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Ecology, International Cooperation and the Biogeographic Configuration of Brazil

Pierre Dansereau and the Brazil-Canada
Scientific Agreement in the 1940s

Ecologia, cooperação internacional e configuração biogeográfica do Brasil

Pierre Dansereau e o acordo científico
Brasil-Canadá nos anos 1940

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ABSTRACT The article analyzes work done in Brazil by Canadian ecologist Pierre Dansereau (1911-2011) under a scientific cooperation agreement between the Intellectual Cooperation Division of the Brazilian Ministry of Foreign Affairs and the Canadian Embassy, signed in 1944. Dansereau, a leading figure in twentieth-century ecology, came to Brazil in 1945 as director of the Quebec Province Biogeography Service. His proposed ecological research plan called for the organization of scientific expeditions, specialized staff training, and future international cooperation with such Brazilian institutions as the National Museum, the National Geography Council, and the Oswaldo Cruz Institute. His stay in Brazil affords an opportunity to analyze the interrelations between the geopolitics of Brazilian developmentalism, Quebec nationalism, Pan-Americanism as an intellectual movement, and the attempt to establish a francophone research network in biogeography, ecology, and plant sociology.

KEYWORDS Pierre Dansereau, history of ecology, international scientific relations

RESUMO O artigo analisa o trabalho realizado no Brasil pelo ecólogo canadense Pierre Dansereau (1911-2011), por meio de acordo científico firmado entre a Divisão de Cooperação Intelectual do Ministério das Relações Exteriores e a Embaixada do Canadá no país em 1944. Dansereau é considerado um dos principais nomes da ecologia no século XX e veio ao Brasil em 1945 como diretor do Serviço de Biogeografia da Província do Québec. Seu plano de estudos ecológicos previa expedições científicas, formação de pessoal especializado e perspectivas de cooperação internacional com instituições como o Museu Nacional, o Conselho Nacional de Geografia e o Instituto Oswaldo Cruz. Sua viagem ao Brasil permite analisar as inter-relações entre a geopolítica do desenvolvimento brasileiro, o nacionalismo quebequense, o panamericanismo como movimento intelectual e a tentativa de estabelecimento de rede francófona de pesquisa em biogeografia, ecologia e sociologia vegetal.

PALAVRAS-CHAVE Pierre Dansereau, história da ecologia, relações científicas internacionais

INTRODUCTION

The article analyzes the work done in Brazil by Canadian ecologist Pierre Dansereau (1911-2011) under a scientific agreement signed by Brazil and Canada in 1944. The Canadian ecologist Pierre Dansereau, a leading figure in twentieth-century ecology, traveled to Brazil at the close of World War II and spent August 1945 through October 1946 steadily engaged in research and teaching activities there, with funding from the Brazilian government. The trip came about under a scientific cooperation agreement signed by the Brazilian Ministry of Foreign Affairs' Intellectual Cooperation Division (Divisão de Cooperação Intelectual) and the Canadian Embassy in Brazil.

Dansereau's stay in Brazil exemplifies a historical phenomenon to which the historiography of science has paid substantial attention in recent years, that is, international scientific cooperation, particularly with a focus on the interwar period and analysis of the multifaceted activities of experts and their varied ties and zones of circulation. These experts were scientists who acted somewhat like cultural diplomats, or double, triple, if not "multi-agents," taking part in local activities that conjoined a gamut of interests, from personal to professional, from institutional to political (Palmer, 2015; 2004; Silva, 2011). In Brazil, this line of research has highlighted the diplomatic battles waged over cultural hegemony in Latin America as well as the extremely dynamic versions of intellectual cooperation then engaged in by, on the one hand, Brazilians and, on the other, Americans, the French, the Japanese, and Germans (Benchimol, 2013; 2009; Ferreira, 2012; 2005; Gambini, 1977; Garcia, 2006; Kodama; Sá, 2013; Lessa, 2002; Maio, 2005; Marinho, 2001; Sá, 2009; Sá; Benchimol; Kropf; Viana; Silva, 2009; Rolim; Sá 2013; Sá; Silva, 2010; Sá; Viana, 2012; 2010; Suppo, 2016; 2013; 2003; 2001; 2000; 1995; Suppo; Lessa, 2012; 2004; Tota, 2005; 2000). But Canada has yet to merit any systematic studies in a similar interpretative vein. The Dansereau case provides an opportunity to analyze the interrelations between the geopolitics of Brazilian developmentalism, Quebecois nationalism, Pan-Americanism

as an intellectual movement, and the endeavor to forge a francophone research network in biogeography, ecology, and plant sociology.

While the type of scientific cooperation of concern to us here was international, it did not fit the mold of a center-periphery division, a topic that has been quite thoroughly problematized (Basala, 1967). Recent historiography has instead approached from the perspective of multicentric scientific production, characterized by highly differentiated fields of knowledge and an emphasis on communication networks, alliances, exchange programs, and cultural hybridism; the crisscrossing of national borders and fields of scientific knowledge; the circulation of ideas, people, and technological artifacts; and synchrony, reciprocity, and intersections between groups and working relations (Charle, 2006; Charle; Schriewer; Wagner, 2004; Figueirôa, 1998; Kropf; Hochman, 2011; Macleod, 1989; 1987; McCook, 2013; 2002; Palmer; Hochman, 2010; Petitjean, 1996).¹ In the case at hand, the central character was an expert whose Brazilian peers treated him as a mentor even though he came from a region then considered peripheral within Canada and North America. Further, he faced serious opposition to his efforts to establish a career in Montréal and did not yet enjoy the world renown he attained in the 1970s because of his famous “*boule de flèches*” (sometimes referred to as the “ball of arrows”), an analytical model that represents the multi-directionality of material and energy transfers between different components within one same ecosystem and between neighboring ecosystems. Stressing the trophic levels of investment that typify human activity, Dansereau’s scheme underscored the ecological injustice of modern models of human consumption, which he saw as exercising control ever increasingly distant ecosystems, stripping them of natural

1 One of the authors of this article (PALMER) has analyzed Canada-Brazil scientific cooperation as part of a study on informal exchange networks among public health specialists and their research on vaccine production as part of the World Health Organization’s global Smallpox Eradication Program (1966-1977). The research sought to gain a better understanding of intellectual collaboration in multiple, transient, and fairly non-formal shared work forums like international conferences and committees. PALMER; HOCHMAN, 2010.

resources and leaving behind waste and the remains of industrial production (Audet, 2012).²

Dansereau's development of his *boule de flèches* model and his introduction of the concepts of "écodécision" and "joyous austerity" earned him worldwide prominence in twentieth-century ecology, environmentalism, and sustainable development. Additionally, his analysis of the successive phases of escalating human impact on the environment through agriculture and industrialization made him a pioneer in human ecology. He did work in urban ecology as well and studied the dynamics of tropical, temperate, and arctic forests.³ Dansereau made several return trips to Brazil through the 1990s (by which time he had attained fame) and maintained partnerships with former Brazilian students while forming new ties with professionals in the field of urban ecology, who sponsored events and publications in his honor and published analyses of his work (Vieira; Ribeiro, 1999). Further research has been done more recently, encompassing Dansereau's friendships and intellectual interactions with Brazilian students and collaborators and his role in the later institutionalization of ecology in Brazil (Schwarz, 2015; Fernandes, 2015). But his first and longest stay in Brazil, the one that launched long-lasting cooperative relationships with Brazilian professionals in the design of local research programs, has never been the object of systematic study.⁴ That is the goal of this article.

A YOUNG MAN IN CANADA

Dansereau was born into a prosperous family of Montréal landowners in 1911. In 1932, he and two friends at the Université de Montréal, André

2 DANSEREAU, Pierre. *L'envers et c'endroït: le désir, le besoin et la capacité*. Québec: Musée de la civilisation, 1994; DANSEREAU, Pierre. Les dimensions écologiques de l'espace urbain. *Cahiers de géographie du Québec*, vol. 31, n. 84, p.333-395, 1987.

3 The bibliography on Dansereau is vast. For a synopsis of his career, see the outstanding virtual exhibit "Pierre Dansereau, écologiste" at: <http://www.archives-expopd.uqam.ca/>.

4 The earliest studies are SÁ, 2011; SÁ; SÁ, 2015.

Laurendeau and Gérard Fillon, founded the Jeune-Canada movement, of which he was the first president. Dansereau, Laurendeau, and Fillon had been friends since their high school years at Collège Sainte-Marie and members of literary groups like Club X and Cercle Crémazie. Young Canada was a Catholic, nationalist, Quebecois movement of well-to-do youth from Outremont, a wealthy area of the city. Under the motto “*Maîtres chez nous*” (“masters in our own home”), the group called for greater provincial autonomy for Quebec and a bilingual Canada. The nationalist movement had the support of the Ligue d’Action Française, led by Lionel Groulx, a priest, historian, and professor of the Canadian history of Quebec at the Université de Montréal. Released in December 1932, its founding manifesto bore the signatures of 75,000 supporters and sympathizers (Bienvenue, 2003; Chouinard, 1986). The movement espoused a traditional, conservative brand of nationalism, and although its members often found themselves at odds over separatism, sovereignty, and political independence at the provincial level, they stood stalwartly behind one fundamental principle: joint commitment to the ongoing advocacy of local patriotism.⁵ Young Canada also opposed the liberal Quebecois party and pushed for economic protectionism, dissemination of the French language, and immersion in rural life through such tactics as speaking on radio broadcasts, publishing political texts in nationalist newspapers like *Action nationale* and *Le Devoir*, and promoting frequent popular assemblies and guided visits to schools (Chouinard, 1986).

The shared values of this student group had roots in local nationalist movements, ranging from New France to Lower Canada during the eighteenth through twentieth centuries. In particular, the autonomist Lower Canada movement, with its motto “*Notre religion, notre langue, nos lois*” (our religion, our language, our laws), had a number of guiding values in common with Quebecois nationalism of the 1930s, including an emphasis on local customs and traditional social values revolving around family, Catholicism, and the struggle against British dominance

5 DANSEREAU, Pierre. Jeune Canada. *Le Quartier Latin* (Montréal), p.01-02, 23 fév. 1933.

in the region (Lamonde, 2011). One of these values is especially pertinent to the Dansereau case and his stay in Brazil: the feeling of belonging to the Americas historically.⁶

Dansereau received his undergraduate degree in the classics in 1931. Intending to pursue a diplomatic career, he began studying law in 1932, but he eventually switched to agriculture. Clashes with other independentist members and a desire to devote more time to the Oka Agricultural Institute prompted him to cut ties, in 1935, with the nationalist movement (which died out in 1938). In 1936, he received his degree in botany and horticulture from Oka, which was also attached to the Université de Montréal.

Dansereau received further training in the field at the Université de Genève, where he completed his doctorate in plant taxonomy and geography in 1939. He inaugurated his career at the Montréal Botanical Garden, where he worked from 1939 to 1942. At the time he moved to

6 In 1791, in response to U.S. independence, the province of Quebec was divided into Lower and Upper Canada (Bas-Canada and Haut-Canada) to enhance control of the territories under Great Britain's jurisdiction. The practice of Catholicism and use of the French civil code were tolerated in Lower Canada, but absolute veto power was held by the British monarchy, which began heavily promoting English and Irish colonization of the region in the early nineteenth century. This movement gave birth to Parti Canadien (later renamed Parti Patriote) and the newspaper *Le Canadien*, which expressly defended the province's right to administrative autonomy and sovereignty vis-à-vis the British crown (LAMONDE, 2011; 2004). In the first half of the nineteenth century, Britain had a strong presence in Lower Canada, which is particularly apparent in the establishment of the Bank of Montreal and McGill University. Concomitantly, Upper Canada saw growing support for the idea of joining the two provinces and creating a single colony of British culture and language. The Patriots Rebellion against British unifiers and legalists took place in 1837. Lower Canada declared its independence in 1838 and the Republic was proclaimed. But the movement was defeated and in 1841 the United Province of Canada was formed from the union of Upper and Lower Canada, with the goal of complete cultural assimilation of French speakers. This put Lower Canada's French-Catholic majority in a situation of legal inferiority to Canada-Uni (LAMONDE, 2011; 2004). The Lower Canada movement was coeval with other independence movements in the Americas, like those in the United States, Paraguay, Brazil, Chile, Peru, and Colombia, although, as far as its defeat, a closer parallel can be drawn to the European metropolis, especially Ireland and Scotland. Despite its autonomist struggle, French Canada maintained a political identity with Europe, both materially and symbolically, even in the broader context of separatist movements in the Americas. Canada gained independence from Great Britain in 1867, but autonomist and pro-Quebec sovereignty movements lasted into the twentieth century.

Brazil, he was serving as director of the Quebec Province Biogeography Service, located at the Université de Montréal. Established in late 1942/early 1943, there was a center for ecological research on the distribution and adaptation of plants and animals in Quebec Province, which had implications in forestry, hunting, fishing, and agriculture.⁷

The Biogeography Service was a robust organization both financially and institutionally. It operated as a sector of the botany department within the Biology Institute but enjoyed administrative autonomy. Because it received resources from both the Quebec Province government as well as Canada's National Research Council (NRC), it could completely forego university support.⁸ This was a highly unusual situation, which, to judge from the administrative records of the service and of the institute and university, most likely owed much to the family capital of its director, that is, to Dansereau's roots in Montréal's intellectual and social elite.

Autobiographical records show that from early on, Dansereau asked for help in the professional arena from friends of his influential father, Lucien Dansereau.⁹ But there was no single reason why the Biogeography

7 *Bulletin du Service de Biogéographie*, 1945-1959, 22P-660:001/233-234; *Canada: Service de Biogéographie*, 1947, 22P-660:01/796; *Rapport des travaux du Service de Biogéographie pour les années 1943-1949*, 22P-660:01/230-232. Fonds Pierre Dansereau, Archives de l'UQÀM.

8 Annexe au procès-verbal de la 237ième réunion du Conseil de la Faculté des Sciences, oct. 03, 1942 (on the proposal to establish the Biogeography Service); Extrait du procès-verbal de la 238ième réunion du Conseil de la Faculté des Sciences, nov. 10, 1942 (on the approval to establish the service); Extrait du procès-verbal de la 239ième réunion du Conseil de la Faculté des Sciences, déc. 09, 1942 (on funding the service); Extrait du procès-verbal de la 247ième réunion du Conseil de la Faculté des Sciences, aug. 25, 1943 (on the Province of Quebec's financial support for the service); Extrait du procès-verbal de la 250ième réunion du Conseil de la Faculté des Sciences, nov. 26, 1943 (on the service's "independence" from the Biology Institute and the university); Extrait du procès-verbal de la 251ième réunion du Conseil de la Faculté des Sciences, jan. 10, 1944 (on disagreements over the service operating out of the university, given its sizeable outside funding). Source folder: 128.8-3.8, Archives de l'Université de Montréal.

9 DANSEREAU, Pierre. *La Lancée: 1911-1936 – Projets inachevés*, vol. 1. Autobiographie. Québec: Éditions Multimonde, 2005. See also Une vie politique. *Le Devoir*, oct. 01, 2011. <http://www.ledevoir.com/environnement/actualites-sur-l-environnement/332602/une-vie-politique-un-jeune-homme-fonde-avec-andre-laurendeau-les-jeune-canada>; Accessed: sep. 13, 2016.

Service had various sources of financing. As to the interests motivating Dansereau's supporters, it should be stated that the government of Quebec did not fund movements for provincial autonomy but fostered francophone cultural propaganda abroad. Within this framework, the province envisioned the service as a spearhead for the internationalization of Quebec (better put, French Canada), its purported singularity, and its independence from the United States, England, and France itself.¹⁰ For its part, the NRC had been created and promoted as part of the Canadian war effort, so that the country could equip itself as a raw material production center, substituting the European countries battered by World War II. At that moment, the council was particularly interested in sponsoring experiments to tropicalize plant species and diversify the country's forestry and timber industry.¹¹ Yet the privileged position enjoyed by the Biogeography Service caused it some institutional discomfort. Much pressure was put on Dansereau to subordinate himself to the university board, especially to the botany sector, allowing the entire Biology Institute to have a share of the outside funding received by the service. The Université de Montréal's alternative suggestion was to transfer the service to the Montréal Botanical Garden, preserving the continuity of Dansereau's research but not his ability to recruit students or teach.¹² Turning to his family capital, Dansereau crafted his own alternative: a stay in Brazil. In his mind, the trip would allow him to engage in cultural diplomacy in support of the Quebec government, fulfill the NRC's priority research agenda, temporarily escape university pressures, beef up his resume and career, and further

10 Correspondence between Dansereau and his doctoral advisor, Braun-Blanquet: mar. 05, 1945; nov. 25, 1945; mar. 20, 1946; may 14, 1946. Source folder: Vie Professionnelle – Correspondances – Braun-Blanquet 1938-1975. Fonds Pierre Dansereau, Archives de l'Université de Québec à Montréal (UQÀM), 22P.030-01/725.

11 National Research Council, Canada. Typewritten copy of lecture given at the Getúlio Vargas Foundation on mar. 28, 1946. Source folder: Vie Professionnelle – Correspondances – Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 030:12/105.

12 Diary of Dansereau's trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 620: 04/19.

validate both his field of expertise and the institute he led.¹³ His idea also included a work plan developed in conjunction with his former doctoral advisor, Swiss botanist Braun-Blanquet (1884-1980), with the goal of fashioning a “francophone triangulation” of cooperation involving biogeography, plant sociology, and ecology, where Switzerland, Quebec, and Belgium would serve as hubs for the dissemination of scientific production. Dansereau’s ultimate goal was to isolate and supersede U.S. scholarship in the field.¹⁴

THE BRAZIL-CANADA SCIENTIFIC AGREEMENT

Intellectual capital, family capital, and ties of friendship all buttressed the decision to offer Dansereau a fellowship funded by the Brazilian government under the scientific agreement signed between Brazil and Canada in 1944. A personal friend of Dansereau’s, Jean Désy (1893-1960), was an intermediary.¹⁵ As a diplomatic representative of Canada in Brazil since 1941, Désy had been the force behind a number of trade and cooperation treaties in the area of shipping. In 1943, he was appointed Canada’s first ambassador to Brazil.¹⁶

The scientific agreement was a product both of Désy’s investment in bilateral cooperation and of his belief in Pan-Americanism as a political

13 Diary of Dansereau’s trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l’UQÀM, 22P.620:04/19.

14 Correspondence between Dansereau and Braun-Blanquet: mar. 05, 1945; nov. 25, 1945; mar. 20, 1946; and may 14, 1946. Source folder: Vie Professionnelle – Correspondances – Braun-Blanquet 1938-1975, Fonds Pierre Dansereau, Archives de l’UQÀM, 22P.030-01/725.

15 Dansereau’s and Désy’s wives were also close friends, as evident in the decades-long exchange of correspondence between the families. Source folder: Vie Professionnelle – Correspondances – Jean Désy. Fonds Pierre Dansereau, Archives de l’UQÀM, 22P.030-01/1532.

16 O Sr. Juan [sic] Désy mostra-se um entusiasta de um maior intercâmbio entre os dois países. Será o representante do Canadá no Brasil. *Correio Paulistano* (São Paulo), p.03, July 24, 1941; Intercâmbio comercial entre o Brasil e o Canadá. *Correio Paulistano* (São Paulo), p.03, sept. 12, 1941; O ministro Jean Désy fez, ontem, entrega de suas credenciais ao Chefe da Nação. Relações econômico culturais brasileiro canadenses. *Correio Paulistano* (São Paulo), p.05, oct. 01, 1941; Missão Econômica Canadense. *O Imparcial* (Rio de Janeiro), p.04, oct. 09, 1941.

strategy for drawing the Iberian, Anglo-Saxon, and French Americas closer together. The Canadian diplomat felt that French America (Quebec) was the least integrated component of this drive toward continental rapprochement. He believed strongly that Canada was American, that its geography evoked its true identity, and that it should be Brazil's true brother in the north, since it had no interest in subjugation but rather in equitable cooperation. This vision was shared by Oswaldo Aranha, at that time Brazil's minister of foreign affairs.¹⁷

Aranha had become well known as a Pan-Americanist during the war. He was adamant that Brazil should draw closer to countries in the northern Americas, in detriment to Europe; he was a member of the Brazilian-based Pan-American civil movement called the Society of the Friends of America (Sociedade dos Amigos da América).¹⁸ This common ideological ground underpinned negotiations that ran from 1943 to 1944 and culminated in the signing of a scientific and cultural cooperation agreement at Brazil's Ministry of Foreign Affairs on May 24, 1944.¹⁹ The agreement called for: increased mutual knowledge on the part of both countries; fellowships and exchange opportunities for experts, especially university professors; the exchange of government,

17 Speeches given by Jean Désy and Oswaldo Aranha at the time of the signing of the Cultural Agreement between Brazil and Canada. Source folder: Pasta Divisão de Cooperação Intelectual, Acervo do Itamaraty.

18 Sociedade dos Amigos da América. CPDOC/FGV: <http://www.fgv.br/cpdoc/acervo/dicionarios/verbete-tematico/sociedade-amigos-da-america>; Accessed: feb. 26, 2016.

19 Canadá e Brasil, sempre unidos. As relações de Comércio e de Cultura entre os dois países, vistas através da palavra do Ministro Jean Désy. *O Dia* (Curitiba), p.01-03, jan. 14, 1943; A importância fundamental do novo pacto. *Jornal do Brasil* (Rio de Janeiro), p.08, may 25, 1944; As solenidades de ontem no Itamaraty: assinados acordos culturais com o Canadá e o Equador. *Correio da Manhã* (Rio de Janeiro), p.02, may 25, 1944; Assinados acordos culturais do Brasil com o Equador e o Canadá: bolsas de estudo e intercâmbio intelectual sob todos os aspectos. *Folha da Noite* (São Paulo), p.02, may 25, 1944; Importante acordo cultural firmado entre Brasil e Canadá – A solenidade no Itamaraty, ontem – Discursos do Chanceler Oswaldo Aranha e Embaixador Jean Désy. Reforçando laços de comunhão espiritual. *Gazeta de Notícias* (Rio de Janeiro), p.01, may 25, 1944; A defesa comum de um ideal comum. Uma realidade política, cultural e espiritual do Brasil. *O Dia* (Curitiba), p.04, dec. 30, 1944; Estabelecido um acordo entre o Canadá e o Brasil. *O Dia* (Curitiba), p.11, feb. 11, 1945; Brasil-Canadá. *Jornal do Comércio* (Rio de Janeiro), p.06, dec. 11, 1945.

scientific, and technical documents; and the heavy promotion of Canadian culture through conferences, radio programs, classroom activities, and film in Brazil.²⁰ Oswaldo Aranha signed the agreement as an ardent defender of Pan-Americanism, but this act was also consonant with the approach that the Ministry of Foreign Affairs (often called Itamaraty) had been enforcing since the 1920s, that is, the promotion of pragmatic cultural activities abroad as an element of national development. The agreement was also seen as a way for Brazil to cement its position of leadership as an emerging power in the Western hemisphere (Dummont; Fléchet, 2014).

Aranha left his ministerial post in 1944, but his replacement, Pedro Leão Velloso, honored the agreement. Alongside trade agreements meant to attract more industrial investment and new markets for Brazilian exports, the new minister opted to prioritize technical and scientific cooperation and tourism and the worldwide promotion of the Brazilian language, arts, and music (Dummont; Fléchet, 2014). Désy consequently introduced regular radio programs on educational stations in Brazil, such as the one in the Federal District, and on other popular stations, like Rádio Nacional.²¹ He also began contributing to *Pensamento da América* (American thought), an Americanist cultural supplement published by the newspaper *A Manhã* from 1941 to 1948 and edited by diplomats. The newspaper had been established as the official organ of the Estado Novo and *Pensamento da América* was intended to promote the Vargas regime's Pan-Americanism and foster so-called "americanidade," or Americanism, understood as the geographic and cultural integration of the nations on the continent and concomitant formation of an American consciousness (Neves; Piazza, 2012). From 1941 to 1942, the supplement was primarily literary and included items on cultural exchange. In 1942,

20 Ministério das Relações Exteriores. Divisão de Atos Internacionais. Acordo Cultural concluído no Rio de Janeiro, por troca de notas, a 24 de maio de 1944. BRASIL. *Diário Oficial da União*. Rio de Janeiro (DF), June 1944, seção 1, p.100066.

21 Instituto Inter-aliado de Alta Cultura. *Diário de Notícias* (Rio de Janeiro), p.06, June 24, 1944; A cultura a serviço da paz. *Gazeta de Notícias* (Rio de Janeiro), p.05, July 12, 1944.

it became a direct instrument of Brazilian foreign policy, emphasizing the history and sentiment of union between the Americas through descriptions of the physical and human features of the continent's countries, edifying biographies of the founding fathers of each nation, advocacy of American solidarity, and a rejection of the influence of non-American nations in continental defense (Minella, 2013, p.218-222).

In tight step with the strengthening of ties between the Americas, the agreement was signed and Désy was assigned to select five professionals from different fields who would research and teach at Brazilian institutions as fellows of the Division of Intellectual Cooperation, a branch of Itamaraty's Political, Economic, and Cultural Department. They would be invited to spend one year, with the possibility of extending their stay. Désy then made a formal invitation to Dansereau, based on his friend's commitment to the internationalization of Canadian science, his support of the political and ideological principle of a united America, and the challenges he was facing in establishing the Biogeography Service at the Université de Montréal.²² The fellows would be guaranteed funding for their round-trip travels, along with a monthly stipend and access to free Portuguese lessons throughout their stay. At the same time, five Brazilians would be sent to Canada, likewise funded by the local government.²³

THE INTERESTS OF THE BRAZILIAN STATE WITHIN THE AGREEMENT WITH CANADA

Dansereau's move to Brazil also had much to do with the geopolitical priorities of the Brazilian nation-state back then and the strong affinities between the Biogeography Service in Montréal and the scientific

22 Désy-Dansereau correspondence, april 25, may 3, may 21, may 28, july 01, and july 17, 1945. Source folder: Vie Professionnelle – Correspondances – Jean Désy. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 030-:01/1532.

23 We could not locate any data or information that would identify the Brazilian fellows included in the cultural agreement.

institutions that received Dansereau in Brazil. In 1938, the Vargas regime established the National Center for Agronomic Teaching and Research (Centro Nacional de Ensino e Pesquisas Agronômicas, or CNEPA) within the Department of Agriculture, unleashing an effort to systemically centralize policies in the realm of territorial surveillance and settlement and to implement economic planning through regional development plans. The federal centralization of political and economic initiatives that stemmed from the intensification of the regime's authoritarianism was felt in many areas, like education and health but also in management of the rural economy. As part of this, the Brazilian State promoted the strategic instrumentalization of science, accompanied by the institutionalization of certain fields, above all in the 1940s. Geography was one of the fields marshaled in this drive to optimize administration of the nation-state. In 1942, the country was divided into five geographic macro-regions. In 1945, these five were further subdivided into micro-regions, or physiographic zones, to which municipalities were assigned (Contel, 2014).

The roots of this territorial division lay in a series of local endeavors by the National Geography Council (Conselho Nacional de Geografia, or CNG), a branch of the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística, or IBGE), efforts that had been initiated in 1937-1938, when the agencies were established under the *Estado Novo*. The CNG was responsible for educating and training professionals in geography and for conducting field expeditions to measure and establish areas within Brazil. The council worked to gather systemized knowledge of the territory by identifying and surveying common features in demography, production, infrastructure, and physiography. It was the conventional wisdom that gaining an understanding of the natural differences and economic potential of Brazil's various regions was vital to sound government planning; ergo, geography should bolster administration of the State. To this end, the government sponsored a number of projects and studies aimed at: drawing up a new map of Brazil (which would be used to find a suitable location for a new federal capital in the interior), defining state borders, investigating

topographical relief, directing settlement programs, monitoring the human settlement process, measuring hydrographic basins, ascertaining spatial patterns in vegetation cover, and promoting expansion of the agricultural frontier (Contel, 2014).

Studies on the natural configuration of the Brazilian territory hardly began with the CNG nor were they limited to it. They gained much momentum thanks both to policies enforced under the Getúlio Vargas and Juscelino Kubitschek administrations and to agricultural production agencies and the institutionalization of the field of agronomy. These agencies were charged with conducting surveys of the “physical basis” of the territory. Phytogeographic information thus guided the regionalization of Brazil, including aspects related to climatology, predominant vegetation cover, and agricultural potential (Sá; Sá, 2015).

Against this backdrop, there was a big push to open departments of ecology and biogeography inside of agricultural research institutions with ties to the CNEPA, like the CNG, as well as within the Oswaldo Cruz Institute (Instituto Oswaldo Cruz, or IOC); the National Museum (Museu Nacional, or NM); and Itatiaia National Park (Parque Nacional de Itatiaia, or PNI), all in Rio de Janeiro, then the nation’s capital.

Dansereau was recruited to set up these sectors and select and train their teams. He stayed in Brazil for 15 months, from August 1945 through October 1946. Although assigned to the CNG, he kept in constant contact with other institutions in order to implement his plan of ecological studies, which called for scientific expeditions, the training of local specialized personnel, and the recruitment of students to French Canada.²⁴ Dansereau introduced Brazil to the analytical plant sociology method that his doctoral advisor, Braun-Blanquet, had devised in the 1930s, and his research focused primarily on processes of plant succession and colonization in *restingas* and high-altitude environments (Sá, 2011).

24 Plano de Estudos Ecológicos (Ecological studies plan). Source folder: Activités Scientifiques, 22P. 620: 01/112; Source folder: Missions Scientifiques – Mission au Brésil – Activités Scientifiques, 620:04/10. Fonds Pierre Dansereau, Archives de l’UQÀM.

As planned, Dansereau was originally assigned to the National Museum. He began his time there by teaching a five-conference course entitled “The plans of biogeography,” held in October 1945 at the Ministry of Agriculture’s Hunting and Fishing Division (Divisão de Caça e Pesca) (Sá, 2011).²⁵ The plan called for field research during excursions to the Tijuca Massif, Pedra Branca and Pedra de Marapicú, islands in Guanabara, Angra dos Reis, and Paraty bays, and dams on the Douro River (now located in the municipality of Queimados) and the Xerém River (now in the municipality of Duque de Caxias), both in the Baixada Fluminense region of Rio de Janeiro State. His work was also to include the gathering of plant and animal specimens for botany and zoology collections that were being assembled jointly by Brazil’s National Museum and the Biogeography Service of Montréal; a trip to Paraná to give a course on physical geography and conduct a field study of Brazilian pines (*araucarias*), in the company of Hilgard Sternberg (2017-2011), geographer at the University of Brazil (Universidade do Brasil); and, lastly, excursions to Itatiaia and Teresópolis, in the company of representatives of the Brazilian government’s Directorate of National Parks (Diretoria de Parques Nacionais), in order to draft a preliminary definition of plant types and levels of human intervention in these locations and draw up forest protection measures. The National Museum would offer Dansereau a position as temporary head of an ecology section, which he was assigned to set up, and provide him with all necessary infrastructure, including assistants, transportation for excursions, funding for travels and technical work at institutions outside Rio de Janeiro, and the packaging of field specimens. However, due to internal budget problems, the National Museum was unable to fulfill the agreement signed with Dansereau, and his ecological research plan was transferred

25 Diary of Dansereau’s trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l’UQÀM, 22P. 620: 04/19.

to the CNG, where the council expanded it, with the support of the Biology Group of the Getúlio Vargas Foundation (FGV).²⁶

In addition to the CNG and FGV, this collaboration also encompassed the University of Brazil, the National Museum, the Botanical Gardens (Jardim Botânico, or JB), the Forestry Service (Serviço Florestal, or SF), the National Parks Division (Divisão de Parques Nacionais), the National School of Agronomy (Escola Nacional de Agronomia), the Ministry of Agriculture's Hunting and Fishing Division, and the Oswaldo Cruz Institute.

Throughout his stay, Dansereau also worked to promote Canada. He gave a number of lectures on the scientific programs of his native country at the Ministry of Education, the University of São Paulo (USP), and the CNG, in the latter case as part of an internal cycle of debates called "Tertúlias Geográficas" (Geographic gatherings). He was accompanied at these events by Désy, other representatives from the Canadian Embassy, and Jacques Tonnancour, artist, man of letters, and Dansereau's contemporary as a fellow under the cooperation agreement. In addition to addressing topics in economics, diplomacy, and science, the lectures described Canada's geographic environment and way of life, promoted its bilingual, bicultural educational system, and offered an in-depth exploration of the country's constitution, politics, arts, music, literature, and history, especially that of French Canada. The lectures were illustrated by color movies of the Canadian landscape, produced and sent to Brazil by the Office Fédéral du Film. The thrust of it all was intense, ongoing cultural exchange between the two countries.²⁷

26 Project for ecological research in the region of Rio de Janeiro during September, October, November, and December 1945. Attached to the diary of Dansereau's trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 620: 04/19.

27 *Présence du Canada au Brésil. Conférences publiques sur le Canada* (Canada's presence in Brazil. Published lectures on Canada). Attached to the diary of Dansereau's trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 620: 04/19.

COOPERATION IN ACTION AND THE BIOGEOGRAPHIC CONFIGURATION OF BRAZIL

Some authors in the history of science, like Warwick Anderson (2004), Paolo Palladino (1996), and Pascal Acot (1990), have called attention to a diffuse, international epistemic community of ecological thought that existed from the 1880s to 1940s. The community was not yet producing scholarship in ecology as a scientific field per se but employed systemic, integrated approaches more complex than environmental or geographic determinism; furthermore, its conceptual structure emphasized such themes as competition, mutualism, and the disturbance of biological balance. The latter in particular was a constant topic within emerging fields of knowledge at applied science institutes in a number of countries, fields then called “agricultural ecology” or “scientific agriculture.” Their common research agenda was based on the clear assumption that all agricultural practice was in artificial opposition to natural plant dynamics, but that it was their role to ameliorate the evils of ecosystem simplification and thus protect the productive capacity of plants species. These fields played major roles not only in Canadian agronomy and entomology, as evident in the work of Palladino, but also in Brazil, through institutes that had ties to the National Agriculture Society (*Sociedade Nacional de Agricultura*), like the National School of Agronomy (Pereira; Sá, 2016).

As stated earlier, a common core of interpretations, concepts, and authors in the realm of ecology lay at the heart of the Brazilian institutes that were founded then, even though their research agendas may have been embryonic and erratic. As part of a strategy to implement and then cement these agendas, Dansereau sought a post at the CNG, where he could make further inroads in researching the Brazilian territory and its organization, including surveys of human, animal, and plant populations; agriculture and natural resources; regional planning; and modernization and diversification of the national economy. With the approval of the CNG, Dansereau drew up a detailed 3-stage work plan

(documentation, fieldwork, and synthesis), which was subdivided into procedural phases. The plan evinces the affinities between the institution and this foreign expert.

Stage A, documentation, would comprise 7 phases. During the first of these, Dansereau and his assistants and students would work together to assemble a collection of maps of Brazilian plants by researching material housed at the collaborating institutions mentioned earlier; they would review natural history works of geographic interest along with maps and charts of various scales, including the products of travel diaries and earlier geographic surveys. Ultimately, their job would be to compile information on the distribution of types of vegetation in Brazil and apply to these fauna the concepts, themes, and approaches shared by the community of ecological thought. Under phase 2, these national, regional, and local maps would be newly organized in view of biogeographic goals. This organization would encompass: spatial distribution; forest conservation, through parks and reserves; competition, succession, and zonation; the migration of human populations and animal species, with a focus on birds and insects; Amazon, rain, subtropical, pine, subalpine, flooded, secondary, and planted forests, along with wetlands, such as swamps, mangroves, and peatlands; the coasts and banks of oceans, rivers, lagoons, and water reservoirs; grasslands (open cerrado, *campos gerais*, pampa, secondary grasslands, flooded grasslands, pasture, alpine pastures); and, lastly, savannahs, *chacos*, and *caatinga*. An iconographic collection would be compiled in phase 3, particularly of photographs drawn from cataloged information on works housed at existing institutional collections. Phases 4 and 5 would be devoted to organizing collections of plant and animal species (respectively) characteristic of each region of Brazil, especially those of economic interest.

New maps on the distribution of plant and animal species would be designed during phase 6 to reflect the ecological boundaries of flora and fauna. The final step of the documentation stage, Phase 7, would be to compile an index of all observations by travelers and naturalists who had made expeditions in Brazil. Recording the dynamics and changes

in plant and animal life and forms of human land use were of special interest.²⁸

Stage B would be devoted to major field work, which Dansereau saw as an opportunity to acquaint his students and assistants with the objects of biogeography and train them both in Braun-Blanquet's plant sociology and in the concept of ecological succession, developed by Frederic Edward Clements (1874-1945). Dansereau hoped to replace mere physical description of the landscape with a dynamic, evolutionary approach. This stage was likewise divided into phases, the first consisting of excursions to specific climate regions. Dansereau explained that his work would be limited to training activities in Rio de Janeiro's coastal *restinga* and Serra do Mar. As he saw it, by restricting research locations, he could ensure the strict application of plant sociology methods to a relatively limited number of species in a brief period of time. This approach did not run counter to his support for the overall goal of the CNG, which was to produce biogeographic knowledge of what were then Brazil's five macro-regions: North, Northeast, East, Central-West, and South. However, this work would be performed by his students and assistants in the years following their training under the program.

Phases 2, 3, 4, and 5 of stage B would consist of fieldwork analysis: division into physiographic zones, with topographic descriptions, and the establishment of meteorological data and data on typical organisms and types of soil within each zone. Phytosociological surveys would determine areas of prevalence for certain species, biological forms, abundance, and sociability and would record observations on the dissemination and propagation of species. Studies of entomological populations were also planned, including a survey of the abundance, dispersion, and activities of various species. Similar studies would be done on populations of mollusks, reptiles, fish, birds, and mammals. Investigations on the impact of human intervention would also be undertaken, with an emphasis on the ways in which different animal and plant species resist

28 Biogeographic research at the National Geography Council. Source folder: Conseil National de Géographie – Correspondances. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P.030: 17/9.

the effects of human action like pasturing, burn-offs, and the construction of roads and railways; a survey of exotic species that invade the countryside following abrupt changes; and the dependence of biological populations in the artificial restoration of landscapes.²⁹

Phase C was scheduled to be the last one coordinated by Dansereau while at the CNG. It would involve the systematization of collected field data, including: calculating the frequency, presence, and stability of each association; mapping associations; determining states of succession; and undertaking a biometric study of species and a comparison of *restinga* associations with equivalent habitats in other countries. Lastly, the plan was to publish original papers on the diversity and wealth of Brazilian flora and fauna, the country's climates, and the differentiated availability of its natural resources. The economic use of these resources was to be reconciled with preventive land-use solutions, especially with an eye on the equilibrium and preservation of forests, pasturelands, croplands, and soil fertility. According to Dansereau, ecology would be particularly helpful in guiding reforestation (spontaneous growth and natural regeneration of plant life), hunting and fishing (conservation and protection of the original environment and natural balance), and hygiene (biological control, based on knowledge of critical aspects of the life cycle of contagious disease vectors).³⁰

According to Dansereau's work plan, the Canadian scientist would share coordination duties with other experts. Lauro Travassos, of the IOC, would be responsible for zoology; Karl Arens, of the FGV, for botany; and Christóvão Leite de Castro, of the CNG, for geography. Assistants would be recruited on the basis of their standing professional interests and institutional ties. The botany team would comprise Luiz Emygdio de Mello Filho (MN), Alexander Curt Brade (JB), J. G.

29 Plan for ecological studies and specialized personnel training. Source folder: Activités Scientifiques. 22P. 620: 01/112; Biogeographic research at the National Geography Council. Source folder: Conseil National de Géographie – Correspondances – 22P.030: 17/9. Fonds Pierre Dansereau, Archives de l'UQÀM.

30 Plan for ecological studies and specialized personnel training. Source folder: Activités Scientifiques. 22P. 620: 01/112. Fonds Pierre Dansereau, Archives de l'UQÀM.

Kuhlmann (JB), Henrique Pimenta Velloso (IOC), Luiz Laboriau (IOC), David Azambuja (JB), and Horácio de Mattos (SF). Zoology was divided into sub-fields among the experts working in Brazil. Entomology would be covered by José Cândido de Mello Carvalho (MN), Hugo Souza Lopes (IOC), Newton Santos (MN), José de Araújo Feio (MN), Oswaldo Frota Pessoa (MN), and Fábio Leoni Werneck (IOC); mollusks, by Lejeune de Oliveira (IOC); crustaceans, by Emanuel Martins (MN); reptiles, by Antenor Leitão de Carvalho (MN); and birds, by Herbert Franzoni Berla (MN). Accompanying Leite de Castro in geography were Francis Ruellan, Hilgard O'Reilly Sternberg, Miguel Lima, and Alfredo Porto Domingues, who had institutional ties with the CNG.³¹

While these teams represented a broad range of fields and institutions, the permanent group selected to accompany Dansereau through the various stages of the ecological research plan, especially the field excursions, was somewhat narrower: Arens, Velloso, Fernando Segadas Vianna, Alfredo Porto Domingues, Laboriau, Brade, Azambuja, Luiz Emygdio de Mello, and Antenor Leitão de Carvalho.³²

As mentioned earlier, Dansereau also taught and trained others during this stay in Brazil, often speaking on topics and approaches common to the day's community of ecological thought. He offered courses at the CNG; the University of Brazil's Department of Geography, part of the National School of Philosophy (FNFi); the FGV Biology Group; and the National School of Agronomy. In these classes, he regularly addressed such topics as: the introduction of new species in biological communities; the overlapping of natural vegetation and crops; the impact on soil, topographical relief, and water systems of human activities like pasturing, fishing, hunting, construction (roads, canals, dams), and vector control through interference in breeding; the practical applications of

31 Plan for ecological studies and specialized personnel training, 22P. 620: 01/112. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQAM.

32 Plan for ecological studies and specialized personnel training, 22P. 620: 01/112; Diary of Dansereau's trip to Brazil, 22P. 620: 04/19. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQAM.

botany; human settlement; rational forest use; plant improvement; the establishment and maintenance of natural balance; and the production of food, fabric, and wood. Beginning in June 1946, Dansereau gave a 3-month course at FNF*i* that focused on all of these topics.³³ In June 1946, he taught a course for high school geography teachers in Rio de Janeiro at the CNG, called “Geographic Information”.³⁴

The common core of ideas shared by this epistemic community also brought Dansereau in contact with professionals who had trained in agronomy and were doing biological research at Brazilian institutions, such as Fernando Segadas Vianna, Henrique Pimenta Velloso, and Alceo Magnanini, all from the CNG, who were his assistants and students in Brazil and with whom he would continue collaborating into the 1970s. Participation in the community and their contact with Dansereau often propelled these others into environmental activism, especially in the case of Magnanini. Dansereau always intended to recruit students and scientists-in-training to spend time in Canada, as attested by both his correspondence and diary; he invited many assistants and encouraged them with this possibility. He also kept in steady contact with friends like Désy and H. G. Hesler (from the Royal Bank of Canada), through whom he requested funding for his students’ travel and living expenses. He hoped the students would enter master and PhD programs in ecology, botany, and biogeography at eminent institutions in Canada.

Henrique Pimenta Velloso (IOC) and Fernando Segadas Vianna (MN) were slated to spend time at the Université de Montréal’s Biogeography Service, under Dansereau’s direction, and undertake studies in biogeography, ecology, and climatology, with possible support from the government of Quebec Province, the National Research Council, and the Brazilian Ministry of Foreign Affairs. Luiz Laboriau (IOC) was listed to study plant physiology at what was then the McGill University

33 Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l’UQÀM, 22P.610:04/02.

34 Source folder: Conseil National de Géographie – Correspondances. Fonds Pierre Dansereau, Archives de l’UQÀM, 22P.030: 17/9.

Department of Botany, with the support of the Brazilian, Canadian, and Quebec governments and the college itself. Heitor Grillo (CNEPA) was supposed to study genetic improvement, selection, and the bioclimatology of plants at the Macdonald College school of agriculture, with funding from the college, CNEPA, and Quebec Province's Corporation des Agronomes. David Azambuja (JB) was named to go to the Macdonald College Department of Plant Pathology, with financial support from the Brazilian, Canadian, and Quebec governments, Macdonald College, and Brazil's Forestry Service. The Université de Montréal Botanical Institute was also in the line-up; while no specific candidate was assigned in the plan, funding had been requested from the Brazilian Ministry of Foreign Affairs for studies in botany and plant physiology.³⁵

However, financial constraints kept Dansereau's recruitment efforts modest; he actually managed to send only two students, Segadas Vianna and Edgar Kuhlmann, who were assigned solely to his Biogeography Service, and this was because Désy stepped in to help. Segadas Vianna went in January 1947, with funding from Canada's National Research Council; he spent 1947 with Dansereau and, in 1948, thanks to letters of recommendation signed by the Canadian ecologist, he extended his stay to the United States, where he studied with Stanley McCain until 1950.³⁶ Kuhlmann left for Montréal in January 1947 and returned to Brazil in June 1948, with funding from Brazil's Ministry of Foreign Affairs.³⁷ Dansereau's favorite student, Henrique Pimenta Velloso, with whom he exchanged correspondence and maintained intellectual collaboration through the 1970s, was barred from receiving funding for his alleged support of Luiz Carlos Prestes, politician, military officer, and an icon of both the Brazilian Communist Party (Partido Comunista Brasileiro)

35 Étudiants brésiliens au Canada – Universités de Montréal e McGill. Attached to the diary of Dansereau's trip to Brazil. Source folder: Activités Scientifiques. Fonds Pierre Dansereau, Archives de l'UQÀM, 22P. 620: 04/19.

36 Source folder: Correspondances – Fernando Segadas Vianna (1945-1955). 22P. 030: 01/4955. Fonds Pierre Dansereau, Archives de l'UQÀM.

37 Source folder: Correspondances – Edgar Kuhlmann (1946-2004). 22P. 030:01/2964. Fonds Pierre Dansereau, Archives de l'UQÀM.

and the National Liberation Alliance (Aliança Nacional Libertadora), the latter an antifascist, anti-imperialist movement that opposed the Vargas administration.³⁸

FINAL CONSIDERATIONS

Unforeseen events and unfinished work characterized Dansereau's research stay in Brazil, as evidenced in his travel diary. What he actually achieved was much narrower, less methodical, and less well-structured than foreseen in his outlined plans. One possible explanation for the gap between planning and realization during his stay might be the demise of the Estado Novo in 1945, around the time of his arrival in Brazil, and concomitant termination of both the Brazil-Canada cultural agreement and the federal structure, centered in the CNEPA, that underpinned his network and his movement through various institutions. Policies to acquire greater knowledge of the territory and guide settlement would only regain momentum systemically and in centralized fashion once Juscelino Kubitschek became president, in 1956. Yet the value of examining Dansereau's professional plans for his stay in Brazil lies not in verifying how much was accomplished or how much knowledge was transmitted unilaterally but rather in verifying how the plan was epistemologically in tune and shared common points with the day's international research agendas of an ecological tone, including a concern with reconciling the economic exploitation of nature with planning that would take into account the impact of agricultural activities, as part of development models for nation-states. In consonance with the work already being done at government agencies and with scientific production of a conservationist bent in Brazil (Franco; Drummond, 2009), Dansereau became part of the process of the politicization of biology (Duarte, 2010; 2016) then transpiring in both Brazil and Canada.

38 Source folder: Correspondances – Henrique Pimenta Velloso (1946-1972). 22P.030:01/5537. Fonds Pierre Dansereau, Archives de l'UQÀM.

Dansereau's excursions to *restinga* regions and highlands produced his most successful, systematized work in Brazil; he collected many specimens, especially of botany, and sent them back by boat upon his return to Montréal.

By the late 1940s, the Biogeography Service that he headed had met its end, and his and Braun-Blanquet's plans to forge an international research network in tropical ecology and plant sociology did not go beyond their enthusiastic exchange of letters that decade. In 1950, Dansereau accepted a position as professor of ecology with the University of Michigan in Ann Arbor, where he finished writing his main work, begun in Brazil; in 1957, it was published by The Ronald Press Company under the title *Biogeography: An Ecological Perspective*. He returned to the Université de Montréal in 1955, this time with the Faculty of Arts and Sciences. In 1957, he took part in the founding of the Rassemblement, a new Quebecois political movement of nationalist hue whose guiding principles were the superiority of democracy as a political regime, respect for human rights, and less economic exploitation of humankind. In the 1960s, he returned to the United States to teach at Columbia University and serve as co-director of the New York Botanical Garden. He went back to the Université de Montréal for a brief stay, from 1968 to 1971, and then transferred definitively to the Université du Québec à Montréal (UQÀM), where he attained definitive renown and from which he eventually retired. He continued to maintain ties of international cooperation until his death in 2011.

As we have endeavored to show in this article, the Dansereau case affords an opportunity to analyze the interrelations between the geopolitics of Brazilian developmentalism, Quebecois nationalism, and Pan-Americanism as an intellectual movement. It also contributes to a line of research that approaches cultural policy as one of the most important facets of international relations (Suppo, 2016; 2013; 2003; 2001; 2000; 1995; Suppo; Lessa, 2012; 2004). The study at hand has sought to expand these approaches by exploring the role played by science in relations between countries and by focusing both on experts as cultural agents and on scientific cooperation agreements as an integral part of

the convergence and circulation of ideas, people, money, negotiations, and agreements in various shapes and forms, where individuals and scientific institutions participated actively and pursued international projection and advantages (Palmer, 2015; 2004; Silva, 2011).

As we have seen, during his time in Brazil in the 1940s, Dansereau established ties with a number of Brazilian institutions and recruited researchers for the team of the newly created Biogeography Service, which he headed at the Université de Montréal. He also promoted Quebecois nationalism and cooperated with the Brazilian federal government in offering training and professional specialization to cement what was then an important public agenda: a quest for scientific knowledge of an ecological bent on the regional characteristics of climate, temperature, soil, and vegetation cover, all to be used in expanding Brazil's agricultural frontier.

We would argue that these various aspects of the Brazil-Canada scientific agreement merit further analysis. Dansereau's continued collaboration with his Brazilian students and assistants, as with Brazil's RADAM Project, in conjunction with this cooperative initiative, is inseparable from the history of the resignification of biomes, ecological studies of the vectors of human disease, and the zonation of the Brazilian Amazon for human settlement in the 1970s (Sá; Sá, 2015).

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