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The Geography of South American Railways: Discussion

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Before the paper the PRESIDENT said: At the outbreak of war it was suggested to me that the Royal Geographical Society would have to put up its shutters, or at any rate to give up its Meetings. Fortunately the Council took a different view, and at this moment we are involved in an outbreak of activity I believe quite unprecedented in the Society's annals. Without taking into account Mr. Weston's charming Lectures to Young People, we shall have had in eight days three Meetings of the Society. It may strike some of you as curious that all these three Meetings should be devoted to one Continent—South America. The result is accidental, but I cannot look upon it as inopportune, for whatever may happen in Europe I think there is no doubt that South America is destined to play in coming years a large part in the world's history. It therefore cannot be amiss that we should learn as much as we can of the prospects and conditions afforded by the physical facts of that great continent.

I have said "whatever may happen in Europe." We here can foresee, and believe we are justified in foreseeing, but one result to the great war: the triumph of the Allies. But imagine for a moment the contrary. Imagine the victory of Germany, and the Kaiser enabled to fulfil the ambition which he revealed by calling himself "the admiral of the Atlantic." The Monroe doctrine has at the present moment for its only real safeguard the British fleet. Can we believe that if that fleet were removed any part of the American Continent would be safe from German attack? On the other hand, look to what we trust is certain: a Germany defeated, and deprived of many of her colonies. The Prussian despotism destroyed, there will remain the great German nation, a nation reformed, we hope, as to its worst characteristics, but retaining its better qualities. Such an efficient nationality must in time seek fresh outlets. And where is it more likely to find them than in the districts of South America already occupied by large German communities, which I understand are very prosperous. Do not let me be taken as inviting a political discussion. Our business here is to formulate the facts upon which politics are, or ought to be, based. It is in this sense that any divorce between geography and politics must be dangerous, and, as it has proved in past history, may be disastrous.

With these few words as a prelude I introduce in Mr. Barclay one of the Englishmen who has visited and traversed South America in many directions and knows it thoroughly. He will tell us what are its characteristics and its capacities of future development.

(Mr. Barclay then read the paper printed above, and a discussion followed.)

Señor AGUSTIN EDWARDS (Chilean Minister): Before I say a few words upon the interesting lecture we have just heard I wish to thank the lecturer

for the very able description he has given us of the resources and possibilities of South America. I am sure that I am interpreting the feelings of my country, which, in this case, are perhaps shared by the sister Republics of South America, when I say that lectures such as these help more towards a better understanding between the American Continent and this country than the work of a hundred diplomats. The lecturer has described all the railways that have been built and are actually working in South America, and has paid a tribute to the Governments of those countries which have encouraged the construction of these railways. But there is one thing he has not said and that I wish to say: it is that the greater part of the railways you have seen in the pictures he has shown have been built by British enterprise and mostly with British capital. I have often wondered whether this initiative was due merely to the seeking of remunerative investment of capital; and I have found that it does, to a certain extent, explain the enormous development of British railway construction in South America. But there is another factor which ought not to be forgotten. I think there is a feeling amongst Englishmen—a sub-conscious feeling, perhaps—that to the gigantic organization known by the world as the British Empire the welfare and prosperity of the American continent is of as great interest as the welfare and prosperity of the continent of Europe. We perhaps do not realize to-day, probably because of this terrible European war, the tremendous changes that the Panamá Canal is bringing to the American continent and to the world at large. The lecturer pointed out that most of the coast railways that have been built in the South American Continent are on the Pacific side, in spite of the fact that the western coast of South America was in, so to speak, a *cul de sac*, cut off from the great markets and centres of the world. With the Panamá Canal open, the building of railways on the part of the South American Continent is bound to develop enormously. In my country, I believe, there is a large field for British enterprise and British capital in the building of railways after the war is over (for I think it will be found, when peace is restored, that British energy is as alive and British capital as abundant as ever). With the opening of the Panamá Canal it is only natural that all the products of Western Argentina should find their way to the sea, which is always the cheapest way of transport, through Chile. As you know, Chile is a very long and narrow country, and through it Argentina, which occupies the rest of the southern part of the American Continent, is bound to try and find an outlet for its inland products of every kind. At the beginning only the raw material will pass through Chile, on its way to big markets of the United States and Europe; afterwards, in the course of a very few years, you will find, I think, that the raw material which is produced in enormous abundance in the Argentine Republic will be transformed in Chile into more valuable products, because we have in our country the three main factors which tend to make a manufacturing country. We have iron in abundance, coal in abundance, and water-power in abundance; and therefore there is for British enterprise in that part of the South American Continent a very large field. I believe that England will, in spite of all that is being said at present, continue to be the financial centre of the world, and that every advantage will be taken of this opportunity.

But that is not the only remark I wish to make. At the end of July 1914, just before the war broke out, I had the honour of spending two days under the same roof with Lord Kitchener and talking with him. I reminded him that while he was in Australia two or three years before he had been in communication with me while I was in Chile, and had been trying to get to Chile direct

from Australia. I asked him what his object was in going to Chile, and he told me that he was convinced that before very long there would be a line of steamers running from Australia and New Zealand to the Chilean coast, because, he said, very few people in this country realize that Australia and New Zealand were only ten days' navigation distance from the Chilean coast; that there was a railway—the Transandine railway to which the lecturer referred—which links up the Pacific with the Atlantic and crosses the South American continent in thirty-six hours; and that there were rapid steamers which came from Buenos Aires to England in eighteen days; and therefore about a week would be saved by adopting this route. I only repeat what Lord Kitchener said at that time; to my mind it is a very interesting remark, and something that ought to be borne in mind for better times. I wish to thank you, Mr. President, for the opportunity afforded me of addressing you, and the lecturer for the interesting lecture he has delivered.

Mr. OLIVER BURY: Mr. Barclay's paper is particularly interesting to me because not only did I spend several years in South America, but I have travelled over nearly every railway he mentioned in his paper, and I am now actually engaged in the direction of some of the mountain railways to which he has referred. It is rather late, Mr. President, to attempt to discuss the gauge question, so I propose to leave it alone. I will confine my few remarks to Peru, which both geographically and historically is one of the most interesting countries in the world. Prior to about the fourteenth century the whole history of Peru is wrapped in mystery; but on Lake Titicaca there are remains of very early civilization. The ruins of Tiahuanaco are supposed to date some 3000 years B.C.; and those who have seen the ruins of Upper Egypt cannot but be struck by the extraordinary similarity between the two. I was very much struck with the beautiful chiselling of all the masonry at Tiahuanaco, for I never saw anything to touch it, although I have been almost throughout the whole of Egypt. It is difficult to find out how the ancient Peruvians cut those exceedingly hard stones; but I think there is little doubt that the tool was composed mostly of copper with a little tin.

Any one visiting South America, especially the interior, is struck by the absence of roads; and yet before the Spaniards reached Peru there was a network of highways which according to the Spanish historians received the unanimous admiration of them all. There is or was one notable highway running all the way from Cuzco to Quito, some 1500 miles long, about 20 feet wide, paved all the way with freestone, with a sort of bituminous cement run into the joints. Along this road were stations amply provided with provisions; and the old explorer Francisco Pizarro would have died of starvation if he had not been able to help himself to those stores. The road was neglected by the Spaniards, and there is very little trace of it left to-day. Another curious feature was the postal service which the Spaniards found, and which they say existed long before there was any such post in Europe. There were runners who ran each a comparatively short distance, but very fast; and they could take a message about 150 miles a day. But since the Incas had no written language, one doubts whether the message, after passing through so many mouths, reached its destination quite in the form in which it started.

The Central Railway of Peru, of which I happen to be the Chairman, is really one of the sights of the world. It starts from sea-level and goes away for over 100 miles up a grade of 1 in 25, with a load of about 120 tons behind the engine, which is like a heavy coal engine. A few years ago they were using coal for fuel, and it was very difficult to keep steam on a continuous

grade of 1 in 25 for 100 miles, but now these difficulties have been overcome by using the rich petroleum found on the coast of Peru. I will conclude by congratulating the author on his most excellent paper.

Mr. HERBERT GIBSON : South America is such a very fruitful theme, both historically, industrially, and geographically, that I will only make one or two remarks on the extremely interesting paper we have had the pleasure of hearing. The President, in his prefatory remarks, and also the lecturer, made some references to German colonization of South America. I am not going to belabour that subject in any way, but merely to refer to one historical and to one ethnical fact. The historical fact is that some three and a half or four centuries ago the Crown of Castille granted to some German bankers the very large tract of land that lies more or less between Cumana and the Lake Maracaibo, and which now forms the Venezuelan territory. During thirty years, headed by men of considerable ability in adventure, and especially by one Federmann, who reached as far as the plateau of Bogotá in what is now the Republic of Colombia, they did not succeed in establishing one small village ; and during the whole of their occupation of that territory the only town formed was founded by a few Spaniards who lived under their rule. At the end of thirty years their grant was annulled, and they ceased to exist in that part of the world. That is the story narrated by Mr. Bernard Moses, the well-known writer on South American history.

My second point is the present ethnical relation of a German colony in the south of Brazil to the population of that region. There is a town called after a hairdresser who was one of the original German colonists, and whose name I have had the discretion to forget ; but the place is known better under its old Guarani name of Itajahy, and it is precisely where Nuñez Cabeza de Vaca, travelling from the Atlantic seaboard, started for Paraguay in 1540. During the last sixty years these German colonists have spread west ; one meets them in South Brazil, and as far up as the Bolivian Chaco, trading with Bolivians there. It is remarkable—and I think those who have travelled in that part of the world will confirm what I say—that they seem to have lost all their German traits, and to have become entirely assimilated by the local population ; to such a point even that they seem to prefer to speak the Indian language of Guarani rather than their own. So that in regard to the territorial occupation of any part of South America—which is one of the remote things I do not expect to live to see, because I conceive South America sufficiently occupied by the South American nations—it seems to me that the Germans have not the gift which other nations of Europe have, of adapting themselves to the conditions of the ordinary colonist. I would like to mention what many who live in South America are aware of—the great help railways give to a better knowledge of the climatology and meteorology of the country. It is not easy, where Budgets are somewhat limited, for Governments to establish within their administrations a sufficient range of meteorological observatories. The British South American railways have very largely filled that gap. It has been useful to them also, because had they been acquainted earlier with some of the meteorological conditions they would not always have taken the lines that their railways now take.

The lecturer referred to the success with which sheep have been introduced into the east side of the Bolivian Cordillera, and showed us a picture of the Corriedale sheep. But the Corriedale sheep is not from Scotland ; it is a New Zealand sheep. The New Zealanders have come and occupied a great part of South Argentina ; New Zealand machinery, Australian seeds, New Zealand

and Australian live stock, and New Zealand and Australian sheep-farmers and agriculturists have established themselves, and have been a very useful factor in the development of the pastoral and agricultural interests of the Argentine. I endorse very heartily the remarks made by the Minister for Chile on the trans-continental railways. We in the Argentine all recognize that in Chile, with the spirit, if I may so say, of the Araucanian people who inhabited that country before the arrival of the white man, the Chileans have developed, and intend to develop still further, all their manufacturing and mechanical industries. I am persuaded that Chile is to become a most important manufacturing country, and I think the linking up of the Argentine with Chile by trans-continental railways will be of mutual benefit. There is no question in South America of any other strategy than commercial, and I am persuaded that this is a very sound commercial strategy. I congratulate Mr. Barclay on the extremely interesting paper he has given us, which I have listened to with great pleasure.

The PRESIDENT: I am sure you would like to hear a few words from Sir Thomas Holdich, and his opinion of the attempts to pierce the barriers which he has been at so much pains to create.

Col. Sir THOMAS HOLDICH: If I say a word or two it will be to endorse the lesson which Mr. Barclay has tried to teach us, that the alignment of railways should depend on the geography. If we remember the way in which railways begin in new countries, we shall be surprised sometimes that they turn out as well as they do. Sometimes railways are projected for military purposes, and subsequently harden into permanent lines. Such has been the case in Egypt and the Sudan, and such may be the case in Mesopotamia. But more often the first lines are run rather irresponsibly to develop some particular region, and are not intended to become permanent lines eventually. Some of the most important lines in Australia began in that way, and I have heard the system advocated as very excellent. In India that sort of thing is not allowed. They have a sealed pattern for a railway, which is a most effectual barrier to private and local enterprise. Sometimes a high railway official may be so influenced by knowledge of one particular line that he fails to grasp alternatives. I cannot help thinking that something of that sort occurred when they set out to connect Buenos Aires with Valparaiso, for I can hardly believe that the Uspallata Pass was the best line that could have been chosen. The line from the pass down to the foot of the Andes on the Chilean side will be a constant source of anxiety and expense for all future time. One feature of South America may possibly have struck you: that there is no place for any great meridional line, such as we hope to see in Africa. Mr. Barclay has pointed out what may eventually happen in the way of a combined railway and river route, but I cannot imagine that any railway will ever cross the great Amazonian basin from north to south, and I think that will prove a drawback to the development of the country. We have been told that trans-continental lines connecting up with sea communication with New Zealand and Australia will be exceedingly advantageous. No doubt it would be so; but we must remember that there are very serious competitors in the field further north, and first of all the Panamá Canal, which I may say parenthetically is a brilliant instance of how a magnificent and most expensive undertaking was projected without proper geographical knowledge. I cannot imagine that it would have been cut where it is had there been a little further knowledge of the Atrato line. I am most anxious to hear of the completion of a Patagonian line, because I am convinced that there is a good deal more than through traffic to warrant its

construction. I hope to see all the Lake region brought into direct connection with Europe. Finally I must congratulate Mr. Barclay on the diligence and success with which he has collected the enormous amount of information on the railways of South America.

The PRESIDENT : I regret that the hour does not allow me to call upon other gentlemen here who might add to our knowledge of South America. We have had a large subject dealt with in a very able manner, and I am not going to detain you with any remarks of my own. I will, however, make one comment on that interesting remark of Lord Kitchener's which was reported to us. I am sure the idea of a through steamboat and railway route home *via* South America would be very popular in Australia and New Zealand. My reason for so thinking is that when I was in Japan three years ago I met several parties of Australians. I asked them why they were there : they said they were going home to England. I asked why they were going that way ; they replied, "Oh, well, we have been by all the ordinary routes and we are trying to find a new one." I think if a still newer route was added it would be welcome to our Australian relations. I can only add our thanks to the Lecturer for the many facts he has put before us in such a clear way.

THE SOUTH-WEST AFRICA PROTECTORATE

T. Tönnesen, C.E.

Map following p. 320.

IN attempting to give a sketch of a country nearly three times the size of Great Britain and Ireland, I have found it necessary to avail myself of different sources of information, in addition to my personal knowledge of the Protectorate, which dates back to 1899. It is hoped that the paper, although inadequate, will contribute to some extent towards the knowledge of the country. The map is based by permission on one published by the weekly journal *South Africa*. I have added the different mineral finds and the curves of rainfall.

The Protectorate of South-West Africa is bounded on the north by Angola and Rhodesia, on the east by Bechuanaland, on the south by Cape Colony, and on the west by the Atlantic Ocean. The extreme distance from the northern to the southern boundary is roughly 800 miles. The width (excluding the Caprivi Belt) tapers from 620 miles in the north to 220 miles in the south. A wedge-shaped projection, the so-called Caprivi Belt, extends from the north-east corner of the Protectorate to within 40 miles of the Victoria Falls. The area of the Protectorate has been estimated at 322,400 square miles.

The country is a vast plateau with altitudes varying from 3000 to 5000 feet. The plateau proper is reached at a distance of about 100 miles from the coast, the ground rising at first gradually and then somewhat abruptly to the plateau. The Protectorate may be divided into the following physical regions : The Namib, Damaraland, the Karst Region, Kaokoveld, Great Namaqualand, and the Kalahari, including Amboland.