

# NATURE

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## INCENTIVES IN INDUSTRY

HOWEVER true it may have been in the past that men of science tended to disregard the intangible human element in a situation and to concentrate almost exclusively on the physical factors which they could measure, that charge could not be levelled against those who met at Dundee to take part in discussions at the British Association meeting which touched on the economic situation confronting the nation. The measures which could be adopted to increase productivity and to utilize more effectively the resources of the United Kingdom, and the contribution which science could make to that end, were never considered merely from the purely material or physical point of view. The human factor was given its full weight, and even industrial or productive efficiency was estimated not solely from the mechanical aspect but also in the light of the physiological and psychological demands which were involved in the effort required from men and women.

That was, of course, particularly true of discussions in Sections I (Physiology) and J (Psychology), but it also characterized some of the general discussions as well as various joint discussions of general interest such as those on "Man and the Machine", on selection for management and on incentives in industry. In all these there was manifest more awareness of the outlook and needs of ordinary men and women than has been apparent in some of the recent manifestations of Government policy to deal with the present situation. A striking example is to be found in Dr. R. E. Lane's fine contribution to the discussion on man and the machine, which showed a clear conception of what is involved and needed in the sphere of human relations in industry whatever form of organisation may be adopted. Nationalization alone, as the brief experience of the National Coal Board is already tending to show, is no sufficient solution, and no economic and financial system of incentives can dispense with the need for further work in this field of human relations. All possible means must be taken to eliminate the suspicions and misunderstandings which have hindered co-operation in the past, and to promote both an atmosphere and an outlook which make for co-operation and mutual confidence.

That is the first condition of increased productivity, and the symposium on incentives in industry arranged by Sections F (Economics) and J (Psychology) on September 2 demonstrated the crucial importance of such personal satisfactions. Dr. J. A. Bowie, in opening this discussion, urged that the psychological conditions are even more important than the physical ones. Incentives as commonly conceived may even offer no real contribution in the battle for output, and he thought it possible that no system of incentives would work well or permanently within the limits of the present system. What is needed is a sense of participation, which may only be secured by radical changes in factory life dispelling the present misunderstandings and distrust. A new psycho-sociological approach and further research in the field of incentives might make most important contributions

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in securing the satisfaction in work and sense of participation which would provide the real remedy for so much industrial unrest and low productivity.

Much the same point of view was urged by Mrs. W. Raphael, of the National Institute of Industrial Psychology, from the results of attitude surveys covering 15,000 workers of all grades in industry, conducted by the staff of the Institute in recent years. Financial incentives are not all-important, although they may be very significant if the workers do not consider their pay to be 'reasonable' or 'fair'. Satisfaction in the job itself is important among managerial and skilled workers, but less often in skilled and unskilled work, and can be increased by good vocational guidance, selection and training for the job. Participation, the sense of mattering to the organisation, and knowing about and possibly influencing its activities are important incentives which should be stimulated by such methods as joint consultation in its widest sense.

The National Institute of Industrial Psychology has obviously experience which could be of great value to the numerous joint production committees and to other bodies concerned with joint consultation as well as to management, including those organisations supporting research in the management field. That experience will no doubt be fully available to the British Institute of Management; and a body such as the National Staff Administrative College may well be expected to assist in the wider and wiser study and use of incentives throughout industry. Mr. Dennis Chapman's review of the factors that make for harmonious relations between working groups indicated other fields for research. Like Mrs. Raphael, he directed attention to the importance of environment, while Mr. C. Madge, of "Mass Observation", again emphasized that financial incentives are only one factor in a complex situation. Payment by results and bonus systems are only really successful when applied by managements who recognize this limitation. Few people work as hard as they are physically capable of doing, and restriction of output may be both conscious and unconscious, originating sometimes in the fear of unemployment through over-production. Moreover, there are demands for leisure, for less responsibility and for easier work, which can be as real and potent as the demand for material goods.

Mr. Madge urged that the principal way to increase production is by improvements in machines and in the physical organisation of the factory; but it is easy to see how, at a time when the worker finds it difficult to exchange wages or salaries for the material goods he desires, the pulling power of the demand for leisure and easier work can easily become more potent, even if we leave out of account the effect of six years of war. The balance will most certainly not be redressed by exhortation and organisation alone. As regards the building industry, which is among the least progressive and most wasteful of British industries, neglectful of research and indifferent to innovation, the scale of values of the operatives differs in important respects from that of

many other industrial workers. To most of them a steady guaranteed wage is more important than higher but less regular earnings obtained either through a rise in rates or through payment by results. Most of them, too, are unwilling to accept increased payment under a system which, in their view, would inhibit or destroy other strong motives such as pride in craftsmanship and the sense of comradeship. Miss N. M. Davis's contribution dealing with this industry was of special interest.

It is clear that here as elsewhere the problem is really one of building co-operation into our whole industrial system, and in an industry such as the building industry this is the only means of achieving the immediate results that are imperative. Technical improvements resulting from research may make large contributions to increased efficiency in the long run, but for immediate results it is upon efficient management as well as a new approach to incentives, conditions of employment and welfare that we must rely.

There is, in fact, urgent need for a scientific approach to the problems of incentives and human relations, both in private and nationalized industry; and the need is the more imperative because whatever shortcomings may be urged against private industry, there is no evidence that industry directed by the State itself would be either more efficient or freer from labour disputes and unrest. The evidence so far indicates a conspicuous failure of the idea of the public interest and a concern for the welfare of the whole community to permeate the rank and file of the employees of nationalized industry. This, however, is our fundamental need, and until it is true of industry generally, whatever the form of its organisation, we are unlikely to see the full productive effort that is required.

A thoughtful paper on this point has been contributed by Dr. Ordway Teed on "Public-Mindedness through Co-operation" (*Ann. Amer. Acad. Pol. and Soc. Sci.*, Nov. 1946). Dr. Teed sees no quick and easy way to industrial peace, but he maintains firmly that collective bargaining as the beginning of responsible constitutional government in industry is the primary public interest. Equally, he insists that the pattern of joint management-labour working arrangements must be voluntary, and he develops his argument on similar lines to Colonel Urwick and Mr. C. C. Renold in Great Britain.

The conception of the common interest requires, however, the development of much more effective means of informing all parties of the reasons for decisions and policies, so as to secure their consent and support, and there is room for inquiry into the best means of achieving this. We cannot wisely assume that the production committee or works council is the only, or even the best, means of doing so. Moreover, when we have succeeded here, we may find that the whole order of importance of incentives is changed. We may, in fact, find that though the financial incentive needs to be supplemented by others, which it is the urgent duty of management to explore and apply, such as pride in the finished product and a knowledge of its value to the country,

the possibilities of group leadership and competition, and the latent desire for self-expression, it may, subject to appropriate safeguards, afford the most effective and compelling motive of all.

One aspect, often forgotten, is well brought out in some of the inquiries already made; it is not for the monetary reward itself that the financial incentive is important, but for the satisfaction which that monetary reward makes possible. What needs to be remembered is that once the monetary reward is sufficient to meet elementary and basic human needs, it makes possible the satisfaction of other needs according to individual choice. It is partly because controls and shortages are preventing such satisfactions that the financial incentive has proved ineffective. But, however effective the service motive may become, no alternative to the financial incentive which offers the same opportunity and freedom of choice has yet been proposed.

Prof. H. S. Kirkcaldy's reminder to the planner, in his "Industrial Relations in Conditions of Full Employment" (Cambridge University Press, 1945), that the ultimate judge of essential liberties is the individual citizen or worker himself is equally pertinent in this matter of incentives, and in so far as the financial incentive permits the exercise of the freedom of choice it should not be discounted so severely as in the discussion at Dundee. The point is one that the Government, too, has widely disregarded. Incentives need to be tangible and easily visualized by the worker; when, as at present, Government policy has deliberately removed both the 'carrot' and the 'stick', it is not surprising that production lags.

The effort to build up co-operation effectively which, as Prof. Elton Mayo has remarked, is the fundamental problem we face to-day, must take full account of this aspect of freedom. It accentuates the importance of the question of the communication of knowledge and information; both the capacity of an individual to communicate his feelings and ideas to another, and that of groups to communicate effectively and intimately with each other. Much that was said at these discussions at the British Association's meeting at Dundee confirms the correctness of Prof. Mayo's view that social study should begin with careful observation in this very field. Here our civilization is most defective, and although we have reached some appreciation of the fact that collaboration in an industrial society cannot be left to chance, we have yet to realize that there is no simple or rapid solution. Patient, pedestrian study of the wholly neglected problem of the determinants of spontaneous participation is, as Prof. Mayo observes, the line of advance, and imperative as is the application of scientific method to the study of the social situations involved here and elsewhere in industry and in society, the scientific approach offers no promise of immediate solutions. The British Association discussions should not only lead to the more widespread study of these questions, but should also assist a more sober and realistic appreciation of what is involved and the conditions of success, and above all the importance of extending and developing both technical and also social skill and human

co-operative capacities. It would be disastrous to rely entirely on the production committees and works councils without exploring this whole field of the techniques to determine the effects of action in the social field, the means of securing spontaneous co-operation alike of groups and of individuals. The problem of incentives is only one facet of the larger one of industrial relations, which in turn is, as we are now realizing, part of that of the relations between groups and individuals in the society which constitutes the whole nation. Objective inquiry there must be, and action and policy must increasingly be based on the results of such inquiry and the techniques developed thereby, at the level of Government, in the factory, the workshop and the laboratory. Ultimately it is the task of management to use that knowledge and technique to serve the common ends, and no amount of exhortation and precept can be a substitute for the effective leadership which is the mark of good management and also of good government.

## NEWTON AS CIVIL SERVANT

### Newton at the Mint

By Sir John Craig. Pp. viii+128+4 plates. (Cambridge: At the University Press, 1946.) 7s. 6d. net.

IN 1696, when he was fifty-three years of age, Newton was appointed warden of the Mint, and in 1699 he was promoted to the master's place, which he held to the date of his death. The last thirty-one years of his life were thus passed in a public service which, if not as a whole arduous, yet occupied much of his time and was, on occasion, vexatious and exacting. So much can be found in any biography, but hitherto there has been no detailed account of this aspect of the great man's life, nor, indeed, are the necessary sources within reach of all.

Sir John Craig, who now comes forward to fill the gap, is particularly fitted for the task, having himself long been deputy master of the Mint, where he has had access to most of Newton's writings on matters concerning coinage. He has already, with Prof. Shirras, examined Newton's monetary theories in the *Economic Journal* of June 1945, although without reference to certain papers now available to him. In the little book before us he explains the very complicated history of the coinage of Britain, in particular the recoinage round about the beginning of the eighteenth century; the structure and personnel of the Mint, including such matters as the respective duties of the warden and the master; the many technical problems of producing coin at the period in question and the fixing of the intrinsic value; and, in particular, Newton's part in it all.

The book is written from the point of view of one familiar not only with the manufacturing problems of coinage but also with the economics of metal currency and of foreign exchange, which makes it in parts tough reading for the cloistered physicist. All the more does it show that Newton was thoroughly competent in financial matters, of which he wrote with his usual incisiveness, as exemplified, for instance, by the following passage.

" 'Tis mere opinion that sets a value upon money; we value it because with it we can purchase all sorts of commodities, and the same opinion sets a like