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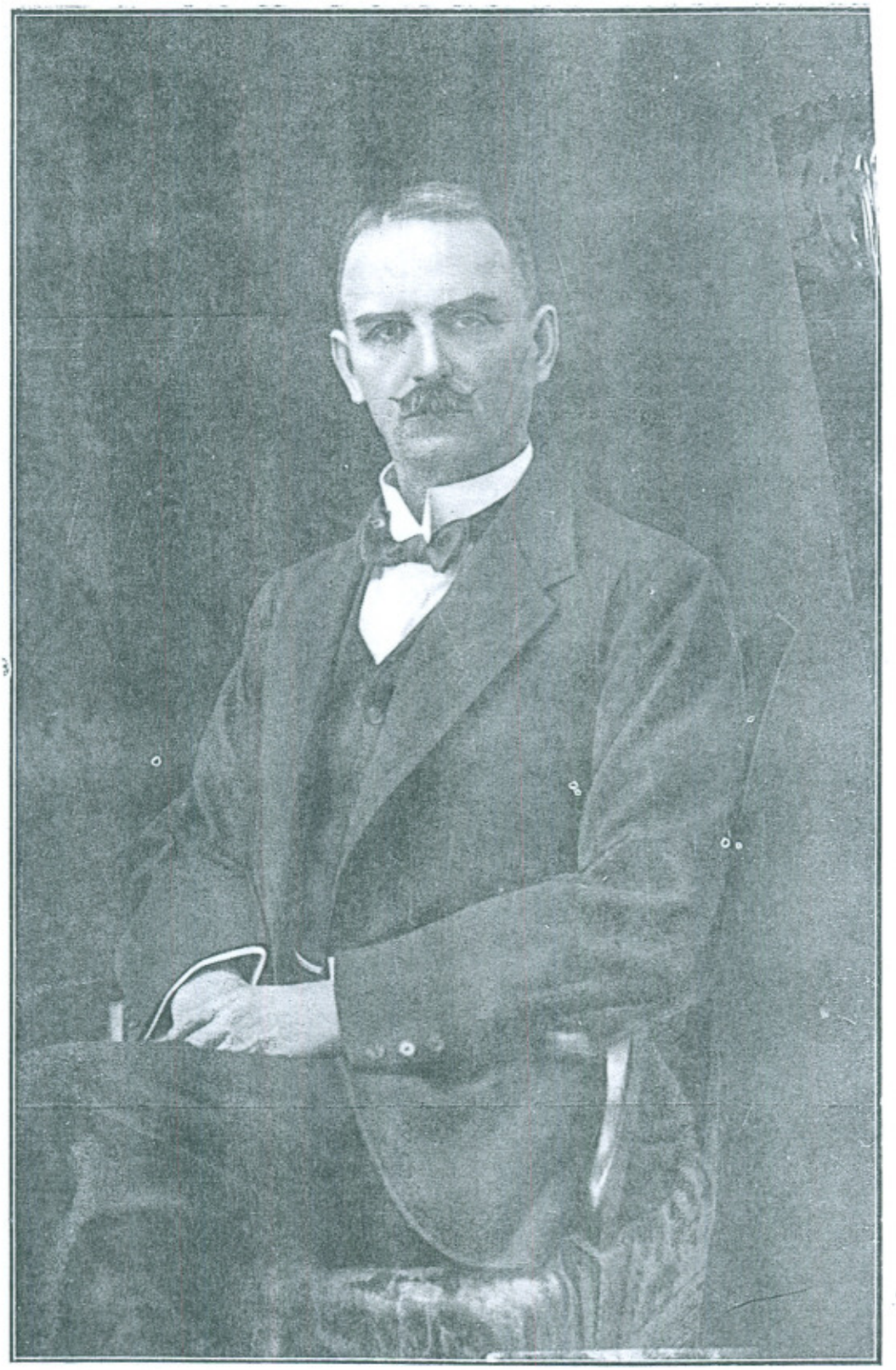

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Punjab Engineering Congress.

(ESTABLISHED 1912.)

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ADDRESS

OF

THE HON'BLE MR. D. W. AIKMAN, C.I.E.,

PRESIDENT.

8th April 1918.

GENTLEMEN,

His Honour the Lieutenant-Governor has asked me to express to you his regret at being unable to attend this Congress. His Honour has consistently shown a very keen interest in the practical aspect of many of the subjects that will be discussed, and we may well believe this expression of regret on his part to be inspired by something more solid than mere conventional politeness. We have the pleasure, however, of seeing amongst us to-day both the Financial Commissioners and also distinguished representatives of other departments, and to all of them I extend on behalf of the Congress a hearty welcome. I hope that they and all the members of the Congress will find much that is interesting and stimulating in the papers to be discussed, and I hope this all the more because I feel that they will profit but little from the presidential address. By his eloquent addresses in the past two years, Colonel Cra'ster set a standard which I cannot hope to maintain. He furthered the interests of the Congress to the utmost extent of his marked ability, but he showed little consideration for any who might succeed him in the presidential chair. Before addressing you to-day I thought seriously of displaying a notice similar to that which was once, according to legend, put up in a Wild West Church, " don't shoot the choir, remember they are doing their best."

In my case, the best I can do, will make but a poor comparison, I fear, with the achievements of your former president. That phrase, however, " doing their best, " has not only given me the courage to come here and address you, but has also provided the subject of my address. While I am doing my best here to carry out a small job, a job strange to me, a job I do not much relish, our brother engineers from all quarters of the empire are doing their best to carry out the greatest job which has ever fallen to the lot of men. For over 3½ years now they

have been doing their best, and it has been a very good best. The part which engineers and engineering have played in the great war might form the subject of an almost endless discourse. But do not be alarmed. The time has not yet come when the subject can be approached from a detached standpoint or regarded in proper perspective, and I do not propose to deal with it in any but the most cursory manner. At the same time we cannot, I feel, do better at this time than give our thoughts to that great army of men which is wielding the weapons created by civilisation for the defence of civilisation.

To that great army every engineer present here to-day belongs, whether he is in uniform or not, he is not only filling the place of men who have gone to the front, but is also doing his best in his own sphere to strengthen and support the cause which they are defending against a deadly assault. They are fighting an enemy who is their equal in skill and their superior in organisation and preparedness. The British army of engineers is a new army. The German army of engineers is an old army, organised and trained long before the war. The German military machine does not ignore a man's civil profession. It takes account not only of what he is, but of what he has. It tabulates his possessions and organises them for military purposes. In the summer of 1912, I was in a small village in the Black Forest. The proprietor of the hotel in which I was staying, had three motor cars which he hired out to his guests. I came upon him one day filling up a number of official forms and he explained to me that every car in Germany was registered for military purposes. He was obliged to make periodical returns of the condition of each of his cars and, on the order to mobilise being received, each car had to reach a pre-arranged destination within a given number of hours. That is only one detail of German military organisation. The same methods were applied to men. A man might be a private, but his civil qualifications were never ignored. One instance is that of a man who was a prominent banker in Berlin before the war. On mobilization he became a captain in the Uhlans. After the occupation of Belgium, he was given an office in Brussels and set to work to bleed Belgium financially. Just as they were able to put their finger on this man the moment they needed him for their programme of financial extortion, so the German authorities have been able at any time to collect whatever number of engineers they needed for any enterprise. They had not only prepared every detail

in the plan of campaign selected before the war, but they had also prepared to meet every emergency.

This deliberate preparation before the war gave the Germans an immense advantage in its early stages. At the very outset of the war the Germans were able to reduce in a few days to powder and twisted steel the great fortresses of Belgium which were previously considered impregnable. They were able to do this by means of the heavy howitzers and high explosive shells which they had invented and accumulated. The guns were drawn by mechanical transport on to previously prepared concrete emplacements. Then came the retreat from Mons, when our sappers were engaged night and day in destroying bridges, railways and lines of communication in order to delay the enemy's advance on Paris. At the same time the enemy's engineers were busy on the work of reconstruction and building additional roads and railways by which to bring up their guns and to keep up the supply of food and ammunition for the infantry. It is not remarkable that the Germans failed in that tremendous task, but it is somewhat surprising that before the present offensive had been in progress for ten days, the German infantry were left without artillery support, and in many cases without a sufficient supply of rations, showing how efficiently our engineers had destroyed all the lines of communication behind them.

There is little need now to lay stress on the ingenuity displayed by the enemy in the construction of what he boasted were impregnable lines of defence. To emphasize the strength of the positions, which the enemy held from the time when trench warfare began until the time when it was broken up, is merely to pay a tribute to the foresight, skill and perseverance of the British engineers. Vimy Ridge, Messines Ridge, and the battle of Cambrai in which the success of the British blow was primarily due to the tanks, are all monuments of British engineering, surpassing anything accomplished by the Germans on the western front. Even more extraordinary engineering feats have become commonplaces of warfare on the Italian front. The immensely rapid development of aviation is another aspect of the part played by engineering in the war, and not a day passes without the official communiques from the front providing conclusive evidence of the superiority of the Allies in this respect. In the development of artillery the progress of the belligerents has been more equal. The Allies started in the race for superiority in gunpower with a

heavy handicap, but they were not slow to catch up the enemy; and in some respects, for instance, the French "seventyfives" they have always held and maintained the lead. The Germans started with a marked superiority in heavy howitzers, which, incidentally, were of Austrian and not German invention—but their predominance in that arm was eventually overcome, while the Allies' strength in field pieces and in new weapons, such as trench mortars, grew almost as rapidly as that of the enemy. The invention by the Germans of a gun with a range of approximately seventy-five miles shows that the science of gunnery still remains to a large extent an unexplored field, though it yet remains to be proved that the enemy's new long-range gun is of definite value from anything but a political stand point. Sometime ago an electrically propelled boat, requiring no crew, made its appearance off the Belgian coast and was at first hailed as a new and remarkable German invention. But it proved on examination to be a type of vessel known to the Admiralty since the nineties and rejected by them as useless. It is hardly to be supposed that the same is the case with the new German gun, but I cannot believe that if this new invention is of practical value, British engineering workshops will for long prove unequal to the task of placing it at the army's disposal. Since writing this I see the Americans have placed an order for a gun with a calculated range of about a hundred and five miles.

In this respect, which is negligible, and in one other respect, which is of the first importance—in two respects—alone has German engineering surpassed the engineering of the Allies. The second respect is the U-boat. From one point of view the development of the U-boat does not necessarily imply the superiority of German over British engineering, since the British could no doubt construct submarines as large in size and with as wide a range as any yet evolved by the enemy. It would have been of little use for the British to construct in front of the Messines Ridge defences of similar strength. Their method of dealing with the Messines Ridge was to blow it sky high, and their method of dealing with the U-boat must be to blow it to the bottom of the sea. There can be no doubt that great strides have been made towards the achievement of that object, and it is certain that the Allies' resources for shipbuilding—another aspect of the part played by engineering in the war—will ultimately bring about the complete defeat of the enemy's piratical designs. But whether any

means will ever be found of ensuring the destruction of the U-boat it is impossible to say. There is every reason to believe that much progress has been made in this direction, but the Admiralty is notoriously secretive, and one of the few people who could probably give you much encouraging information on this point is Sir Eric Geddes.

The name of Sir Eric Geddes immediately calls to mind one of the most prominent achievements of British engineers during this war—an achievement in which India and some of those I see before me have had no small share. Much emphasis has been laid at different times on the wonderful railway system of the Germans. Their strategic railways furthered, what their lack of scruple initiated, the wanton invasion of Belgium. Their network of lines has made it possible for them throughout the war to transport troops rapidly from one front to another. Their operations against the Russians, their drive into Italy, and their present concentration on the western front could never have been executed but for the vast and intricate system of communications at their command. But the advantage which the Germans thus secured, was due, first, to their geographical position, and, second, to their preparedness. The lines which have served them so well during the war were laid and organised long before they engaged in hostilities. Their record of railway construction since the war is insignificant compared with that of the Allies. They have, it is true, established a large and complicated system of lateral communications behind the fighting fronts, but they have done nothing in that respect which has not been equalled by the Allies, largely owing to the energy and ability of Sir Eric Geddes. It is when we consider the theatres of war outside Europe that we realise the extent to which British railway engineers have surpassed the achievements of the Germans. Look at our railways at Salonika, in the Aden hinterland, in Egypt and in Palestine. We in India are most intimately concerned with the Mesopotamian railway, in the construction of which men and material from India have played no small parts. But what is true of Mesopotamia is even more true of East Africa, where railway engineers from India made possible the advance of the troops who have brought under the protection of the British flag a colony which had too long suffered from German misrule and Prussian brutality. I have no doubt that some of those present here to-day could tell you of sleepless nights, spent in wondering how to meet the demands for track, locomotives

or rolling stock, which have poured in upon them in an unceasing flood from East Africa, Mesopotamian and yet more distant centres. Those demands have been met, and at the same time the railways in India have been kept running with comparatively few restrictions and with a relatively small amount of inconvenience to the public. The fact that that has been done is due to the tenacity and self-sacrifice of railway men throughout India and particularly to the organising and administrative ability displayed by some of the senior officers.

But it is not only in providing material for the railways overseas and in sending men to construct and organise them that the railways in India have rendered direct assistance in the war. With depleted staffs and rolling stock they have dealt successfully with nearly double their normal traffic. This extra traffic consisting entirely of troops, war material, stores and food for the army. Their workshops have been engaged in the manufacture of war material of all kinds from armoured trains to axle trees ; from shells to sledge-hammers. They, together with other Government engineering workshops, have supplemented the output of the Indian ordnance factories to an extent truly remarkable, I have said enough to prove, if proof were needed, the truth of my assertion that engineers in India are an integral part of the great army of British engineers, which has toiled unceasingly for the past 3½ years to assist the allied armies in every way in its power, and which has proved itself the superior of the enemy in many of the most important aspects of modern warfare, and which will, I believe, maintain that superiority until complete victory is gained, for the simple, but supreme reason, that its power, unlike that of the enemy, is directed to the end it was meant to serve, the peaceful progress of the world.