

has therefore been attained and the advantage to the seaweed industry of planned collection of the material over cast weed is obvious.

If mechanical harvesting has been the limiting factor in the industry up to the present, its adoption may bring fresh problems. If it becomes regular practice, limited in the main by the state of the weather and sea only—it is suggested that harvesting on at least 170 days a year is a reasonable assumption—it becomes important to assess the effects of harvesting on the density of the beds of *Laminaria cloustoni* as well as on the associated fauna and flora. The same report indicates that changes in the density of these beds occur from year to year when they are subject to natural conditions only, and hence it is reasonable to ask what effect harvesting will have on them.

Processes for the manufacture of mannitol, aminarin, calcium alginate and fucosterol have been perfected at the Institute; but whatever products are to be made use of commercially, the industry is in the last resort dependent on a continuing supply of the plant. Experimental work on the effect of harvesting is therefore of prime importance.

KATHLEEN M. DREW

WORK STUDY

IN one of the occasional papers published by the Institute of Personnel Management, a useful corrective is given to the unfortunate trend in industry which regards work study as the panacea for all industrial ills. Valuable as they are, work study and monetary incentive schemes are techniques which can have the most harmful consequences; they may increase production in the short run (not always in the long run) but at a social and psychological cost which is no less serious because it cannot be immediately perceived. It may be argued that it is unjustifiable to criticize work study together with the use of narrowly conceived incentive schemes, on the ground that there is no necessary connexion between them. There is, of course, no necessary connexion, but, in practice, there has developed a very natural connexion: the increase in repetitive work and the progressive simplification of the job have required that a substitute incentive be found for the satisfaction and skill so often destroyed. Among the many dangers and disadvantages of direct incentive schemes the following seem to be among the most important.

They are sought and used as a substitute for managerial skill in other directions, and they tend to deflect attention from matters which should have a far higher degree of priority in the development of any management policy; for example, production planning and sales/production co-ordination, education and training, method study, and systems of cost control.

The foreman's direct responsibility for output is reduced; this is said to be an advantage in that he is thus enabled to carry out more important duties. In fact, the stresses impinging on the foreman are frequently increased by the introduction of an incentive scheme and become more frustrating and harmful in character.

The impact of incentive earnings on the wages structure can be very detrimental and lead to much discontent. Supervisory differentials and other evaluated jobs are adversely affected by distorted earnings in other departments.

The installation of an individual incentive scheme frequently has a disintegrating effect on the working group which in many cases is resolved by tacit agreement among workers to restrict output to an agreed level; this is strongly condemned by management, who fail to understand that in the circumstances it is indispensable for the social equilibrium of the group.

As the whole emphasis of the incentive scheme is on producing the maximum individual reward, the effect is for the incentive bonus to be won regardless of necessary co-operation with supervisors and fellow-workers. The quality of production frequently suffers despite careful inspection procedures.

The scientific accuracy of time study has yet to be demonstrated, and the trade unions, aware of the difference in standards between time-study men, are not slow to take advantage of these opportunities in negotiation; in this respect time study may be regarded as a tool for collective bargaining.

Not the least important is the insidious effect that incentive schemes can have on the moral qualities and sense of responsibility of the individual. It is perhaps to be expected that a system which attempts to allocate a precisely defined reward for every action of the individual in his working society should have its repercussions elsewhere.

CONGENITAL PORPHYRIA IN SWINE AND CATTLE IN DENMARK

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CONGENITAL porphyria is a rare inborn error of metabolism in man and animals. It is occasionally seen in pigs and cattle in slaughter-houses because of the reddish-brown colour of the bones and teeth; but it has only once been studied in live cattle¹ and live pigs². For further information the reader is referred to the survey by Rimington³. It is a puzzling coincidence that congenital porphyria has been found in both pigs and cattle in Thisted County in North Jutland. We are now studying the live animals.

In October 1951 one of us (S. K. J.) found dark bones in pigs at Thisted slaughter-house. This reduced the market value of the pork, and in consequence an investigation was started. The condition could be diagnosed with reasonable certainty on inspection of the colour of the teeth in the new-born pigs; pigs with dark teeth as a rule develop porphyria. After elimination of all pigs with dark teeth, the condition disappeared; since February 1954 no new cases have occurred at Thisted. Two sows with porphyria were transferred to the State Experiment Farm of Faurholm for breeding studies and chemical investigations under the direction of Prof. H. Clausen and a senior experiment officer, N. J. Højgaard Olsen, in collaboration with one of us (T. W.). Some material was also sent to Prof. C. Rimington in London.

The best method of characterizing the severity of porphyria in a pig is quantitative analysis of the