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The River Paraná: An Economic Survey: Discussion

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tie, but little real community of interest. There is a minimum of commercial interchange from shore to shore, and of the area between it is safe to say that there is scarcely a single product, raised along the tropic parallels of latitude which transect the Paraná watershed, which could bear an east-and-west freight in competition with the easier outlet south to the Plate estuary.

Now at last in our day progress is being made in the great neglected central zone watered by the Paraná, and here, as has been shown, the main line of advance will still be south and north. For if we accept the statement that mountains are the true frontiers of nations, then the reverse also holds true, and the valleys that connect them are their best and natural highways. So, when the railroads which already link Patagonia to Paraguay extend further along the great "llanos" overshadowed by the Andes, right up to a navigable port on the Amazon, they will strengthen, better than any words or treaties, the ties of rational trade and intercourse between the republics whose hinterlands meet in the Paraná watershed.

Economic forces are already working in either region to join hands. The Madeira falls railway, in construction to join the upper and lower Amazon valley, the railroads heading north through the Chaco forest, the Entre Rios train-ferry and other branch lines linking Buenos Aires to Asuncion,—all obey the same inevitable tendency. The 15,000 miles of railroads serving the temperate prairies of Argentina will in time be brought into touch with 30,000 miles of navigable waterways which ramify through the tropic Amazon valley. But the economic conquest of the Paraná watershed will not be brought about by strategic sallies down the bleak Andean plateaux or across from the scarped coast-line of Brazil; rather by progress, slow but sure, from the broad base of its delta, along the open pampas which lead the great river into the very heart of the continent.

The PRESIDENT (before the paper): Mr. Barclay, the reader of the paper to-night, has been connected with South America in one region or another for a considerable number of years. Five years ago he contributed to our *Journal* an extremely interesting paper on the Land of the Magellanes and on the Ona and various Indian tribes bordering on the Straits of Magellan. The region with which he deals to-night is exceptionally interesting, whether we regard it from a hydrographical, geographical, racial, or an economic point of view. As Mr. Barclay has a good deal to say, and as I hope there are a considerable number here present who from their special knowledge of this part of the world will take part in the discussion, I will do no more than call on Mr. Barclay to be kind enough to read his paper.

The PRESIDENT (after the paper): In opening the discussion to-night on this very interesting paper, I know that there are a number here present who are well acquainted with this district, and who will have much which is of interest to say, but I am quite sure I am speaking in the name of every one here present when I say that there is one voice above all others which we wish to listen to first to-night,

and that is the voice of our late honoured President, Sir Clements Markham. We are delighted to see him again at our evening meetings, and that is reason enough for calling on him first, even if he were not one of the greatest authorities on the geography of South America. I hope he will say a few words.

Sir CLEMENTS MARKHAM: I am sure we have all listened with great interest to this admirable paper on the great river Paraná. There are many points that have probably struck most of the audience in the paper, which I had the pleasure of reading before I came here, and one which struck me perhaps most was Mr. Barclay's reference to the continuity of the flats between the headwaters of the Paraguay and the headwaters of the Amazon. The grandest features of South America are the magnificent Cordilleras of the Andes, but almost as grand are its great river-basins, unequalled in any other part of the world, and when the time comes, and it will probably come, when those two great river systems of the Amazon and the La Plata are connected, there will be a highway along almost the whole length of the centre of South America, with a constant ebb and flow of commerce over its hundreds of navigable channels. We must, however, remember, as Mr. Barclay has reminded us, that the power of nature is greater than the power of man, and that when the great floods come down with their rains and snows from the mountains, there is no power of man that can check them. If I remember rightly, Mr. Barclay said, "No *present* power of man can control them," by which I suppose, he means that he looks forward to a future time when man will be able to control these tremendous floods; I hope it may be so. The other point of great interest in Mr. Barclay's paper is the vast region in this part of the world which is suitable for colonization of various races. I think he said that in Matto Grosso and Goyaz alone there were unoccupied savannahs and pastures covering a greater area than the whole of the state of Texas, and quite as fertile. I think it must be clear to us all that there is a great future before this Republic of Argentina. We have had descriptions of its rivers before now in this hall. I would refer first and foremost to the greatest of South American geographers, our old friend and colleague, Francisco Moreno; then there was Don Ramon Lista, who also explored that territory of the Misiones which was the subject of a very interesting part of Mr. Barclay's paper. I remember, also, those great navigators, the Pages, father and son, who described to us, with a long interval of time between them, the headwaters of the Paraguay and the lower reaches of the Paraná. We have heard all these papers in this room, but on the whole I must say that I think Mr. Barclay's paper was as detailed, as interesting, and as informing as most of the others. We admire the splendid work of our Argentine colleagues, and I am quite sure that they will heartily join with us in our appreciation of this excellent paper by Mr. Barclay.

Mr. FOLLETT HOLT: Being closely connected with South America, I am only one of many who will hail this important paper from Mr. Barclay with much pleasure. It is very rarely indeed one hears in London any reference to the physical features of South America. I spend several months in each year in England, and frequently am asked as to the progress of this or that enterprise, but never is any curiosity shown as to the economic or political development of the South American countries or races, although they are becoming, as we know, a factor to be reckoned with in the world's equation. In his paper, Mr. Barclay mentions incidentally that the opening up of the centre part of the continent must come from the valley district of the Paraná. This is not in agreement with the ideas of the North Americans, who have interested themselves of recent years in the proposed Pan-American railway, which must in the future link up the Americas with a through road of standard gauge from north to south. They profess to adhere to a

project for joining up and extending the meandering lines of varying gauge that exist on the slopes of the Andes, and thus to unite the north with the south. In my opinion that line would be of little practical use for the high mission in view, of mixed gauges carved through the Andean range, it would, in fact, be but a costly parallel to the coast route of the Pacific ocean. The line required must be of international gauge, and in its route from Panamá to Buenos Aires must bisect the immense continent to take to its very heart for the benefit of the world the administration, control, and population already enjoyed by the settlements on its Pacific and Atlantic coast-line. With this in view during the last few years a few railroad men have been forcing a railway of the 4 feet 8½ inches gauge from Buenos Aires, the metropolis of the south through to the centre of Paraguay. The line, having passed from the Argentine to the republic of Paraguay, has now to pass on to Brazil, and through from Brazil to Colombia and Panamá. There is, however, unfortunately, the same lack of brotherly love between nations in America as there is in Europe; the railroads cannot do more for the time than they have done, and if the exploration now necessary to guide us to the route we should champion is left to international negotiations, it is improbable that any of us here will live to see a further step forward. I would humbly suggest that here is an opportunity for this great Society. We railway people connected with the Argentine and Paraguay cannot go further than we have gone, and we know even as the railhead must precede the colonist, so must the geographer precede the railhead. We now want his aid in this world's work; the travels of the skilled geographer helped the way from the Cape to Cairo, and his presence is necessary now on another continent. So it is you are face to face with an opportunity of correcting and adding to the much neglected map of South America, and of pointing through the heart of its dark continent the highway which would advance its population, productiveness, and civilization by a hundred years. Under the ægis of the Royal Geographical Society, an expedition with this object, I feel sure, would meet with ready support from the many wealthy and influential South Americans interested in the future of this great continent. The main difficulty that has to be faced is the crossing of the valley and the headwaters of the Amazon, but I think that if we have been able, in our humble way, to cross the delta of the great Paraná river, so, following the footsteps of the geographers, should we be able in good time to find a means of crossing with this railroad we have so much at heart the sources of the mighty Amazon.

Mr. V. BRANFORD: I should like to associate myself with what has been said as to the value of Mr. Barclay's paper, which, as a combination of pure and applied geography, seems to me quite a model. It was really two papers, by the way. I had the pleasure of reading the written paper, which will appear in the *Journal*; but such is his mastery of the subject Mr. Barclay gave a different paper to-night—improvising to suit his lantern-slides. For those who travel in these regions, Mr. Barclay's paper will mark something like an epoch. When we go back, we shall see a new significance in what seemed to us familiar phenomena. As to the details of Mr. Barclay's paper, I will say little more than a single word, and that by way of supplementing what he said as to the cataclysmic character of the floods. I happened to be in the Gran Chaco after the great flood of 1905. I was unable to find the mouth of the Pilcomayo river at the spot it is marked on the maps. It had, in fact, been shifted several miles from its old bed. The significance of this comes home to us if we remember that the Pilcomayo, though only a tributary of a tributary of the Paraná, yet according to European standards might be almost called a first-rate river. The general conclusion from Mr. Barclay's paper, I take it, is this: That the river Plate region is no exception

to the general principle that trade tends to develop in a north-and-south rather than in an east-and-west direction, *i.e.* along lines of longitude rather than along lines of latitude. Colonel Church has given us some important clues to South American geography, and one is glad to have this opportunity of expressing one's deep indebtedness to his writings. The traveller in South America is bewildered by the vastness and variety of his observational data unless he has some guiding principles, and he finds these, to a great extent, in Colonel Church's papers. One of these clues is that the South American continent is relatively backward in its economic development as compared with North America, not because of any differences in the races who have developed it, but because of the geographical fact that the South American continent is walled in by an almost unclimbable chain of mountains, with only four gateways, and one is the river Plate gateway. Mr. Barclay has told us of the means of communication which are pushing up northwards to connect the great central region with its river Plate gateway. Then he has raised the question of future policy, and it is particularly appropriate that that should be raised here in London, because we to some extent have fallen a little behind in respect of our attention to the economic importance of this region. Germany especially is paying attention to the economic importance of this region, and that in a great many ways. I will instance one only. For many years it has been customary to appoint to the Ministry in Buenos Aires a German representative of first-rate ability and experience, and not only that, but Germany has discovered there is such a thing as applied geography. The German Government provides its diplomatic representative with an expert in economic geography. The resources of geographical and economic science are utilized to make serious studies of those regional problems which touch practical affairs. Thus it comes about that the German Government, German traders, and German settlers are equipped, not only with fuller information about the present, but are also more adequately guided in their policy for the future than other peoples interested in this region. I commend Mr. Barclay's paper and its masterly indication of policy to British diplomatists as well as to British financiers and traders.

COLONEL CHURCH : The region through which Mr. Barclay has taken us to-night is the most interesting one east of the Andes, but I am not of opinion that it is going to be developed principally by way of the Rio de la Plata. The commercial value of this great estuary depends on its depth of water, which, at most, is sufficient to admit vessels drawing 24 feet. In this era of increasingly heavy draft of ships, the Plata must yield, so far as the valley of the upper Paraná river is concerned, to the deep-water ports facing it on the Atlantic coast. The lecturer thinks that the barrier of the Brazilian coast range of highlands, 2000 to 3000 feet high, will prevent direct railway access with the sea. It is, however, not an important engineering feat to scale the Serra-do-Mar. The best paying railway in South America crosses it to-day, and other lines are under construction by private capital.

Until very recently, no emigrant who landed in Buenos Aires thought of going to Entre Rios or Corrientes, on account of the difficulties of the journey and the length of time required. Now that is changed by the train-ferry across the river Paraná, which puts the great city of Buenos Aires in direct connection by rail with the provinces mentioned, and, soon, it will be possible to take this railway route to the capital of Paraguay. There is a great future for all of this region. Its development has practically just commenced, and the railways controlling the outlets of its vast natural resources are destined to have an immense traffic.

THE PRESIDENT : The time is getting on, and it is time to bring this discussion to a close. Before I do so, I should like to ask the lecturer one question on my

own behalf. After reading his very interesting paper, the work which I went to in order to refresh my memory was a book called the 'Voyage of the Beagle.' There I learnt that even in the year 1833, my father was lamenting the slow growth of the population in this same country. He put it down to the want of energy amongst the people of the country. I do not think he altogether recognized the physical difficulties to be met with. He did mention the floods, and also the great drought which had occurred two or three years before he travelled in this land. In Buenos Aires alone a million cattle died. I should like to know from the lecturer whether any such great drought has recurred; and whether droughts of this description have had an effect in stopping migration towards the upper waters of the Paraguay. Before I ask Mr. Barclay to reply, I am quite sure I shall in the name of every one here present thank him very sincerely for his admirable lecture, and for the beautiful slides he has shown us.

Mr. BARCLAY: In reply to our President's question, I can only say that I went through a bad drought in Uruguay in 1893, which lasted for three years. My neighbours lost about 80 per cent. of all their cattle. One man, out of 2400 cattle, lost all but one cow, and he went and cut her throat, so as to make it a clean job. That was an exceptional drought, but I do not think that in the long run it retarded progress. In the newly fenced southern areas, I think, droughts have sometimes hastened the agricultural evolution of the river Plate country, by killing off large numbers of unprofitable native stock, and obliging people to plough up their ground for wheat. How far droughts have affected the northern interior country, I cannot say. Probably they are not much to blame for its lack of population, for, even in early accounts, there does not seem to have been many more people there than to-day. I will ask Colonel Church to excuse me if I still differ from him. I did not mean to imply that no line would be built from the Brazilian seaboard towards the interior. The Brazilian Government may think a strategic line necessary in order to open up this country. Mr. Holt has hinted at a deadlock in this matter of railroad advance north from the Delta. The stoppage can only be temporary, for the railways will be forced to move as soon as people want to open up the country ahead of them. Meantime, I welcome his suggestion. If his railroad and the other railroads interested were to approach this Society and say, "We will equip an expedition, if you will give us the benefit of your experience as to the best lines on which to run it and whom to send," I am sure such an expedition could not fail to be of interest and benefit. Mr. Holt has referred to the successful bridging of the Delta by rail and train-ferry as affording some small help to the railway advance northwards. That fine undertaking always struck me as being the reverse of small. But I am glad that Mr. Holt takes this view, because then I cannot conceive how there will be any difficulty at all with regard to the still smaller, yet not unimportant, matter of sending an expedition ahead, to find out what is waiting for the railroads in the far interior of the country.

THE DANISH NORTH-EAST GREENLAND EXPEDITION.*

By Lieut. A. TROLLE, R.D.N.

It is a great honour to me to be allowed to give an account of the Danish North-East Greenland Expedition before a Society which numbers among its members so many famous explorers. By a tragical death our leader,

* Read at the Royal Geographical Society, December 7, 1908. Map. p. 116.