cadernos pagu (48), 2016:e164809
ISSN 1809-4449

Examining fieldwork – Women on scientific expeditions in Brazil in the mid-twentieth century*

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Abstract

This paper analyses the presence of women in scientific expeditions in Brazil in the mid-twentieth century and the several ways gender implications influenced these experiences. The research was conducted primarily through the documents of the Brazilian Inspection Council on Artistic and Scientific Expeditions, the federal organization responsible for inspecting and licensing expeditions into the country between the years of 1933 and 1968. The purpose of this article is to present this study, to reflect about women participation in scientific practices and reveal women scientists' experiences in Brazil at that time.

Key words: Gender and Sciences, Scientific Expeditions, Women Scientists.

* Received March 28 2016, accepted August 02 2016.

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http://dx.doi.org/10.1590/18094449201600480009

To better understand female participation in the history of the sciences, this article analyzes the presence of woman on scientific expeditions in Brazil in the mid-twentieth century and the various ways that gender influenced these trajectories. The data used were obtained from documents of the Brazilian Inspection Council on Artistic and Scientific Expeditions (CFE),[1] a federal agency responsible for monitoring scientific excursions in the country from 1933 to 1968.[2]

An investigation of the CFE documents indicated a significant presence of women,[3] although historiography and popular beliefs reproduce the idea that women did not practice sciences in the past. An investigation of the trajectories of some women scientists allowed understanding the context in which they undertook their studies, their interaction with scientific communities in Brazil and the social relations and strategies that allowed the exercise of their work in an environment that was still quite hostile to the presence of females. This study identified a group of women scientists that varied in terms of nationality, research fields, professional objectives and forms of insertion in their fields of study. There were those who worked alone, others as collaborators of their scientist husbands, some had institutional ties, others did not, they worked in various regions of the country and exhibited other particularities.

Brazil was the target of international studies and received many foreign researchers in the period. From the first decades of the twentieth century, Brazilian intellectuals sought to take advantage of the presence of these researchers to stimulate the education of Brazilian scientists by using networks and agreements

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[1] In this article I will only use the initials CFE to refer to the Conselho de Fiscalização das Expedições Artísticas e Científicas do Brasil [Brazilian Inspection Council on Artistic and Scientific Expeditions] (1933-1968).

[2] This article is part of the doctoral thesis "Em busca pelo campo: ciências, coleções, gênero e outras histórias sobre mulheres viajantes no Brasil em meados do século XX" (Sombrio, 2014).

[3] The names of 38 women were identified in this study.

with other countries such as the United States, and this process contributed to the education of scientists in Brazil.[4]

The need for intermediation on foreign expeditions and attempts to establish scientific cooperation agreements were supported by Brazilian intellectuals and materialized in federal government initiatives in the 1930s. The CFE was created in 1933 by an innovative law that required at least one Brazilian representative to accompany all foreign expeditions and that they present duplicates of the objects and specimens collected to Brazilian scientific institutions (Grupioni, 1998). In practice, this law was not precisely complied with, but reflected the concerns that the presence of foreigners should contribute to the education of Brazilian researchers and that the nation's artistic and scientific assets be protected.

Women on field work expeditions – the importance of the gender perspective

The trajectories of women scientists are at times neglected in the historiography of the sciences, however, the study of these women demonstrates that the experiences of women researchers in Brazil in the first half of the twentieth century are important and elucidate ways in which scientific disciplines and institutions develop.

Since the 1970s, with the consolidation of the social studies of science and technology, which include the study of gender and sciences, and with the influence of the so-called New Cultural History, which gave priority to the study of themes and groups that had previously been excluded from historiographic narratives, studies have been undertaken to understand how women have been incorporated in a wide variety of scientific practices and how the social meanings attributed to male and female genders were

[4] About the case of anthropology, Corrêa (2013) mentioned that the relationship between Brazilian scientists and those from the United States, intermediated by the Museu Nacional of Rio de Janeiro, led to the specialization of various researchers.

assimilated by these institutions (Rossiter, 1984; Keller, 1989; Burke, 2005).

Field research was one of the practices that accompanied the consolidation of modern science and was allied to European and later U.S. imperialism. Debate simmered during the eighteenth and nineteenth century about what would be the privileged space for the construction of scientific knowledge. On one hand, researchers from institutions and offices supported their work with the opportunity to extensively analyze specimens they had access to in catalogs and libraries that gathered information that allowed comparisons and classifications of knowledge produced by other scientists. On the other, scientist travelers had the advantage of observing subjects, objects and specimens in their natural habitats making contextualized observations, but without the infrastructure of an institution that could provide the tools for comparison and thus a deeper analysis, with the observations of these researchers being more immediate, subject to the influence of a momentaneous look and the consequences stemming from that (Outram, 1996).

The question is which form of study would be capable of guaranteeing more precise scientific objectivity. The concept of scientific objectivity, as well as the notion of the neutrality and universality of modern science, were strongly criticized by feminist theoreticians who affirmed that an institution that establishes itself by excluding more than half of humanity (women, blacks and other groups) could not invoke the title of neutral or universal. It was not by chance that these characteristics of science coincided with stereotypes frequently associated to males, seen as rational and objective, and therefore distant from women, seen as emotional and subjective.

During the nineteenth century until the turn of the twentieth century, science increasingly headed into the laboratory and closed institutions that impeded the participation of women. The less rigid limits of the field practices of the sciences or those conducted in domestic environments in earlier periods (in which the division between public and private spaces for the production

of sciences was not as rigid) could, in a certain way, facilitate the involvement of women in these activities. The strong institutionalization of the sciences in the nineteenth century contributed to the official exclusion of women from scientific practice (Oreskes, 1996; Schiebinger, 2001).

According to Outram (1996:253-254) the study of the relationship between spatial disposition and intellectual authority became a new focus of studies between science historians in the late twentieth century.[5] Spatial metaphors in the studies of the distribution of scientific influence, the transmission of scientific instrumentation and the disposition of space in laboratories were investigated in well known works (Latour, 1988). Meanwhile, little attention has been given to the spaces of science outside the constructed environment, beyond the buildings of the institutions themselves, such as botanic gardens, and public zoos or natural spaces without human interventions where naturalists adventured to find specimens that were examined by specialists. Moreover, little attention was given to the use of domestic space in the sciences. What are the interactions between these different spaces? To reconstruct the spatial experience of traveling scientists, we have to think not only about what they see, but also about what type of psychological structures mediate their responses to space. It is in this point that gender relations have a strong influence.

Some particularities of field research make this an ambiguous space and in a certain way a modality that was somewhat more open to the participation of women. It is more difficult to stipulate rules in an essentially public workplace such as the field, with much more flexible working conventions than those found within a laboratory for instance. In the field environment, the rules of gender could be more malleable, and for centuries women traveled to distant places registering their observations in letters, diaries and paintings, which allowed the construction of a historiography about women travelers acting as field researchers (Kuklick; Kohler, 1996; Lopes, 1997).

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[5] About this, see also Livingstone (2003).

On the other hand it is important to emphasize that the broad variety of people involved in this type of scientific undertaking could also cause great difficulties, which creates an ambiguity, given that in the field, scientists must relate with native residents, salespeople, rubber tappers, woodsmen, fishermen, inspectors, that is, with a much more varied network of actors than found within an institution and who could either facilitate or impede the participation of women. In any case, with the strong institutionalization that excluded women in the nineteenth century (Schiebinger, 2001), the field apparently remained a more permissive place, different from those where science was produced between four walls and with strict rules about the separation of male and female bodies.

Nevertheless, the association of field research with images of heroism and masculinity that became especially conventional during the nineteenth century, impeded the acceptance of women in various field practices. Heroic narratives, based on the construction of male identities, made it difficult for women to insert themselves in these roles. "Destined" to the domestic environment, the adverse conditions and dangers that were part of these trips did not easily complement the image of a woman or the specificities of the female body. This dichotomization of gender considered suitable to the practitioner of the sciences was not peculiar to the field, it was immanent to all the locations of scientific production (Kuklick; Kohler, 1996; Oreskes, 1996).

Lopes (2001:895) suggests that the heroic image of the explorers is due to the greater lack of control of the field researcher, specifically foreign men who found themselves in an environment with which they were not familiar (scientifically, socially and culturally) and that, the greater the "lack of control" the more heroic the mission. This image would be much more associated to modern European ideas of masculinity than to any particular virtue attributed to science, which is strongly dedicated to objectivity, a concept in opposition to the passion of the adventure-hero scientist, of whom even physical preparation is required (Oreskes, 1996). In the twentieth century, an increasing

number of women began to appear practicing sciences in the field and the ideals of masculinity reinforced during the nineteenth century came to be increasingly questioned.

In the most recent past, at the end of the nineteenth century and early twentieth century, some of the sciences that were based strongly on field research, such as botany and anthropology, demonstrated they were particularly receptive to women, who achieved parity in the field with men more easily than they did within the scientific institutions (Kuklick; Kohler, 1996:12).

To support this discussion and risk propositions about the insertion of women in disciplines constituted largely by field research in Brazil, we need to better understand the experiences of the different characters involved in these activities. Analyses with gender perspectives have demonstrated their potential to contribute to new ways of understanding the world, precisely by opening up new perspectives, new questioning and new visions (Schiebinger, 2008:4).

In a study that addressed women on expeditions in the eighteenth and nineteenth centuries Schiebinger (2004:1) wrote :

> A celebrated artist, the German-born Merian was one of the very few European women to travel on her own in this period in pursuit of Science. Women naturalists rarely figured in the rush to know exotic lands (…) In the nineteenth century, women like Lady Charlotte Canning did sometimes collect botanical specimens, but almost always as colonial wives, traveling where their husbands happened to take them and not in pursuit of their own scientific programs.

Maria Sibylla Merian (1647-1717), mentioned in the passage above, was a German naturalist and painter who in 1705 published a study entitled *Metamorphosis Insectorum Surinamensium*, which was based on her scientific expeditions to the territory of Suriname. She began her trip in 1699 and remained there for 21 months. In this work, Merian published various botanic illustrations and registered how the African slaves and

indigenous populations of that country, at the time a Dutch colony, used the seeds of a plant known as *peacock flower* to conduct abortions. Like other travelers of the time, Merian financed her own expedition, even though she did not have an inheritance or large monetary reserves. She paid the costs of her trip by selling paintings that she made and specimens that she collected. She did not fit into the profile of male naturalists of the period who, in most cases were young and single. Divorced from her artist husband, Johann Andreas Graff, she began her excursions at the age of 52, older than most travelers. She was also not trained in medicine as were most of the botanists at the time (Schiebinger, 2004:33).

The traveling European naturalists of the eighteenth and nineteenth centuries usually published detailed descriptions of their incursions, registers that are now an important source of information. The stereotype constructed about these individuals characterized them as heroic travelers, usually men, who returned to their countries with the fruits of their adventures. Moral and corporal rules kept most European women close to home at that time.

Merian was the only European woman identified by Schiebinger (2004:30) who traveled exclusively for scientific reasons in that period. She was accompanied by her daughter Dorothea Maria Graff (1678-1743), who served as her assistant. Her other daughter, Johanna Helena Herolt (1668-1723), also collected plants in Suriname in 1711, while she traveled with her husband who managed an orphanage in that country.

In the nineteenth century it became more common for women to travel. Sarah Bowdich (1791-1856), for example, accompanied her husband Edward to Africa in 1823, to make illustrations for his scientific project. He became ill during the journey and died of malaria while in Gambia. The mother of three small sons with no way to return to Europe, Bowdich continued her husband's work, collecting plants and organizing the work for publication. She is now considered the first woman to systematically collect plants in Africa, and published a study about

the flora of the Cape Verde islands and the region around the city of Banjul, Gambia (Schiebinger, 2004:31).

Despite real and imaginary dangers, Schiebinger (2004:32) indicated that one important reason for which women did not travel at that time was that they were not hired by trade companies, by scientific academies or governments, the main financiers of these trips, and also not by traveling naturalists who traveled with assistants under their own means. Moreover, medical discourses of the time affirmed that travel in the tropics had negative effects on women, who had problems with humidity, and that these excursions could affect their fertility, childbirth, and cause them to bear children with dark skin (which was a problem in the perspective of white Europeans) among other issues.

In Brazil, Miriam Moreira Leite (2000) also gathered information about women travelers in the nineteenth century and found that one of the common characteristics among these explorers is that their books were composed of letters that they sent to families and to friends or from not very long diaries and narratives about their travels. Women were not accustomed to publishing extensive works, as did male travelers, and most did not even have the intention of having their work disseminated, although many had their works published by their families after they died.

Despite the different profiles of male and women explorers indicated by Schiebinger (2004) in terms of age and civil status (men were young and single; women were older, widows or divorced), and most women's lack of solid professional ties, the format of the expeditions did not differ very much. Leite (2000:134) affirmed that the women travelers "aware of penetrating a male terrain" reproduced in their works "the rules of the game established in the travel literature and the already consecrated forms".

Among the travelers cited by Leite (2000) only one, Teresa da Baviera (1850-1925), demonstrated some disagreements with established research methods by discussing the disadvantages of the model of the diary established by men travelers; and it is

important to emphasize that Teresa was a professional naturalist, which was rare at the time. Teresa, a princess from Bavaria, dedicated herself to studies of natural history in various points of the globe. In 1888 she went to the tropics to visit indigenous groups and collect plants, animals and ethnographic objects. She was accompanied by a lady-in-waiting, a butler and a taxidermist (Leite, 2000:134).

The economic and social changes of the early twentieth century offered new opportunities for women in the sciences in many parts of the world, including Brazil. From the beginning of that century, we find records of participation of foreign and Brazilian women researchers in the country. It was in this period that the first women scientists entered public research institutions, locations where they were previously not accepted, and gained rights such as access to higher education and entrance to schools that had been exclusively male (Azevedo; Ferreira, 2006).

Among the researchers that stand out upon entering the public institutions in Brazil, we can mention two illustrious cases, Bertha Lutz (1894-1976) and Heloísa Alberto Torres (1895-1977), both of whom were employees of the Museu Nacional do Rio de Janeiro which established cooperative relations with some of the expeditions that appeared in the CFE records. Bertha Lutz worked with botany, zoology and museum studies (Lopes, Souza and Sombrio, 2004; Lopes, 2008b), Heloísa Alberto Torres was an ethnologist and director of the Museu Nacional from 1938 to 1955.

Corrêa (1997) emphasized the importance of the incentives Heloísa Alberto Torres offered to the development of field practices in Brazilian anthropological research in the early twentieth century. Dona Heloísa, as she was known by her contemporaries, supervised young researchers by guiding their studies focused on field work and invested in establishing ties with foreign researchers She began to demand that these visitors collaborate in the education of Brazilian ethnologists. In exchange, she guaranteed support for their work in Brazil.

The anthropological work of Heloísa Alberto Torres was essentially conducted in the field, although she did not publish

articles about her expeditions. About this characteristic, Corrêa said that:

> It was as if, [...] the fieldwork was an end on its own, and she never came to publish a report of her travel to the island of Marajó, the first field work she conducted, and despite her enthusiasm for the latter, she also did not leave any work published from Arraial do Cabo. Her very extensive non-published production revealed, however, an enormous investment of energy behind the scenes of field research (Corrêa, 1997:15).

Much of her contribution to the development of Brazilian anthropology took place in the corridors of the Museu Nacional, articulating trips and contacts between researchers and the training of various anthropologists, having played an essential role in the construction of this discipline. Unlike Bertha Lutz, who was known for her militancy in the feminist movement, Heloísa A. Torres did not have a strong public action in this regard, but documents indicate her involvement in some debates (Lopes, 2008c). For example, Corrêa (1997) mentioned a disagreement between Heloísa and militants of the União Universitária Feminina [Feminine University Union],[6] who questioned the reasons for the lower involvement of women scientists from the Museu Nacional in the field research activities. In response Heloísa wrote:

> Of the Museu's three women assistant naturalists, two do not refuse to conduct excursions (part of the naturalists' functions) while the other refused because her husband would not allow her to and of the 365 days of work, she appeared on 265, because she had children and illnesses (letter from Heloísa Alberto Torres *apud* Corrêa, 1997:15).[7]

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[6] The União Universitária Feminina [Female University Union] was founded in 1929 by a group of feminists, including Bertha Lutz, to encourage women to enter higher education and help them there (Sombrio, 2007:61).

[7] The personal archives of Heloísa A. Torres are maintained at the Casa de Cultura Heloísa Alberto Torres-RJ (CCHAT).

This statement also exemplifies some of the impediments that women faced to maintain professions in the sciences. Many wound up having to give up essential parts of the work in the sciences to assume domestic responsibilities alone. Care for children and the home, as well as social codes of matrimony placed women at a disadvantage in the realization of fieldwork.

This letter was written in the context of a disagreement between Heloísa and the feminists of the União Universitária Feminina who contested the cancelation of the enrollment of women for a position as assistant naturalist at the museum. In addition to the statement cited, Heloísa also explained in her response that three women had registered to compete for the opening, but two did not appear at the defense of their thesis and the third, who was seeking a position as physical anthropologist, presented a study about indigenous music. Heloísa also affirmed that she had always supported the entrance of women to the institution, given that at the time she became director, the Museu had six women employees and under her direct initiative the number grew to thirty-eight (Corrêa, 1997:15).

Despite this conflict, her long relationships with Bertha Lutz, her work in the museum and particularly the criticisms that she received at the time she became director of the institution, most based on gender prejudice, counter the idea that Heloísa had any problem with women entering the museum.

As mentioned, the CFE documents include histories of various travelers who took trips for scientific or artistic purposes to the interior of Brazil, from 1933 to 1968 and various women are present in the dossiers in which the trips were registered by the institution. These trajectories, still little studied, can expand our knowledge about the work of scientists in Brazil. The analysis of the historic sources and documents with a focus on questions of gender have increasingly revealed the presence of women in different social realms, including that of scientific practices (Lopes *et al.*, 2004).

The renewed attention to these women can contribute to the deconstruction of the traditional understanding in the past that the

sciences were an exclusively male practice, by highlighting activities realized by women, recognizing their participation in the production of knowledge and the incorporation of women in the history of the sciences.

Michelle Perrot (2005:35) argues that in most historiographic studies, "there is little interest in individual women, who do not appear, but more in "women", as a collective and abstract entity to which are attributed conventional characteristics". This lack of singularity harms the understanding of the various trajectories taken by women and their specific qualities, perpetuating the false notion that women were a homogeneous group and had similar histories.

Although as a group women faced unequal conditions in relation to men, a predominant presence in the private realm, a relationship with maternity and marriage, they are far from a homogeneous group and knowledge about their particularities can be very useful to social history and to the insertion of women in these professional environments.

Gender studies of the 1970s stimulated a new type of criticism of the sciences. Feminist thinkers began to argue that the difficulties women faced in participation and their invisibility in this history contributed to have scientific institutions acquire male characteristics that influenced various realms such as the definition of different work spaces for men and women, choices about the objects of research, the allocation of resources, the time of work, the relationship of scientists with the domestic environment and many others.

The objective of these studies that began to unite gender criticisms to the sciences was not to deny the existence of an unequal situation over history, because it is a fact that this existed, but to open the doors of closed scientific institution to criticisms. This questioning allowed recognizing that some historic inequalities specific to society had been incorporated in the structure of science, consolidating constant obstacles to the participation of women that in the last decades of the twentieth century, many

years after subsequent waves of the feminist movement, still lacked equal rights in all realms of society (Lopes; Costa, 2005).

Knowledge about women must be improved to eradicate pre-conceived ideas that they are not prepared for intellectual work or do not have the required skills. It is necessary to emphasize their particularities and not a supposed universality (Haraway, 1995), as has been done in relation to the sciences by the social studies of science and technology that has constantly reconsidered the concept of science and worked strongly to distance it from its former Mertonian pillars (universality, objectivity and neutrality), which no longer have the credit that they did decades ago.

The deep changes in the studies of the social and human sciences that took place in the 1970s gave origin to a new type of historical examination of the world that sought to understand the micro levels, and the differences, realms and people who had been forgotten. In this context, the specificities of women who followed trajectories different from the majority and respect for female activities that had been commonly ignored, began receive attention, reconstructing important steps in the history of humanity in search of more inclusive and fair knowledge about the human experience (Burke, 2005; Thébaud, 2004; Soihet, 1997; Pestre, 1996; Perrot, 1988).

With the inclusion of women in the history of the sciences new practices and activities began to be examined and understood as science and new perspectives were cast on previously studied objects. This institution that is one of the main activities to which humanity dedicates itself, was renovated and expanded, and enormously increased its number of participants, creating new possibilities and theories.

Women on expeditions

The CFE documents are divided into two main series. The first refers to documents from the administration and operation of the institution: meeting minutes, internal regulations, official

memorandums, correspondence between the CFE delegates, etc. The second series is composed of dossiers referring to each request for permission to participate in an expedition. Each dossier received the name of the person who requested the authorization and who signed the document as the person responsible for the expedition (Grupioni, 1998, Mast, 2000, Lisboa, 2004, Sombrio, 2007).

Using the names on the dossiers listed in the CFE's Inventory of Expeditions (Mast, 2000), those in which women explicitly appeared in the list were selected, which meant that a woman was the main person responsible for requesting the authorization; and those that were known to count on the presence of women according to information found in meeting minutes, even if these names did not appear in the dossier files in the inventory.[8]

The CFE documentation has a bureaucratic and administrative character, and therefore certain limitations, but nevertheless "it allows glimpsing, in a particular manner, the close connection between the realization of expeditions and the formation of scientific collections in Brazil" (Grupioni, 1998:22). The circulation and sale of objects has increasingly been recognized as an important part of the development of the sciences and of international networks of researchers. Since colonial times, the collections of specimens and artifacts from the new world were valued by European travelers who sought to develop, understand and appropriate natural resources, as well as objects of artistic value and of knowledge about human societies.

The following table combines this listing and some of the information organized about these women. Thirty-eight names were identified, of which 11 are only related to requests to export artistic material or to dossiers that do not indicate an expedition actually occurred. Some of them were well known scientists in their

[8] It is not possible to affirm that this study includes the names of all the women recorded in the immense archives of the CFE, because the dossiers not consulted may contain references to other women who participated in expeditions in Brazil but whose names did not appear as leaders in the dossiers or in the meeting minutes. The work was done with the sample of women who it was possible to identify.

countries and others practically anonymous. Many came accompanied by husbands and worked as their assistants, while others came as coordinators of their own expeditions. The sample reflects the variety of professions and the different fields of work: those who came to Brazil were women scientists from museums, universities and other institutions, autonomous collectors, artists, travelers and explorers.

Table 1 - Survey of women in the CFE documents

Women registered with CFE (1933-1968)	Year of registration	Type of request and area	Authorized
1 - Wanda Hanke	1933/1940	Scientific expedition Ethnology	No
2 - Doris Cochran	1937/1962	Exportation/ Scientific expedition Biology	Yes
3 - Hanna Rydh	1935	Exportation of scientific material Archeology	Yes
4 - Dina Lévi-Strauss	1936	Scientific expedition Ethnology	Yes
5 - Carmem Armindo	s/d	Exportation of artistic material Paintings	Yes
6 - Annemarie Scharlank	s/d	Exportation of artistic material Paintings	Yes
7 - Sra. Steen	1936	Scientific expedition Ethnology/Geology	No
8 - Sra. Ecner	1937	Scientific expedition Biology	No
9 - Doralice Avelar	1938	Artistic Expedition Film production	Yes
10 - Ruth Landes	1938	Scientific expedition Ethnology	Yes
11 - Mary E. Anderson	s/d	Exportation of artistic material Brazilian curiosities	Yes
12 - Alice Hall	1940	Scientific expedition	Yes

Farnsworth		Astronomy	
13 - Racine Foster	1939/1940 1948	Scientific expedition Biology	Yes
14 - Sra. Frances Herskovits	1941	Scientific expedition Ethnology	Yes
15 - Sra. Charles H. Smiley (Margaret Kendall Holbrook)	1940/1947	Scientific expedition Astronomy	Yes
16 - Mary Quirk	1947	Scientific expedition Astronomy	Yes
17 - Wilhemina Null	1947	Scientific expedition Astronomy	Yes
18 - Maribelle Cormack	1947	Scientific expedition Astronomy	Yes
19 - Miriam Jolley	1947	Scientific expedition Astronomy	Yes
20 - Marian Cornel Cutler	1941	Scientific expedition Biology	Yes
21 - Alice Sumner Penha	1942	Scientific expedition Geology	Yes
22 - Maria Alice Moura Pessoa	1942	Scientific expedition Ethnology	Yes
23 - Elizabeth Ebergenyi	s/d	Exportation of artistic material Brazilian curiosities	Yes
24 - Bertha Lutz	1944	Exportation of scientific material Biology	Yes
25 - Wanda de Roycewicz	1944	Artistic Expedition Painting and writing	Yes
26 - Maria Reznik	1946	Scientific expedition Photography	No
27 - Sra. Fawcet	1946	Expedition Search for disappeared husband	No
28 - Betty Evans	1950	Scientific expedition Archeology	Yes
29 - Ani Patin	1950	Scientific expedition	Sent to SP

		Ethnology	
30 - Sra. Kathe Schmidt	1952	Artistic Expedition Film production	Yes
31 - Editha Holes	1951	Artistic Expedition Photography	No
32 - Hebe Rangel P. Campos Sales	1952	Exportation of scientific material Biology	Yes
33 - Etta Becker Donner	1954	Scientific expedition Ethnology	Yes
34 - Mary Brewer Hemons	1960	Scientific expedition Linguistics/Ethnology	Sent to SP
35 - Alice Grevsmuehl	1964	Artistic Expedition Writing and designing	Yes
36 - Majken Mattson	1964	Artistic Expedition Photography	Sent to SP
37 - Birgita Malmvall	1964	Artistic expedition Photography	Sent to SP
38 - Amanda Flora Hilda Bleher	1960	Scientific expedition Biology	No

The dossiers about the expeditions contain various documents that include forms, reports, letters, telegrams and official memorandums, even photos, newspaper clippings, and texts published about the studies, as well as other items. The files also include reports written by the council members about the granting or denial of permission to conduct the expedition.

The requests referring only to the export of artistic or scientific material have less information about the requesting parties, and are composed in most cases by the certificates that authorize the materials to leave the country and the lists of the exported objects.

As seen in Table 1, most of the women participants on expeditions came to Brazil in the 1940s, but a few arrived in the 1930s. The lower number of expeditions in the 1960s may be related to the diversification of procedures established by the

government for the participation of foreign scientists conducting fieldwork in Brazil. With the creation of CNPq in 1951, which assumed responsibility for foreign expeditions after the extinction of the CFE in 1968, incentives for financing national studies were created and new ways of thinking about international cooperation appeared.

Requests to conduct incursions and studies in indigenous territories were judged in collaboration with the Indian Protection Service (SPI) (1910-1967) and at times the decision was made independently by that agency, which was responsible for protection and integration of Indians. The Indian Protection Service acted in various manners until 1967, when it was substituted by The National Indian Foundation (FUNAI).[9]

This study focuses on the cases in which the requests refer to scientific exploration, leaving aside the trajectories of artists and photographers and the dossiers that refer only to the export of artistic materials.

To discover the trajectories of these scientists in Brazil it was necessary to also investigate other archives, document sources and bibliographic references. About some women not much information was found for a few reasons: because there was no record of their activities in other archives, because they did not continue the studies that were registered by CFE or because they did not receive authorization from the agency.

Some cases stand out because of the repercussions and the continuity of the studies conducted in Brazil, and by the institutional ties established in the country. This article will briefly comment on the findings of the general survey conducted and provide information about the group of women identified and aspects related to some of them. Although prominent names appear in the survey such as the anthropologists Ruth Landes (1908-1991) and Dina Lévi Strauss (1911-1999), they have been examined in other studies (Corrêa, 2003), and for this reason were

[9] The action of the SPI has been examined in various studies, for example: Brito, C.; Lima, N. T. (2013).

not the focus of greater investigation in this study. The emphasis was made on giving visibility to experiences with less appearance in the bibliography about women scientists.

The nationalities of the women on the expeditions are presented in Table 2. Most of the women registered by the CFE came from the United States followed by Brazilian women who needed a license from CFE only if they were not associated to a Brazilian scientific institution or to export scientific and artistic materials.

Table 2 - Nationality of the women registered by CFE (1933-1968)

Nationality	No. of women
USA	15
Brazil	7
Austria	3
Sweden	3
England	2
Germany	1
Argentina	1
France	1
Poland	1
Switzerland	1
No informed	3

Many women scientists came from the United States to conduct expeditions in Brazil in the first half of the twentieth century, as confirmed by the data related to the participation of women: 15 of the 38 names were U.S. women. Henson (2000:167) explains that in the first decades of the twentieth century, shortly after the Hispanic-American war, and because of the beginning of construction of the Panama Canal, Latin American countries became one of the main fields for U.S. politics and natural history, with regular government financing and logistic support from the military for scientific expeditions. In the Post-Darwinian world, a

field study in the tropics, with its rich flora and fauna, became a rite of passage and a road to fame among young naturalists, not just from the U.S. (Nogueira, 1999). In relation to gender issues, tensions between men and women remained sharp in the home, at the voting booth, the workplace and at fieldwork stations financed by the U.S. government.

The first women who came to conduct fieldwork in Latin America found many of the barriers known to professional women, as well as the challenges of dealing with unknown environments and cultures. They had to face the common belief that the tropics were an inappropriate place for women (Henson, 2000:167).

Between 1911 and 1912, the Smithsonian Institute (USA) financed a large-scale biological survey of the Panama Canal and an important research station was built in that region. The trajectory of botanist Agnes Chase (1869-1963), who was studied by Henson (2000), is an example of how women were formally excluded from the fieldwork conducted at that location.

Chase expected an opportunity to work in Panama and had the support of Albert Hitchcock, Curator of the National Herbarium of the Smithsonian at the time, to whom she was an assistant, and who tried to send her to conduct research in Panama in his place after he spent a year gathering collections there. But Hitchcock did not have support of other employees and directors at the Smithsonian responsible for authorizing expeditions to the Panama region: "I doubt very much if it would be advisable to hire women for this purpose", wrote the employee responsible for allocating funds; "I am sorry to say that I am incapable of recommending sending Ms. Chase to the Canal Zone (...) I doubt that it would be recommendable to hire the services of a woman for that purpose", affirmed the assistant secretary of the Smithsonian who officially rejected the request and had his decision supported by secretary Charles Walcott, who wrote: "[...] I am sorry to report that I think it is not possible to agree with your desires on this matter. I would be a bit reluctant to send a woman on a mission of this type". Thus the scientific expedition to

Panama continued to be a totally male undertaking (Henson, 2000:170-172).

Years later, Agnes Chase came to Brazil at her own expense to gather grasses and became the world's best known specialist in grasses at the time. Together, Hitchcock and Chase developed a network of correspondence and exchanged specimens throughout Latin America and these relations had an important role in her career. Without institutional support for conducting field studies, these contacts allowed her to accomplish expeditions in Brazil. Her correspondents helped by hosting her, providing her information and guidance so that she could conduct her work. She came to Rio de Janeiro in 1924 and collected for eight months in eastern Brazil. She was taken in by various Brazilian botanists with whom she corresponded, including Dona Maria Bandeira (1902-1992), who studied mosses at the Jardim Botânico of Rio de Janeiro and accompanied Chase on her travels. In 1929, Agnes Chase returned to Brazil for another eight months of collections, paid with her own resources. For a certain time she traveled with another botanist, Inez Mexia, of the University of California (Henson, 2000:190-192). Since her travels took place before the creation of the CFE, her name does not appear in the agency records.

The scientific disciplines practiced by the women on the expeditions in the sample found in the CFE documents are mentioned in the documents and presented in Table 3:

Table 3 – Fields of research of the women registered at CFE

Fields of study	Number of women on the expeditions
Ethnology	9
Botany and Zoology	7
Astronomy	6
Geology	2
Archeology	2
Artistic expeditions	7
Artistic exportations	4
Expeditions of another nature[10]	1

Most of the expeditions were in the field of ethnology, a science that was rising in the first half of the twentieth century. This demonstrates that women scientists were able to insert themselves in this field in Brazil (Corrêa, 2003; Ribeiro, 2000).

In the mid twentieth century, ethnological studies were undertaken in Brazil with the efforts of professionals from both Brazilian institutions and foreigners. Scientific specializations, which are now emphatically distinct, were still not clearly established and disciplinary borders were more easily crossed. The Second Brazilian Anthropology Meeting was held in Salvador, in 1955, for example, and was divided into sessions that addressed archeology, physical anthropology, linguistics, cultural

[10] The most uncommon expedition dossier registered with the name of a woman in the CFE was that of Ms.. Fawcet, the wife of a famous British explorer, Colonel Fawcett, who disappeared during an expedition in the Amazon in 1925 and was never found (Key, 1940). In 1946, CFE President Pimentel Gomes sent a letter to the Minister of Agriculture to inform him that newspapers in Rio de Janeiro reported that a scientific expedition had left England led by Mrs. Fawcett to travel to the interior of Brazil to search for her disappeared husband. Telegrams were sent to the CFE delegations in the states of Amazonas and Pará requesting measures to block the expedition, because it was not licensed by the agency. The delegates responded to the president reporting that they would remain vigilant. The lack of other documents in the CFE dossier, as well as the lack of other sources about the case do not allow a deeper analysis and suggest that perhaps the expedition never took place (CFE.T.2.230, MAST-RJ).

anthropology, acculturation and teaching anthropology (Corrêa, 2013:54), indicating the influence of all these disciplines in the consolidation of anthropology, whether by their incorporation or the distancing of practices, methods and theories.

Among these expeditions registered by CFE one was carried out by the Austrian ethnologist Wanda Hanke. An outstanding aspect of her experience is that she conducted all of her studies alone. Hanke did not travel accompanied by an assistant, relative or companion and did not have an expedition staff, which was common for other women at the time (Corrêa, 2003).

Without strong institutional ties, Wanda Hanke sent a first request for permission to conduct ethnological studies in Brazil in 1933 and another in 1940. She also did not have support from the Austrian ambassador and had few resources to realize her objectives, which included travel to different regions of Brazil, the collection of ethnological artifacts and studies of various indigenous ethnicities. The lack of institutional support and financial resources led CFE to deny her request (Sombrio; Lopes, 2012).

CFE's denial of a license caused her difficulties, but did not prevent her from conducting her studies, which she concluded, based on the reading of her correspondence and various articles that she published in the journal of the Museu Paranaense.[11] Considering only the documents from the council, it could be supposed that Wanda Hanke had not conducted the expeditions in the country, but the ethnographic collections of photos and letters filed until today at the Museu Paranaense, in Curitiba, tell another story. Her articles present information and stories about the indigenous populations of Brazil that could only have been written based on arduous field research.[12] Her studies of indigenous linguistics are cited and used until today. For example,

[11] Sources: Governo do Estado do Paraná, Secretaria de Estado da Cultura, Museu Paranaense. The articles published by Wanda Hanke in the journal *Arquivos do Museu Paranaense* are listed at the end of this article.

[12] Idem.

Brazilian linguist D'Angelis (2003) mentions Hanke in a study about the Caingangue language, and said that:

> Wanda Hanke had contact with various indigenous areas in Southern Brazil, publishing various studies about the Kaingang and Xokleng. The "*Vocabulario del dialecto Caigangue de la Serra do Chagú, Paraná*", published by the Museu Paranaense in 1947 is a result of the researchers visit in 1940, to the village of Chagu, in the former Campo das Laranjeiras, a region now known as the Rio das Cobras (in southwestern Paraná) [...] It is a careful transcription, and in general, of good quality [...] (D'Angelis, 2003:33).

Hanke collected objects and researched with her own financing, sold the artifacts that she collected and the texts that she wrote, and eventually established informal ties with various institutions (such as the Museu Paranaense). The practice of selling indigenous collections and items was not approved by many of her contemporary ethnologists and even less so by the Brazilian government, which increasingly sought to limit the presence of foreigners among the native peoples of the country and the illegal sale of indigenous artifacts. These factors contributed to a lack of knowledge of her work in Brazil at this time in which the ethnological studies were becoming institutionalized.[13]

The natural sciences, including botany and zoology, is the disciplinary field with the second most appearances of women conducting research in the CFE documents (Table 3). Botany is often mentioned as a field of study that accepted the presence of women since the eighteenth and nineteenth centuries (Shteir, 1996). Females could enter the profession as illustrators, given that to design and paint were professional abilities considered acceptable for females. Women from the middle and upper classes often received training in illustration, and some women eventually

[13] About the institutionalization of anthropology in Brazil, see: Corrêa (1987) and Keuller (2008).

established scientific careers by specializing in botanic illustration (Henson, 2000).[14]

This is the case of U.S. herpetologist Doris Cochran who came to Brazil to conduct expeditions to collect botanic and zoological materials in 1935. She attained authorization from CFE through Bertha Lutz, with whom she maintained frequent correspondence, and left a diary of the field research she conducted for eight months in Brazil.[15]

During her career, Cochran specialized in the study of reptiles and amphibians from Central and South America and her illustration skills facilitated her insertion in the natural sciences. She made countless collections in the states of Rio de Janeiro, Minas Gerais and São Paulo and took some of this material to the Museum of Natural History of the Smithsonian Institute in the United States, where she worked. She also visited other Latin American countries, such as Haiti and Colombia, and these expeditions led to important works in the field, including the books: "*The Frogs of Southeastern Brazil*" (1955) and "*The Herpetology of Hispaniola*" (1941). During her studies, Cochran named approximately 100 new species and 6 new genres.[16]

In the field of zoology, in addition to Doris Cochran, the survey includes the Brazilians Bertha Lutz and Hebe Rangel de Campos Sales, who only had their names registered by CFE for requests to export zoological material. As employees of Brazilian institutions (the Museu Nacional-RJ and the Instituto

[14] "[...] Drawing skills belonged to the roster of conventional accomplishments for girls of higher social class, and books of many kinds provided instruction. The Lady's Drawing Book (1753), for example, written by Augustin Heckle 'to engage the fair sex to a profitable Improvement of their Leisure Hours', taught how to draw flowers, showing how to move from a rough sketch to a finished drawing and them to a painted version (Shteir, 1996: 41)."

[15] *Just a Minute, Miss*, by Doris Cochran, s/d, RU 7151, Box 2, Folder 5, Smithsonian Institution Archives, Washington-DC.

[16] Doris Mable Cochran Papers (1919-1968), RU 7151 (Introduction) p.1, Feb. 20, 1975, *Smithsonian Institution Archives*.

Oceanográfico da USP, respectively) they did not need authorization from CFE to conduct expeditions in Brazil.

In relation to the astronomers, who are the third leading group of women scientists in the CFE documents, it is important to emphasize that the six women found were concentrated in only two expeditions. The first, in 1940, was composed of a large group of scientists among whom were two women astronomers, Dr. Alice Hall Farnsworth (1893-1960) and Margaret Smiley (1902-1987). The second expedition, in 1947, was composed of eight people including five women and once again astronomer Margaret Smiley[17] was present, accompanied by her husband, astronomer Charles H. Smiley. An expedition with a majority of female members was uncommon at that time and the only one found in the CFE documents.

Writing about the history of women scientists in the United States, Margaret Rossiter (1982) explained that astronomy was a science quite open to female participation in the early twentieth century. The strong demand for careful calculation opened this field to women who were usually hired to conduct repetitive and routine work that required considerable attention, such as the laborious mathematical calculations. In another study about astronomers, Pang (1996) affirmed that the fact that observatories were built in isolated locations was propitious to the formation of small communities where astronomers could take their families to live. This also opened the way for women to become involved in the discipline, either as scientists, or as organizers of the environment that was propitious to the necessary creation and work.

There are also records about requests for authorizations from two geological expeditions and two archeological expeditions sent by women to CFE, as shown in Table 3. Among these cases I

[17] Her maiden name was Margaret Kendall Holbrook and it was with this name that she published her master's dissertation entitled: "Elimination of Parallax as a Factor in the Determinateness of the Orbit of Minor Planet 1900 G.A.", University of California, 1927.

highlight the experience of archeologist Betty Meggers who, based on fieldwork conducted in Brazil in 1948 and 1949, produced archeological studies and theories that deeply influenced the development of the discipline for many years. Meggers traveled in the company of her husband, archeologist Clifford Evans. Although married, she never changed her name and maintained autonomy in her scientific work, publishing either alone or in co-authorship with Evans.

Much more than the traditional wife-assistant, Betty Meggers was unquestionably a protagonist in this expedition, working the entire time in the company of Clifford Evans. Meggers was an active participant in the excavations and analyses of the material and her field diaries show that she had an active role in the decisions taken during the expedition.[18]

Meggers and Evans collected ceramic shards, bones and other archeological artifacts to study the history of indigenous habitation in the Lower Amazonas region. The objects collected were destined to Brazilian museums, most to the Museu Nacional do Rio de Janeiro. Fieldwork and collections were and continue to be essential aspects of disciplines such as archeology, which theoretically and concretely transform spaces, fragments of objects, bones and various vestiges into scientific objects and fields (Lopes; Barbuy, 2013). It was through observation in the field, collection, analysis, description and cataloging of artifacts that Meggers constructed her theories about the adaptation of man to the tropics. Her detailed descriptions include notes in diaries about the excursions to the islands of Marajó, Caviana and Mexiana, in the territory of Amapá, the periods that she was in Belém working at the Museu Paraense Emílio Goeldi, and the beginning of her trip in Rio de Janeiro, where the couple was assisted by Heloísa Alberto Torres.[19]

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[18] Journal of Lower Amazon Expedition, 1948-1949, vol. I, II, III, IV. Betty Meggers. National Museum of Natural History, Smithsonian.

[19] Idem.

Betty Meggers' theories were part of the "classificatory historic" period of archeology (1914-1960) and were questioned in the 1960s by the *New Archaeology* (or Processual School), which brought new foci, theories and perspectives (Robrahn-González, 1999-2000). Even considering the more recent changes, Betty Meggers' presence in Brazil was essential for the consolidation of the discipline and to the education of many Brazilian archeologists who later organized to establish the National Archeological Research Program (PRONAPA), created in the 1960s with the help of Meggers and Evans.

Final considerations

This article is based mainly on documents found in the CFE archives and that were used to sketch an overview about women who conducted scientific expeditions in Brazil between 1933 and 1968, situating them in the broader contexts and highlighting some of the cases that stand out in these documents.

The participation of women in the history of the sciences was compromised by gender discrimination. Nevertheless, understanding how some of these women engaged in practices and institutions, whether as wives and assistants, independent collectors or museum employees, and in specific disciplinary fields, contributes to the diversification of the historic record of the sciences, about activities attributed to women and the multiplicity of gender identities.

The fact that many of the travelers of the first half of the twentieth century were only engaged in scientific research because they accompanied their husbands on expeditions, as mentioned by Corrêa (2003), is representative of the patriarchal subordination of the time and of how scientific institutions incorporated the social divisions associated to genders, "Discriminations are in fact enrooted in customs, [they are] products of representations of long duration, remodeled according to the needs of time" (Perrot, 2005:251).

Nevertheless, some scientific trips identified in this article present other experiences, in which women transcended the social expectations and thus allow questioning the inflexibility of gender identities in other historic periods. The article emphasizes the presence and diversity of activities that they conducted to reaffirm the existence of women practicing sciences in the field, in laboratories, museums, universities and in various ways in the period studied. Historic research that uses various sources and methodologies can help overcome the scarcity of records, by revealing experiences and narrating how various women were involved in scientific practices, or how they were excluded from them. In this way it is possible to understand more aspects about the construction of the sciences and about the various actors involved or purposely isolated from this process.

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