

efforts were spasmodic and scattered, and the result has been that the average of skill in work throughout the community has not been good.

This is not a popular statement to make, but the more it is examined the closer I think it will be found to accord with the facts. There are, of course, numbers of very skilled workers in Australia—but it would be a miracle if we found the average to be satisfactory, since we have taken no really systematic steps to produce the skill.

If the State requires a good blacksmith, a skilled draughtsman, a good cook, bricklayer, farmer, painter, printer, tailor, or a hundred others, it must provide the means for training them, and must see that they use them. They will not come by any magic, and no one, I fancy, will venture to argue that during the last twenty years this State, or this country generally, has set out to insure that all its workers are effectively trained for their labours. Although many efforts in the direction of technical education have been put forward, the movements have been fragmentary and have only touched a small fringe of the population. The sums expended for the purpose have been meagre when compared with the magnitude of the task the country undertakes when it determines to train its workers.

The Cost of It.

I can remember a time not so many years ago when an official in the Public Instruction Department was thought to be scarcely speaking seriously when he proposed that the amount spent per year on technical education should be increased from its then figure of £30,000 a year to its present one of about £70,000, and yet what paltry sums they both are when compared with the total income of the country, and when it is remembered that

the work which has to be done is to educate a great proportion of the population for their definite life's vocation.

This poverty in expenditure on technical education is not due to any desire to stint education in general in this State; the figures of the present year's estimates would at once dispel any such idea. The Public Instruction Department of New South Wales is spending approximately $1\frac{3}{4}$ millions this year on education, a sum which shows the intense belief which the people and the statesmen have in the value of education; and the extraordinary smallness of the sum devoted to technical and industrial education is merely an indication of the general lack of appreciation of the necessity for such training. One incidental advantage will ultimately result from the fact that we spend such a large proportion of the total sum on primary and secondary education in so far as no scheme elaborated for the purpose of training men for industrial callings could be of any real value unless it was based upon a thoroughly sound scheme of primary and secondary schools. But admitting this, it is none the less a matter of vital urgency that Australia should take up the problem of definitely training its people for these industrial callings in which, as a matter of fact, they spend their lives, and in which only skill can make them equal to meeting their competitors in other lands.

Technical Education.

I make these remarks chiefly to give me the opportunity now of stating that the problem is at this moment being seriously attacked. It is probably not generally known that for the past two years the Director of Education and the Superintendent of Technical Education, with the carefully-considered advice of the leaders of all the engineering and industrial callings, including amongst these many representatives of the Trades Societies, have been engaged in a most strenuous way, endeavouring to

find, and I venture to think successfully discovering, a scheme of national training for industrial enterprise whose scope should be as wide as the State itself.

It is partly based on the method which was already in progress of development in Queensland. The problem in New South Wales is a much more complicated one owing to the larger number of individuals concerned, and to the fact that we already had in existence a fairly numerous series of Technical Colleges, whose plan of organisation had proved to be quite inadequate for the work in hand.

Gentlemen, it is my sincere conviction that no more important enterprise has ever been undertaken in this country than this present effort to prepare our people in the most efficient way for the actual work of their lives. I don't propose to go into it this evening in any detail, as I trust that during the coming session we may be able to obtain a full statement from Mr. Nangle, as to the methods being adopted, and that we may have an opportunity of discussing them. But there are one or two features about the plan to which I would briefly refer.

How to Make a Tradesman.

It has been a reproach thrown against the Technical Colleges in the past that "you can't make tradesmen that way," and possibly there has been some justification for the reproach in the past; but, believe me, we will never fill this country with skilled workers unless we set out to systematically train them. Although we still have a limited number of apprentices in our workshops we have tacitly agreed with most other nations that apprenticeship as a system of instruction is dead, and we have virtually abandoned it as a system, but have substituted nothing for it. Don't for a moment suppose I am under any delusion that Trade Schools and Technical Colleges can produce the finished craftsman. Experience in the

workshop is absolutely essential; but it is even more true that all the knowledge that is capable of being systematically imparted to the craftsman can, under modern conditions, only be effectively obtained in institutions devoted to that purpose and the point which has to be imperatively insisted on, is that these institutions must be so organised and equipped that they really are capable of giving the instruction required.

If, for example, a high-class, well-equipped machine-shop, run on modern economical lines, is necessary in order to give this systematised instruction to, say, the would-be fitters and turners, then the conclusion is self-evident that such a shop must form part of the Technical College or Trade School, no matter what it costs.

Now these two arguments are the starting point of the method that is being worked out in our midst. If a youth wishes to be trained in the Technical Colleges he must enter, or already be in, a shop or works where he will be gaining the necessary general experience, and all the efforts of the classes at the various colleges and schools will be aimed towards this definite goal, viz., that the combination of the systematic instruction in the classes and the experience in the workshop taken together, shall make up such a training as those most skilled in the trade, whether as employer or employed, recognise to be the equipment of a really skilled craftsman.

But in order to insure that the work of organisation shall produce this skilled man, and that he will be recognised as such at the conclusion of his period of training, it is obviously essential that everything be done with the full concurrence and support of the wisest men in the particular calling, including always in this, of course, the men who have to do the work as well as those who employ them.

The System.

A very notable step in this direction has been taken by our Department of Public Instruction. Associated with the Technical College, there are numerous permanent committees appointed by the Governor-in-Council, whose business it is to intimately advise the Superintendent of Technical Education and his staff, on all matters affecting the training of tradesmen for the particular calling. These committees contain amongst their members, official representatives of the individual Trades-unions and Societies, and of the employers in the particular industry. A large number of these committees has already been seriously at work planning the syllabus of instruction, advising as to the appointment of teachers, the equipment of workshops, classrooms and laboratories, the appointment of examiners, and other similar matters; and one of their chief responsibilities will be to see that no certificate is issued to any student at the conclusion of his course who, in their opinion, by his combined experience in the workshop and his attendance at classes, has not obtained such a skill as would properly entitle him to enter the trade or calling dealt with.

The number of groups of trades already covered by this scheme is thirteen, and they will be added to, from time to time as necessity requires, while the total number of those working in the various committees is at present one hundred and twenty-nine. I think this is a most notable beginning, and the matter is one well worth the serious and continued attention of this Association.

It will, of course, involve a heavy expenditure; much heavier than anything which has yet been contemplated, and I trust that the members of this Association will lend their influence to encourage the most lavish expenditure. A sum such as we are now devoting to it—approximately about £70,000 a year—is hopelessly insufficient when the magnitude and importance of the task are considered.

Within the next few years we should be spending at least £200,000 yearly for so great a purpose, and it must of course be an ever-increasing sum. In this matter there can be no question of whether we can afford it or not. One result which we may confidently hope will follow from our experience of this war is that it will be recognised that there are certain expenditures that are imperative, and that of these, this is one the return from which is incalculably large.

Worth the Cost.

A great point which everyone interested in the matter should endeavour to make is that the expenditure should not be grudgingly allowed, as if it were for some dubious charity, or in deference to the clamour of a section of the community, but that it ought to be entered into with the whole-hearted support of every enlightened citizen who desires that this people should gain and keep its proper place in the community of nations. To argue that the country cannot afford the expenditure necessary for such training, or to express doubts as to the ultimate result of such training, is as irrational as to affirm that a farmer cannot afford the seed with which to sow his land, and has not the patience to wait for the appearance of the harvest.

If anyone had told us two years ago in Australia that we should be spending £70,000,000 this year on the Department of Defence, he would have been regarded as a lunatic; but when the necessity arises, and it is a case of our national existence, the money is, of course, forthcoming. The situation is none other as regards our national training and education. This is the greatest effort we can make towards supporting the real life of our people, and yet I suppose if we were to form a deputation and ask the powers-that-be to expend, not £70,000,000, but £7,000,000, not in the next year, but spread over the next ten years, we might still run a risk of being regarded as mere visionaries.

But ideas are rapidly changing, and we are beginning to see that it is not merely armies of soldiers that constitute the real menace in these days, but the hosts of scientifically-trained directors of industrial enterprise, the armies of intelligent mechanics and artisans. Although in the days of peace, which we yet hope to see, all the nations may, in the words of an ancient writer, "Turn their swords into ploughshares, and their spears into pruning hooks," yet, while the spirit of competition still remains, the weapons, even in their tranquil disguise, are just as formidable.

The Only Defence.

The only defence in this kind of strife is to reply to action with action; to meet education with training; and excellence with yet more.

Gentlemen, do I appear to unduly labour the question of education when discussing the affairs of this Association? Interpreting "education" as the whole preparation of a people for its work and place in the world, it is impossible to over-emphasise it, or to compare anything else with it in importance.

Our Opportunity.

We live here in a land of illimitable material possibilities; a land with every variety of climate and soil; with a supply of fuel that the most extravagant methods could not exhaust in a thousand years; with a store of hard-wood timbers that constitute one of the wonders of the world, however ruthlessly we waste them. With gold and iron, copper and lead, metals and minerals enough for the world; with a people as enlightened as they care to make themselves; with a constitution free and untrammelled. Was there ever such a country, or such an opportunity, or such a need? But the development of all these unmeasured possibilities will not come by any magic, and on its material side the whole de-

velopment depends on the Engineers, the technological experts, the architects, the surveyors, the craftsmen, the workers of every degree.

Australia has its peculiar, and what at times seem to be almost insurmountable, difficulties. Chief among them is the small population endeavouring to develop a country bigger than the whole area upon which the world's armies are fighting—a difficulty this which the war will only increase. So few people and so much to be done would seem to indicate that only by all the population working hard, and working very efficiently, could it be accomplished. Now, it is rather doubtful, I venture to think, whether or no we like working hard.

A Popular Ideal.

A distinct ideal of a great section of the community is that there shall be short hours of labour, high rates of pay, and a limited number of workers and a limited output by the workers. In so far as these desires imply a determination to prevent sweating and civilised slavery, and the maintenance of a decent average of living in the community, they must command the support of everyone—in fact, they do—but it is obvious that these ends cannot be achieved by enactments of Parliament, or decisions of Industrial Courts. The only possible means of making such schemes practicable is an extremely high efficiency of the workers. This country in truth cannot afford to have inefficient labour in its midst. But it is my honest conviction that we do not work enough to pay our future bills.

Without denying that short hours are pleasant, it is not possible to accomplish in a few hours what the workers of other nations achieve in longer hours. The tendency, however, seems always in the direction of making them shorter and shorter. Further, it is no exaggeration to say that the pastime that goes by the name of "week-

ending," and the practice of which a few years ago was a mild reproach to some of the well-to-do classes, has now become, if not a general habit, at least a very general desire.

Whatever be our opinion on that matter, none can deny that the only way of compensating for short hours of work is by high efficiency of the worker. Thorough-going efficiency, the adaptation of means to ends, is what is perhaps most lacking to us at present in our national life, and is the goal towards which our efforts should be made to press.

The Weapons of Germany.

What are Germany's **real** weapons in this terrific war? What is it that makes the German people dangerous to us as a nation? It is not 42 cm. guns; it is not new types of submarines; it is not even poisonous gases. But it is their efficiency and their national education—even if these have been prostituted to unworthy and material ideals. It is their energy and thoroughness; it is their devotion to causes; and it is their untiring efforts in the direction of industrial and technical training.

These are the weapons against which we have to summon all our resources, and it is to this cause that our Association is committed.

Conclusion.

In handing this honourable position over to my successor, and the work of the Association to the newly-elected Council, I desire to wish him and them an increasing achievement of the objects for which we exist. The time of war is the time to accomplish many things that are difficult in the days of peace. Let me, in conclusion, quote that splendid passage from Ruskin's address on "War," delivered half a century ago to the military cadets at Woolwich. He had been telling them

that he had discovered in history that war was the foundation of all the arts and of all the high virtues and faculties of men, and he goes on—

“It was very strange to me to discover this; and very dreadful—but I saw it to be quite an undeniable fact. The common notion that peace and the virtues of civil life flourished together I found to be wholly untenable. Peace and the **vices** of civil life only flourish together. We talk of peace and learning, and of peace and plenty, and of peace and civilisation; but I found that those were not the words which the Muse of History coupled together; that, on her lips, the words were: peace and sensuality; peace and selfishness; peace and death. I found, in brief, that all great nations learned their truth of word and strength of thought in war; that they were nourished in war, and wasted by peace; taught by war, and deceived by peace; trained by war, and betrayed by peace—in a word, that they were born in war, and expired in peace.”

May this new war-birth come to our Association, to our great profession, and to our beloved country.
