difficult time physically and mentally.

There is much erroneous reasoning on matters such as these by academic observers who find the reasons for group procedures in political or in anthropological research only.

A case in point is in the thoughtful work of the Harvard school of industrial research workers [1] who, basing their findings largely on the study of girl workers, draw somewhat doubtful conclusions about workers generally; it must, however, here be observed that the author has been much helped by the research work of this group. The conclusion of this group is, in effect, that work is a form of social behaviour, and that the chief reason for social and industrial discontent among workers is the application of logical technical procedures to workers whose attitudes are based on and guided by illogical customary procedures, with resulting upset of necessary social routines. This fact of the necessity for acquiescence by social groups in new codes and procedures is, as we have noted earlier, an axiom in social philosophy.[2] On this ground is partly explained the opposition to management codes, including codes of earnings.

Now, it is true that work is a form of social behaviour, and, also, that worker codes are expressions of social outlook, but to reason therefrom that the logical codes of management impinge always on the social codes of the worker groups is not true in fact; nor is it true, in fact, that the chief reason for group opposition to management technical codes rests in group customary codes which are logical in terms of social cohesion and social welfare, but illogical in terms of business purpose.

The author agrees that among girls the group codes are often illogical, but he has never yet found a *definite* code of earnings, either stated or understood, among girls; this statement is based on close observation of girls in clothing, confectionery, and other factories. Moreover, the imposition of new planning and time study codes on female groups seldom causes any definite objective group resentment.

[1] *Leadership in a Free Society*, T. N. Whitehead, English Edition (Oxford University Press).

[2] Pages 67 and 68.

The truth seems to be that the social purposes for which girls work are more limited than those of men because their social responsibilities are not so pressing. They seem to have in their minds a definite objective as to earnings, and work towards that objective. But, mark this, in seven groups of girls in seven factories observed by the author, earnings varied in each group by as much as 25 per cent above and below an average piecework wage (a piecework wage is generally recognized to be about 25 per cent higher than a day rate wage).

The following somewhat pathetic case will illustrate the point of view just stated. One married woman who was a hand sewer earned about 32s. each week. Suddenly her earnings jumped, on piecework, to 43s. per week on the same job; the reason was that her husband had lost his job.

Another case was of a presser whose earnings increased over a period of eight months by 23 per cent. This girl was about to get married.

If we now attempt to find out the reasons for group earning codes which oppose management earning codes among skilled and semi-skilled men we shall, as is to be expected, find somewhat different reasons from those one generally finds among girls. Taking the group quoted earlier as having a code of 25 per cent bonus earnings, the shop steward, i.e. the group leader, had a perfectly logical reason for not going higher than 25 per cent. In the first place, he was a socialist of moderate views, and opposed speeding on the ground that if a man did speed up under the present system the ultimate effect would be more unemployment and, as he said in effect, there were more than a million unemployed at that moment. The author, although, to be frank, not believing it, put forward the usual talk of more wages, and helping the company; the answer was "Ballyhoo, the firm are after more profit."

In this particular shop six of the nine shop stewards were socialists and one of the others was a communist whose main following was among the young and unmarried men.

Among non-leaders of working groups the reason for opposition to management codes seems in part to be the conscious feeling that the job is insecure. It seems also to be in part a reaction of the whole group against the imposition of technological procedures by people outside of the group. There are, however, other reasons. The author has seen a group code of earnings alter in response to the presence of a new and better foreman and he has seen it alter with one shop steward leaving and another taking his place as leader. Note that we are dealing with codes of earnings and not with earnings as such; the two problems are quite different in content.

CONDITIONS OF WORK AS FACTORS IN OUTPUT

Little need here be said about the effects of ventilation and lighting on output; the subject is so well covered in numerous excellent books that it would be idle to do more than mention it here. More adequate lighting, for example, has been quoted to lead to production increases of from 4 per cent to 35 per cent by competent authorities. Better ventilation up to air-conditioning standards has also had very good effects on output. The following table illustrates the effect of good illumination on production[1]—

Industry	Old Lighting Foot Candles	New Lighting Foot Candles	Production Increase
Silk Weaving . .	50·0	100·0	21·0%
Tape Weaving . .	6·5	12·0	11·0%
Foundry . . .	2·5	7·0	7·5%
Type Setting . .	2·0	20·0	33·3%
Iron Pulley Finishing .	0·2	4·8	35·0%

[1] Quoted from the author's *Training in Foremanship and Management.*

The effect of temperature on lost time is shown by the following figures[1]—

Dry Bulb Temperature:	Time Lost %
Under 70° F.	3·0
70 to 79·9° F.	4·5
80° F. or more	4·9
Wet Bulb Temperature:	**Time Lost %**
Under 66° F.	3·0
66 to 69·9° F.	4·2
70° F. or more	5·0

The problem of noise in industry is one which is receiving much attention, but further research is required. The problem is not simply one which can be solved by adopting the attitude that all noises reduce output. It seems that the effects on output of noise depend not only on the kind of noise, rather than upon the pitch but, also, on the attitude of the worker to the noise. A continuous noise, it appears, may be helpful, while an intermittent noise may be harmful.

Monotony is a general word often used to cover a multitude of industrial situations; now it has been found to be an outcome of worker-work relation rather than a peculiar characteristic of certain classes of work operations. Work which to the outsider would appear monotonous (for example, uniform manual feeding of punch presses day after day) may not, if research is to be depended upon, be monotonous to the worker concerned. One investigation proposes that in situations which demand either the whole of the worker's attention or none of it, monotony does not occur; it seems that those tasks are most monotonous which take the worker's

[1] *Ibid.* Report No. 51 Industrial Fatigue Research Board.

ıll physical attention and do not leave him entirely free to ⁄ander in the world of dream imagery.[1]

There is much work yet to be done on the questions of he effect of conditions on output. One avenue which may ırofitably be explored is the effect of a dirty and littered hop and of untidy and slow-moving executives on output ¡uantity and quality. The author's knowledge of the effects f these conditions is, to himself, quite definite in meaning, ıut it cannot be advanced as a result of rigid research.

For our purpose, this matter is covered by the following ¡eneral principle—

All of the accessory material factors necessary to organized ctivity should, as far as is possible, be standardized in terms f maximum specialization, and they should be so arranged hat excess manual and mental effort is eliminated.

METHODS OF WORK AS FACTORS IN OUTPUT

Here we are on familiar ground, one already touched upon ›y our statement of principles in the previous chapter. We lo not here wish to discuss the obvious increases in output ›rought about by job analysis and time study and by the ıpplication of specialist thinking to decisions on what shall ›e done and how, when, and where a job shall be done process and production planning).

We have already remarked on Professor Viteles's finding hat the introduction of certain modern plans leads to ⁄orker defensive measures shown in output restrictions, and ıave, too, given the psychologist's criticisms of the funda- nental assumptions underlying time and motion study echnique.[2] Before going on to consider the effects of nethods of work it is fitting that the work of the Industrial Fatigue Research Board on rest periods should be men- ioned: close investigation of numerous occupations shows

[1] "The Effects of Monotony in Work." Industrial Fatigue Research Board, No. 56.

[2] Page 15.

that the taking of unauthorized rest periods by workers varies very considerably; for example, the amount of time spent per hour in voluntary rest by ploughmen on horse ploughing is 14·6 minutes, and by bricklayer's labourers, 11·1 minutes. The apparent effect of organized rest periods is given hereunder; of special interest is the effect of the method of taking the rests allowed—

Rest	Per cent Increase in Output
Walk	1·5
Tea	3·4
Music	3·9
Normal rest	8·3
Complete relaxation	9·3

The effect on output of shorter hours is based on the fact that workers tend to develop a rate of work commensurate with the task before them. In terms of this accepted finding it is not surprising that increases of over 60 per cent have been reported as resulting from a decrease in working hours. Vernon reports an increase of 15 per cent in output when hours were reduced from 66 to 48·6 per week.[1]

The trouble with this matter of length of working day is that there is a tendency to generalize particular findings to cover the whole of industry. Factors requiring consideration are the type of work (e.g. mechanical, manual, etc.), type of payment system, shop conditions, type of work group, previous manual efficiency, and the like.

THE EFFECTS OF COMPETITION ON OUTPUT

It is obvious that competition between individuals or groups of individuals can increase output; on this point there is plenty of research evidence. G. and L. B. Murphy quote numerous instances of research on the results of

[1] Industrial Fatigue Research Board, No. 6.

competitive effort, but they indicate that there is a definite tendency for mistakes to increase. Good workers may or may not be speeded by competition; poor workers are speeded but at the expense of a considerable number of mistakes.[1]

If, as with scientific management technique, one is happy to show an increase in short-time efficiency, competition is undoubtedly a good weapon to induce effort. The effect, however, on long-time effectiveness requires consideration. For example, what is the effect on a group of workers of internal competition fostered by technologists? Is not the effect likely to be a measure of group disintegration with, in the long run, a loss to industry?

On this question, as on others mentioned in this chapter, much research is required.

In the same category as the foregoing is the problem of what effect on output has the publication of hour-to-hour or day-to-day production figures? Gilbreth used results publication as a spur to output, and, to-day, the formal labour study and points control system called "Bedaux" does likewise, although, in the latter case, the results of each worker's efforts are published for all to read. The author is not aware of any research on this subject, but, he feels, this open publishing of results is, from the psychological and social standpoints, one of the most odious practices possible. It is a typical example of short-time thinking propagated for immediate gain, an offshoot of "scientific" methodology.

What, on the other hand, is the effect on output of letting the worker know the exact part his particular operation plays in the finished product? What is the effect of letting him know where and how the product is used? What is the effect of making him or her more than merely an operator by bringing him or her into the team, which is or should be the company?

[1] *Experimental Social Psychology*, Harper.

When one studies the results of research work on the effect of competition on output[1] it is very noticeable that there may be a vast difference between laboratory results derived from the prompting of students and the results that would be derived in a situation where people work for their living and, logically enough, have to set up group defensive measures against the onslaught of specialist technicians with a high-output low-cost complex. The following is taken from an actual situation: in one well organized machine shop there was a man working on a capstan turning lathe whose earnings were higher by about 20 per cent than the average of group earnings (the group could not find out exactly what were his earnings) on a similar class of work. The general reaction to promptings to get up to the fast man's figures were of the "go to blazes and take him with you" variety; the particular reaction of each member of the group the author does not know, although he may confess to a desire to "knock spots" off the records attained by the fast man "just for once to put him in his place."

The author is still waiting to see experimentation on the effect of "job-performance operator-interest" integration on output; not, be it noted, financial interest or competitive interest, but pleasure interest; the kind of interest which will make a youth work his whole week-end on his motor bike, and will make a man or a woman risk health by canvassing in vile weather for a favoured party; and, further, he is still waiting to see experimentation on the effect of knowing that pal Bill is also overhauling his bike in the same shed, and that one is not alone in canvassing for the cause of the party but, at the end of the next street, a fellow canvasser will be met and a swapping of miseries take place.

It has been calculated that it takes ten years for a new idea to percolate through to the people it is meant for; if

[1] For example, in *Handbook of Social Psychology*, Murchison (Clark University Press), and *Experimental Social Psychology*, Murphy, Murphy, and Newcomb (Harper).

this be so then, alas, it is a sorry outlook for the cause of industrial group rational management for, it seems, the scientists have not yet made a valid contribution to the subject; until they do so, and the contribution is integrated with actual work situations, we shall, alas for "scientific" methodists, be forced to depend on the individual feeling and knowledge basis of "traditional" management, for it seems to be better to do this than to pretend we have exact knowledge of human individuals and groups when, indeed, the only exact knowledge we have is of tools and machines and co-ordinating mechanisms.

EFFECTS OF PRODUCT DESIGN ON OUTPUT

Specialization of activity, as has been noted earlier, limits human enterprise to particular aspects of whole activity and, in industry, to particular kinds of products. But even where activity is limited to a particular kind of product the product may itself vary in so many respects in each of its types that considerable waste results. For example, electric motors not only rise from fractional to hundreds of horsepower capacity but the windings may vary in each size because of different voltages, and height from floor, shaft size, position of feet, and holes in feet may, and do, vary because, largely, of customer demand.

The foregoing is true of most products, and the resulting waste in industry is enormous, for it not only increases material production cost but it reduces the possibility of thorough specialization of effort. However, as this matter is dealt with in many excellent textbooks and, too, as each major industry has its own standardization organization, it need not delay us here. The two principles covering this matter are, first, *where economical, standardization as to content, form, dimension, performance, and finish of products should be applied at every stage from raw material to finished product in order that the full benefits of interchangeability may*

be gained, and, second, *elimination of excess types and sizes of products should be carried out in order that the full benefits of concentrated effort may be gained.*

Standardization and simplification of product design have an enormous effect on output when applied to industry as a whole; applied to particular businesses they also show considerable results.

EFFECTS OF EXECUTIVE ATTITUDE

Perhaps the best commentary on the effects of executive attitude is seen in the experiments on the results on output of praise or blame. According to Gilchrist, an early investigator (1916), a group which was praised for its work increased its score by over 70 per cent, while a group blamed for not doing good work showed no change in score. It seems that the effect varies with the type of person involved; thus, a person used to low scoring will increase his score if praised, while a high scorer reacts best to blame.

Laird (1924) and Briggs (1927) produced similar evidence to that of Gilchrist; one interesting outcome of their work is that the effect on output of private reproof is better than that of public reproof. The effect of public reproof on operator-company integration has not, it seems, been considered experimentally (in the author's opinion and experience it is bad among intelligent people), nor are the experimenters aware that public reproof and sarcasm may, if continuous, be met by a group defensive mechanism summed up in a "Pay no attention to him; you'll get used to the sarcastic ——" attitude, or in a strike.[1]

The foregoing are, of course, rough findings; they do indicate, however, that uniformity of management attitude does not lead to best results; the attitude, as we have

[1] Factory girls successfully struck work (Jan. 1938) against a sarcastic manager.

insisted earlier, should vary with the type of group and with the individuals in the group.

The effects of cheerfulness, integrity, justice, and like qualities in the executive cannot be measured rigidly. In one moderately organized engineering machine shop organized by the author, the mere change-over to a quiet, dependable type of foreman from a blustering, bullying type led to an almost immediate increase in output of 7 per cent and an increase in quality (without any changes in methods).

The effects of the foregoing executive qualities plus logical attitude on long-time output trends is bound to be very considerable; as we stated earlier, a large percentage of strikes are caused by over-education in techniques and under-education in the principles of method and of group psychology.

THE EFFECTS OF SOCIAL FACTORS

The remarkable increases in output resulting from the Hawthorne experiment quoted earlier[1] resulted, the experimenters say, from a reorientation of social factors in the works, and, they further say, intelligence tests and standards of earnings had no relationship to the alterations in output; work, for them, is a form of social behaviour.

At this point, attention is again drawn to the data previously quoted in this chapter from experience among girls and men. The author heartily agrees with the Harvard Group that the effect of "scientific" procedure imposition has been to encourage worker opposition codes, but, it does seem, the effect of the accepted standard of social living is a powerful factor in earnings. Why, for example, should a code be set at a certain figure if there is a code? Do all groups tend to set up codes? Here is an actual example of varying group output derived from observation of girls in the clothing trade—

[1] Pages 59–60.

In the month before the summer holidays general output started to creep up until, on the last pay week previous to the holiday period, output rose over average for the workroom by 22 per cent.

Attempts to keep the after-holiday figure up to the pre-holiday figure failed miserably, as the author knows only too well.

The following has been observed in more than one engineering shop—

Many of the men used to do work and not turn in the job notes which recorded work done; these they would "keep up their sleeves" as a safeguard against a future time when, perhaps, they would not earn so much bonus as they had set themselves to earn each week. On the week previous to holiday week, in would flow many of these job notes with the result that earnings would rise quite considerably.

The author remembers a moulder breaking a foundry code of earnings by exceeding it, on piecework, by nearly 25 per cent. When the moulder was tackled about this he humorously confessed that he had had a bad month on the horses.

Social factors in work are of prime importance but, it seems, there should be a distinction made between social factors in work and the effect of social aims on work. For example, there is the effect of the social aim of the person involved, and there is the effect of the actual social contacts with his or her working group by the person involved. Each requires a different approach to its study. Previous investigators have missed this essential difference and, it appears, have confused the effects of the one with the other. Whitehead's [1] scholarly treatment of industrial discontent and, especially, of group earning codes in industry, sees the prime causes in the ignoring by "scientific technologists" of social factors in work, yet, if the illustrations given earlier from

[1] *Leadership in a Free Society.*

various industries have any significance, an equally important factor may be the social aim and the accepted standard of social comfort for which work is done; this, no doubt, varies among the individual members of any group (hence, perhaps, the protective codes of earnings for the purpose of presenting a common group front), and, too, it will vary among whole racial groups.

Yet another social factor in work is the purpose for which work is done. This has already been fully dealt with.[1] There is not the slightest doubt, it can be reaffirmed here, that among the more intelligent section of industrial staff and operating employees, this factor is of prime importance.

In conclusion, it is essential that the difference between output increases and efficiency increases be noted. There is a danger that the genuine findings of the sciences will be further harnessed to the service of only the higher output-lower cost motive, though garnished with fine but shallow welfare verbalism. In the last analysis, output efficiency must be judged in terms of long-term social effectiveness, as we have stressed throughout this work. What is at present needed is not more planning, time study, vocational techniques, and the like; the first need is a change of outlook and of motive which will give rise to a rational philosophy of industry in which economic and psychological procedures will find their true level.

[1] Chapter III.

CHAPTER XIV

THE FORMAL ORGANIZATION

In Chapter VI was mentioned the general significance of co-ordination; here its relationship to specialized activity will be stated. It should, throughout, be remembered that co-ordination is the formal statement of differentiated relationships, and that co-ordinating mechanisms have for purpose the control of differentiated relationships in terms of a stated purpose. Thus, *as specialization increases, the need increases for a formal structure which will effectively link up all of the specialist activities with the supreme authority, will effectively make contact between methods specialists and operating group leaders (vertical structure), and will make effective the collaboration of groups at their own and at other levels.* In effect, the application of this principle gives rise to a line of authority running from top to bottom of the organization, and lines of horizontal collaboration, as in foremen's meetings, efficiency committee meetings, and the like.

RESPONSIBILITY AND AUTHORITY

In industry it has been discovered that co-ordinating structures for highly differentiated organizations are not productive of maximum effectiveness; as has been stated in this book a number of times, the mistake lies in attempting to integrate by formal means. The development of the particular co-ordinating structure favoured in this country will be explained when we consider the foregoing with the following principle: *Responsibility for special activity should carry with it special authority over the activity, and all other authority should be expressed through the special authority if responsibility is to be properly placed.* In this country, at least, the tendency in businesses employing more than, say,

one hundred people on complex products is increasingly to specialize management by withdrawing functions that do not directly contribute to the management of human relationships. These specialized functions include the functions commonly associated with organizing. The manager or the foreman is left with direct authority over operators, and the withdrawn functions operate through him in his capacity as authority over the operating situation. Thus, we have line authority plus staff service.

The principle stated in the previous paragraph touches on the necessity for non-interference by higher authority in fields controlled by lower authority excepting through the lower authority. In many businesses the acceptance of this principle by higher executive officials would improve the organization.

A further principle covers the formal statement of relationships within a co-ordinated structure: *the relationship of each executive official to the supreme authority and to other executive officials and the extent of the authority and responsibility of each must be put on record.* The expression of this principle is observed in organization charts.

SYSTEMATIC PROCEDURES

The principles which follow are comparatively simple; they are, nevertheless, of considerable importance. The principle of co-ordinating systems is: *The procedures which are found most effective for transmission of authority and for the linking up of specialized activities should be systematized to ensure continuance of procedure effectiveness.* Financial and cost accounting systems, for example, are co-ordinating procedures.

In practice this principle is often ignored in industry. Too often one finds quite effective procedures started up and allowed to decay when the vitality of the person who started them up is withdrawn. The same is true, in a

somewhat different respect, of the following principle: *written orders must be systematically used to authorize procedures and written records must be systematically used to measure performance, and, when the procedure does not vary, the written order should be standardized.* This principle opposes, except in small businesses, the use of verbal orders to cover business procedures. It further opposes the carrying out of important procedures without recording the results in one or other form. Simple though these principles are, it is questionable if 40 per cent of the businesses in this country apply them.

All instituted codes and procedures tend to resist change.[1] This is true of the systematized codes and procedures one finds in business; indeed, so involved do the instituted procedures become in some instances that to change them is to risk pulling the whole business edifice down. In other instances, the codes and procedures become so customary that they are constitutional to those who operate them, and attempts to change the systems meet with fierce opposition. So, *as system is standardizing in effect, its application should be such that adaptation to new circumstances and new ideas is easy at every point in the organization where the system is used.*

LIMITATIONS TO ORGANIZATION

It will be obvious that, in general, where the quantity of things to be done is large, there will be more room for effective application of specialization and co-ordination than if the quantity to be done is small. One would thus think that specialized procedures would increase as quantity of things to be done increases. In practice, it is not so, for *as, in general, quantity of things to be done increases, and as content of activity increases, specialization should increase, but as it is increasingly difficult and costly to use the maximum capacity of any major business factor, the increasing use of*

[1] Page 72.

specialization will increase the cost of the factors used to increase the productivity of the major factor.

This principle, in effect, suggests that to increase the effectiveness of any major factor (labour, a machine, a necessary process) is easy when effectiveness is low but, as effectiveness is increased, each further degree of effectiveness will be won at greater cost.

This principle is a statement of the "economic laws" of increasing and decreasing returns. It is apparently true of inert factors in business but, as we have observed of many such scientific laws, it is not true of the human factor. In ordinary circumstances where the worker is a resistant mechanism to technological progress, the cost of increasing his effectiveness will increase as his effectiveness increases, but, if he is integrated with his whole task and the purpose of that task (and this may be done by a good and sincere manager, even under bad conditions) his effectiveness may rise to heights far above those gained by costly incentive, planning, welfare, and employee selection procedures. It is not suggested that these procedures are not valuable, but that good management is more valuable.

CHAPTER XV

MARKETING ORGANIZATION AND CONTROL

If all the sellers were one seller, what a very powerful seller he would be!

And if all the buyers were one buyer, what a very powerful buyer he would be!

THE person who paraphrased the old nursery rhyme as above did so, it seems certain, sarcastically. Indeed, if one has been used to the highly differentiated and co-ordinated methods of manufacturing, the general analysis of marketing effectiveness makes one wonder if the manufacturing and the marketing aspects of industry are not badly out of step. However, the question is not so easy to answer as analysis of manufacturing and of marketing from the standpoint of "scientific laws" would make it appear.

For example, the application of highly specialized and co-ordinated effort to the production of standardized and simplified houses would solve the housing problem in a comparatively short time at a comparatively low cost; after all, houses are for housing people; thus speaks scientific method, and it speaks truly. But will the community accept the standardized and simplified house? What would the art world say about it? Of course, the values of community interests must be considered; houses are near to human life, and human beings have each different interests and a desire for different expression. Besides, what is the role of æsthetics in building houses? Should the houses have something of "feeling" in them, or should they be only places for housing folk? Neither human desire nor pure æsthetics is subject to the rules and methods of induction. We must, says one writer in effect, apply more scientific management to marketing. These are useful words, "scientific

management," but when all of the facts are considered it is found they are only words. This is especially true of the broad problem of marketing, and it is so because of the human content in the problem.

If marketing in all of its aspects is to be studied fruitfully, a rational attitude, which comprehends not only utilitarian and measurable fact but, also, the immeasurable factors which become more potent the nearer the approach to the consumers, has to be adopted. True, the factor of utility is of prime importance, but it is utility made beautiful according to the ideas of beauty reigning at the time.

It might be thought that the foregoing is true only of consumption goods such as soap, pleasure cars, radio, and the like. It is equally true of capital goods sold to hard-headed business men for use in their offices and factories. Any manufacturer of machinery for use in offices and factories will confirm that the factors of unity of structure, freedom from harsh, discordant lines, and final appearance are of considerable importance.

MEANING AND METHODS OF MARKETING

The marketing function is the distribution of goods from producers to consumers. In its simplest form the producer sells direct to the consumer; of this form of marketing there is yet a considerable amount and, in many respects, it is on the increase. In the home market, capital goods, such as buildings and factory and office machinery and supplies, are mainly sold direct from producer to consumer, and in the marketing of consumer goods many producers are finding it economical to sell to the consumer by direct mail, by speciality house-to-house selling, or by having organized centres of distribution, as in producer-owned retail shops. On the other hand, a retailing business may do such a large business in certain lines that it may attempt to reduce marketing costs by manufacturing these certain lines. The

methods used by producers, or, it may be said in some instances, which use the producers, can roughly be treated as follows—

Many goods in ordinary use are sold through wholesalers, who sell to retailers, who, in turn, sell to the consumer. Between the producer and the wholesaler there may be local buyers who, if producers have small businesses that are scattered, may collect the goods and sell to wholesalers. Auctioneers may also come between the producer and the wholesaler, as may commission men and brokers, or, on the other hand, the commission man and the broker may perform the wholesaler's function by selling on commission or brokerage; this arrangement takes from wholesaling the necessity for buying and holding the goods.

Over and above the foregoing there is the element of speculation, as when coffee, grain, cotton, and similar goods that do not easily perish are bought and sold many times before reaching the consumer market by speculators who hope to make profit on future prices.

Retailing covers such activities as mail selling, canvassing, peddling, independent retailing, chain store, department store, and consumer co-operative store operation. It is not our purpose here to describe the method of each of these activities but, rather, to regard them from the standpoints of manufacturing and consuming respectively; that is, to regard them as parts of the whole economic function.

THE ECONOMICS OF ADVERTISING

> Why spend ye money for that which is not bread and your labour for that which satisfieth not?—Isaiah, lv, 2.

There is no better critical basis for a study of advertising in its economic aspects than this quotation.

Has advertising in the present age any economic justification? It is singularly easy to say that a billion dollars are spent in America each year on advertising or that each year

eighty million pounds are spent in Britain on similar activity, but (*a*) does advertising cost more than would a substituted method of broadcasting information about commodities? (*b*) If advertising ceased would trade decrease? (*c*) What is the increased cost of commodities because of advertising expense? (*d*) Has advertising been an instrument of cost reduction on the manufacturing side of the economic institution?

A committee acting under the auspices of the United States Chamber of Commerce investigated advertising very thoroughly and reported that advertising

(*a*) Increases volume and therefore lowers cost.
(*b*) Lowers selling cost.
(*c*) Lowers consumer prices.
(*d*) Has an educational effect on the public.
(*e*) Aids product standardization and simplification.
(*f*) Tends to stabilize production.
(*g*) Tends to prevent price fluctuation.

So far as advertising cost is concerned, personal experience of a number of companies making capital goods showed ½ per cent to 1½ per cent of sales value as advertising expense, and of manufacturing companies selling to retailers about 1 per cent to 2½ per cent. These figures are only for about thirty companies. The Harvard Bureau of Business Research gave the percentage of advertising expense to sales value to be about 2 per cent for retailers. If the average figure be taken at about 4 per cent total, and if of a wage or salary of £4 per week about 50 per cent is spent on advertised goods (leaving out rent, taxes, etc.), the total additional expense per head for an average family is much smaller than would appear if superficial observation be taken as a basis for judgment.

It seems to be true that advertising reduces manufacturing cost by channelling social demands along certain limited

lines instead of along many lines and, too, it can help to decrease the effect of seasonal fluctuation in demand. On the other hand, it is hardly true to say that advertising leads to standardization and simplification. In the past, consumer demand would remain fixed, then it would swing violently to a new fashion, and the manufacturer had to attempt to predict or, at least, safeguard himself against changes of this kind. Now the manufacturers tend to dictate both the time and the mode of new fashion by the use of advertising. If we own a good car we are, perhaps, made to feel old-fashioned after we have had it twelve months, our furniture is made to look out-of-date, and such articles as women's apparel simply must be changed each season whether they be shoddy or otherwise.

On the other hand, advertising increases the tendency to spend and, in this respect, helps to decrease unemployment.

Much advertising is weak and ineffective and some of it tends to be excessive because of close competition; again, the use of advertising for "shady" business and for shoddy goods is socially wasteful and injurious, but these are not proofs against the general utility of advertising, nor are they peculiar to advertising activity.

It does seem, however, that there is a tendency in this technical age to elevate the producing function and to follow its dictates rather than the dictates of consumer need. Market researches are not wholly based on consumer buying trends, but are based, more or less largely, on getting consumer reactions to a producer's design, and advertising is used to sell the design of which only the package may be altered.

The best form of advertising is that which conveys information which helps the exchange of what we have for what we need. That this aspect of advertising, a co-ordinating one, should develop as social and economic differentiation develops is logical. In the less differentiated social structure the final buyer was in touch with the makers, and

the informational centre was the market; to-day, advertising bridges the gulf between manufacturers and consumers. This function of advertising as co-ordinator has been slowly recognized in Great Britain, while, in America, it seems to have been realized more acutely. The improvement in American household life, less labour for wives and greater all-round home mechanical efficiency, can be attributed in part to the high development of informational advertising. We shall arrive at this stage of systematized, informational advertising, and, in the process, shed much of the ineffective competitive and puffery efforts of the present day, but, in accordance with our national characteristics, we shall arrive more slowly. That we should go slowly is logically all wrong but in this, as in politics and law, the going is built on sound foundations.

The broad problem of advertising as a social function is not, therefore, is it, or is it not, effective in itself, but has it advanced as co-ordinator of making and consuming as far as the differentiation of making and consuming has advanced—not differentiation in America, or Russia, or Timbuctoo, but in Great Britain? Looked at broadly, the answer seems to be affirmative.

THE ECONOMICS OF MARKETING

We have glanced at advertising as a separate function of commodity distribution for convenience of treatment; here the economics of the whole marketing mechanism will be considered.

If the costs of marketing be considered, some rather remarkable figures appear. The author's own experience of manufacturers marketing capital goods to other manufacturers shows any figure between 9 and 12 per cent of sales value, and his experience of commodities made for retailers to sell to the public, showed, including the manufacturer's marketing expense, between 40 and 50 per cent

of consumer sales value. Figures produced by the Harvard Bureau of Business Research show much the same figure for clothing, drugs, electrical goods, hardware, and shoes, with groceries marketing expense between 15 and 35 per cent. The noteworthy fact about these research figures is the large variation in marketing costs between the lowest and the highest for each of the commodities mentioned above. Thus, the combined lowest wholesale and retail cost of marketing groceries is given as 14 per cent, and the highest as 37 per cent, while shoes vary between 25 per cent for the lowest and about 40 per cent for the highest.

Curiously enough, the difference between the marketing costs of independent retail shops, department stores, and chain stores which specialize in selling particular lines is not, on the average, very great. The figures quoted, however, do not show the profits taken by each of these types of shop out of the sales price to which expense is percented. The small retailer often takes for profit what would be salary expense in the other types of stores, and his type of service is often quite different from that of the other types of retail business.

MARKETING NORMALLY EFFECTIVE

The most common criticisms against commodity distribution costs are: (*a*) high handling costs, largely because of ineffective transport, (*b*) traffic congestion in the cities, (*c*) poor packaging, (*d*) high waste of sales effort because, it is estimated, only one-sixth of a salesman's time is spent on selling, (*e*) duplication of delivery effort by small retailers, and (*f*) over- and under-stocking of goods because of lack of adequate market research.

A criticism worthy of consideration is that which suggests that wisdom of consumer choice is not encouraged by the modern methods of marketing; fancy eatables are pushed, but exercise is not pushed; automobiles are pushed (often), but walking is not pushed; salesmen are specifically trained

to oversell the consumer, and sprats are set in large and small shops in the form of cheap lines to catch the money of the human mackerel. It is not, the criticism goes on, the problems of human health and happiness that are considered, but the consumer's money. This criticism is logically sound in many respects but, in actual fact, there is a fairly equal and opposite educational force operating at the same time, and there is no doubt as to the outcome. This attitude is not an apology for the existing methods, it is simply an explanation based on consideration, not only of marketing in itself, but of marketing in terms of whole social, psychological, and economic development. Modern marketing has not created unintegration between consumer and producer; the situation is a general reflection of whole social mentality.

It is singularly easy to take up a stand on remote moral grounds and belabour the existing system; this activity is useful in that it promotes balance, but there is less excuse for, for example, the following—

> . . . striking individualities are most common in highly integrated societies and not, as might have been expected, in times of social disintegration. In the latter periods, everyone is copying everyone else for fear of being lonely, for fear of falling out of social intercourse. No one fears this in a highly integrated society, and consequently everyone goes his own way subject to the control of custom and sentiments as to what is right and fitting. Style in women's clothes changes much faster to-day than it did a century ago, but in any given party to-day the women's clothes are far more similar to each other than was the case previously. This statement holds even when comparing the dresses of to-day with those of the last generation.
>
> Simultaneously with the rise of temporary fashions in manufactured commodities, has come the decay of individual variations; for both are signs of social disorganization.[1]

[1] *Leadership in a Free Society*, T. N. Whitehead (Harvard); English Edition (Oxford University Press).

This may be true of America, though it does not seem so, but it is definitely erroneous both in its premises and in its conclusion when applied to Britain.

Modern marketing can and should be improved. The costs of marketing generally double and sometimes treble manufacturing cost. Unfortunately, if we attempt to apply the economic principles of specialization mentioned in the last chapter, the result is not so definite as it is in production methods study; this is especially so the nearer marketing method approaches the mass of consumers. The remedy may lie along the lines of consumer service organizations such as is represented in the "one central co-operative store to each district" idea, and along the lines of co-operative marketing by co-operating manufacturers. But movements of these kinds must depend on education for their growth and not on logical argument.

It seems, although we conclude that the state of marketing is one of normal co-ordination to production in terms of the state, not only of production, but of society as a whole, that while the organization of marketing is continually improving, the people concerned have not yet fully grasped the idea of controlling it in terms of consumer, of social, service. Nevertheless, although it is the author's opinion that there is too much left to Government interference and that not enough social disciplines are voluntarily accepted, the normal moral and economic tendencies of marketing are socially and economically promising of good.

CHAPTER XVI

TRAINING FOR MANAGEMENT

IT is our proposition that the training of foremen, works managers, general managers and, in general, of people who have to manage human effort application to the ends of business should be the same in fundamentals. There have been meritorious attempts to formulate works management and general management syllabuses, but there is not yet an established method of educating foremen. Whole books have been written on the subject by people with and without any foremanship, works management, or general management experience, with curious results. Each and all agree that, for example, the duties of foremen vary so much from business to business that it is virtually impossible to formulate an effective educational schedule; what formulations there are mostly propagate knowledge of planning, time study, and other procedures, and there are not a few people, mostly academic, who insist on the foreman having a knowledge of what is at present called *fundamentals*—commercial procedures mostly. The whole tendency is to produce organizers and to neglect the production of managers or leaders.

THE ABC OF MANAGEMENT

It is strange that educationists should see only the differences between one kind of foremanship and another type, and between kinds of management generally. It is true, and we will not dwell on the point, that management tasks vary with varying shop conditions; but what is common to all kinds of management, if there is anything common at all? Is there some fundamental knowledge or ability required by foremen and by general managers?

Three things are required from all business managers of people and things: these are—

A. Efficacious reasoning power.
B. Capacity for managing people.
C. Unswerving personal obedience to business purpose.

These three are common essentials, the absence of any one of which is fatal. A fourth, knowledge of processes and procedures, is the variable in management, yet, curiously enough, it is the one which receives most attention; indeed, modern management education teaches little else, although as specialization advances, it becomes decreasingly important, and the three common essentials become increasingly important. Processes and procedures may have to be known, but they are not of great consequence; in point of fact, the average industrial business could be run by a general manager whose knowledge of processes and procedures was quite slight if he were able to bring the three essentials to bear on the task. This, with disciples of modern scientific procedures, may not be popular, but it is demonstrable as true. The author, and a few men known to him, have completely reorganized engineering works, foundries, clothing factories, sweet factories, and textile mills with considerable success and, in most cases, run each place while reorganizing it. This does not mean that, in these people, qualities A, B, and C were pre-eminent; it merely means that physical processes, at least, are not of grave consequence in management although, it has to be admitted, a knowledge of business procedures may be of importance; however, this will be considered later. Meantime, it is noteworthy that procedures, in medium and large companies, are represented in the work of specialists, e.g. process and production men, progress men, accountants, time study engineers, and the like, and the tendency is to make management's chief function the initiation and maintenance of balanced operation.

If, now, we take the three essentials mentioned above and consider what they signify and how they can best be taught it will enable us to develop a suggestive syllabus.

A. *Efficacious Reasoning Power.* This signifies the capacity for making correct judgments on a basis of competent facts with right experience as a background. It suggests that there should be education in the elements of logical method.

B. *Capacity for Managing People.* This signifies capacity for leadership and suggests that there should be education in the elements of social and individual psychology with, as a background, the elements of sociology.

C. *Unswerving Personal Obedience to Business Purpose.* This signifies moral, mental, and physical self-discipline in the service of the purpose for which business is done (i.e. the dual social and economic purpose) and suggests education in the social and ethical significance of the business institution and in general business operation.

One cannot, obviously, separate any one of the three essentials from the others.

SYLLABUS ON MANAGEMENT AND WORKS AND COMMERCIAL PROCEDURES

Rather than pursue the normal course of suggesting that this and that had better be taught foremen, or that this and that had better not be taught works managers, we shall set out a complete syllabus and, afterwards, discuss its significance. The syllabus is as follows—

FUNDAMENTALS

(Designed, also, as a course in foremanship.)

Personal and social instincts; instinctive activity. Intelligence; intelligent activity. Human similarity and difference. Human similarity and common interest; human difference and unlike and conflicting interest. The necessity

for social grouping and social effort. Common social purpose is adequate satisfaction of organic, cultural, and ethical interests and protection and continuance of that satisfaction. The necessity for management and for disciplinary procedures in the pursuit of a common end by a social group.

Human difference and human differentiation. Differentiation into occupations as a result of environment, as a result of human differences. Normal class differentiation as a result of significant differences in character and ability and, therefore, of interests. Abnormal class differentiation as a result of tradition and custom (the caste system), of lack of means, and of poor selection, education, and placement.

Social activity and social customary procedures. Instituted customary procedure. The State institution and its general functions. Government as social management. (Local Government.) Social authority and obedience. Social sanction as acquiescence in and as acceptance of authority. Obedience of social management to social purpose. Democratic government. Conflict between individual interests and the conservatism of social customary procedure. Conflict as a result of faulty class differentiation. Conflict integration. The place of conflict in social development.

Economic interests of society. Economic activity. The requirements of economic activity: natural, human, artificial. The economic institution. The social purpose of the economic institution. The social purpose of individuals within the institution.

Agricultural, manufacturing, and commercial procedures prior to the rise of the capitalist system. The use of capital prior to the capitalist system. Social conditions prior to the capitalist system. Real wages prior to the capitalist system.

The rise of capitalism. Differentiation into wage earners and capitalists. Separation of agriculture and industry. Rise of the factory. The rise of the trade unions. Early conflicts. The State and early industry.

Development under capitalism: agriculture, manufacturing, commerce, and communications. The scope of

modern industry. Trade union development. Progress of real wages. Employers' association development. The State and modern industry. Development of welfare activity.

Development of manufacturing. Differentiation of manufacturing into industries. Differentiation within each industry. Differentiation (specialization) within the single business: finance, production, and marketing. Necessary codes and procedures: financial, producing, and marketing. Co-ordinating procedures.

The necessity for economic effectiveness. Authority and obedience within the economic institution. Obedience of management to the dual purpose of social service by the economic institution and of economic effectiveness.

Necessity for procedure sanctions within industry. Conflicts between industrial group customs and technical procedures. Conflicts between individual progressive outlook and industrial conservatism. Conflicts arising from pugnacity, jealousy, or ignorance in the individual. Conflicts arising from political viewpoints of individuals. The uses of domination, paternalism, and intellectualism by management. Conflicts arising from general domination by management. Conflict as "ca' canny"; as high labour turnover; as opposition leadership of industrial groups; as strikes and lockouts. Conflict integration. Integrative mechanisms.

Management traditional, systematic, scientific, and rational methods. Principles of rational method. The fallacy of dependence on scientific method or general logical method in decision on human problems. The necessity for consideration of purpose. Applications of rational method to problems: product research and market research; producing mechanism research; analyses of existing procedures; discovery and testing of new procedures; new procedure application; disputes; penalties for operating faults; disobedience of established codes of conduct; waste reduction.

Management self-discipline through self-planning. The importance of moral, mental, and physical example. Management as service.

Review of principles of management.

Works Procedures

Works Planning. Market analysis and works planning. Product analysis. Jobbing, batch, or continuous lay-out? Works location factors. Laying out the processes. Machine and equipment budget. Departmental lay-out. The handling factor. The storage factor. Ventilating, heating, and lighting and power factors. Service department lay-out. The expansion factor. The final lay-out.

Personnel Selection and Training. Conditions and job analysis. Job specifications. Interview. Vocational and intelligence tests. Trade tests. Principles of learning. Labour location according to interests and abilities. Promotion.

Process Planning. Drawings, Quality specifications. Parts lists. Jig and tool design. Operation lists. Operation standardization. Time and motion study and rate-fixing. Fatigue and other allowances. Economic batch quantities.

Production Planning. Production master schedules. Ideal schedules. Load charts. Sequential load and progress boards. Material, tool, and necessary movement control mechanisms. Job notes. Flexible and inflexible planning systems. Planning in the jobbing, batch production, or continuous production factory.

Purchasing. Production and service materials. Materials specifications. Types of purchasing. Progressing material inwards. Inward material inspection. Purchasing records. Market study. The relationship of purchasing to production planning. Purchasing budgets.

Material Control. Stores organization. Stores records. Maximum and minimum quantities. Centralized material control in the planning department. Decentralized control. Requisitions and credit notes.

Quality Control. The inspection function. Types of inspection organization. Gauge inspection. Sampling. Planned inspection on parts cost and parts function basis. Blanket inspection. Cost and quality. Scrap percentage allowance determination. Inspection records.

Factory Costing. Review of financial statements and their meaning. Abstraction of overhead costs from financial accounts. Methods of overhead allocation. Accounting for indirect expense. Job, batch, and process costing method. Cost records. Operating ratios.

Estimating. The use of rate-fixing and cost records. Blanket estimating. Estimating by analysis. Estimating records and their use as production cost budgets.

Wage and Incentive Systems. Nominal and real wages. The basic rate. Variations from basic rate on the basis of knowledge and ability variation; on the basis of abnormal job conditions. Job analysis for wage setting. Selection tests for wage setting. Wage methods: flat day rate, variable day rate; piecework systems; bonus systems. The application of incentives to unskilled labour. Group incentives. The requirements of a good incentive system.

Personnel Welfare. Industrial diseases and industrial accidents and their prevention. Methods of developing works sociability. Co-partnership and profit sharing. Suggestion schemes. Complaint avenues. Management councils.

Review of principles of management.

Commercial Procedures

Review of place of commerce in the economic institution. Local, national, and international significance of commerce.

Natural Resources. Their location. Present-day national and international production of commodities.

Commercial Development. Development from simple barter with special reference to the development of economic exchange and distribution as a response to developing social interests or wants. Differentiation of commercial activity from industrial activity. The relationship of commerce to industry. Differentiation of commercial activity: finance, insurance, transport and communications, marketing. The professions.

Financial. Supply and demand. Theories of value. Price. Money as a medium of exchange. Monetary standards. Paper money and gold reserves. Credit. Bills of exchange and cheques. Banking. Business cycles as a result of money policy; their effect on manufacturing and marketing.

International Trade. Theories of international trade. Balance of trade. Dumping. International trade payments. Specie points. Exchange rates. The money market.

Transport. Rail, road, water, and air transport. Telephone and telegraph. The economic significance of effective transport and communications.

Marketing Methods. Wholesalers and retailers; commission men and brokers. Direct-to-consumer marketing. Co-operative marketing. Government and other aids to marketing. Costs of marketing. Marketing wastes. The effect of wasteful marketing on production; on prices to the consumer. The effect of variable consumer demand on production. The effect of variable design on marketing. The need for co-ordination. Simplification and standardization.

The National Income and its Distribution. Business income, landowners' income, investors' income. Income for capital risks. Salaries and wages. Cost of living index.

Business Organizations. Partnership, private company, limited company, other forms. Company law. Company flotation.

The Manufacturing Company. Relationship of the financial, marketing, and recording functions to the production function.

Financial Organization and Control. Principles of bookkeeping. Financial statements. Principles of costing. Financial budgets. Financial and operating ratios. Office organization.

Sales Organization and Control. Market research. Sales budgets. Business forecasting. Price fixing. Consumer service factors in selling. Sales contracts. Control of sales expense. Sales office organization.

Review of principles of management.

THE OBJECTS OF THE SYLLABUS

The student aware of the contents of existing syllabuses on management education will notice that what has been added to them is largely contained in the section here called *Fundamentals.* In this section the objects are: 1, to place management education on a solid foundation that will explain and illuminate industrial procedures and industrial problems; 2, to teach the manager to think and to act rationally; and 3, to make the manager socially conscious. Otherwise, the matter, with slight alterations, is similar to

that contained in the syllabuses of the Institution of Mechanical Engineers.[1]

The first and second objectives have their proof in experience and are mentioned throughout the book: there is not, among clear thinkers on management, any doubt as to their necessity. The third, making the manager socially conscious, is not so obvious. Yet, if it be admitted that the fundamental purpose of business activity is service of social needs, and if it be admitted (and it follows on the first admission) that management must be obedient to social purpose, then, it is obvious, for rational acceptance of the disciplines arising from service of social purpose, that management must know something about social purpose.

There has not been anything in management more productive of harm to industry than the wrenching of industry from its social setting, and the treatment of man as an economic creature reacting only to money values, instead of as a social creature with a social nature seeking, through the application of his effort within the economic structure, the satisfaction of his individual and social needs. Further, there is much misunderstanding in industry owing to the primary value given by the least progressive of employers and high executive officials to the profit motive. The profit motive, whatever its shortcomings and whatever its future, has been behind great and useful developments, but it requires subordination to a wider motive, service of community welfare. If it be so subordinated it will accomplish more for community welfare than, for the present anyway, will economic effort depending upon ideal motives which few of us could serve with great fervour, and upon conscious acceptance of disciplines which not one person in ten thousand

[1] *Fundamentals of Industrial Administration and Workshop Organization and Management.* The author desires, at this stage, to express his appreciation of the pioneer work of the Institution of Mechanical Engineers and his indebtedness to them for the opportunity for study of the syllabuses in his role of visiting teacher at the Borough Polytechnic, London.

is able or willing to impose upon himself. The syllabus outlined is designed definitely to overcome the faults mentioned earlier and to foster a new, rational attitude to the relationship of industry to society while, at the same time, fostering the idea of economic effectiveness by the application of effective procedures.

The first section of the syllabus is designed to be, in itself, a course in foremanship as well as a preliminary course for higher industrial and commercial executives. The movement from *fundamentals* can be either towards works procedures or commercial procedures; only in the case of the student aiming at general management would the three sections be taken. The author, writing as one who has been foreman, works and production manager, and general manager in turn and, too, as lecturer on management education, believes that a syllabus on the lines suggested would do much to serve the reciprocal causes of industrial effectiveness and social good.

CHAPTER XVII

RÉSUMÉ OF THE PRINCIPLES OF RATIONAL INDUSTRIAL MANAGEMENT

THIS statement of principles is not more than a philosophic contribution to the management process; philosophic because it consists of scientific data, as the author understands that data, related to the total management situation, as the author understands that situation. Moreover, the form which many of the principles take, because of conflicting theory within the framework of particular specialized sciences, is a representation of the author's choice; examples of this choice may be observed in the *principle of human activity*, in which the point of view of ethical philosophy is chosen in preference to "behaviourist" theory, in the *principle of social development*, in which the point of view of sociology is chosen in preference to that of anthropology, in the rejection of pure scientific method and the substitution of general logical method modified by consideration of human purpose, and, throughout, in the modification of the customary values of specialist economics and individual psychology by insistence on business activity as a social function carried on by social beings whose object is adequate satisfaction of their organic, cultural, and ethical interests and protection and continuance of that satisfaction.

The verbal form is adapted to the needs of the situation with, perhaps, consequent loss of academic precision; the accompanying notes are designed to aid the student in principle comprehension without reference to the chapters which explain the principles; if such reference is necessary, the page numbers after each principle will assist the student.

FUNDAMENTAL PRINCIPLES

On the statement of these principles the remaining principles are based; they afford an intelligible background for industrial management, and give a whole idea of the industrial process.

Human Cause. The interests of humanity are the cause of all social activity, and social evolution is a result of human interest evolution. (Page 34.)

Human Activity. The interests which lead to behaviour are largely determined by mutually modifying individual and social instincts varied in expression by the force of social tradition and by the intellectual experience of the individual and the influence of ideal purposes. (Page 38.)

Human Similarity and Difference. As human beings are fundamentally alike in their physical and psychic characteristics, their fundamental interests are alike, but as each person, by reason of hereditary differences and difference of experience, varies in some respects from other persons, the individual's expression of fundamental interests and the ability to satisfy them differ in some respects from those of other individuals. (Pages 38–9.)

(*Note.* For the understanding of social classes, social and industrial conflict, and other major problems, knowledge of the foregoing three principles is essential.)

Social Activity. Because of man's social nature and because his interests can be satisfied only in relationship with other human beings, human community is inevitable and necessary. (Page 39.)

Social General Purpose. The general purpose motivating the community is adequate satisfaction of fundamental organic, cultural, and ethical interests, and protection and continuance of that satisfaction. (Page 50.)

Social Management. In the pursuit of a common purpose

by a community made up of persons of differing natures it is inevitable that there be leadership. (Page 55.)

Social Codes and Procedures. The pursuit of a common purpose by the community necessitates disciplinary codes and procedures for the creation of social cohesion in the pursuit of purpose satisfaction. (Page 63.)

Instituted Codes and Procedures. As the necessary disciplinary codes and procedures become customary they take objective form and become the standard instituted codes and procedures of community living imposed by social leaders. (Page 65.)

(*Note.* The State is the objectified form of social codes and procedures.)

Social Authority and Obedience. The institution of objective codes and procedures dispensed by social leaders involves the investment of authority in a few people and obedience to authority by the rest of the people; it involves, also, obedience from authority to community welfare. (Page 66.)

Social Acquiescence. The imposition of objective codes and procedures requires social acquiescence which, if withheld, may result in social apathy or disobedience with consequent weakening of community and conflict with existing authority. (Page 67.)

Social Acceptance. As the intellectual experience of individual members of the community and of the community itself increases there is increasing need for authority to seek acceptance of new codes and procedures if organized conflict is to be avoided. (Page 71.)

Social Conservation. As social codes and procedures become more customary, their objective form (the institution) tends to resist change and the majority of the people tend to accept the customs as habitual standards of outlook and behaviour and so set up an unthinking barrier to development. (Page 72.)

Social Conflict. Conflict within the community is inevitable because of differing interest expression among individuals and of the clash of developing individual interests with customary codes and procedures. (Page 73.)

Social Development. Normal development of social life is in direct ratio to the development of individual interests within the community and the integration of these interests with community interests. (Page 76.)

Social Differentiation. As the individual members of the community become more differentiated and as the community grows larger, there is increasing differentiation of community effort with consequent division into classes and associations occupied with the satisfaction of particular interests of the community and, with this, differentiation of the tools used by the community. The resulting concentration of specialized effort on limited fields of endeavour increases individual and community effectiveness.

(Pages 77–8.)

(*Note.* This principle is the wider expression of what industrial economists call *specialization* and it has its basis in the biological principle of *differentiation*. Thus, it is not a social or economic law but a universal law, as is its reciprocal, *integration*.)

From the principle of social differentiation there follows—

Class Differentiation. Normal differentiation of the community into classes results from significant personal differences in character and ability and, therefore, of occupational interest. (Page 78.)

(*Note.* Abnormal differentiation into classes results from denial of character and ability expression and dependence on factors other than character and ability, and stresses the need for adequate selective and educational method if the inevitable conflict resulting from individual interest repression is to be avoided.)

Occupational Differentiation. Occupational differentiation

arises from individual differences and from increase of community needs within the limits of the environment in which a whole community or part of a community lives. (Page 79.)

(*Note.* Local environment tends to make Welshmen into miners of coal, and whole environment tends to make us exporters of coal.)

Tool Differentiation. As specialized effort is concentrated on particular occupations, the tools used become specialized in response to the needs of the occupation.

(Pages 79–80.)

(*Note.* The increasing development of specialized, expensive tools necessitated modern capitalism.)

Institutional Differentiation. As occupational differentiation increases, the codes and procedures of particular occupations increase, and, as they become customary, they take objective form and become institutions within the community. (Pages 85–6.)

(*Note.* The religious, legal, and economic institutions are outstanding examples of this principle, as, in a somewhat lesser respect, are the numerous cultural and sociable institutions within the community.)

Social Co-ordination. As differentiation of effort within the community increases, the need increases for co-ordinating codes and procedures to control the differentiated efforts in terms of community purpose. (Page 86.)

(*Note.* The State is the co-ordinator of differentiated institutional effort.)

Integrative Social Management. As community interests become more differentiated, there is increasing need for integration of individual interests and abilities by the increasing use of adequate selective and educational method which will ensure each individual unifying his interests with whole social good and using his special abilities in the most effective manner possible in a social atmosphere

which will give him full individual expression within the community. (Page 90.)

(*Note.* The integration of interest may, where intelligence is low, be brought about through acquiescence in authoritarian disciplines in return for immediate interest satisfaction, but, as intelligence increases, the acquiescence is replaced by conscious acceptance of authority by those individuals capable of understanding the purpose of authority; this is the highest form of social effort and of social living.)

Socio-economic Activity. The application of effort to natural resources for the satisfaction of social interest in the material needs of life is a social function carried out by social beings seeking adequate social living within a socially differentiated institution which is subject to the principles which affect individual and social activity. (Page 94.)

(*Note.* The socially differentiated institution is the business institution, the function of which is effectively to supply society's material needs; within the institution work social beings who want satisfaction from and at work.)

Socio-economic Effectiveness. As the economic institution must for effective community service be in itself effective, and as necessary capital is the measure of total material, equipment, and labour values within the institution, the effectiveness of institution operation is measured in terms of its return on the capital necessary for effective operation. (Page 96.)

(*Note.* By *capital* is meant the goods used for the supply of consumers' goods: buildings, labour-saving and labour-aiding equipment, stocks of raw and finished materials held for consumer service, money for payment of effort before the result of the effort is realized in money and, in a wider sense, means of transport and of intercommunication.)

The principles which follow are extensions of the fundamental principles to the field of industrial operation.

PRINCIPLES OF INDUSTRIAL MANAGEMENT AND ORGANIZATION

MANAGEMENT

Economic Management. As management is necessary for the carrying out of economic activity, and as the need for co-ordination of effort and integration of interest increases with increasing application of differentiation with a view to increased effort effectiveness, management will be most effective when it has capacity for, and disciplines itself to, the service of socio-economic purpose by integrating individual, personal, and social interests in the differentiated and co-ordinated application of effort, aided by necessary capital, in the explicit direction of socio-economic effectiveness. (Page 132.)

From which follows—

Subjective Management. Management must accept the physical, mental, and moral disciplines involved in obedience to socio-economic purpose, and must adopt and sustain an unbiased, rational attitude in the treatment of all business problems and in the balanced application of developing knowledge to these problems. (Page 134.)

Objective Management. Management must continually apply developing knowledge to business operation in accordance with the principles of rational method, and while so doing must set an example to those managed of rigidly disciplined effort rightly applied and controlled, and of intellectual and moral strength which will justify its claim to manage. (Page 135.)

(*Note.* The claim to manage based on superior knowledge or ability is superficial and evanescent; if management is to win back from class leaders its right to lead the workers it will not do so only by exhibition of scientific knowledge and scientific tactics but by hard work and high example

backed by rational attitude and rational method; in short, by loyal obedience to the socio-economic purpose.)

MANAGEMENT METHOD

The following principles are of value to management in that they outline a rational method of carrying out and applying procedures. The method is not to be confused with scientific method for, although it combines that method with ordinary logical methods, it is based on the fact that management is concerned not only with proving knowledge (scientific method is a method of proof rather than of discovery[1]) but with the value of proved knowledge when related to human purpose and with knowledge application. Thus, the method is peculiar to management.

Causality. Every effect in business is the result of a cause. (Page 146.)

Uniformity of Nature. Any non-free cause which produces a given effect in one instance will produce the same effect in similar instances. (Page 146.)

The above two principles are fundamental to general method, and indicate that management should, as far as possible, seek for causes in problem solution, and should codify all proved conclusions for future use.

Inquiry Objective. The objective of any inquiry into a business problem must be clearly and definitely stated so that time and effort may be a minimum and results a maximum. (Page 147.)

Problem Definition. The problem to be solved must be stated exactly, all obscure terms must be eliminated, and the problem divided into its constituent parts to avoid waste of time or effort on obvious points, straying from the objective, and to assist precision of purpose. (Page 148.)

[1] *Scientific Method*, Westaway, Blackie & Co.

Principle of Logical Procedure. The logical procedure should be pursued to the exclusion of any investigations which do not contribute directly to the objective; it should commence at the logical beginning, and it should be such that each successive step is supported by observed facts.
(Page 148.)

Principle of Procedure Limitations. The limiting influences peculiar to the inquiry should be determined and consideration given to the effect on the inquiry of such factors as (*a*) permitted expenditure of time and money, (*b*) method of fact collection that may be used, (*c*) help available, (*d*) the relation of the business policy to inquiry development.
(Page 149.)

Right Experience. The person carrying out the inquiry should have sufficient definite knowledge of the subject under investigation to avoid fallacies arising from mal-observation. (Pages 149–50.)

Right Observation. Observation for the facts of the problem should be free from bias and prejudice.
(Page 150.)

Analysis. The whole field of the problem should be analysed to its elements so that every fact bearing on the problem will be clearly observed. (Page 152.)

Natural Experiment. Personal analysis should, where possible, be assisted by variation of the circumstances of problem observation so that the essential conditions of the problem will be made plain. (Page 153.)

Instrumental Analysis. Where possible, personal analysis should be supported by the use of accurate instruments.
(Page 153.)

Explicit Analysis. The facts gathered in the course of analysis must be put into writing. (Page 153.)

Documentary Testimony. If, in the course of an inquiry, the observer has to refer to documentary testimony, the experience and the integrity of the author should, where

possible, be checked, the recency of the testimony should be noted, the testimony should be checked against the testimony of authors of equal experience and integrity, and consideration should be given as to whether or not the facts attested appear to be borne out by the known facts of the problem. (Page 153.)

Direct Testimony. If, in the course of an inquiry, the observer has to take personal opinions from others, such opinions should, where possible, be presented in writing, and the facts behind the opinions should be analysed to discover if they truly justify the opinions. (Page 153.)

Identification. Each fact in the inquiry should be clearly identified in terms of inquiry objective. (Page 154.)

Unit of Measurement. The facts must be stated in a unit which is clear and definite in meaning and is consistent within the class to which the facts belong. (Page 154)

Classification. The facts should be systematically arranged under the logical divisions set out when the problem was first defined or under such logical divisions as appear necessary, so that complete understanding of all the facts in relation to inquiry objective is made possible and good judgment is encouraged. (Page 157.)

Reference to Class and Law. The classified facts should be referred to a known class or series of facts or to known laws for explanation. (Page 157.)

The Hypothesis. If the facts cannot be referred to a known series or to known laws, any hypothesis drawn from the facts should be verified by the use of recording instruments if it can be so verified, by comparing and/or contrasting with like and unlike instances, or by experiment. (Page 157.)

From which follows—

Like Instances. If possible, the hypothesis should be verified by multiplying like instances for the purpose of finding proof of the hypothesis. (Page 158.)

Unlike Instances. Exceptions to the hypothesis should be sought in unlike or contrary instances.

(Page 158.)

Experiment. Where it is at all possible and economical the hypothesis should be tested by arrangement of conditions as required by the hypothesis to discover if results are as indicated by the hypothesis. (Page 158.)

Reference to Statistics. In the solution of a problem covering a number of factors too complex for adequate analysis, reference should, if possible, be made to collection of adequate samples of the data in question, and to classification, tabulation, and correlation of the data with a view to problem solution. (Pages 158–9.)

Reference to Human Purpose. Where the problem has to do with decision on human conduct, the purely logical method of adjudging facts in terms of business economic objective should be modified by reference to the purpose which motivated the conduct in question, and decision should include recognition of the goodness or badness of the purpose. (Page 161.)

Reference to Psychological Factors. If decisions on new codes and procedures arising from the application of logical method to business affect the human factor, they should be so applied that they fit into group psychological structure and will thus have group acquiescence (or acceptance if the group is intelligent). (Page 161.)

Reference to Social Factors. Before decisions proved correct in terms of profitable operation are applied, the social effect of such decisions should be considered and the application should include recognition of business social purpose. (Page 162.)

(*Note.* The foregoing three principles are peculiar to management method and they distinguish rational method from the method of the scientific cult of management [as witness the numerous disputes owing to ignorance of

Reference to Psychological Factors]. The last of the principles is of some importance to individual managers [e.g. dismissal of men with families, social effects of unhealthy conditions, consumer service], and of major importance to managers as a body [e.g. unemployment, excessive profit distribution, planned destruction of commodities].)

INDUSTRIAL DIRECTION, ORGANIZATION, AND CONTROL

These principles stress the necessity for recognition of the presence in business activity of social and psychological as well as economic factors. Over-stress on economic factors leads to apathy and disruption among the groups operating in business (see the statement of basic principles).

Purposive Activity. The purpose of business activity and the policy to be used for purpose expression should be clearly stated in writing, and the policy expression through each aspect of business activity should be related to whole policy so that each of the activities within the business organization will flow in the specific direction of business purpose fulfilment. (Page 163.)

Specialized Activity. As concentration of effort on a limited field of endeavour increases quality and quantity of performance, all of the manual and mental activity within the business organization should be specialized as far as is economically possible. (Page 167.)

(*Note.* Specialization is akin to biological and social differentiation.)

Standardized Activity. Where economical, and as far as the personal equation allows, specialized activity should be standardized as to content, method, place, and time of application. (Page 167.)

Simplified Activity. Elimination of excess manual and mental activity should be carried out so that the benefits

of concentrated effort be gained and so that work will be done with the least physical and mental cost to the worker.

(Page 167.)

Trained Activity. Training for the performance of any task should first be designed to give the trainee an idea of the meaning and extent of the whole task before training is specialized on each element of the task; the period of training should be adequate for proper learning, and throughout the training period stress should be laid on effective speed and rhythm and on accurate performance.

(Pages 167–8.)

Integrated Activity. As each person by reason of hereditary differences and intelligence variations has different interests and abilities which enable him to perform some tasks better than he can perform other tasks, and as his general character development and consequent habits of thought and behaviour enable him to work better with some people than with other people, each task should be analysed in relationship to the whole task situation to discover what qualifications are necessary for its effective performance, and the person chosen to do the task should be so selected that his interests and his general and special abilities are effectively expressed in the whole task situation.

(Page 169.)

Conditions Standardization and Simplification. All of the accessory material factors necessary to organized activity should, as far as is possible, be standardized in terms of maximum specialization, and they should be so arranged that excess manual and mental effort is eliminated.

(Page 179.)

Product Standardization. Where economical, standardization as to content, form, dimension, performance, and finish of products should be applied at every stage from raw material to finished product in order that the full benefits of interchangeability may be gained. (Pages 183–4.)

Product Simplification. Elimination of excess types and sizes of products should be carried out in order that the full benefits of concentrated effort may be gained.

(Page 184.)

Co-ordinating Structure. As specialization increases, the need increases for a formal structure which will effectively link up all of the specialist activities with the supreme authority, will effectively make contact between methods specialists and operating group leaders (vertical structure), and will make effective the collaboration of groups at their own and at other levels (horizontal structure). (Page 188.)

Activity Responsibility. Responsibility for special activity should carry with it special authority over the activity, and all other authority should be expressed through the special authority if responsibility is to be properly placed.

(Page 188.)

Co-ordinated Relationships. The relationship of each executive official to the supreme authority and to other executive officials and the extent of the authority and responsibility of each must be put on record.

(Page 189.)

Co-ordinating Systems. The procedures which are found most effective for transmission of authority and for the linking up of specialized activities should be systematized to ensure continuance of procedure effectiveness.

(Page 189.)

Recorded Procedure. Written orders must be systematically used to authorize procedures and written records must be systematically used to measure performance, and, when the procedure does not vary, the written order should be standardized. (Page 190.)

System Limitation. As system is standardizing in effect, its application should be such that adaptation to new circumstances and new ideas is easy at every point in the organization where the system is used. (Page 190.)

The following principle indicates the limitations to specialization—

Limiting Factors. As, in general, quantity of things to be done increases, and as content of activity increases, specialization should increase, but as it is increasingly difficult and costly to use the maximum capacity of any major business factor, the increasing use of specialization will increase the cost of the factors used to increase the productivity of the major factor. (Pages 190–1.)

An integrating force, as distinct from a co-ordinating force, can increase human energy output without increasing cost.

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