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Punjab Engineering Congress

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President, 1935-36.

CORRECTIONS.

Page.	Line.	
110	.. 28	*For* Plate (II) *read* III.
114	.. 17	,, (from) *read* free.
115	.. 12	,, (reinforce) *read* reinforced.
115	.. 12	,, (concreted) *read* concrete.
115	.. 15	,, (rested) *read* rests.
116	.. 12	,, Fig (8) *read* 10.
119	.. 6	,, (underslucics) *read* undersluices.
119	.. 6	*Add* Plates IV and V.
120	.. 16	*For* 49′ *read* 40′.
120	.. 22	,, 5 *read* 5′
121	.. 5	,, Fig (6) read 7.
123	.. 4	,, ; *read* ,
123	.. 4	,, (the) *read* when.
127	.. 30	*Add* Plate VI.
127	..	Last line *for* (935) *read* 1040.
133	.. 23	*For* (value) *read* rate.
134	.. 18	,, (1,800,000) *read* 4,80),000.
134	.. 22	,, (3500) *read* 3900.
134	.. 23	,, (935) *read* 1040.

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ADDRESS

OF

MR. D. MACFARLANE,

PRESIDENT.

SIR FEROZ KHAN NOON & GENTLEMEN,

" Before commencing my address I would like to take this opportunity of thanking the members of the Punjab Engineernig Congress for the honour they have done me in electing me as their President for the coming year.

" It is with great pleasure that we welcome here this morning Sir Feroz Khan Noon, H.M.E., who has kindly consented to open the Congress in the regrettable absence of His Excellency the Governor from Lahore. We also extend a hearty welcome to Sir Jogendra Singh the Hon'ble Minister for Agriculture.

" This is the first occasion on which Mr. W. S. Dorman who founded the Congress 24 years ago will not be with us, having left India for good immediately after the last session. Were he here he would be proud to know that the membership which originally stood at 92 has increased to about four times that number. This is mainly due to the keenness and energy of the honorary office-bearers and I would like here to thank those who have so ably assisted during the past year, namely, Mr. Howell our Treasurer, Mr. Adlard our business manager and Mr. Dutt our auditor and last but by no means least Dr. McKenzie Taylor our tireless and energetic Secretary.

" The quality of the papers contributed has continued to maintain its high standard though it is a matter for regret that this year no papers have been forthcoming from the Railway Department.

" It is customary on this occasion for your President to give a résumé of the principal achievements carried out by the various Engineering Departments of the Province during the previous year. The difficulty of course is to prevent that " résumé " from resembling a collection of administration reports which would be extremely boring to the audience. There is also a natural tendency on the part of the President to attach undue importance to the achievement of his own department as compared with others. In case I should be accused of such a tactless error, I shall take each department in alphabetical order which puts the Buildings & Roads branch first on the list !

" The Buildings & Roads branch is the only one of the four main branches of Engineering in the Province which is non-commercial and it can therefore be easily understood that during the financial stringency which, alas, still exists it is the one that least justifies heavy expenditure. As far as buildings are concerned the only one of sufficient magnitude to merit special mention is the New Council Chamber at Charing Cross which is at present under construction at an estimated cost of Rs. 10 lakhs and which Mr. Sullivan who has designed it will have pleasure in showing the members round on Sunday morning next together with Mr. Howell who will explain all the intricacies of the air conditioning arrangements, etc.

" But the main activities of the Department have been con centrated on our roads which I think we can justly claim to be without exception the best in India and it may interest the members of the Congress to know that out of a total of 2800 miles of Provincial metal led roads we can boast of the fact that no less than 96% are now surfaced and that this figure will reach 100% during the coming year. The resulting drop in maintenance charges has amply justified this policy which other Provinces would do well to follow.

" As far as new roads are concerned probably the most noteworthy are the 26-mile link between Multan and Jehanian which on completion in two or three months' time will complete the line of metalled communication between Multan and Lahore—and the Lyallpur Sargodha road which is also nearing completion and will provide a long-felt want. An interesting and entirely successful experiment has been made in the shape of a reinforced concrete trackway on the Multan Road at the entrance to Lahore to cope with the intense brick laden bullock cart traffic and a paper is being read on this subject by Mr. Bikham Singh during the Congress.

New Drainage Schemes.

" The Public Health Circle have under execution or about to be commenced Drainage and Water supply schemes aggregating 25 lakhs, the more important of which are drainage schemes for Montgomery & Bhiwani and combined Drainage and Water supply schemes for Okara and Arafwala. At present there are 39 towns in the Province with an aggregate population of over 1½ million in possession of protected water supply installations and drainage schemes, but, marked as the development of public health works has been since the Great War there are signs of tremendous increase in the demands of Local Bodies with their awakened sense of responsibility and the development of modern ideas.

" Nor must I omit to mention the Electrical Department of the Buildings & Roads Branch which during the year has provided electrical installation in the Government buildings of no less than six important towns in the Province.

" Next in alphabetical order comes the Electricity Branch which is one that can gauge its success mainly by figures of increase in output and sales from the Mandi Hydro Electric Scheme. It is now supplying electrical energy to 20 towns in the Province while the supply to three more was commenced recently. During the year the connected load has increased from 13000 to 18000 Kilowatts, and the number of consumers has increased from 6700 to 9600. The total number of industrial consumers is now no less than 347 including such important works as the N.W.R. Workshops at Moghulpura, the Spinning and Weaving Mills at Lyallpur, 73 flour and rice mills, 91 workshops, 45 pumping plants and 136 other miscellaneous factories.

" In the Irrigation Branch one of the most important and difficult works which has been brought to completion during the year has been the reconstruction of the Khanki Weir at a cost of 38 lakhs. The work is described in detail in a paper by Rai Bahadur A. N. Khosla which will be read before the Congress; so I shall omit further reference to it.

" The capacity of the Upper Jhelum Canal is a matter of extreme importance since the supplies in the Lower Chenab Canal at certain times of the year are largely determined by those passed by the Upper Jhelum. The capacity of the latter has been gradually declining due to the entry of silt and, to counter-act this, the Irrigation Department have recently constructed two Silt Excluders and two Silt Ejectors and the results of these are under close observation.

" Steps have been taken to divert the main Upper Chenab Canal over a fall into the Deg Nallah as an anti-waterlogging measure. This has involved the construction of a fall which has now been completed at a cost of about four and a half lakhs. It is hoped as a result of this diverison there will be a gradual improvement in the water-logged and *Thur* area in the Lower 40 miles along the existing alignment of the main Canal.

" Three important schemes under the five-year Drainage Plan are in progress :—

(*a*) The Rachna Drain Extension on the Lower Chenab Canal.

(*b*) The Upper Budhi Nalla on the Upper Jhelum Canal.

(*c*) The Lower Raniwah on the Lower Jhelum Canal.

" The first two should function by the time the rains break in 1936 and it is hoped that the remaining one will be completed before the monsoon of 1937. A considerable number of smaller drains are also being completed under this scheme.

" Special mention should be made of the Silt Ejector on the Salampur Feeder of the Upper Bari Doab Canal which worked for the latter

portion of the 1934 Kharif season and was in operation the whole of the Kharif 1935. The working of the Ejector involves the passage of an extra supply in the canal and its return to the river through the Ejector. The silt Ejector is completely successful as the bed of the Feeder down-stream of it is now scouring rapidly. Measurements of the quantities of silt ejected show that at a maximum it was as much as 112 thousand cubic feet a day.

" Last on the alphabetical list comes the Railway Department. This department suffered heavily over the Quetta Earthquake. Apart from the appalling loss of life, buildings to the cost of about 50 lakhs collapsed. A division has been formed to prepare a reconstruction project and it is hoped that the actual work of reconstruction will commence early during the next financial year.

" The Railway has in hand a large programme of strengthening small span bridges for heavier engines and faster speeds. The estimated cost of the programme during 1935-36 amounts to 15 lakhs and the work is nearing completion.

" Owing to the rising of the bed of the Jhelum and the consequent rise in H. F. L., the combined road and rail bridge over this river at Jhelum is to be raised 4 ft. This work is estimated to cost Rs. 3,60,000 and has just been commenced.

" The Railway also has in hand several remodelling schemes to deal with traffic more efficiently and expeditiously. The more important amongst these are :—

" The Delhi Yard at a cost of about Rs. 8 lakhs and that of Khanalampura at a cost of about Rs. 6 lakhs.

Both works are in hand.

" The junction of lines connecting Wazirabad to Lyallpur and Lahore to Lyallpur is being moved from Chichoki Mallian to Qila Sheikhupura at a cost of about Rs. $3\frac{3}{4}$ lakhs so as to provide a better and possibly a more frequent train service between Qila Sheikhupura and Lahore.

" An important river diversion estimated to cost about Rs. 2 lakhs is in progress at Mudgorge (between Harnai and Bostan) where the stream is being moved further away from the hill through which the tunnel near the station passes in order to ensure the safety of the tunnel.

" There has been a considerable activity in connection with improved Medical arrangements on the Railway as a whole. A new Hospital costing about Rs. 91,000 is nearing completion at Quetta, a new block has been added to the hospital at Multan at a cost of Rs. 94,000 and a hospital and medical quarters costing Rs. 87,000 have been built at Peshawar.

"A new block has been added to the Headquarters office at Lahore at an estimated cost of Rs. 2¾ lakhs.

"Amongst other engineering works carried out in the Workshops, the work of extension of existing traverser tracks together with the provision of additional traverser and cranes in the Carriage & Wagon Workshops, Moghalpura is in progress at an estimated cost of about Rs. 3¼ lakhs.

During the year the Railway imported 17 locomotives from abroad and purchased 29 locomotives from the G.I.P. Railway.

To turn now to personal matters :—

"Casualties from retirements during the year have been as follows:

In the Buildings & Roads Branch.

Rai Bahadur Lala Sant Ram.

In the Electricity Branch.

Mr. S. J. Bruford.

Mr. Saleem Hassan.

In the Irrigation Department.

Mr. A. Murphy.

Mr. F. H. Burkitt.

R. B. L. Hukam Chand.

Mr. M. L. Lawson.

Khan Sahib Choudhri Niaz Ali Khan.

In the North Western Railway.

Lt. Col. Macrae.

Mr. W. T. Everall.

"It is with the deepest regret that we record the death of Mr. H.W. Nicholson, C.I.E., whose loss has been sadly felt not only by the Province and the Irrigation Department but by this Congress of which he was an ardent supporter and a keen contributor towards the interests in our many discussions.

" Also of Lala Naunedh Rai, Assistant Engineer after 29 years' service in the same department.

" We offer our congratulations to the following recipients of honours :—

" The Companionship of the Order of the Indian Empire to Mr. F. J. Waller and Mr. C. C. Inglis.

" The title of " Sardar Sahib " to Bhai Bakhshi Singh Sidhu and the title of " Rai Sahib " to Lala Gurcharan Das Mehta and Bakhshi Labhu Ram.

"It is now with great pleasure that I call upon Sir Feroz Khan Noon to open the Congress."

SPEECH

BY

THE HON'BLE MALIK SIR FEROZ KHAN NOON, MINISTER OF EDUCATION, PUNJAB.

MR. PRESIDENT AND GENTLEMEN,

I am grateful to the authorities of the Congress for the honour, they have done me in inviting me to open the Engineering Congress to-day. I accepted your invitation, Mr. President, with a great deal of hesitation because it is difficult for a layman like myself to say anything useful or interesting to a body of learned gentlemen of a technical profession like yours. But the work of the engineer is so closely connected with human progress that no one who is keen on the development of his country can allow himself to remain out of touch with the gradual and quiet advance which is taking place in his country through the Engineering profession.

I realize that most of you are interested either in roads, electricity, irrigation or railways. It is pleasant to realize, Mr. President, that Punjab is second to none as far as the quality and quantity of metalled roads are concerned. Government are sometimes credited with having built metalled roads with the obejct of realizing high prices at sales by auction of Government lands, or with having tarred roads with a view to reduce maintenance charges. The fact remains that the country at large has greatly benefited by the work of the Public Works Department engineers. I know it as a fact that the agriculturists living in the villages have appreciated nothing more than the provision of metalled roads which provide them with an easy means of transport of their agricultural produce, thereby enabling them to realize a few annas extra per maund for their cotton and wheat. Money saved is money earned. And I feel that gradually there will be a greater and greater demand from the rural population for better road facilities than is the case at present. I feel that every district headquarter should be connected with Lahore by a metalled road open throughout the year and every Tehsil headquarter should be connected wih each district headquarter by a good metalled road. There has been a great deal of talk of rail and road competition. I do not know how long we shall succeed in preventing the public from having better roads by forcing them to travel by rail on account of the discomforts of journey by unmetalled roads. The province greatly appreciate the subsidy given by the Government of India from the road fund. This will no doubt help us to have more and more miles of metalled roads. No new metalled road should be constructed unless it is to be tarred. If the health of the town people is to be protected against dust and its connected dangers every street within municipal areas should

be metalled and tarred over the whole of its surface. Leaving a few unmetalled feet on both sides or leaving footpaths unmetalled take away most of the utility of the metalled road. The Engineer who proposes a road estimate without including provision for tarring it is making a proposal for the waste of public funds.

The engineers on the irrigation side of P.W.D. have done a great service to the country inasmuch as they have eliminated possibilities of food famines, not only in northern India, but in the whole of India. Food famines in this country after failures of rain were of very common occurrence. It may be of interest to the engineer to learn of the various devices invented by his colleagues for easy silt ejection from canals or to learn of the proposed changes in the shape of outlets for water courses. But the way the public would like to judge your work is to measure your success by the wealth you have added to a poor country whether by production of extra wealth or by reduction in costs of all important commodities. If Japan can compete with foreign countries in trade it is because *e.g.*, its Engineers have placed petrol in the market which sells at 3 annas per gallon. Can't your engineers prospect for more oil in the Punjab and produce it cheaply? The Punjab engineer does not lack technical knowledge or initiative. It appears that no one seems to have troubled himself about the development of the mineral resources of our country. Our culture has advanced to a stage where the public may presume that the existing company law is capable of giving the requisite protection to the small investor and I hope some heads will be put together in this province for the exploitation of what nature has in store for the benefit of us all.

Dr. Mackenzie Taylor and his Department are doing their utmost to cope with the problem of water-logging which is the greatest danger that threatens our canal irrigated colonies. I am glad to say that the people in the districts have begun to realize the great gain that accrues from storm water drains. If the rain water can be quickly drained off to the river, the danger of water-logging is lessened. I speak from personal experience on my own land where some portions of it were every year water-logged during the rainy season but from the time we opened two drains we have cultivated this particular area every year. The irrigation problems of this province have not been solved finally and I have no doubt that the irrigation engineers realize that there is still a very vast field of fresh investigation waiting for them in districts where the open canal system cannot be adopted. There are large areas of land which remain uncultivated for want of water, particularly in the Sewaliks, Gurgaon, Mianwali and Rawalpindi districts.

The Agricultural engineer is doing excellent work. The Tube well is to play a very important role in our rural and town economy. The tube wells eliminate the need for expansive reservoirs in towns. If electricity can be supplied cheaply the tube well has a great future before it. As the Zamindar becomes more educated and more intelligent he is

going to demand more tube wells,. the future legislators are bound to press for the expansion of the beneficent activities of this branch of engineering. The Irrigation Branch Engineers working in the D.G.K. district are to be congratulated on for their success in prolonging the flow period of the inundation canals of that district.

I understand from the Public Health Department that the population of the Punjab has increased by 2,88,000 during the year 1934-35. This means that we must produce more food in the country. And time has arrived when the irrigation and electricity departments should work in close co-operation with each other. The possibility of developing power from water falls in this province are immense. Public will force the future Government to provide them with cheap electric power for industrial purposes. The electricity now produced at Jogindar Nagar is extremely expensive from the manufacturer's point of view. If electricity in Canada can be sold at 1 pie per unit the Punjab cannot congratulate itself by producing it at a cost which forces its market price to nearly 2 annas per unit. The Electricity Department will soon have to utilize water falls in the hills and on the canals for the production of cheap electricity with a view to reduce its selling price. Our Engineers have been very wise in building the Deg Diversion of the Upper Chenab Canal, so as to enable Government to allow turbines being fixed without further changes in the structure. Time will soon arrive when the public will insist on the provision of cheap electricity and Government will have to utilize the power available at every canal fall in the province.

The public are day by day beginning to realize that the prosperity of the Punjab and its people must depend more and more on the industrial development of the province. The price of raw material has fallen so low that sometimes the zamindar wonders whether it is really more paying to keep to the plough or take to street begging. The eventual solution of our economic problems will lie in the development of industries particularly the ones which consume our raw materials. For this purpose we need cheap electricity at the rate if possible of one pie per unit. Rai Bahadur Lala Siri Ram of the Delhi Cloth Mills has done real service to the Punjab by erecting a cloth mill at Lyallpur where I am informed the price of cotton is at least 4 annas per maund higher than is the case in the neighbouring markets of the province. I am glad to learn that another cotton cloth mill will soon be erected in the Montgomery district. We want more and more of these cloth mills so as to consume most of the cotton produced in the Punjab thus providing more work for Punjabis within the factory walls and also providing cheap and durable cloth for the Punjab villagers. The scope for industrial development in this province seems unlimited. At present we depend on foreign imports for everything we need for oursevles. There is not a single factory in the Punjab for shoe making. Just consider the thousands of raw hides that are exported to foreign countries every year from the

Punjab. There is not a single factory on a commercial scale for manufacturing jam and marmalade. Considering the amount of cheap fruit available in the Punjab there seems to be some scope in this direction. The country's hearty congratulations are due to firms like Lala Janki Dass and Co. who have set up a perambulator factory in Lahore. I do not see why some one should not manufacture bicycles in the Punjab.

The one profession which can help the Punjab in adding to its wealth is the engineering profession. I take this opportunity of drawing the attention of all those engineers who are about to retire or who have actually retired in the recent past to pay some attention to the industrial development of this country. Unfortunately for us our British friends who retire from this country usually go back to England. Their ripe and rich experience is lost to us. I am sure this country would welcome, with open arms, their continued stay in the Punjab. The country has benefited by their association and we keenly feel the loss of their company and talent. They are most welcome to settle in this country like some of the European farmers in the Punjab and help this land of sunshine to advance industrially, instead of perhaps smoking away their leisure in a dingy services club in London.

The public are much interested to learn of the various improvements in the management and building of railways. The competition with motor traffic provides the railway authorities with greater scope for the exercise of their professional talents and luckily for them the high price of petrol still keeps the motor traffic within its moderate bounds. I congratulate the North Western Railway on their decision to raise the bridge at Jhelum by 4½ feet. In future let us hope that the Jhelum town will not be flooded as it was in the year 1929 as the new bridge will allow water to go through easily. It is not wise for a layman to make an effort to discover the causes of the trouble at Jhelum. I sincerely hope that the irrigation engineer will be able to solve the problem of the rising bed of the river Jhelum near Jhelum town ; whether this is due to the deforestation up in the hills or due to the Upper and Lower Jhelum canals leaving the heavily silted water in the river or due to the shortness in the length of the bridge it is for the experts to investigate. I hope sincerely that the question will be solved permanently by a thorough investigation. Raising the bridge certainly provides useful breathing space.

I shall be failing in my duty if I do not take this opportunity of congratulating private architects like Mr. Anderson who have provided new and beautiful designs for private houses in Lahore. Lahore is looking up to Mr. Howell to give the city a water borne sewerage system within the next 10 years or so and the Imperial Chemicals India, Ltd., to manufacture for us in the Punjab all the medicines we need to cure us of all our ills.

I have great pleasure in declaring this Congress open.