

## PART II.

## PAPERS.

20TH DECEMBER, 1888.

## ADDRESS BY THE PRESIDENT.

A. D. NELSON.

In taking the Chair to-night for the first time as your President, I feel it my duty to return sincere thanks for the high honour you have conferred upon me by electing me to this distinguished position. The Presidency of the Engineering Association of New South Wales is a position any man may be justly proud of. I can assure you I appreciate the honor, and while occupying this Chair I will do my utmost to increase the prosperity and usefulness of this Association.

Accepting then the office with a full appreciation of the honor you have conferred upon me, I start upon the work of the year with a full assurance of your support in all I may undertake in promoting the best interests of our Association, and of your forbearance should my aims fall short in their realisation of my endeavours and your expectations. However gratified I may be with the honor you have conferred upon me, I feel equally so, in being able to report to you that our Association not only continues to retain its prestige, but has increased during the last year. The joint action of your Council in their various efforts to place the Association on a sound financial basis have been successful, and it is a pleasure for me to state that the expenditure is now below the revenue. But while it is gratifying to record these facts, it is my painful duty to record that during the past year we have had removed from our midst, by the hand of death, two of our members,

Messrs. G. A. Morell, and W. Grant. The former gentleman well known in engineering and architectural circles, one who has left behind him in many of our buildings monuments of his ability, one who was esteemed as a citizen and a friend by all who knew him. The latter gentleman for many years carried on the business of a boiler maker in the city, and was personally known to almost every mechanical engineer in Sydney, and whose good qualities were appreciated most by those who knew him best. These gentlemen were connected with our Association from its early days, and took a keen and lively interest in assisting to bring it to the position it now enjoys.

The position this Association holds before the public is due to the efforts of the members, in a measure, individually. It is evident that whatever efforts I may make during my term of office to increase the prosperity and usefulness of the Association would be, without your hearty co-operation, quite futile. I feel that the duties which I have entered upon to-night will be pleasant ones, and I trust during my term of office members will take into consideration that however deep an interest I may take, or the Council may take, in the Association, I must have the hearty assistance of the members individually to bring things to the successful issue we aim at.

It is the duty of every member of the Association to do all he possibly can to disseminate whatever knowledge he may be possessed of. It matters not whether it be a subject of very great importance to the engineering community here or if it be one of minor importance, each will be accepted alike and duly appreciated by our Council, whose duty it is to provide food for the mind at each monthly meeting. If the members keep this before them there is no doubt the Engineering Association of New South Wales is destined to be of considerable use in the future of this colony, if not as a body, each individual member in their various spheres will play an important part in this as in all young colonies where it is necessary to have large and important engineering works carried out. If it is necessary for engineers to play so prominent a part in the rise and progress of this young country, then it is evident they must

work in conjunction with the ruling powers of the colony. It must therefore be manifest to all present that it is to the interests of the Association and the community as a whole that the rising generation, who are destined to fill the places occupied by us to-day, should receive every consideration from the Government. This brings me to the question of *Technical Education*.

The Technical College is an institution which no doubt all of you are aware is founded in the city, and one which is doing really valuable work in teaching during the evenings our young men who are engaged at various occupations in the day time, and while I am prepared to admit it is doing a remarkably good work, still I have no hesitation in saying it is absolutely necessary for the Government to give greater consideration to this important institution. It has been intimated publicly that it was the intention of the Government to make some serious alterations in the manner in which the institution is to be conducted in the future. I sincerely trust whatever alterations they do make in its management, that they will see their way clear to obtain men who are thoroughly qualified from a practical point of view, men who have passed through various spheres connected with the different *industries* and who are qualified to guide and assist the students in the college. I am sure you will all agree with me that it is a question of very great importance to the future of this colony, and one that every engineer would be pleased to see placed upon the best possible foundation. There is a great diversity of opinion, I am prepared to admit, with regard to the best system of teaching, and we have instances where various systems have been adopted in different parts of the world, and the results made known to us. I find that until recently France has led the world towards solving the problem of Technical Education. The reason was not only on account of their system or the greater advantages given to the students, but it was also owing to the fact that a system of selection and examination was adopted. Even at a very early age children all over the country were, so to speak, sorted and re-sorted until they had arrived at the age of sixteen years. Then they were definitely classified into sections adapted for the various professions, and were then sent

to the different technical schools, supported by the Government, to be trained, and after graduation were again selected, according to their ability, for each profession. Such a system raised education in France to the highest point ever reached, and produced some of the most profound thinkers and investigators that have ever been known. All education should tend to the development of the reasoning faculties in such directions and in such ways as to enable men to rapidly determine what truth is, and if the ear, the eye, and the hand have been trained properly, the knowledge and experience will give him the power to apply it, and as such an attainment is a matter of the highest importance, it is the duty of the Government to give it their best consideration.

As engineers we take a great interest in anything new in connection with any branch of engineering and feel a pride in examining new ideas, or listening to detailed accounts of engineering works being carried on in other parts of the world. It is to engineers the world owes the rapid means of transportation, the building of railways, bridges, canals, and the different automatic machines and other appliances, which by facilitating or reducing the amount of human labour to be expended, and by utilising the great forces of nature, have assisted the present progress of the world. Therefore, I hold the engineer's education is a matter of great interest and importance to the whole of the civilized world. And I think that keen discussion upon every question or theory upon which their education can be based should be of the utmost importance to the Government. In most schools a procrastinating system is adopted; all are made to advance as in one general plan, the quick and keen held back, and the slow dragged on at a pace too great for their power of apprehension. This should not be. The practical work of education should be to place within the scope of the intelligence of the boy such facts as can be retained, and which are consequently more or less interesting to him. By this means a natural or true education is obtained, and an education of this kind brings about the harmonious growth of the whole man, and not the development of one or two faculties only. I will no doubt at some future time call your

attention to what I consider to be some of the defects and advantages in technical education as practised in this colony.

There are really many questions I would like to touch upon in my address this evening, but time will not permit me to do so to the extent I would feel disposed. When we take into consideration that Australia is entirely in its infancy, and that we have still to build up a nation, of which we have but laid the foundation only, it will be the duty of those who follow on in our footsteps to carry on whatever works we may have left unfinished. And to the thinking man who takes more than a casual glance around him, and observes the numerous channels, the various paths and grooves which have to be regulated, added to and built up, it is very evident to him we want not only thinking men, but men who are capable of putting their thoughts into practical form.

We have yet to grow sufficient grain for our present population and for millions more who will eventually settle upon this soil. Here then is a channel for the practical man. It is absolutely necessary on account of the uncertainty of the seasons that we should irrigate; this requires engineering, enterprise, energy and capital, the last a most important feature. So far as practical knowledge and qualifications are concerned, I have no hesitation in saying that there are men amongst us qualified and only too anxious to make a name for themselves in this line, and I am confident that in the near future irrigation will receive great consideration, and I need only cite the gigantic undertaking of Chaffey Brothers as evidence in favour of similar undertakings in the future. Such an undertaking as Chaffey Bros. have in hand is one that will not only utilise thousands of acres of land which were fitted for nothing but a sheep walk before they took it in hand, but will be the means of making homes for many thousands of people and of giving them opportunities of rising in the world and bettering their condition. It has been shown by many eminent writers that there is no nobler task for human enterprise than that of the pioneer work of colonisation—to lead forth the surplus thousands of the teeming multitude of the old world and

open up the vast slopes of the new, and effect the removal, as far as possible, of the natural obstacles which lie in their path, and the establishing of homes for those who are coming amongst us. In this special enterprise there is a field for engineers who will turn their attention to it, and no doubt in the near future we shall have some of our members engaged on some important irrigation works. It was my intention to give a detailed account of the gigantic works which the Chaffey Bros. have in hand at the present time, but I regret to say I have not been able to get all the data I required, and therefore am unable to give you the information which I feel sure would have been appreciated by you.

Then again we have in the far interior of the colony magnificent pastoral lands; we have spent millions of money running lines of railways right into the interior, gigantic engineering difficulties have been overcome; and whilst we have been able to take goods to the interior we have been placed in the position to take the squatters' wool and land it at our sea board. This compared to what we have seen in our younger days—the months of toil with the bullock teams bringing wool to the city—shows the enormous benefits which engineering skill gives to the colonies; and although we have succeeded in removing many of the difficulties it yet remains for the engineer to place the people of Sydney in such a position that their daily food can be transported from the interior in a different way to that at present adopted. I am referring now to the dead meat trade. The present system of trucking cattle from the interior to Sydney is fraught with many disadvantages, not to say anything of the cruelty, and hardship too, nay starvation of the unfortunate beasts while being brought so many hundred miles by rail. Here again the engineer is to the front, and I trust before many months have passed, that the cattle and sheep will be killed in the far interior on the lands where they have grazed, passed into the trucks and frozen during their transit to the metropolis. This no doubt will become an accomplished fact at a very early date, for it can be done simply by charging a number of receivers, the gross weight of which with