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Psychological and Human Aspects of Vocational Training

by

F. BILLON

Director of the Institute of Applied Psychology, Champel, Geneva

The I.L.O. manpower programme[1] *lays special emphasis on vocational training as a means of solving certain important manpower problems. One type of training—the training of supervisors—was recently discussed at a European Meeting of Experts on Supervisory Training (Geneva, 30 March–2 April 1949). At this meeting, the principles underlying the Swiss method of training (based in large part on the work of Professor Carrard) were outlined in relation to the training of supervisors. The present article discusses the application of the principles of the Swiss method to training in general, including supervisory training. The method takes as its starting point the individual personality of the trainee and is based on an analysis of the conscious and subconscious factors which make up his vocational aptitude and influence his work career and environment, and so relate directly to his training. A distinguishing characteristic of the method is the extensive use made of applied psychology in the different aspects of the selection and training of workers for industry.*

NEED FOR VOCATIONAL TRAINING AT ALL LEVELS

A LOOK through the large number of articles published on vocational training might give the impression that only apprentices, young workers, a certain number of adults and sometimes also supervisory staff should be given effective

[1] See "The I.L.O. Manpower Programme", *International Labour Review*, Vol. LIX, No. 4, April 1949, pp. 367-393.

training, and that such training is superfluous in the case of the higher categories.

It is true that everyone knows that the higher categories of staff must also have training, generally theoretical, but including almost always some practical instruction as well; nevertheless, when people speak of vocational training, they have the worker in mind, or at the most the future supervisor. Most people regard vocational training as an initiation into manual work.

This conception of vocational training is of course wrong. " Vocational training " means " training for work at a trade ". Now working at a trade involves at least two main factors: the manual or intellectual and the human. The human factor is even now unfortunately all too often neglected, and this is perhaps the cause of some of the misunderstandings, difficulties and sometimes latent conflicts between chiefs and workers.

Large numbers of chiefs of all categories are trained every year, and great care is devoted to their training. The schools are constantly perfecting their methods of training and development, building laboratories and demonstration rooms in accordance with the most up-to-date technique and vying with one another in their efforts to effect improvements. Yet it is almost always forgotten that while it is true that all these future chiefs, engineers, doctors, tradesmen, lawyers, etc., must acquire technical knowledge, since they must be thoroughly versed in their art, they also require as profound and complete an understanding as possible of human nature, which will constitute an essential element in their daily work.

The technical and commercial results pursued by industry are achieved with the aid of the men working in it; and it is for men—the men who will use them—that these industrial products are intended. Yet one may well wonder whether, long dazzled by technique and its wonderful progress, we have not somewhat neglected the human being and spiritual values.

It is essential that contact should be re-established and attempts made to rediscover the human personality. It would seem that the most important part of vocational training, in its widest and loftiest sense, should lie in this search. For we shall find over and over again that the higher the post and the more numerous the human tasks of the chief—and thereby, unfortunately, the further he is

from the ordinary worker, whose work is mainly technical—the less he is able to distinguish the individual and the less he knows him, because he has so seldom learned to know him.

The chief should always be trying to gain a better understanding of his fellow men and to learn to esteem and respect them. To teach him this, to show him the value of this effort and the practical result to which it may lead, will be the role of vocational training for chiefs, and such training should be generalised as much as possible, in order to improve relations between subordinates and superiors. The vocational training of subaltern staff and of the rank and file will then no longer involve problems.

Choice, Selection, Guidance, Training

Let us for a moment consider how an occupation is chosen. How many men have become engineers, schoolmasters, doctors, etc., simply on the results of a competition, or because their fathers urged them to take up that occupation ? How many have selected their job because the family so decided, or because they were influenced by friends ? Too often chance has a hand in the choice of a trade. Real vocations are scarce and do not exceed 5 per cent.

Consequently, when chance is left to decide, most workers, at all levels, are lacking in some of the requirements of the occupation that they have taken up, and their output will therefore generally be poor—or at any rate insufficient. They will not feel equal to their work and so will derive scant satisfaction from it.

The law of probabilities is well known, but its logical consequences are generally ignored. It is clear that if any selection from a large number of objects or individuals is left to chance, half the number chosen will be only averagely suitable for the purpose in view, one quarter will be well suited, and the rest will be barely usable.

If a choice of candidates could be made with full knowledge of the facts, with full awareness of the potentialities of candidates and of the technical demands of the posts to be filled, it would be easy to find for each the work that would best suit him, in which he would provide the best output and earn the

maximum remuneration, where he could become a most useful element in the undertaking and derive full satisfaction from his work.

Unfortunately little has as yet been done; even today in numerous undertakings too little trouble is taken in recruiting staff; even in the case of young workers the process is often confined to a hasty look at the candidates and at their school record, and asking a few questions. This method is hardly ever sufficient to lead to a good choice. Selection being thus practically left to chance, individual output is often mediocre, and collective output never above average.

Another aspect of the recruitment problem is the unilateral character of the judgment. The chief who takes on a new worker always asks the same questions: "Does he suit me? Is he the man I want?" when he might just as usefully ask himself: "Do I suit him?" Few chiefs take pains to ascertain this; but many are surprised when certain workers feel ill at ease, and after a little while resign.

To choose staff with full knowledge of the facts, then, it is necessary to hold a psychological examination, the essential aim of which will be to establish the candidate's potentialities, to ascertain his capacities rather than his intellectual equipment, and to single out the main elements that make up his character. The test must provide an answer to certain questions: What will be the behaviour of the candidate when confronted with certain difficulties, technical or moral? What will be his reactions to failure or set-backs? Is he conciliating and sociable, or quicktempered and sensitive? What are his intellectual capacities, does he understand quickly and accurately, can he visualise things described to him? What is the standard of his faculties of reasoning, judgment, etc.? All these factors are undoubtedly important, along with the technical, physiological and practical factors, some of which may, clearly, be determining factors for each activity.

It might be well to point out in this connection an objection sometimes raised in relation to psychological or psychotechnical testing. Some regard it as an intolerable interference with the privacy of the human personality. Is this objection justified? The answer is, yes and no; it is all a matter of tact, delicacy and, above all, of sympathy and interest on the part of the examiner towards the candidate. If throughout the test

the candidate has the feeling of being under cross-examination and of having to wait for an insensitive and ruthless examiner to pronounce the fateful " good " or " bad ", the method can only set up reactions of fear, defence, and even vehement protests. If on the contrary the candidate from the very beginning and throughout the interview has the pleasant impression that the examiner takes an interest in him, is trying to understand him better and help and advise him, even if he is not suitable for the post in question, in short, if he feels that the examiner is to a certain extent putting himself at his service, his reaction will never be negative ; indeed he will be well-disposed towards the person questioning him and may confide in him on matters he has never discussed with his closest friends. The examiner has succeeded from the very first moment in establishing the necessary atmosphere of trust, and this is sufficient to produce an entirely positive reaction in the candidate. The problem of the test cannot be considered without reference to the question of professional secrecy and the high moral qualities of the examiner.

As the test enables a better picture to be formed which will help in guiding the candidate towards a suitable activity, it becomes not an intolerable interference but rather a boon and a benefit to the person concerned, who is thus enabled to have his psychological diagnosis established. A careful examination is a mine of useful information ; once the necessary knowledge is available, the question of placing any candidate according to his capacities is merely a matter of organisation.

Suppose that all workers and employees, from the director of the undertaking downwards, could be placed, not in the position best suited to them—for that will remain a far-off ideal for a long time yet to come—but in posts better suited to them ; there is no doubt that there would be an astonishing rise in individual and consequently collective output. Everyone would therefore earn more and would get more satisfaction from work into which he could put the best he had to give.

Human nature is so varied that an attempt to determine the gifts and potentialities of each individual would certainly be worth while in order to enable each still further to develop his personality, to advance along the road which he has been helped to choose and to play the part that suits him and that he likes in the working community to which he belongs.

Fundamental Principles of the Carrard Method

In considering vocational training itself, the importance of the work done by Carrard and his colleagues must be emphasised. These pioneers, by their application of psychological laws based on the research work of Pestalozzi and others, were able to establish a number of fundamental rules which, when followed and applied in the proper spirit, lead to surprising results. The six fundamental rules are these :

(1) Avoid abstractions.

(2) Only one new thing at a time.

(3) Sleep on it.

(4) Do not permit any elementary wrong movement.

(5) Avoid fatigue.

(6) Stimulate interest by introducing variety into the elementary exercises.

These rules, which are simple enough to express, are more difficult to apply. This is why so many imitators of Carrard and his team have failed.

It will be shown that these principles remain fundamental for all activities, but one fundamental notion should be added which covers them all, and is indeed the one essential factor for their successful application : the notion of automatic reaction and occupational reflexes.

In every kind of activity, whatever its nature, automatic reactions and reflexes are of two kinds : those dealing with the work itself and those connected with occupational safety.

Suppose, for example, that an engineer, in calculating the resistance of a part, should make a mistake with a decimal point ; such a mistake is not very noticeable if the final result is the cube root of the figure concerned ; yet this error may be the cause of a disaster. Had the engineer, from the very beginning, acquired the automatic reaction which every calculator requires and which consists in making a rough estimate of the final figure, prior to embarking on even the most elementary operation, he could not have committed such a grave error.

A turner finishing off a difficult, costly and urgent part on the lathe, wishes to put the final touches to an important and delicate screw-thread. How many times has that very part been ruined because, having prepared and adjusted his tool with great care, he cautiously places it into position, all absorbed by this final and important operation, and forgets to ensure that the dog is set up against the driving device before setting his lathe going again. Had this elementary but necessary movement become automatic from the beginning of his training, the turner could not have committed that costly error.

In the medical profession we may observe that a good doctor, who has the right psychological and professional automatisms, will by reflex adapt himself to the character of his patient, will know what to say to him, while on the other hand his attention may be drawn to some little detail of observation, some slight reaction of the patient, which may enable him to discover the real trouble, to localise its origin and to see what should be done.

If the young worker being trained to work in the mines can from the very beginning form the habit, the reflex, never to rest underground except with his face to the cutting face, he will never be injured by the collapse of a part of the cutting face—at present a frequent cause of injuries to the back.

It is needless to multiply examples ; the notion of the reflex is one of the most important to be inculcated from the beginning of vocational training. Automatic reaction must then be practised long and carefully, so that it really becomes a reaction of the subconscious. To ensure that this reaction of the subconscious is always the right one, however, the first exercise of the corresponding reflex must also be the right one, since first impressions are very lasting.

If this principle is grasped, one has but to consider the immense number of reflexes and reactions to be created for all trades, occupations and activities of all kinds in order to visualise the magnitude of the task, and especially its importance for humanity and workers of all categories.

When it is possible not merely to choose workers suitably adapted to the work they propose to do and in which they must first be trained, but also to determine and let them assimilate the main occupational and safety reflexes

connected with the task, then we shall have the best labour and output conditions. The number of mistakes and oversights, the number of wrecked machines and damaged tools—and also the number of accidents to workers—will fall to a few hundredths of what they are at present. The result will be a saving of hands, of hours of work, and of insurance and treatment costs, fewer crippled, fewer unfortunates, and a saving of raw materials. In short, everyone will be better off.

How many eye injuries are due to the fact that thousands of workers refuse to wear their safety goggles ? Oversight, neglect, indifference ? When the wearing of goggles is made an automatic reaction, eye injuries may become almost a thing of the past ; there are undertakings in which this has been and is still being proved.

Here, then, is a possibility of effecting a huge increase in individual and collective output ; and—as everyone now knows—to increase individual and collective output is equivalent to increasing welfare.

It should be added that if a man can be better adapted to his work he finds greater satisfaction in doing it. This, then, is the solution of one of the aspects of the social question —and by no means the least important. A man who does his work well, because he feels at ease in it, is a happier man ; his chiefs, too, are more content, and industrial relations improve.

Discredited Occupations

Why are there so many discredited occupations, *e.g.*, mining, casting, boiler-making, and numerous others, for which it is impossible to find volunteers ? How many training centres and workshops would be deserted if training were restricted to volunteers only, *i.e.*, to apprentices who freely choose their trade ?

There are many reasons for this ; first of all, it is well known that reputedly dirty trades are regarded as inferior and degrading. In this connection, many heads of undertakings are to blame, for they have not taken sufficient pains to ascertain whether it is really necessary for work to be done in steam or in a damp or smoke-laden atmosphere. Nor is it a question of black dust or substances alone : white can be just as dirty

and unpleasant. In one workshop women used to work on rubber in a cloud of talcum. All day long they looked like millers and their hair was powdered white. No chief had ever tried to find out whether matters could be improved. Facts proved that it was possible—and without great expenditure; the changes made, in fact, brought a saving of raw materials, machinery and labour.

In certain sugar refineries, some workers are in charge of the animal black. These workers in the end are marked for ever, for the black suspended all over the premises becomes deeply encrusted in the skin; yet means could be devised of avoiding this grave drawback.

An over-simplified solution is all too often resorted to: that of laziness and *laissez-faire*. It is found that there are men ready to do a dirty trade, which may mark them for life, or unhealthy work which in some cases actually shortens their life (silicosis, anthracosis, harmful gases, etc.), if they are paid wages above the standard. This means buying their health and their dignity; and yet there are heads of undertakings who wonder why some trades are deserted.

Again, what can be said of all the tasks which some men do every day and which others are made to do as a punishment? In training workshops for apprentice fitters, an instructor may often be heard angrily threatening one of his trainees that he will " put him on to casting " unless his work improves, as if the trade of caster were easier to learn than that of fitter, and as if to be transferred to another job were a form of punishment. The case may also be quoted of the young apprentices who, by way of punishment for misconduct, were set to work on the undertaking's building yards, in the rain. The reaction of the workers normally occupied there, on seeing this new kind of " chain-gang " arriving, may be imagined. That their work should suit them, and indeed that they should actually like it, despite such blunders on the part of some of their chiefs, is astonishing.

Vocational Training Proper

It can be seen that vocational training is something much more general and extensive than is commonly supposed. We have stated above that all training should involve two main

elements, the manual or intellectual and the human, and that the human element is of the utmost importance. It is, therefore, obvious that vocational training should apply first and foremost to heads of undertakings, since the higher their position, the more essential does the human element become. To carry out such training is an enormous task, but every chief who realises his responsibilities owes it to himself to help in its achievement.

Training of Chiefs

The aim of such training should be to enable the chief to gain a fuller understanding of the human being. He must recognise the respect due to human personality and the moral and spiritual values attaching to it. The full importance of the notions of service and responsibility must be emphasised. Finally, the element of enthusiasm should not be neglected, nor the study of matters related to the development of picked workers, or the development of the personality of the individual and the group.

The methods to be employed should include, above all, psychological training as a part of the course ; such training is at present still in an embryonic stage. As regards practical training, numerous courses have already been organised, during which chiefs of undertakings, in groups of 15 to 20, have the opportunity to meet together for three or four days and exchange experiences and, with the aid of the course leader, seek the fundamental laws of psychology, ethics and the main rules governing leadership. These exchanges of experience are most instructive ; sometimes men in the highest positions discuss failures they have encountered in order to discover to what these were due, and to do better if possible.

The results of such meetings are, of course, extremely varied. They depend mostly on the personalities of those taking part and also of the leader. Generally speaking, those participating receive as much as they themselves contribute. This is an old law of the psychology of meetings. There is no doubt, however, that a number of striking results have been achieved : a better understanding of subordinates, a change in the manner of recruiting, a realisation of the need to delegate powers, to decentralise, to entrust responsibility to

others, to take initiative, to shake off the shackles of egocentricity and to become, in Vinet's phrase, "the servant of all". Men have been known to change outwardly, too. Men who until then had deemed it necessary to adopt a distant attitude, sometimes haughty and curt, quite out of keeping with their true character, found that it was much simpler and preferable to appear as they were, and to remain natural before their subordinates. Others gradually rid themselves of certain forms of nervousness or ill-humour, and observed that among people working in close contact with a chief anger is very often taken as a sign of weakness.

Several courses have by now been organised in Switzerland and France; there should be many more of them, so that all chiefs of undertakings and employers may attend such meetings from time to time. In France, the Young Employers' Association *(Association des Jeunes Patrons)* has done good work in this direction. Other groups are following suit. The entire value of these courses lies in the spirit that informs them, and in the effective contribution of those taking part.

Training of Managerial Staff

In the training of managerial staff, the aim is to find out, by means of an exhaustive review of the existing situation, the reason for tension, difficulties and misunderstandings. The subordinate chiefs, who are in daily touch with the staff, likewise have usually only the vaguest notions of psychology. They must be made to understand the disastrous consequences of the shortcomings of too many chiefs. They must realise that the ordinary worker for the past few decades has more and more gained the impression that he has been deprived of personality until he has become a mere cog in the wheel of production. The training of managerial staff should tend to develop personality, to train leaders of men and liaison officers between departments.

The methods to be employed in this case also are the fullest possible psychological initiation, beginning with the stage of technical training; but at present such initiation is still practically non-existent. The example might be quoted of the engineer who said: "On leaving our training schools

we had the title of engineer and were placed at the end of some 200 or 300 men; we held the rank of officers with a section to command, but we had not yet seen either mine or barracks". It is true that progress has been made since that engineer left the training school, but the work yet to be done remains immense if the result is to be that many chiefs are to be chiefs in anything besides name.

A considerable effort has already been made through the organisation of study courses for chiefs, in which numerous Swiss undertakings have allowed their staffs to participate. In this connection, the effort of the French National Coal Board should be mentioned; every year since 1945 the Board has arranged a large number of courses for engineers, service chiefs and directors. Some 18 to 22 persons attend these meetings, which last from five to six days. The courses are, as much as possible, held well away from the place of work, so that those taking part may be completely free of their family environment and occupational concerns.

At these courses important aspects of psychology are studied, and the main problems facing chiefs and subordinates are tackled by the participants, who work in teams; experiences are also exchanged. Every one taking part thus gets an opportunity to make a serious examination of his past conduct and to see in what way he should improve his contacts with those around him, especially his colleagues. He discovers the need for a better observation of his fellow workers in order to get to know them, and of himself in order to overcome certain defects which he has perhaps hitherto regarded as qualities. He learns what should be done to improve the character of others after he has studied his own; how he can become a more stimulating and active member of the working community to which he belongs; what he should do to encourage those around him to take pride in their work; finally, he may consider how he may be of greater assistance to his chiefs.

At this level much more marked results have already been achieved. Generally, chiefs who have attended such courses have made real discoveries about themselves: for example, they have understood that calm and poise are much better than irritability, which is so often a source of pride to chiefs; that the chief who tries to appear important invariably

fails in his object, for only the man who shows himself at his true value really impresses; and that the duty of a chief is to " lead his men to their destiny ", as a great French director put it a few years ago. There are not many who by the end of such a meeting have failed to realise the vastness of their task as leaders and the crushing responsibility of the leader when he realises that, as Lyautey put it, he is " in charge of souls ".

Training of Supervisory Staff

Before considering how the training of supervisory staff is organised and how it should be organised, something should be said of the methods of choosing supervisors in most industries.

Whereas in all armies, for centuries now, non-commissioned officers have been chosen and trained with particular care, it is curious to note that in industry all too often the overseer or foreman has been promoted to his position simply because he is a good worker, skilled in his trade. Of course the criterion of proficiency alone is totally inadequate.

The characteristics required of a good foreman are numerous: requirements of a sensory, motory and intellectual nature, as well as the personal characteristics which, as we have seen, are always essential. It often happens, in fact, that the skill and steadiness of hand of a worker, as well as his intellectual gifts, appear to single him out for precision work, whereas his character makes him quite unsuited to such work because he lacks accuracy or sense of discipline, or because he is not sufficiently persevering or conscientious.

One of the principal traits of the good worker who is conscientious and reliable is concentration; he should be able to concentrate on his task to the exclusion of everything else, so that all his faculties are attuned towards the perfect execution of the work he is doing. On the other hand, the chief characteristic of the supervisor should be his power to think of all the various tasks his men are doing, of knowing when he will have to be with one or another of his workers, to go to his aid at the very moment when he will need it. Whereas the good worker " lives " only his own work, the good supervisor constantly " lives " the whole of the work going on in his workshop; in addition to a gift for organisation, he requires the gift of being able to disperse his attention.

From these remarks it will be clear that a good supervisor very often would not have made a good worker, and that a good worker seldom makes a good supervisor. Thus, appointing a good worker to be supervisor often means another average or inadequate foreman while a good worker is lost to the undertaking, which does not help anyone.

It may, therefore, be concluded that the selection of supervisors has led and still leads to many mistakes ; but the method employed to train and appoint the new chief is even more questionable, since although he may sometimes have replaced the supervisor whose post he is now to take over, he has received no effective training. Only yesterday he was still a worker or working foreman; today he is the overseer. Where things are done with some little decorum, the works manager introduces him to his functions by collecting the workers of the service together and informing them of the decision taken, explaining that Mr. X will henceforth be their chief.

Only when chiefs of all grades become a little more aware of the mistakes made on the occasion of such nominations and take steps to put them right will it be possible for supervisors to receive effective training and enjoy real authority, which will be readily acceptable to their subordinates.

The present writer, on the occasion of courses organised to give rapid training to young workers who will one day become foremen, often heard one or other of the trainees remark : " My employer wants to make me a supervisor, but I have not yet decided whether to accept or not ; so far I have been on good terms with my comrades, but as a supervisor I should have to side with the employer against the workers". This conception is still too widespread, and often hinders the recruitment of supervisory personnel and makes it a risky matter ; it also shows how wrong is the attitude of a large number of chiefs towards their workers.

Another reason for present difficulties in regard to the recruitment of supervisors lies in their material position. The various more or less official regulations, the various " codes " adopted in recent years and the fact that for the past five or six years workers' wages have been practically the only ones to be adjusted to conditions, have resulted in such a levelling that supervisors hardly earn more than their workers—in some cases they earn less—so that a supervisor's post holds out

little attraction from that point of view. Finally, too many chiefs do not hesitate to administer violent reprimands to the supervisor in the presence of the workers, thereby jeopardising what little authority he may have. It is not surprising, then, that the workers best qualified to act as supervisors should not be at all eager to apply for such posts.

It should not be forgotten that an undertaking is as good as its supervisory staff, just as a regiment is as good as its non-commissioned officers. The supervisor is responsible for output, he is always in touch with the workers, and it is through him that the man in the ranks sees his chiefs, the workshop and the factory. It would therefore be well to devote a good deal more attention to the selection of supervisors and to see that they are trained to become a picked body of men, capable of leading, directing, developing and assisting the staff under their supervision. Too often promotions are made to fill a gap, and without due regard to the immense importance of a suitable selection of the supervisory staff.

Efforts have been made, however, to remedy this state of affairs. One example is the founding of the School for Supervisory Staff at Winterthur (Switzerland), a school organised under the aegis of the Swiss Association of Employers in the Engineering and Metal Industries. Three years ago this employers' association, aware of the defects in the methods of choosing and training supervisory staff, set up a school in which future supervisors undergo three months' training in human relations and technical subjects. Each session begins with a week of discussion, during which human problems are considered in detail. Some notions of leadership, individual psychology and the behaviour of the chief are discussed in the course of very full exchanges of experience, in order to develop from the beginning in future supervisors the notion of man, his needs, hopes and fears. Thereafter, during the twelve weeks devoted to technical training, a weekly discussion hour enables them to come back to certain questions in detail, thereby increasing the psychological equipment of the trainees. Organised on such lines, this school for the training of supervisory staff is yielding very interesting results.

These few remarks and the example enable us to define more explicitly the question of the training of supervisory staff.

Once the technical and psychological knowledge necessary to the supervisor has been defined, steps must be taken to ensure that supervisors acquire such knowledge. There will be two separate tasks : to train existing supervisors and to improve the selection and training of future supervisory staff.

The ways and means will be easy to determine. For the former task, training courses for chiefs, intended more especially for existing supervisors, will make it possible to teach them better methods of command and to show them the attitude to adopt towards their men.

To improve the choice of supervisory staff, psychological diagnosis should be resorted to more frequently. Training should be developed and completed by the organisation of schools, special courses, study circles at industrial, vocational, corporative and regional levels, etc.

In order to get the full value from these various methods, arrangements should, in the writer's opinion, remain as far as possible private in character, since industries and undertakings themselves are best qualified to know their own requirements.

The present writer has organised and directed numerous training courses for future supervisory staff. These courses, lasting two weeks, make it possible every morning to recapitulate certain ideas, first theoretical, then more technical and vocational, in character, while the afternoons are always set aside for the study of psychological questions, problems of command being considered from the standpoint of the subordinate. Discussions are held on questions such as : " What difficulties have arisen on a given subject between you and your chief ? Why did he act as you say he did ? What was your own reaction ? How do you think your chief ought to have acted ? What would you have done in his place ? " etc.

Human questions and difficulties in connection with command, seen from that angle, always lead to the most lively and instructive exchanges of experience, because every trainee is ready to take part in the discussion, and enliven it with personal experiences ; the leader of the course then has every opportunity to bring out the fundamental laws that govern human reactions.

Very positive results have been achieved ; all who have attended such courses, both present and future supervisors,

have a clearer idea of things, and, with very few exceptions, afterwards try to put the ideas into practice. The effective results, of course, vary according to the individuals. But every one makes an effort ; and this is what matters most.

There is, however, one point which cannot be too much emphasised. To enable this work with supervisors and future supervisors to bear fruit, at least three colleagues from each undertaking must take part in the same session ; it is also important that their chiefs should themselves have received training and have attended similar sessions, so that they may give them effective help in carrying out their task.

Exchanges of supervisory staff between factories are useful. Under this system, the newly trained supervisor receives his baptism of fire and puts his newly acquired knowledge into practice in another workshop, and returns after perhaps a year to a new post in his own factory after gaining most valuable technical experience and experience of command ; by that time he is already a leader, his authority is established and his standing among his men is quite different.

Training of Apprentices and Adults

How often have employers or directors been heard to declare that the training of apprentices, and often that of adults, is not worth while, because it costs a great deal and because workers tend to look for a job elsewhere after they have been trained ?

It is true that a number of chiefs of undertakings take a very different view. The present writer has had occasion to collaborate with some such employers in establishing conditions for apprenticeship that were not unduly expensive. One of these employers expresses his satisfaction and stresses that he " could no longer imagine his factory without the training workshop, which has become extremely useful, and is now an integral part of the equipment and production workshops ".

In other words, it is possible to organise apprenticeship in such a way that it costs nothing and actually constitutes a productive element. The apprentices learn a great deal and they learn it quickly, and they reach the point where they can give real service ; they acquire experience and become

useful collaborators in the undertaking while serving their apprenticeship. Feeling that they are no longer a source of expenditure but rather that they can now take part in the production and development of the undertaking, they work with renewed enthusiasm and interest.

The purpose of the training of apprentices—and also of adults, though to a lesser extent—is to develop the chief talents of each, and make each as useful a member as possible of the working community to which he will subsequently belong.

It is necessary to stimulate in the trainee the desire to work well, to succeed, to assert himself, and to become a capable force. Gradually, his personality should be developed and he should be given such training, in accordance with his potentialities, as will assist him in making his way. Naturally the training should be based on a reliable psychological diagnosis. It would clearly be a waste of time to devote much effort to training a young man to be a fitter-mechanic if he is suitable for study but devoid of manual skill. Such differentiation is important; for example, although there are certain faculties which are essential to the caster as well as to the fitter, these two trades show profound differences in terms of other kinds of technical skill.

There are a number of principles which should be applied in the organisation of training; only the most important are mentioned here.

The question of premises is of first importance. It is important that the trainees should have the feeling that the undertaking has gone to some pains to ensure that they receive their training in good material conditions. It appears that apprentices are frequently installed in any part of the workshop that happens to be free, without any consideration as to whether or not such a spot is convenient. In principle, when a workshop for apprentices can be organised—and that is worth the trouble if three or four apprentices are signed on in one year—a separate room should be set aside, where instruction is not hindered by noise from the other workshops, and where other workers cannot see what is going on. The apprentices and the instructor must feel at home. The equipment of the workshop and the study premises are, of course, an important factor.

Particular attention should be paid to the choice of the instructor who will be entrusted with the great task of training " the rising generation ". Often an old supervisor or worker is placed at the head of the apprenticeship service, perhaps because he is a good worker and his employers are not quite certain how to employ him. It is not implied here that these veterans can no longer be of service ; on the contrary, they can be employed on tasks in which their qualities find a rational and profitable outlet. But they should not be entrusted with the training of apprentices. It is true that striking examples may be quoted in refutation of this statement ; generally speaking, however, an old worker or foreman cannot easily understand young people, or place himself at their level. The post of instructor of apprentices should be set aside for young men between 25 and 30 years of age ; it should be regarded as provisional, a post in which future chiefs with a gift for teaching will have to win their spurs for a period of four to six years, after which they may become supervisors or production specialists. To be selected as instructor of apprentices should be a first distinction, a first stage along the road to promotion. For this post capable and enterprising men are required, selected on the basis of psychological diagnosis.

At the beginning of the present article the principles and methods of training were considered whereby success can be assured ; we revert to this theme only to stress its value and the need to apply these principles in full. It should be added that a very powerful educational factor is, whenever possible, to give the pupil opportunities to check his own precision and the quality of the work he is doing.

In this way the results which may reasonably be expected of such methods are achieved without difficulty. In fact, these principles of training are general, and there has been occasion before, during and after the war, to apply them to the training of apprentices and adults in the most diverse trades : from shipyard smiths to paper-makers, from chemical workers to naval designers, from weavers to electricians.

The most noticeable feature is the rapidity with which the various features of the work can be assimilated by the pupil. From the very first days there is distinct, indeed amazing progress, so that within four or six months the apprentice is

in a position to do work of as good quality as a good workman. The rate of output, on the other hand, develops more slowly; this is quite normal, for the apprentice after six months of training has not become a man; he still needs physical development and strength which he will not acquire until he reaches the age of 18. The remainder of the time devoted to apprenticeship—and no reduction of its duration could possibly be considered—the apprentice could devote to doing gradually more difficult productive work, which will enable him to enrich his experience.

It is essential in a well-planned course of apprenticeship—and this is the characteristic feature of the Carrard method—that the trainee should gain the impression that whatever he learns is easy to assimilate. The apprentice should feel, while accepting the advice and guidance of his instructor, that his faculties are developing and to a certain extent becoming instruments over which he has perfect mastery. He must realise from the beginning that no exercise, even the most elementary, is unnecessary, but that each is intended to help him to advance nearer to the degree of perfection that he is anxious to achieve. He then very soon understands that, with careful guidance towards the type of work that is best suited to his own faculties, he can make rapid progress. The more talented pupils are instructed to assist their less favoured comrades; comradeship and team spirit thus develop. The instructors' efforts should be entirely directed towards making their trainees into personalities, well-balanced human beings, capable of clear-sightedness and enthusiasm. But to do this, clearly the instructors themselves must have true personality.

Conclusion

In the course of this study we have endeavoured to show first of all the need to insist on the human aspect of all vocational training, whatever its nature. Man—particularly the chief—fascinated by the technical aspect, does not yet devote sufficient attention to his fellow man and the conditions of life in which the latter lives and works. The mass of workers, on the other hand, are unduly inclined to disregard the efforts of the employers, and have lost sight of the fact that only output,

especially human output, can bring well-being. It is easier to obtain such human output when everyone is given the chance to find and assimilate the form of work that is best suited to his potentialities, and so to become an efficient member of the community.

It is also striking to observe to what extent the spirit of criticism has disappeared from our public and individual lives. The individual often no longer reasons but lets himself be swayed by any slogan. This reaction may be normal for the community ; it is not normal for the individual. The cause may lie in the too intellectual and insufficiently human character of present-day training, which often appeals especially to the intellect and the memory while neglecting numerous desires and ambitions of the individual.

We have seen that praiseworthy efforts have already been made to remedy this state of affairs, and to bring about the " return to man " which appears essential. These efforts must be pursued, and the human being must again be given his value and importance. It is essential that all chiefs should be brought to reconsider their tasks as leaders and inspirers, and to rediscover their responsibilities as a whole, together with the scope and difficulty of their mission. If those chiefs and employers who are alive to their duties and those of all their fellow workers (and there are already many such) decided to revert to human training in their undertakings, and further improve it, then vocational training in the general sense of the word would make great strides.

Vocational training must help to restore spiritual values and enable every man to be proud of what he is, what he knows and what he can do. At the same time it must prepare men for the struggle for existence. Sound, rational and organised in the individual undertaking—for only at that level, in the writer's opinion, can it offer its full advantages—it will prove an essential element of social peace and of happiness in work.