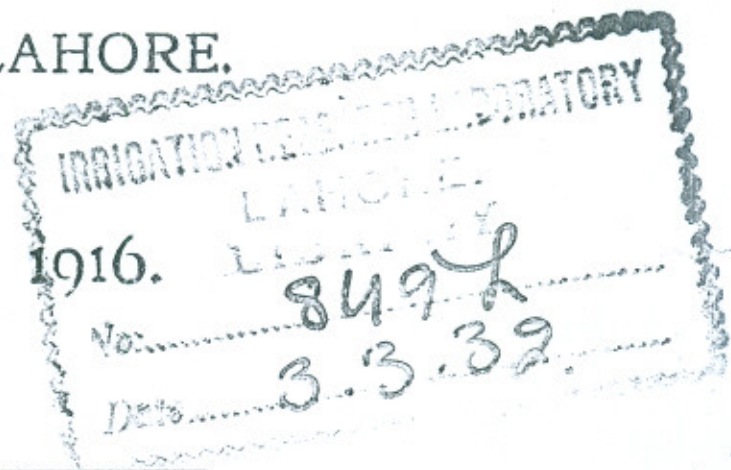


MINUTES OF PROCEEDINGS

OF THE

Punjab Engineering Congress,

LAHORE.



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*The Congress as a body does not hold itself responsible for
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Colonel S. L. CRAFTER, President, 1916.

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Punjab Engineering Congress

(ESTABLISHED 1912.)

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(1915-16).

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W. S. DORMAN, M. INST. C. E.

*Also members of the Executive Committee.

†Colonel Maclagan and Mr. Gwyther having resigned on leaving the Province, Colonel Craster was elected President, and Messrs. Ward and Orr, Vice Presidents, by the Committee.

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ADDRESS
OF
COLONEL S. L. CRA'STER,
PRESIDENT,

29th February 1916.

YOUR HONOUR AND GENTLEMEN,—I regret it was impossible for me to address the Congress at the opening session:—Urgent railway business prevented me from attending yesterday, and I trust, therefore, that you will allow me now to make some remarks on the year's progress in engineering matters and on the subjects before the Congress at this session. We are particularly gratified to welcome His Honour amongst us, not only because it adds lustre to our proceedings, but also because His Honour, at some sacrifice of time and convenience, shows by his presence here this morning his deep and abiding interest in our deliberations, which have, as their primary object, the economic development of the province he rules over and cherishes. The fact that you, Sir, have been among us to-day makes this session memorable, and is a very real encouragement to all engineers to buckle to their varied tasks with renewed energy and a determination to give of their best to the Government they are proud to serve.

During the past year Colonel Maclagan, President, and Mr. F. E. Gwyther, Vice-President, have retired from the service of the Punjab Government, as also Rai Bahadur Bishamber Nath; while Mr. Rose, one of the members of our Committee, is joining the Government of India. Further, Messrs. Wadley and Mellor have proceeded to other provinces on promotion. I am sure the Congress will allow me to express to each and all of them our best wishes for their welfare and happiness, and we trust that they still continue to take an interest in the province with which they were so long connected and which they helped to develop, leaving for us examples of difficulties surmounted and duties efficiently and cheerfully performed.

Gentlemen, wherever we turn the shadow of the Great War meets us, and I think it may interest you to know to what extent the engineers of this Province and of the North Western Railway have contributed in supplying officers and men for the Empire's need. The Punjab has sent twenty-five officers and two subordinates, and the North Western Railway twenty-five officers and sixteen subordinates and apprentices to serve in the field; and whilst we, who remain behind, heartily envy them, we wish them all success and a safe return. It is not easy to follow their careers, but, as far as I know, Major Battye, R.E., and Captain Sopwith, R. E., have both been wounded and mentioned in despatches, whilst Lieut. Trevor, R. E., and Mr. E. P. Gordon, both officers of the North Western Railway, have died in action. The former was also mentioned in despatches, though this was not published till after his death. Both these young officers were of the best stamp, such as India can ill spare, and I trust this Congress will agree to send their relatives a message of condolence. Several here will remember Sir Arthur Trevor, young Harry's father, who was for some years the Member of Council in charge of public works.

In our work the war affects us. There is need for the utmost economy in funds; and the high prices of machinery and materials of all kinds, combined with the shortage of freight, curtail our means of forwarding the progress of any but the most urgent and essential public works. Being thus driven to economise, we are bound to consider whether we cannot attain our ends either by modifying our designs, or by utilising second hand materials which in normal times would have found their way to the scrap heap. In this connection I may perhaps be allowed to throw out a hint to engineers of the Irrigation and Buildings and Roads Branches—the North Western Railway has considerable stocks of girders and troughing of various spans, which have been removed from the line because they are not up to standard loads of the present day, nor is it permissible to use these even in light lines, under the rules published by the Government of India; but if they will suit for bridges on canals or roads, the railway will be glad to negotiate for their sale at reasonable prices; and as far as his official occupations will allow, our bridge engineer, Mr. Sales, who has complete details of these surplus girders, will gladly help a brother engineer to arrive at a decision in regard to any particular proposal to use the most economical span or spans.

Notwithstanding the fact that funds have been curtailed during the past year, the record of large works completed is one of

which we may well be proud. During his visit to the Punjab in December last His Excellency the Viceroy formally opened the Upper Jhelum Canal, a project costing nearly four and a half crores, as also the King Edward Memorial and the Veterinary College and Hospital at Lahore, whilst His Honour marked his appreciation of the efforts of his engineers by attending at Sialkot to open the water works of that town with due form and ceremony.

The North Western Railway, too, has done its share to develop the province, and to improve the communications of the Punjab with its natural port Karachi. During the year, four branch lines, aggregating 157 miles, have been thrown open to traffic, an additional 46 miles of the main line in Sind have been doubled, as also the great bridge over the Sutlej at Phillour. On the branch line between Jullundur and Ferozepore additional bridges and protection works have been built, which will, it is anticipated, guard against the disaster which overtook this line during the flood of 1914.

It has often been stated, and with a great deal of truth I fear, that Indian engineers scarcely receive due recognition in the distribution of rewards and honours, partly, I think, because we, as a body, are absorbed in our occupation, and the best men do not advertise their achievements; but in regard to the Upper Jhelum Canal, it is pleasant to be able to record that Mr. J. N. Taylor has been gazetted a Companion of the Indian Empire, whilst in the Buildings and Roads Branch a temporary engineer, Pandit Amar Nath Nanda, has been honoured with the title of Rai Sahib.

In the proceedings of the Congress six papers are before you for discussion, and on behalf of the General Committee I should like to express our gratitude for the care and trouble expended on the preparation of these papers by their authors, who are all busy men.

In his covering letter of the 9th February the Honorary Secretary suggested that intending critics should send the authors the gist of their criticism before the Congress opens, as it is often difficult for a man to reply off-hand to legitimate criticisms if he only hears them for the first time when the discussion opens. I am hopeful that members may have availed themselves of the opportunity of communicating with the authors, so that we may obtain a maximum of instruction in the limited time available.

At the business session you have had before you certain revisions of our rules. We have now had some years experience, and have been able to study the rules of the sister congresses in Bombay and Burma. These modelled themselves on our constitution, but the time seemed ripe for us to reconsider some of the details of our existing rules, which appear capable of improvement or amplification, with a view to keeping in line as far as may be with other provinces. We look forward to the formation of a single body on the lines of the Canadian or American Institution of Civil Engineers—possibly with headquarters in new Delhi—which will embrace the whole of the profession throughout India, with vigorous branches in each province acting as feeders to the central body. Consequently it is of the utmost importance that, pending the formation of an Indian Institution of Engineers, we should keep our provincial rules as uniform as possible—more especially the rules regulating admission to membership.

I am informed by our able and energetic Honorary Secretary that our numbers remain about the same, *viz.*, two hundred; it is satisfactory considering the abnormal times through which we are passing that our strength remains unimpaired, nevertheless I would appeal not only to every member here to-day, but to those who are unable to attend, to make an earnest endeavour to persuade at least one other eligible engineer to join the Congress, and it is the younger men we want to secure to swell our ranks. To show what can be done in this direction, I may mention that one member informed me not many days ago that he had been able, by personal canvassing, to secure seven additional members, and that within a few days.

There is but one more point to which I wish to refer:—Whilst it has not been possible to obtain from the North-Western Railway concession fares for members attending the Congress, your Committee have not dropped the subject, but are approaching it in another way; and I am hopeful before long they will be able to announce the result of the negotiations they have carried on in your name with a view to ensure an ever-increasing attendance to hear and discuss technical papers of general interest.

SPEECH

BY

SIR MICHAEL O'DWYER, K.C.S.I.,

LIEUTENANT-GOVERNOR OF THE PUNJAB.

COLONEL CRA'STER AND GENTLEMEN,—It is a great privilege and pleasure to be asked to attend the Congress this year ; and I am proud of the fact that the Punjab, in this and so many other matters, has set the lead to the rest of India (applause). I understand that the Congress in this province is the first to have been organised. It is only right and fitting, for, though this is the youngest of the great provinces of India, no province has provided so much scope for the labours of engineers, and no province has profited so much by their labours. This applies to every branch of the engineering profession ; we have examples all round us.

The great Irrigation Department is harnessing the mighty rivers of this province for the benefit of arid plains now converted into smiling fields. The great North-Western Railway triumphs over every obstacle of nature and is throwing its splendid series of bridges over great rivers ; it is tunnelling through mountain chains, and finally linking up every part of this great province into one indivisible whole.

As regards the Buildings and Roads Branch, perhaps this department has not the same scope for such romantic achievements ; but they, too, have carried their roads up the giddy heights of the Himalayas, into the fair valley of Kashmir, and on to far distant Tibet. Nearer home in the capital of the province, we have a series of fine public edifices, with which they have adorned it ; and there is not a town of any size in the whole province, which does not bear witness to what they have done, and are doing, in the matter of public buildings, good drainage, and a pure water supply (applause).

Gentlemen, not content with fighting and conquering nature here at home in time of peace ; your Service has gone further ; it has sent splendid contingents of officers and men to fight and help to conquer the enemy in the field. Fifty

officers and men from the North-Western Railway, Canals, and the Buildings and Roads Branch, is no mean contingent. And we hope these officers and men will come back covered with fresh laurels for themselves and their Service.

I think at the present time the words in which our local poet, Kipling, referred to the achievements of engineers in India are appropriate. In that striking series of verses in reference to the white man's burden, he says—

“The ports ye may not enter
The roads ye may not tread.
Go, make them with your living
And mark them with your dead.”

I think the engineers in this province may be proud of those lines I have just quoted. They have made the great works of this province with their living, and in many cases, I fear, marked them with their dead. The burden of which Kipling wrote a generation ago was chiefly the burden of Englishmen, or rather Britishers, but is now shared by an ever increasing number of distinguished engineers from our Indian brothers. I am glad to see so many distinguished Indian engineers here to-day and Rai Bahadurs Ganga Ram, C. I. E., and Bishambar Nath at the head of them (applause). I think these are striking examples of our success in enlisting the talent and energy of the Punjab in the great common object, namely the economic development of this province and country. (Rounds of applause).

Well, Gentlemen, these being your ideals, it is very right and fitting that you should meet annually, as in this congress, to compare your experience and to discuss further plans for wrestling with the great problems which confront you, and finally to extend that spirit of camaraderie and esprit de corps, which should unite all men struggling with the same great object. Such a gathering must be productive not only of interest and profit to yourselves, but also to the Government which you serve, and I am glad, in so far as this Local Government is concerned, to have done something to facilitate matters by allowing officers, who attend the Congress, to draw travelling allowance (applause). It is not fair to those who come together to pool their experience for the common good that they should suffer monetary loss thereby.

Your President has referred to the series of interesting papers already discussed, and those which await discussion

to-day. In regard to these I am afraid I cannot lay claim to that engineering genius which distinguished my predecessor, and which enabled him to push forward so many praiseworthy schemes.

In mechanical matters, I am afraid I am a child. I believe I do understand the difference between a berm and a borrow pit (laughter); but I find considerable difficulty in distinguishing between a differential and a driving shaft (laughter). My Private Secretary and Aide-de-Camp endeavoured for a good half hour at the breakfast table this morning to enlighten me on the point (laughter), but I fear my mind is still rather blank on the subject (laughter). The mechanism of a module, whether Gibbs' or Kennedy's, is to me as mysterious as that of a motor car.

But if my technical knowledge is nil, I think I have some experience which enables me to judge of the results of engineering by what I see around me. I have at the back of my mind a vague idea as to what should be got out of that very useful, but elusive unit, a cusec. Engineers differ on this point, but I have my own idea about it (laughter).

I can also tell from experience—often rough experience—in going over a road whether it has a decent surface or an adequate soling coat, and I can by casting my eye over a canal see whether it is properly aligned or whether it is producing seepage and deterioration. In touring over this province one can hardly take a step without coming in contact with the results of your labours in one direction or another, and if now and again they furnish matters for that criticism, which those of us, who only imperfectly understand the difficulties you have to contend with, are prone to indulge in; they more frequently give us reason for pride and satisfaction. It is to discuss those problems, to eliminate any evil results, and to extend the good results, that you have met here to-day. I am sure that the discussion will be full of value to yourselves and also to Government (applause).