

**THE BELO HORIZONTE TEACHER'S COLLEGE
LABORATORY: CIRCULATING PSYCHOLOGY IN
BRAZIL**

***EL LABORATORIO DEL COLEGIO DE PROFESORES DE
BELO HORIZONTE: PSICOLOGÍA CIRCULANTE EN
BRASIL***

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Abstract

The circulation and indigenization of psychological objects is a trending topic in the history of psychology. One of the elements debated is the psychology laboratory and its influences in shaping psychology worldwide. In this direction, our paper aims to describe the experimental psychology laboratory at the Belo Horizonte Teacher's College and to analyze its role in the history of Brazilian psychology. Particularly, we present its installation in the late 1920s, its apparatuses and the use of mental testing in this context. Our results pointed out two main aspects about this laboratory: (1) it was a place for teaching scientific psychology to future primary teachers, and (2) it conducted different studies about anthropometric and mental aspects of childhood in the context of urban and industrial change in the first decades of the 20th century in Brazil. As envisioned, the laboratory was seen as an agent of social change that would promote modernization in Brazilian education and society. The laboratory also contributed to the circulation of psychological knowledge in Brazil and is, at the same time, an important chapter in the local history and part of the global history of psychology.

Keywords: Belo Horizonte Teacher's College, experimental psychology laboratory; psychology apparatus

Resumen

La difusión y adopción regional de objetos psicológicos ha sido un tema de interés en la historia de la psicología. Uno de los elementos discutidos ha sido el laboratorio de psicología y su influencia en el moldeamiento de la psicología en el mundo. En esta dirección, nuestro trabajo apunta a describir el laboratorio de psicología experimental del Colegio de Profesores de Belo Horizonte y analizar su rol en la historia de la psicología en Brasil. Particularmente, se describe su instalación a finales de la década de 1920, sus aparatos y el uso que se les daba para la evaluación mental en este contexto. Nuestros resultados resaltan dos aspectos de este laboratorio: (1) fue un lugar para la enseñanza de psicología científica a futuros profesores de educación básica, así como (2) fue origen de diferentes estudios sobre antropometría y aspectos mentales de la niñez, en el contexto urbano y de cambio industrial de Brasil durante las primeras décadas del siglo 20. Como era previsto, el laboratorio fue un agente de cambio social que promovió la modernización en la educación y sociedad brasileña. El laboratorio también contribuyó a la circulación del conoci-

miento psicológico en Brasil y, al mismo tiempo, fue un importante capítulo en la historia local y una parte de la historia global de la psicología.

Palabras clave: Colegio de Profesores de Belo Horizonte, laboratorio de psicología experimental, instrumentos psicológicos

The indigenization of psychological objects, materials and applications is a topic of interest in the history of psychology worldwide (Batur, 2013; Brock, 2006; Pickren, 2009; Pickren & Rutherford, 2012; Cirino, Miranda, & Cruz, 2012; Polanco & Miranda, 2014). The indigenization of the psychological laboratory helps us to understand how psychological elements were constructed based on universal and indigenous characteristics. Explaining this sort of argument, Danziger (2006) said: "At different times different places have been prominent in the accumulation of psychological knowledge, and the nature of that knowledge has sometimes differed profoundly from place to place" (p. 209). In the same direction, Cimino (2006) affirmed, "... it is necessary to explore the cultural, scientific, social and institutional context of each country and analyze how, case by case, such an event [Psychology] matured ..." (p. 7). Thus, exploring processes of indigenization of psychology we can achieve an international History of Psychology and show how, case by case, Psychology has benefited from different sociocultural conditions.

Part of the importance of the experimental psychology laboratory in the history of psychology is due to its material culture that circulated throughout the world. There are studies pointing out that the laboratory was a tool for the: (a) disciplinarization of Psychology, i.e., promoting its teaching (Escobar, 2014); (b) establishment of social and iconic uses of science (Danziger & Ballantyne, 1997; O'Donnell, 1985; Popplestone & Tweney, 1997); (c) creation of different theoretical and methodological perspectives (Danziger, 1994; Fuchs & Milar, 2003); (d) creation of scientific communities (Benjamin, 2000); and (e) establishment of the conditions for the research in psychology (Evans, 2000). We can notice some of these roles of the laboratory as part of consideration of the ways in which psychology became a culturally legitimized field of knowledge. On one hand, we can see how experimental psychology labs and apparatus circulated among different countries and on another, we can notice how local contingencies shaped new psychological knowledge.

In this article, we consider the indigenization of Psychology and the different roles played by the experimental psychology laboratory in the circulation of Psychology. Our goal is to present the laboratory apparatuses and its uses as forms of circulation and indigenization of Psychology in Brazil, particularly by the appro-

priation of its material culture. To achieve our goal, this article is organized into these four following sections: (a) the role of education in the first decades of the 20th century in Brazil, (b) an overview of the Belo Horizonte Teachers College and its lab, (c) apparatuses held by the lab, showing how this material culture appeared, and (d) some uses of psychological testing to present an indigenous way these apparatus were used. By presenting these points, we introduce an example of a psychological laboratory in Brazil that demonstrates the distinctiveness of the Brazilian experimental psychology in the beginning of the 20th century. Hence, our research conforms to contemporary proposals in the historiography of psychology, such as Brock (2006), Pickren (2009), and Pickren and Rutherford (2012).

Psychology, modernization and educational renewal

At the start of the 20th century several cultural, social and economic changes took place in Brazil. Urban middle class, the working class, and industrial bourgeoisie began to share social space with the agricultural elite during the process of urbanization. Industrialization, scientific development and educational renewal were fostered by political discourses that promoted rapid change in the country. The motto “modernization of the country” was popular rhetoric matched by the creation of urban cities such as Belo Horizonte.

The city of Belo Horizonte can be highlighted as an example of what was happening in many Brazilian urban centers at the time. Created between 1894 and 1897 to become the new capital of the Minas Gerais State, Belo Horizonte congregated the social-politics desires of the Brazilian republicans (Veiga, 2002). According to Julião (1996):

The creation of Belo Horizonte took place precisely in that mental atmosphere, in which some parts of the elite viewed the advent of the Republic as a sign of rupture with the past; it was the beginning of a new era that advocates the modernization and the national development. The urban space was discovered as a way for this new order... (p. 51)

Alongside social and political development there was a scientific counterpart; science training became a powerful ideal to promote social change in Brazil. A brand new cast of scientists was joined by intellectual and political elites in pursuit of the Brazilian modernity (Schwartzman, 2001). In the first decades of 20th century, several schools for professional training were established in Brazil including Med-

icine, Engineering, Law, Nursing, and Pedagogy. It was hoped that training would help realize the Republican goals of modernization. In those schools, professional training should be updated according to the most recent scientific developments. As we will see, part of the updating processes included the establishment of scientific laboratories and, among of them some Psychology ones.

The supporters of Brazilian modernization's project, i.e., intellectual and political elites, placed a great emphasis on the education of citizens. Educational renewal was a pivotal vector for the establishment of the Republic tied to the modernization of the country, and a means to remedy Brazilian perceptions of social and economic backwardness. Two educational systems were highlighted; primary schooling tied to the state and teacher training available at normal schools. Primary schooling was designed to achieve the goals of: (a) reducing illiteracy; (b) shaping the new model citizen; (c) aiding adaptation to the urban-industrial milieu; and (d) preparing a work force for industry (Carvalho, 2005). These changes would be accomplished by increasing the number of students enrolled in primary schools as well as by building more schools. Teacher training was emphasized as a key for the success of the primary school. According to an influential politician at the time, "The worth of primary education is the worth of its teachers, and the worth of teachers necessarily depends on the normal school" (Campos, F., 1930, p. 40). Based on these goals, intellectual and political elites proposed several educational reforms. One of the most important reforms was the Francisco Campos-Mário Casassanta's¹. This reform was influenced by biological and psychological concepts for the establishment of: (a) new ideas about childhood; (b) modern teaching methods; and (c) new didactical practices (Peixoto, 2003). One product of this reform was the establishment of the Belo Horizonte Teacher's College which purpose was to give a better scientific training for teachers.

[1] The Francisco Campos-Mário Casassanta Reform was a group of decrees published between 1927 and 1930. These decrees expanded the primary school and teacher training systems. The reform bears the name Francisco Campos-Mário Casassanta because it was created and managed by these two individuals. The former was the spokesperson from the State Department of Minas Gerais during the administration of the Governor Antônio Carlos. Mário Casassanta was the General Inspector of Instruction at this moment.

Belo Horizonte Teachers College and the laboratory of experimental psychology

From 1929 through 1946 Belo Horizonte Teacher's College had as its main purpose the training of the "teachers elite"² of the Minas Gerais state (Prates, 1990). These teachers would get key positions in the structure of the public education system in the state. They would occupy positions as school principals as well as teachers in normal schools and their training included instruction in psychology. Teacher training should prepare teachers to solve pedagogical problems (e.g., school failure), especially teachers prepared by the Teacher College since they were the "teachers' elite" of the Minas Gerais state. This "elite" was trained to believe that primary school "... should not just give knowledge. Primary school aimed the most sacred of duties: to educate children, developing their personality" (Antipoff, 1930/1992b, p. 67). Primary school should be guided by some aspects: "(1) the value of the scientific method; (2) the teacher training and their professional skills; (3) the didactical tools; and finally (4) the children's abilities based on their heredity and social milieu" (Antipoff, 1930b, p. 147). According to Peixoto (2003, p. 111), the creation of the Belo Horizonte Teachers College, which became "one of the first Brazilian institutions focused on the training of experts in education," was one of the main contributions of the Francisco Campos-Mário Casassanta's Reform.

The opening ceremony of the Belo Horizonte Teacher's College took place on March 14, 1929. The Minas Geraes Newspaper (*Jornal Minas Geraes*) declared that the College held the promise "... of solving our educational problems" (*Escola de Aperfeiçoamento*, 1929, p. 10). Scientific psychology as expressed by work in the experimental laboratory was a key feature. At the end of 1929 the Teacher's College organized an exhibition that included the experimental laboratory:

In the laboratory of psychology we will find apparatus, many of them fragile and very accurate. The laboratory is distributed in three sectors: psychophysics; psychodynamics; and psychometric ... thus, for this laboratory there is no lack of apparatus, accurate and expensive, that allow it to accomplish its purposes (*Exposição de Trabalhos*, 1929, p. 15)

In line with the goals and aspirations of Teachers College, the lab was seen as a key element in teachers training. According to F. Campos (1930, p. 46 – emphasis

[2] According to Prates (1990), enrollment was made up exclusively of women, during the Teacher's College existence there were just two male students; one in 1944 and other in 1945.

added), “Teacher’s training is not an intellectual workup, a simple tool for the initiation into general culture; it addresses, **first of all and mainly**, to the development of a technique, of a **psychological technique ...**”

Psychology at the Teacher’s College was closely connected to the laboratory, which was housed in the Department of Psychology. This department was organized into three different parts: a) the laboratory; b) a room that stored materials related to psychometrics; and c) the Children’s Museum room, which was used as an archive of the database of investigations conducted in the laboratory (Fazzi, Oliveira, & Cirino, 2011). According to its chairperson, Helena Antipoff (1930/1992a)³, “Alongside the academic purpose, considering the psychological training of our students —future teachers— our work aims to conduct pedagogical research on standardized norms for various physical and mental functions” (p. 59).

The training of the teachers occurred in a two-years course of study. Educational psychology was present in both years. In the first year general psychology, individual psychology, developmental psychology and statistics were addressed. The second year included additional coursework in developmental psychology as well as psychotechnics. Antipoff reports that the teaching of psychology in the Teacher’s College was eminently practical and included significant lab work, “... apparatus are constantly used by students into practical exercises ... stopwatches, kymographs, ergographs, compasses and other instruments hardly ever are inside the closets; quite the contrary, they are always on use” (Antipoff, 1930a, p. 227). She continued saying that theory was covered only as “a necessary explanation as an introduction to the practical work and to the research in the field of psychology applied to education”.

The students of the Teacher’s College worked with Antipoff running different studies in the lab. The lab produced psychological knowledge focused on educational issues, mainly about the relationships between education and child development. Many of the studies by Antipoff and her students were published in the Teaching Journal (*Revista do Ensino*), a journal sponsored by the local government. Some papers also appeared in other journals such as the Psychological Archives (*Archives de Psychologie*), a Swiss journal connected to the *Institut Jean-Jacques Rousseau* (IJJR, Jean-Jacques Rousseau Institute). Much of the published research concerned the

[3] Helena Antipoff (1892-1974) was a Russian educator and psychologist who studied with Theodore Simon (France) and Edouard Claparède (Switzerland). She came to Belo Horizonte to run the Laboratory of Psychology and she lived in Brazil from 1929 until her death in 1974 (Campos, R., 2002).

interests and ideals of Brazilian children as well as studies on a wide range of developmental issues. During these early years it is easy to see that the work of the lab was in pursuit of the larger social goals of improving education in Brazil.

In the early years of the experimental psychology laboratory at Belo Horizonte Teacher's College, many foreign specialists visited and participated in different studies. The list was illustrious and included Théodore Simon⁴, Leon Walther⁵, and Édouard Claparède⁶. The common thread to all of them was Helena Antipoff who had been affiliated with a number of laboratories during her early career in Europe. Such experiences probably influenced her beliefs in the importance of laboratory work in the training of teachers.

In Paris, Antipoff worked closely with Simon on mental testing. During this time she met Claparède and went on to Geneva to serve as his assistant in the laboratory of psychology at the IJRR (1912-1916 and again in 1925-1929). As one of the founders of the IJRR, Claparède was adamant about the importance of the psychological laboratory, "The role of the laboratory for psychology is exactly the same of the other sciences: it allows observations and experiments under strict determinable conditions" (1934, para. 2). He continues:

The use of apparatus is required for guarantee some constancy of results. We seize one of the roles of the apparatus: to establish or to maintain, during an ex-

[4] Théodore Simon (1873-1961) was a French psychiatrist who has worked with Alfred Binet producing one of the first intelligence scale called Binet-Simon Intelligence Scale. After Binet's death, Simon became the chairperson of the Free Society for the Study of Childhood (*Société Libre pour L'Étude de l'Enfant*) whose name changed *Société Alfred Binet*. Simon worked in the Teachers College during two months in 1929 when performed some conferences and developed studies using intelligence tests with children in some Belo Horizonte schools (see Simon, 1930).

[5] Léon Walther (1889-1963) was a Russian applied psychologist who has studied at the Saint Petersburg University (Russia). From 1917 to 1918 he studied psychology and pedagogy at the Jean-Jacques Rousseau Institute (*Institut Jean-Jacques Rousseau* – IJRR) and after that, he became the chairperson in professional guidance of the Institute. Walther worked as lab assistant for Claparède and he developed studies on industrial psychology (see Walther, 1932). He worked at the experimental psychology laboratory in the Teachers College during three months helping to settle it up (Campos, R., 2010a).

[6] Édouard Claparède (1873-1940) was a Swiss physician considered a pioneer in the scientific study of childhood. He was one of the main organizer of the IJRR whose purpose was "introducing students to scientific methods required for the advancement of child psychology and instructional techniques" (Claparède, 1931, p. 267 cited by Campos, R., 2001, p. 136). Part of his ideas and activities were related to the Progressive Education Movement in Europe.

Table 1.

List of Companies where the Apparatus were bought

Country	Company
Austria	L. Castagna
France	G. Boullitte
Germany	Zimmerman
Switzerland	Bâle. et Borel
	Kerne & Cie
	Lambercier
	Maison Jacquet
	Schaerer
United States of America	C.H. Stoelting

periment, the rigorous conditions. Another use for the laboratory instruments, in psychology and elsewhere, is to measure. The measurement is one of the most clearly characteristics of science ... (para. 2-3)

From 1916 to 1924, living in Russia, Antipoff had ties to the psychology laboratory of the University of Petrograd direct by Aleksandr Petrovich Nechaev who was involved with experimental psychology and pedagogy. Based on these experiences related to the laboratory and to the experimental psychology she developed a firm belief in the experimental method, the laboratory and the role of apparatus for psychology. According to Antipoff "... this is the only path or at least the most effective one, and the path which ensures the progress: the experimental method" (Antipoff, 1935/1992, p. 262).

The apparatus of the Belo Horizonte lab

There are a number of sources that describe the apparatus of the experimental psychology laboratory of the Belo Horizonte Teacher's College (Antipoff, 1930a; Aparelhos Emprestados ..., 1930; Exposição de Trabalhos, 1929; Instruments pour le laboratoire de psychologie ..., n.d; Fazzi & Lourenço, 2011). The existence of these apparatus helps us to understand they were part of the elements of Psychology that have circulated around the world. They came from different countries to Brazil (see Table 1). Therefore, they say about the circulation and indigenization

Table 2.

Sensibility Apparatus

Tactile Sensations	Muscular Sensations	Audition	Vision
Aesthesiometer	Dynamometer	Metronome	Color Disks
Pressure Points	Ergograph	Tonometer	Colored Papers
	Weights	Tuning Forks	Color Wheels
			Gadget for testing distances (Radoslawow)
			Holmgren's Worsteds
			Stereoscope

processes of Psychology, particularly by the appropriation of its material culture. Teacher's College lab and its apparatus show a possible influence of Claparède on Antipoff – his beliefs in the role of the lab (Claparède, 1934) – and her beliefs on the experimental method in Psychology (Antipoff, 1935/1992).

The laboratory held about 52 different apparatus. We categorized them into the following groups: (1) Sensibility; (2) Recording, Measuring and Timing; (3) Physiological and Anthropometric; (4) Mental Tests; and (5) Others. This classification seems to be typical in that time (see Antipoff, 1930a; Apparatus and Supplies, 1930; Guimarães, 1928). The classification of the apparatus of the Belo Horizonte lab is included in Tables 2-5.

This first group included apparatus that allow for the measurement of different human senses. They were common in experimental psychology laboratories and on its practices, such as studying reaction time to sounds or images. The second one, Recording, Measuring and Timing Apparatus included instruments that allowed for precision and accuracy in the experimental setting (Gundlach, 1996) (see Table 3).

The third group, Physiological and Anthropometric Devices (see Table 4, Figure 1) contained two sub-groups: (a) Anthropometric Devices, and (b) Measures of Body Activity.

Figure 1 shows a woman performing height measurement of two kids with measuring tapes. The identification of this picture as an archival material reads that it shows a study done in the laboratory, but did not present its year. On the wall to the left, we see graphics and a banner that reads height, weight, dynamometry and spirometry. The action registered as well as those data on anthropometric characteristics shows us the use of brass apparatuses - such as measuring tapes, dynamometers

Table 3.

Recording, Measuring and Timing Apparatus

Recording, Measuring and Timing Devices
Chronoscope
Chronograph
Kymograph
Marey's Tambour
Tachitoscope
Response Key
Stopwatch
Tapping Board

Table 4.

Physiological and Anthropometric Devices

Physiological and Anthropometric	
Anthropometric	Body Activity
Anthropometric Kit	Pletysmograph
Compass	Pneumograph
Measuring Tape	Sphygmamometer
	Spirometer

and spirometers – otherwise there would be no data to be shown. This Figure also shows, on the left, some caliper for the measurement of cranium that contributes for the diagnosis of mental and physical development of children. The use of this kind of instruments was common in other Brazilian and foreigner's institutions, for instance São Paulo (Thompson, 1914) and Rio de Janeiro (Guimarães, 1928).

Mental Tests included a variety of measures of language and cognition. The inclusion of mental test was becoming more popular in the traditional experimental lab, as early as 1898 Titchener commented,

It is through individual psychology that experimental psychology joins hands with anthropometry. 'Mental tests' are beginning to loom large in psychological literature,

Table 5.

List of Intelligence Tests in the Lab.

Origin	Name
France	Binet-Simon Intelligence Scale P. V. Test (Perray-Vaucluse) Vocabulary and Intelligence Little Scale Foucault's Combined Tests
United States	Stanford-Binet Test Army Alpha Dearborn Intelligence Test Goodenough (Draw-a-person Test) Porteus Test Pintner-Cunningham Test Terman-Merrill Test
United Kindon	Cyril Burt Test Ballard Group Test of Intelligence
Belgium	Buyse-Decroly Test
Russia	The simplest measurements of extent of intellectual development of children (Aleksandr Petrovic Nečaev)
Spain	Barcelona Test
Colombia	Del Olmo Test

and every test requires its own apparatus. The instruments must be strong, cheap, and of simple construction. (<http://psychclassics.yorku.ca/Titchener/lab.htm>).

Mental tests at the Belo Horizonte lab

Mental tests were particularly important to the Belo Horizonte lab as they were intimately related to the goals of reforming society through education. The use of tests since the foundation of Teacher's College, in 1929, was intensely, with primacy to intelligence tests (see Table 5). The goal was to prepare the students to modern practices of mental level and identification of student learning. Its use occurred: (a) from the translation and adaptation of foreign tests, and (b) with the construction of new measuring instruments of intelligence and learning (Campos, 2001; 2003; 2010a; 2010b; Castro, A. C., Castro, A. G., Josephson, Jacó-Vilela, 2007).



Figure 1. Working in progress in the laboratory of Teacher's College, circa 1930s. Source: CDPHA.

According to Campos (2010a; 2010b), the purpose of use of the tests was to provide scientific support for the classification of children in schools. In other words, to promote homogenization of classrooms, creating rooms for students with above average performance, rooms with middling students and others of students below average. The use of tests seems the best example of practical application of laboratory activities. Thousands of children were subjected to intelligence tests, especially in the 1930s, both in the city of Belo Horizonte and in other cities in the state of Minas Gerais (Antipoff, 1930a; 1931/1992; 1934/1992; 1931/2002; Antipoff & Cunha, 1932; Castro, M.; 1934). The goal was to enable the students to the use of tests in schools, promoting intervention in a practical context (Antipoff, 1930a; 1931/1992; 1934/1992; 1931/2002).

One of the main tasks performed in the laboratory was the translation and adaptation of tests produced in other countries to the local reality. On top of this, we found tests from various countries such as the USA, France, Belgium, United Kingdom, Russia, Spain, and Colombia. Not all of these have been translated and used, but the diversity of backgrounds is indicative of an important process of circulation

of these instruments (Rota Júnior, 2016). There was an emphasis on American and French tests during the adaptation and application in Brazilian schools. This coincides with the theoretical debate on the centrality of theoretical production at that period. In relations between France and the USA which is located the creation and subsequent massive application of testing outside the laboratory (Martin, 1997a; 1997b).

According to Martin (1997a), the American uses of Binet-Simon test, for example, were strongly pragmatic. The reception of the instruments, different to the French original proposal, attributed to these local features, products “of statistics and quantitative culture of US psychologists as the will to automate and standardize the tests” (p. 49). This discussion is important because it clarifies the process of using of testing at the laboratory of Teacher’s College. The primacy of the instruments used by the laboratory in the schools of Belo Horizonte was of collective application, following an US model (Martin, 1997a; Gould, 2014).

We take the Dearborn intelligence test as an example to show the work in the laboratory in Belo Horizonte, seeking to represent elements of its circulation. According to Antipoff (1931/2002, p. 97), the test “was applied by the teachers-students of Teacher’s College. From November 1929 until April 1930, in 2,464 children of Belo Horizonte, at the age 6-16 years.” Dearborn intelligence test, originally published in 1920⁷, was the second test to be translated and adapted by the laboratory (Antipoff, 1931/2002), as can be seen from a Antipoff personal document, which reads “it was found that technical (*translated from French*) was not adapted to our environment, making it therefore difficult to interpret for our children” (Direções para corrigir..., 1932, s/p, emphasis added). Thus, it is clear that the test translation was made from the original not in English, but a French version. We did not find this version in French, but some evidence of its use was found, specifically at Switzerland. This point highlights the issue of center-periphery relationship (Danziger, 2006): our argument is that in the 1920s and 1930s the USA was leaving the periphery position and becoming one of the production centers of intelligence mea-

[7] *The Dearborn Group Tests of Intelligence* was composed of two series: Series I, for students from first to third years and Series II, for the four students to the twelfth year. The Series I, in turn, consisted of two parts, A and B, which should be applied in this order, and had a complementary manner, the end result being the sum of the results obtained in both (Dearborn, 1920).

tures and a reference in the psychological measurement area to other peripheral countries, such as Brazil.

Thus, we can say that the experience of Teacher's College allowed the development of various psychological tests. There is therefore an important link of this experimental psychology laboratory with the establishment and development of psychological science in the country. We pointed out that it was not just the translation and adaptation of the instruments. This initial work was only a first movement of appropriation of the tests, and the experience gained influenced the development of instruments that met local needs, showing a relationship between the global and the local in the indigenization process of produced psychological knowledge (Rota Júnior, 2016).

Final Considerations

Our account describes the experimental psychology laboratory at the Belo Horizonte Teacher's College. Particularly, we have shown its role in teacher training, i.e., its role in Brazilian education renewal in the late 1920s and early 1930. We also presented the laboratory apparatuses and its uses that help us to understand circulation and indigenization processes of psychology, particularly by the appropriation of its material culture. This laboratory and its apparatus reflect the way psychology was produced under idiosyncratic conditions of Brazil in that period. The educational aspects grounded in urban and industrial changes were contingencies for the installation of the laboratory and its apparatus. In this context, science was stressed as an important agent for the modernization of the country.

The laboratory studied congregated many different agents outside of Brazil. From instruments manufactured in Europe to psychologists trained in Switzerland, France and Russia, the lab at Belo Horizonte was connected to the growth of laboratory psychology in the early 20th century. The laboratory was a place for teaching scientific psychology and conducting different psychological studies. It allowed the training of teachers (schoolmasters) and supported child psychology studies (e.g., anthropometric, mental testing).

We should also mention some methodological constraints of our study. Considering that we have mentioned just one laboratory we cannot extend our analysis to the entire historical period under discussion or to other Brazilian labs. However, this laboratory was a paradigmatic example of the ways in which psychology connected

to education in Brazil early in the 20th century. Therefore, we hope that this exploration of the development of the psychological laboratory at Minas Gerais contributes to other studies of the history of psychology and education in Brazil. Such efforts can help contribute to a better understanding of the history of psychology in Brazil.

References

- Antipoff, H. (1930a). A psicologia na Escola de Aperfeiçoamento de Belo Horizonte [Psychology at Belo Horizonte Teachers College]. *Cadernos Brasileiros de Higiene Mental*, 3(7), 226-234.
- Antipoff, H. (1930b). Escolologia – Ensaio de pedagogia experimental [Escolologia – Essays of experimental pedagogy]. *Revista do Ensino*, 5(50,51,52), 146-152.
- Antipoff, H. (1992a). O trabalho psicológico [The psychological work]. In: Centro de Documentação e Pesquisa Helena Antipoff (Org.), *Coletânea das Obras Escritas de Helena Antipoff, 1: psicologia experimental* (pp. 59-63). Belo Horizonte, Brazil: Imprensa Oficial. Originally published in 1930.
- Antipoff, H. (1992b). Interesses e Ideais das Crianças Brasileiras – Conclusões [Interests and ideas of Brazilian children – Conclusions]. In Centro de Documentação e Pesquisa Helena Antipoff (Ed.), *Coletânea das Obras Escritas de Helena Antipoff, 1: psicologia experimental* (pp. 65-69). Belo Horizonte, MG: Imprensa Oficial. Originally published in 1930.
- Antipoff, H. (1992). A homogeneização das classes escolares [The homogenization of school classes]. In: Centro de Documentação e Pesquisa Helena Antipoff (Org.), *Coletânea das Obras Escritas de Helena Antipoff, 3: educação do excepcional*. Belo Horizonte, Brazil: Imprensa Oficial. Originally published in 1931.
- Antipoff, H. (1992). O exame Alpha e « match » intelectual [The Alfa test and the intellectual match]. In: Centro de Documentação e Pesquisa Helena Antipoff (Org.), *Coletânea das Obras Escritas de Helena Antipoff, 3: educação do excepcional*. Belo Horizonte, Brazil: Imprensa Oficial. Originally published in 1934.
- Antipoff, H. (1992). Das classes homogêneas [About homogenies classes]. In Centro de Documentação e Pesquisa Helena Antipoff (Ed.), *Coletânea das Obras Escritas de Helena Antipoff, 1: psicologia experimental* (pp. 261-264). Belo Horizonte, Brazil: Imprensa Oficial. Originally published in 1935.
- Antipoff, H. (2002). O desenvolvimento mental das crianças de Belo Horizonte [The mental development of children of Belo Horizonte]. In Campos, R. H. de F. (org.). *Helena Antipoff: textos escolhidos* [Helena Antipoff: selected papers].

- São Paulo: Casa do Psicólogo; Brasília: Conselho Federal de Psicologia. Originally published in 1931.
- Antipoff, H., & Cunha, M. L. de A. (1932). *Test Prime*. Belo Horizonte: Secretaria de Educação e Saúde Pública, (Boletim 10).
- Aparelhos Emprestados pelo Dr. J. M. Alkmin ao Laboratório de Psicologia da Escola de Aperfeiçoamento (1930, September 21). List of apparatus borrowed for the experimental psychology laboratory that reads which instruments and quantity of each one; signed by Helena Antipoff. Central Library of the Universidade Federal de Minas Gerais, Sala Helena Antipoff. Box A1-6D, Folder 8, Document 1, Subject "Aparelhos para Testes".
- Apparatus and Supplies: second edition manual (1930). Catalogue of the C. H. Stouling Co.; which is a list of apparatus for experimental psychology with prices of each one. Special Interest Collection, Folder "Tests Catalogs Ads. Dolls Papers", Archives of the History of American Psychology, The Center for the History of Psychology, The University of Akron.
- Batur, S. (2013). Peripheralization and History of Psychology: An example from Turkey. In A. Marvakis, J. Motzkau, D. Painter, R. Ruto-Korir, G. Sullivan, S. Triliva & M. Wieser (Eds.), *Doing Psychology Under New Conditions* (pp. 131-138). Concord, ON: Captus Press.
- Benjamin Jr., L. T. (2000). The psychology laboratory at the turn of the 20th century. *American Psychologist*, 55(3), 318-321. doi: 10.1037//0003-066X.55.3.318.
- Brock, A. (2006). Introduction. In Autor (Ed.), *Internationalizing the History of Psychology* (pp. 1-15). New York, NY: New York University Press.
- Campos, F. (1930). *Pela civilização mineira: documentos de governo 1926/1930* [For the civilization of Minas Gerais State: governmental documents 1926/1930]. Belo Horizonte, Brazil: Imprensa Oficial de Minas Gerais.
- Campos, R. H. de F. (2001). Helena Antipoff (1892-1974): A synthesis of Swiss and Soviet psychology in the context of Brazilian education. *History of Psychology*, 4(2), 133-158.
- Campos, R. H. F. (2002). *Helena Antipoff: textos escolhidos* [Helena Antipoff: selected papers]. São Paulo, Brazil: CFP e Casa do Psicólogo.
- Campos, R. H. de F. (2003). Helena Antipoff: razão e sensibilidade na psicologia e na educação [Helena Antipoff: reason and sensibility in psychology and education]. *Estud. av.*, São Paulo, v. 17, n. 49, Dec. Available from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-40142003000300013&lng=en&nrm=iso access on 08 Nov. 2012.

- Campos, R. H. de F. (2010a). *Helena Antipoff (1892-1974) e a Perspectiva Sociocultural em Psicologia e Educação* [Helena Antipoff (1892-1974) and the Socio-Cultural Perspective in Psychology and Education]. 269 f. Tese Professora Titular – Faculdade de Educação da Universidade Federal de Minas Gerais, Belo Horizonte.
- Campos, R. H. de F. (2010b). *Helena Antipoff*. Recife: Fundação Joaquim Nabuco, Editora Massangana. (Coleção Educadores).
- Castro, M. A. (1934). *As classes do 1º ano em 1933* [The classes of first year in 1933]. Belo Horizonte, Secretaria de Educação e Saúde Pública, (Boletim 15).
- Castro, A. de C., Castro, A. G. de, Josephson, S. C. & Jacó-Vilela, A. M. (2007). Medir, classificar e diferenciar. In Jacó-Vilela, A. M., Ferreira, A. A. L. & Portugal, F. T. *História da Psicologia: rumos e percursos*. 2. ed. revista e ampliada. Rio de Janeiro: Nau Ed. (Coleção Ensino da Psicologia).
- Carvalho, M. M. C. (2005). School and modernity representations as pedagogical models: a study on their circulation and usages in Brazil (1889-1940). *Paedagogica Historica*, 41(1-2), 259-273.
- Cimino, G. (2006). Introduction. *Physis—Rivista Internazionale di Storia della Scienza*, 18, 1-30.
- Cirino, S. D., Miranda, R. L., & Cruz, R. N. (2012). The Beginnings of Behavior Analysis in Brazil: a pedagogical view. *History of Psychology*, 15(3), 263-272. Doi: 10.1037/a0026306.
- Claparède, E. (1934). Jubilé universitaire – laboratoires de psychologie [Jubilee college – psychological laboratories]. *Journal de Genève*, Switzerland.
- Danziger, K. (1994). *Constructing the subject: Historical origins of psychological research*. New York, NY: Cambridge University Press.
- Danziger, K. (2006). Universalism and indigenization in the history of modern psychology. In Brock, A. C. (Org.). *Internationalizing the history of psychology*. New York University Press, pp. 208-225.
- Danziger, K., & Ballantyne, P. (1997). Psychological Experiments. In W. G. Bringham, H. E. Lück, R., Miller, & E. Early (Eds.), *A Pictorial History of Psychology* (pp. 233-239). Carol Stream, IL: Quintessence Publishing Co, Inc.
- Dearborn, W. F. (1920). *The Dearborn Group Tests of Intelligence: manual of directions for giving and scoring*. Series I. Philadelphia: J. B. Lippincott Company - The Washington Square Press.
- Direções para corrigir o test Dearborn [Directions to correct the Dearborn test] (1932). Duas páginas com instruções e critérios de para a correção do teste

- Dearborn. Sala Helena Antipoff. Biblioteca Central. Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais.
- Escobar, R. (2014). The instruments in the first psychological laboratory in Mexico: Antecedents, influence, and methods. *History of Psychology, 17*, 296-311. doi: 10.1037/a0038038
- Escola de Aperfeiçoamento de Professores de Belo Horizonte. (1929). Inauguração [Opening Celebration]. *Minas Geraes*, Belo Horizonte, Brazil: p. 10, 14 mar. 1929.
- Evans, R. B. (2000). Psychological Instruments at the Turn of the Century. *American Psychologist, 55*(3), 322-325. doi: 10.1037//0003-066X.55.3.322.
- Exposição de Trabalhos da Escola de Aperfeiçoamento de Professores de Belo Horizonte (1929). Exposição de Trabalhos [Working Exhibition]. *Minas Geraes*, Belo Horizonte, Brazil: p.15, 14 dez.
- Fazzi, E. H., & Lourenço, E. (2011). Escola de Aperfeiçoamento – 1929-1946 [Belo Horizonte Teachers College – 1929-1946]. In A. M. Jacó-Vilela (Ed.), *Dicionário Histórico de Instituições de Psicologia no Brasil* (pp. 185-87). Rio de Janeiro, Brazil: Imago e CFP.
- Fazzi, E. H., Oliveira, B. J., & Cirino, S. D. (2011). Notas sobre o laboratório de psicologia da escola de aperfeiçoamento de Belo Horizonte [Notes about the Psychology Laboratory of the Improvement School of Belo Horizonte]. *Memorandum, 20*, 58-69.
- Gould, S. J. (2014). *A falsa medida do homem*. [The mismeasure of man] (3rd ed.) São Paulo: Editora WMF Martins Fontes.
- Guimarães, O. N. S. (1928). O laboratório de psicologia [The psychological laboratory]. In Colônia de Psicopatas de Engenho de Dentro (Ed.), *Trabalhos de psicologia do laboratório de psicologia da Colônia de Psicopatas de Engenho de Dentro* (pp. 387-415). Rio de Janeiro, Brazil.
- Gundlach, H. (1996). The Hipp Chronoscope as Totem Pole and the Formation of a New Tribe-Applied Psychology, Psychotechnics and Rationality. *Teorie & Modelli: Rivista di Storia e Metodologia della Psicologia, 1*(1), 65-85.
- Instruments pour le Laboratoire de Psychologie Expérimentale de l'École Normale Supérieure de Bello Horizonte (n.d.). List of apparatus for the experimental psychology laboratory that reads which instruments, quantity of each one, values, and where they were bought. Central Library of the Universidade Federal de Minas Gerais, Sala Helena Antipoff. Box B1-3B, Folder 4, Document 3, Subject "Pesquisa".

- Julião, L. (1996). Belo Horizonte: itinerários da cidade moderna [Belo Horizonte: itineraries of the modern city]. In E. F. Dutra (Ed.), *BH: horizontes históricos* (pp. 49-118). Belo Horizonte, Brazil: Ed. C/Arte.
- Martin, O. (1997a) *La mesure de l'esprit. Origines et développements de la psychométrie 1900-1950* [The mesure of the soul. Origins and development of psicometrics 1900-1950]. Paris: L'Harmattan. (Collection Histoire des Sciences Humaines).
- Martin, O. (1997b). La mesure en psychologie de Binet à Thurstone, 1900-1930 [Measurement in Psychology from Binet to Thurstone, 1900-1930]. *Revue de synthèse*. 4^e S. N^o 4, oct.-déc. p. 457-493.
- O'Donnell, J. M. (1985). *The origins of behaviorism: American psychology, 1870-1920*. NewYork, NY: Columbia University Press.
- Peixoto, A. M. C. (2003). Uma nova era na escola mineira: a reforma Francisco Campos e Mário Casassanta (1927-1928) [A new era for school in Minas Gerais State: the Francisco Campos and Mário Casassanta Reform (1927-1928)]. In M. C. Leal, & M. A. L. Pimentel (Eds.), *História e Memória da Escola Nova* (pp. 75-115). São Paulo, Brazil: Edições Loyola.
- Pickren, W. (2009). Indigenization and the history of psychology. *National Academy of Psychology*, 54, 87-95.
- Pickren, W., & Rutherford, A. (2012). Rumo a uma História Global da Psicologia [Toward a global history of Psychology. In: S. F. Araujo (Ed.), *História e Filosofia da Psicologia: Perspectivas contemporâneas* (pp. 67-86). Juiz de Fora, Brazil: Editora da UFJF.
- Polanco, F., & Miranda, R. L. (2014). Recepción del conductismo en Argentina y Brasil: Un estudio de dos universidades, 1960-1970 [Reception of behaviorism in Argentina and Brazil: A study of two universities, 1960-1970s]. *Universitas Psychologica*, 13, 2035-2045. doi: 10.11144/Javeriana.upsy13-5.rcab
- Popplestone, J. A., & Tweney, R. D. (1997). Introduction. In C. H. Stoelting Co., *The Great Catalogue of the C. H. Stoelting Company* (pp. 1930-1937). Delmar, NY: Scholars Facsimilies and Reprints.
- Prates, M. H. S. (1990). Uma Nova Pedagogia para o Professor Primário Mineiro: a Escola de Aperfeiçoamento [A New Pedagogy for the Primary Teacher of the Minas Gerais State: the Teacher's College]. *Educação em Revista*, 11, 12-29.
- Rota Júnior, C. (2016). *Reception and circulation of intelligence tests at Belo Horizonte Teachers College (1929-1946)*. Dissertation (PhD in Education) - School of Education, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

- Schwartzman, S. (2001). *A revolução de 1930 e as primeiras universidades* [The revolution of 1930 and the first universities]. In Schwartzman, S, *Um Espaço para a ciência: a formação da comunidade científica no Brasil* (pp. 1-31). Brasília, Brazil: Ministério da Ciência e Tecnologia. Retrieved from <http://www.schwartzman.org.br/simon/spacept/espaco.htm>.
- Simon, T. (1930, Apr. 5). Dois Meses em Belo Horizonte [Two months in Belo Horizonte]. *Minas Geraes*, pp. 7,9. Imprensa Oficial de Minas Gerais.
- Titchener, E. B. (2000, August). *A Psychological Laboratory*. First published in *Mind*, 7, 1898. Retrieved from <http://psychclassics.yorku.ca/Titchener/lab.htm>.
- Thompson, O. (1914). O futuro da pedagogia é científico [The future of pedagogy is scientific]. In Escola Normal Secundária de São Paulo (Ed.), *O laboratório de pedagogia experimental* (pp. 3-23). São Paulo, Brazil: Tipografia Siqueira, Nagel & Comp.
- Veiga, C. G. (2002). *Cidadania e Educação na Trama da Cidade: a construção de Belo Horizonte em fins do século XIX* [Citizenship and education in the fabric of the city: the construction of Belo Horizonte at the of 19th century]. Bragança Paulista, Brazil: EDUSF.
- Walther, L. (1932). *Tecno-Psicologia do Trabalho Industrial* [Techno-Psychology of industrial work]. São Paulo, SP: Companhia Melhoramentos.

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