Between the examination of children's bodies and the shaping of racial norms: aspects of the activities of the São Paulo State School Medical Inspection Service

To the memory of
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Abstract

This article analyzes aspects of the activities of the School Medical Inspection Service, an agency created in 1911 under the São Paulo State Sanitary Service and transferred in 1916 to the Secretary of Public Instruction. It focuses, more specifically, on the practice of the individual examination of students with the purpose of understanding the motivations behind these practices, the role they played in establishing standards of normality and abnormality, as well as their underlying racial tenor. To this end, its sources are articles published in the periodical *Imprensa Médica*, works written by the agency's head physician, Balthazar Vieira de Mello, and the *Anuários do ensino*, the official publication of the General Board for Public Instruction.

Keywords: education; childhood; school hygiene; medical inspection; race.

From the second half of the nineteenth century to the start of the twentieth, various countries began to institutionalize and disseminate public education as part of a project with a wider scope that attributed to education the ability to civilize, to provide physical and moral regeneration and social prophylaxis. This investment included intervening in the development of children's bodies and minds, marked, among other objectives, by the intent to produce scientific knowledge on children to serve as a basis for organizing the various aspects of educational institutions. These include student grouping, definition of the content to be taught to each age group, and the teaching methods to be adopted.

Questioning the constitution of childhood as an object of study and intervention, as part of the process of disseminating public schooling, this article seeks to examine discursive and institutional practices implemented based on the attempt to shape the bodies and minds of children, focusing on the relationships between the intervention proposals formulated in the field of medicine and their implementation in school settings.[1] Through this means, we sought to identify some of the strategies through which authorities attempted to subordinate the teacher's authority to that of the physician in children's education. Among these strategies, we highlight those that resulted in the introduction, in daily school activities, of the figure of the school doctor, equipped with modern resources and able to determine the individual characteristics on which the grouping of students should be based and to guide pedagogical work. To this end, we sought to analyze aspects of the São Paulo State School Medical Inspection Service (Inspeção Médica Escolar, IME), specifically those related to the practice of individual student examinations, attempting to understand their purpose, their role in establishing standards of normality and abnormality, as well as the racial component present in these practices.[2]

The source articles were published between 1904 and 1914 in the periodical *Imprensa Médica* (Medical Press), a biweekly publication owned by physician Balthazar Vieira de Mello, who became the director of the IME when it was established in 1911.[3] Two works written by the physician were also examined, *A higiene na escola* (Hygiene in the schools) (1902) and *Higiene escolar e pedagógica para uso de médicos, educadores e estabelecimentos de ensino* (Scholastic and pedagogical hygiene for use by physicians, educators and schools) (1917). The former was published under the auspices of the State of São Paulo, at a time when Vieira de Mello worked as a health inspector for the Sanitary Service, obtaining significant experience in combating the epidemics that raged within the state. The latter was written around the time he transferred from the Health Service IME to the General Board for Public Instruction. In order to monitor the operational records of this organization, under the jurisdiction of the Secretary of Education, we consulted the *Anuários do ensino* (Teaching yearbooks), the official publication of the General Board for Public Instruction for the years 1917 and 1918. This set of sources, produced in the context of a debate between medical professionals, as well as the activities of a new department during its transition between the Secretary of Health and the Secretary of Education, provides significant evidence to enable understanding of the proposals that guided the actions of school physicians in São Paulo and, especially, the place and meaning of individual examination practices as part of the interventions carried out by the department.

Student health care: echoes of an international consensus

> In all countries where education is compulsory, the logical corollary is that school medical inspections should be mandatory, says William Scott. It pains us to admit it, but compulsory education often results in compulsory infection since it is well known that schools often aid in the spread of infectious diseases, as centers of irradiation of epidemic diseases (Ferreira, 25 out. 1909, p.305).[4]

Meeting in Brussels in September 1903, the International Congress of Hygiene and Demography unanimously approved the establishment of school medical inspections, which should be carried out systematically by competent personnel, comprising a set of tasks in order to ensure preservation of the health of schoolchildren. This subject would also be discussed at other international forums, including the first Congress on School Hygiene, held the following year in Paris, as highlighted by Balthazar Vieira de Mello (10 maio 1905, p.161-162) in the article "A inspeção sanitária das escolas" (Health inspection in schools), published in May 1905 in *Imprensa Médica*.

In his article, the physician – who had been entrusted a few years earlier with the task of preparing a study on the topic, and which resulted in the publication of his work *A higiene na escola* in 1902 – seeks to highlight the relevance of the issue in the international debate (Rocha, 2005). Referring to the positions adopted with respect to this issue at the two congresses, as well as in the article published by H. Surmont – a professor at the Lille School of Medicine – in *Presse Médicale* (Medical Press) in March 1905, Vieira de Mello sought to underline the convergence between these positions and the campaign to be undertaken in order to defend the implementation of school inspections in the state of São Paulo, which he wished to be guided by modern precepts of pedagogical hygiene. He agreed with the French physician on all issues except one, as highlighted in the article: the possibility of the participation of parents in school public health administration.

The opinion approved by the congress attendees in Brussels[5] in 1903 was based on the affirmation of the important role of schools in the development of young children, which justified school hygiene surveillance in its many aspects. Seen in this light, as responsible for the health of students, medical inspection was not just to prevent the spread of communicable diseases among schoolchildren, but also to promote "the normal functioning of organs," the "normal growth of the body and intellectual abilities" of children, as evidenced by the excerpt transcribed by Vieira de Mello:

> The Congress attendees, agreeing that the purpose of schools is to increase the social value of the individual through the rational cultivation of the physical, intellectual and moral faculties of children, stated that medical and hygienic school inspections should include everything related to student health. This was not restricted to protecting them against communicable diseases, but also in the much broader sense of their full physiological cultivation and the adaptation of their intellectual cultivation to the physical abilities of each student;
>
> It stated that medical and hygienic school inspections by a competent professional should include:

> (1) the surveillance and the healthfulness of school buildings; (2) the prevention of communicable diseases; (3) the frequent, periodical checking of the normal functioning of the organs and the regular growth of the body and intellectual faculties of children; (4) the rational promotion of the growth of children's bodies; (5) the adaptation, according to the teacher, of the cultivation of intellectual faculties in accordance with individual physical capacity, and thus each child's instruction and sanitary education (Mello, 10 maio 1905, p.161).

The issue was not new. At the International Education Congress in Brussels in 1880,[6] Janssens, health service inspector in the Belgian capital, defended the need for dissemination of medical inspection services: "Hopefully, ... in the near future, *all States* in Europe and in *America* will legally sanction the institution of school medical inspectors, as has already occurred in the cities of Brussels and Paris" (cited by Barbosa, 1947, p.64).[7] As noted by Rui Barbosa, in the report on primary education reform published in 1883, among the recommendations approved by this congress was the "formal recommendation that all ministries and boards of public education establish a school hygiene department led by an inspector general" (p.64).

It is important to highlight that the institutionalization of school medical inspection services, a recurring issue at medical and pedagogical congresses during the second half of the nineteenth century and the first decades of the twentieth century, was one of the characteristics of the diffusion of the international public health movement. Treating schools as a privileged space for intervention, in order to contain the risks of disease propagation and, simultaneously, ensure adequate conditions for the development of children, public health physicians supported the urgency of public health surveillance of schools and students (Viñao Frago, 2000).

In São Paulo, the foundation of the IME in 1911 as part of the reform of the State Sanitary Code was in accord with a set of measures through which the State hoped to address the serious problems generated by the intense growth of cities, especially the capital. Among the responsibilities of this new department, which would become the center of disputes between the Secretary of Health and the Secretary of Education, were: guidance with respect to the location and construction of school buildings; definition, in agreement with the Board for Public Instruction, of furniture, teaching methods and procedures, school positions and attitudes, in addition to the organization of school hours, such as the distribution of classes, recesses and physical education; prevention of communicable diseases; vaccination and re-vaccination; individual examinations of students, teachers and staff (Brasil, 14 nov. 1911).

"To promote regular growth of the body and intellectual faculties"

In November 1908, the São Paulo State Legislature discussed the draft law submitted by representative Francisco Sodré proposing the establishment of medical inspection in São Paulo schools. At the same time, the *Imprensa Médica* published an article by sanitary inspector Balthazar Vieira de Mello in which the physician described the clinical aspects of some infectious diseases, such as tuberculosis, and recorded their incidence in the school population. Discussing disease prevention methods, the physician repeats some sections of his book published in 1902, highlighting, among other aspects, the importance of physically

examining schoolchildren and recording the results of observations in reports to guide decisions on whether or not they should remain in school and on what type of work they could carry out. In his opinion,

> during these visits, in addition to issues of hygiene and health, students should be examined and anthropometric measurements should be taken and recorded in reports on the state of health of each child, height, weight, chest and head circumference, lung capacity, the degree of muscle strength, injuries or deformities, vision, hearing, and the state of the teeth, with a statement of physical exercises compatible with the individual student and, if necessary, the interruption or suspension of school work. Copies of these reports would be sent to parents together with report cards and attendance records (Mello, 25 nov. 1908, p.346).

The physician advocated that children attending São Paulo schools should undergo thorough physical examinations including weight, height, chest and head dimensions, and lung capacity, in addition to the appearance of their eyes, ears and teeth, and these physical characteristics would be recorded in a new type of school document. These characteristics would be associated with those related to school performance and attendance to form the individual's identity as a student or, as described by the physician Clemente Ferreira in an article published the following year, the individual's "student health record" (Ferreira, 10 nov. 1909, p.332). Contributing to the discussion on the issue, Clemente Ferreira[8] published the research he had presented at the fourth Latin-American Medical Conference in the October and November 1909 issues of *Imprensa Médica* in an article entitled "A inspeção médica dos colegiais" (Medical inspections of secondary school students) (Ferreira, 25 out. 1909, 10 nov. 1909). Defending the establishment of medical inspections in São Paulo, Ferreira presented a summary of the discussions on the issue and of the initiatives towards their implementation in different countries, based on a review of the international literature and papers presented at various medical conferences. In his reflections the physician sought to systematize the elements that, according to international studies and experiments, should be included in an agency of this type. These elements encompassed, on the one hand, the inspection of the state of hygiene of school buildings, and on the other, the inspection of the state of physical and mental health of students.

The attention given to the examination and registration of the individual characteristics of students highlights the concerns that run through Ferreira's analyses regarding the identification of the representative physical type of children attending schools. This identification, based on anthropometric data, would be part of the examination of the eyes, ears, throat, teeth, and finally, the detection of communicable diseases, the latter being considered essential in the prevention of epidemics. Regarding the investigation from the anthropometric point of view, he recommended:

> When examining the student, the doctor will first note preliminary anthropometric characteristics, measuring the height, weight and diameter of the chest, basic elements of the individual health record. He will note if the student is in good health or, on the contrary, weak, thin and has a narrow chest. He will thoroughly study the influence of certain factors on the student's physical development and nutritional functions – the lack or excess of exercise, housing, diet etc. (Ferreira, 25 out. 1909, p.311).

With the IME created in 1911 as a department under the São Paulo Sanitary Service, Vieira de Mello was asked to head it and once again availed himself of the periodical he edited. This time, he used it in order to present a set of guidelines to be followed during inspections of São Paulo schools from a hygienic point of view. Thus in December of that year he published a long article entitled "A organização do Serviço de Inspeção Médico-Sanitária das Escolas em São Paulo" (The organization of the Medical-Sanitary Inspection Service in São Paulo Schools) (Mello, 25 dez. 1911). The objective of guaranteeing uniformity of action – the same reason why the book *Higiene escolar e pedagógica para uso de médicos, educadores e estabelecimentos de ensino* was written a few years later – appears to have been the reason for the publication of this article just when the new agency was being established, a cause for which the physician had been arguing for almost a decade.

Without losing sight of the recommendations arising from the experiences of different countries and the facts enshrined in international forums, in his article the physician provided the forms that should be used to inspect buildings and those for recording data gathered during student examinations. The set of recommendations to which the school physician should pay attention was focused on orientations for the practice of examining the children's bodies and filling out the individual sanitary records.

Given that the school physician's role was limited and the time he could dedicate to examinations was short, since he was not a specialist, but rather a public health specialist or expert in child welfare, Vieira de Mello recommended that his work be limited to the aspects relating to the child's health within the school setting. Thus, the quick inspection of the general condition of a student would be followed by anthropometric procedures, specifically the following recommended measurements:

> These measurements can be reduced to just three: weight, height and chest circumference.
>
> "Weight" and "height" required only a scale and a measuring stick attached to the scale or separate from it. To make this task easier and quicker, Dr. Dufestel had a special scale built, a drawing of which is reproduced here. It automatically recorded the weight and height on a form (Mello, 25 dez. 1911, p.373; emphasis in the original).

The device invented by Dufestel was so novel, and reputedly of such accuracy in measuring schoolchildren, that the article reproduces the image originally published in the book of the French author. The image shows a boy whose body, aligned on a scale, is measured by a physician, and the devices for automatic registration of weight and height are shown in a detail. The exhibition of the new device was accompanied by the news that the equipment was to be adopted in São Paulo schools, as the São Paulo state government had already ordered them. Describing the uses of the equipment, Vieira de Mello said (25 dez. 1911, p.374):

> In this extremely simple and precise device, the barefoot student stands, without heavily clothing, in profile with his heels together and toes apart, his arms hanging down his sides, looking forward with his chin pointing slightly downward; the horizontal rod of the measuring device descends until it touches the top of the student's head. Turn a crank at the back of this rod and a card recording the weight and height appears, with blanks to fill in the name, age and date of the exam.

In relation to the measurement of respiratory capacity, the physician advocated the advantages of the chest circumference as the method which best allowed calculation of the chest expansion index, expressed as the difference between forced inhalation and exhalation. He recommended:

> In order to measure it, the student should stand facing the physician with his arms raised; the measuring tape is placed around the student horizontally at the height of the xiphisternum, taking care to fasten one end at this height and cross the tape over it; then, tell the student to lower his arms and breathe deeply, noting the different measurements for prolonged inhalation and exhalation, and then recording the difference between them as the chest expansion index (Mello, 25 dez. 1911, p.374).

The concerns regarding the precision and objectivity of the student physical development indexes, expressed in the minute description of the measurement instruments, the positions in which the children's bodies must be placed during the exam, and the care that must be taken by the physicians can be seen as an indication of the value placed on the results of the operations in which the student's body is the object of examination and measurement. This aspect can also be seen in Ferreira's analyses, as he thought that this data would allow the physician to determine if the student was "healthy" or a weak, thin child with a narrow chest (Ferreira, 25 out. 1909, p.311).

The reconfiguration of the IME in 1916, due to its transfer from the Sanitary Service to the General Board for Public Instruction, was accompanied by an increase in attention to the physical examination of students and the recording of the data collected, which was to be registered in the individual sanitary record.[9] This reorganization was welcomed by the General Director of Public Instruction, Oscar Thompson, who stressed its importance with respect to the goal of teaching renewal that he sought to achieve during his term:

> The existing strict school hygiene models should be abandoned and replace the family in caring for the health of children; and this would only be possible in new schools when a supervising physician with all modern resources at hand was available for each group of students and, after the indispensable individual examination, he would separate the students into different classes such as robust, sick, weak and feeble. Then, it will be easier to establish special programs for homogeneous groups, appropriate exercises, open-air exercises, trips etc., and summer camps (Anuário..., 1917, p.25).

In view of the requirement of physical examinations, individual records and classification of students established under the law that reorganized the institution, Vieira de Mello describes some of the instruments that should guide medical inspection work in his book published in 1917 in order to guide the work of school physicians. This includes a new individual health record template, annual examination record template, scheme for classifying students, and a scheme for the clinical examination of "abnormal" children (Rocha, 2005, 2007, 2009).

The individual sanitary record, much more complex than the 1911 version, was now conceived as an anthropo-pedagogical record containing the data from physical examinations performed by physicians and pedagogical observations from teachers with respect to attention, memory, intelligence and behavior. These observations involved the teacher in the student examination and classification operations, and thus they were provided guidelines on how to recognize non-standard behavior by comparing the child to children of the same age.

Based on this investigation, which was not restricted to visible aspects, but rather sought to delve into the innermost human characteristics, children were classified into "normal" or "abnormal" groups[10] depending on whether or not they conformed to physical and intellectual development standards compatible with their age. The classification of mentally abnormal students separated children into intellectually, morally or pedagogically abnormal, as the result of a clinical exam used to identify "degeneration stigmas, or permanent physical abnormalities" (Mello, 1917, p.105).

Defining a "representative type" and deviations

In the work published in 1917, with the objective of guiding school physicians, now under the General Board for Public Instruction, Vieira de Mello presented the methods and results of the research he had been carrying out as head of the IME. The data he collected and his analysis of it provide elements that aid in understanding the motivations behind the practice of measuring and weighting children in São Paulo. These were not limited to the repeated publicly stated goals, which claimed that these practices were needed in order to compare changes in a student's health during his school years.

According to the author, from 1912 to 1916 school physicians examined more than 17,000 students enrolled in different groups located in the city and its outskirts, regions in which the "working class" predominated (Mello, 1917, p.153). The results obtained were used to determine an overall average for each year, which was used to calculate the average physical development of schoolchildren in that city.[11] The purpose of these operations was clarified by the head physician:

> If I had wanted to show the physical robustness of the 'São Paulo type,' I would have restricted my statistical calculation to schools where children from well-off families studied, as their averages provide evidence of great robustness. However, they do not express the truth from my point of view, which was to establish a 'representative type' arising from the melting pot of races seen on such a large scale in this capital and its equal distribution in almost all of our schools, where the parents of those enrolled represent true internationalism and a wider communion of professions (Mello, 1917, p.153-154; emphasis in the original).

The choice of the population to study and the procedures adopted to collect and analyze data was justified by the goal to become familiar with this heterogeneous population since, based on the data, the researcher could establish the definition of an average, standard student on which to base robustness classifications. This research was most likely based on the assumption of the probability of producing a strong, robust "representative type" capable of work, disproving the fatalistic hypotheses that were behind the initiatives to import foreign labor at the end of the nineteenth century. Indeed, as Stepan (2005) points out, the encouragement of European immigration was based on the belief that white, immigrant labor would contribute to the country's progress, in addition to improving Brazil's image as a potentially white nation.

The investigations carried out by Vieira de Mello with the objective of understanding the normal state of schoolchildren and, at the same time, define the normal student, seem to

mark a departure from these positions, which were based on the theory of impending racial degeneration. The intervention he proposed also provided for better sanitation in specific regions and fighting diseases that weakened the population (Rocha, 2009). A new argument was seen in the research conducted by the physician as head of the IME. Hygiene, sanitation and education were interconnected in the pursuit of this representative type, indicating the possibility of correcting nature, improving human development and regenerating the race.

With respect to research on the racial question, Schwarcz (2001) stresses that the mixed-race nature of the Brazilian people was seen, at the end of the nineteenth century, as a "spectacle," a sort of racial degradation laboratory, and at the same time a curiosity at a time in which deterministic and positivist science classified the strange people of the Americas as "primitive." The assumptions on which these ideas were based, promoted principally by the eminent Gobineau and Le Bon, claimed that the races had essential characteristics, resulting in the exaltation of those considered "pure" and, in parallel, the interpretation of miscegenation as a synonym of racial and social degeneration. The affirmation of the "dangers of miscegenation" corresponded to the establishment in Brazil of a social order grounded on the impossibility of universal citizenship. It is in this context of the spread of theories on racial miscegenation – in which the racial issue becomes important in the discussion on Brazil's future – that São Paulo adopted a policy on importing European labor.

The racial problem in Brazil was described, according to Schwarcz (1993), in language that permitted understanding of the observed inequalities or even a unique national characteristic. The prestige of these theories in Brazil, at the same time that they were being forgotten in the originating countries, indicates, in our view, that their appropriation was selective, evidence that the concept of race was negotiated and subject to continual construction, since its appropriation showed the gap between the deterministic theories produced in other contexts and the Brazilian mixed-race reality.

The emergence of eugenics in the first decades of the twentieth century was connected, in this sense, to the attempts to overcome the risks of "race bastardization," in a reading of social reality in which discussions on the subject of hygiene involved, in their formulation, concerns about poverty and the everyday habits of the mixed-race and black population. Schwarcz emphasizes that, proud and confident after their success in fighting large epidemics, physicians took on the task of "healing the races:" "However, since diseases were no longer understood as final phenomena, neither should analysis of race. The Brazilian population was understood to be a 'race in formation'" (Schwarcz, 1993, p.232; emphasis in original). According to Romero, along with the widespread belief among intellectuals that progress depended on the quality of race, the definition of a "national type" that would ensure that the country become civilized developed into almost an obsession among them. This investment sought to fight pessimistic outlooks on Brazil's unfeasibility due to its mixed-race population (Romero, 2002). On the spread of the medical-eugenic discourse on race in the 1920s, Marques (1994, p.47) says: "In the minds of the eugenicists, there was a need to build a new representation of Brazilians, different from that so widespread in hygiene manuals that warned of the racial and moral degradation of the population. The eugenicists compared this to the ideals of the healthy, whitened bodies of the bourgeois classes sanitized during the nineteenth century in Brazil."

Returning to the data on which Vieira de Mello's research was based – collected by the IME in regions of the city that, according to its records, represented "a true melting pot" – note that physicians collected the age, height, weight and respiratory capacity of 6 to 15-year-old students enrolled in schools. In this selection, schooling was a criterion defining which subjects were included in the study, since the age of the research subjects was established as a function of school attendance.

The biotype of the São Paulo schoolchild was to be established relying on the data collected. Disputing the applicability of Quetelet's anthropometric table based on the study of the Belgian population,[12] but not the assumptions upon which it was based, the head physician accepted the challenge to survey and organize the data of children considered to be healthy. The result of his study was a table of average physical development figures for schoolchildren in the city of São Paulo, separated into groups based on age and gender. By comparing the data, he sought to establish a coefficient of physical robustness for schoolchildren that would express their vital capacity, an index not to be confused with the resistance to regime shifts, physical exercise or fatigue, as described by the physician:

> height and weight represent potential growth; the ratio between the weight, height and chest circumference represent the vital capacity or deviations in development of the child. ... Given the ratios between the height, weight and chest circumference or respiratory capacity of a student, one can deduce his physical robustness coefficient (Mello, 1917, p.156, 159).

In addition to establishing this coefficient, which was considered an important index when evaluating the normal development of schoolchildren, the physician placed emphasis on the need to look for possible mismatches between the chronological and physiological ages (according to the terminology adopted by Binet), the latter being deduced from anthropometric measurements, muscular strength and development of signs indicating maturity.

The operation of measuring the students considered healthy, recording the measurements and producing tables with age and gender as parameters, cannot be properly understood without taking into account the constitution of the school population through a detailed classification of children into normal and abnormal groups based on this survey. Comparing, classifying and establishing a place in a series, distinguishing the normal from the abnormal, defining a preferred environment in school and a preferred intervention were some of the procedures that resulted from this investment, beginning with the examination of children's bodies, which can be seen in the writings of Vieira de Mello (1917, p.162; emphasis in the original):

> Given the data on the height, weight and respiratory capacity of a student, one could say how much he was 'worth' physically, looking at this figure in isolation, that is without comparing how much he was "worth" with respect to other children of the same age.
>
> It was in order to establish a measure for comparison that I organized physical development measurements for children in the city of São Paulo from which it is possible to determine if the child examined is large or small for his legal or chronological age.

Comparing these measurements, based on gender, boys and girls can be classified as conforming to a greater or lesser extent with standards defined through these procedures that saw their bodies as an object of study. Thus, "to appreciate deviations from the mean physical development of a child, compare his height, weight and respiratory capacity to that of other children of the same age in order to determine if he is 'average,' 'above average' or 'below average,' that is if the measurements recorded are similar to others of his age, greater or lesser" (Mello, 1917, p.165; emphasis in the original).

Vieira de Mello's goals in this study on the development of students in São Paulo schools can be better understood by studying the work he managed as the head of the IME. Thus, in the report submitted in 1917 to the general director of Public Instruction, Oscar Thompson, the head medical officer reported on the work done during the year and how he had delegated it to his team.

Dividing the capital into five zones, he instructed the school physicians under his direction to carefully examine the students and fill out the respective forms, based on which the children could be classified as "normal, weak or abnormal." When filling out the forms, with data on the physical and mental development of the children, the school physicians were to indicate any deficiencies observed and the special regime that some children required in order to determine if they should be sent to "outdoor schools" or "schools for abnormal children" (Anuário..., 1917). If the question of the miscegenation of the Brazilian population was present in Vieira de Mello's mapping, we must ask which goals guided his work. The classification of students and their sorting into homogeneous groups? The establishment of a special education system for children considered "weak?" The exclusion of "abnormal" children from school? The set of data collected suggests a concern: what should be done with the differences?

Examination practices and the constitution of the schoolchild

> The convenient, systematic medical examination of students contributes, to a large extent, to increasing the advantages of instruction, which becomes more profitable and efficient, and notably improves the physical and mental health of students, removing frequent defects and organic imperfections and fighting immoral habits and practices, preventing the harmful effects of scholastic life on weak and abnormal individuals. It is an element of physical reinvigoration of the race by improving vitality during the formative phase of men and women (Ferreira, 10 nov. 1909, p.336).

The operations of measuring, weighing and observing students in São Paulo schools were not solely due to the desire to classify students into homogeneous groups. Mapping the school population for the purposes of intervention, in order to protect them from the risks of "physical deterioration" and "organic bastardization," "improving the physical and mental health" of some and "removing defects and imperfections" from others, was part of these initiatives. Vieira de Mello announced some of his plans, motivated by this desire to "physically reinvigorate the race by increasing its vitality:"

> Differentiating the state of São Paulo, from the ethnic and climatic point of view in some zones, I plan to organize tables of averages of the physical development of schoolchildren using the 'forms' filled out by municipal inspector physicians from the respective zones or regions. Thus, I believe that a 'northern zone' and 'coastal zone' can be established, where indigenous tribes are prominent and climate and diet are different from other regions; a 'low-lying zone' including all river basin and wetland areas and, as such, subject to malaria and other debilitating diseases, but where mixed-race individuals predominate, and, finally, a 'high-altitude zone' with good climatic conditions, where most individuals also are mixed-race.
>
> The fusion of these three types, which I believe to be different, will result in a São Paulo type and one can determine, by comparing different years, the advantages of urban and rural hygiene in less healthy regions (Anuário..., 1917, p.389; emphasis in the original).

To this end and based on the belief in the regenerative powers of urban and rural hygiene, in 1918 the head physician sent inspectors to these different zones in the state, tasking them with the responsibility of examining schoolchildren and obtaining data in order to calculate development averages. His goal was to answer questions on the influence on child development of factors such as the lack of "interbreeding" with a predominance of the "indigenous element," insufficient diet, the influence of the climate and the incidence of debilitating diseases, such as malaria and hookworm. It is important to stress that the theories circulating at the time considered the indigenous people to be "traditionally intractable to discipline and urban life, ... semi-nomadic, elusive, always taking refuge in border areas," according to Romero (2002, p.114). Schwarcz (1993, p.230) points out that, in Brazil, "hygiene appears linked to poverty and to the black and mestizo population." In this context, the mapping of the physical and mental development of the children attending schools in different regions of the state of São Paulo, carried out by Vieira de Mello, seems to suggest his alignment with those who attributed to miscegenation the possibility of whitening, by the absorption of what were seen as the "inferior races;" whitening not only with respect to physical traits, but also with respect to social behavior.

As pointed out by Marques (1994), school physicians were responsible for noting in the student record book and respective statistics,[13] "all observations and statistics relating to the school population in each location that, organized in a column, would allow access, for example, to the following type of information: influence of ethnic factors on the development of the race (Basile, 1920, p.102)" (Marques, 1994, p.115). Given the analysis of this type of procedure, the author concluded that "school hygiene thus became a strong ally in the task of improving the hereditary qualities of Brazilian children" (p.115).

In order to collect statistical data and study the frequency of malaria and hookworm in school populations in regions outside the capital, the head physician assigned a physician to individually examine the children in the schools in Paraibuna, a region in which the "indigenous element" predominated. Interestingly, in the delimitation of zones to be studied, there is no reference to blacks. On the other hand, the similarity between the hypotheses that oriented the IME's work and the description of Jeca Tatu – who at that time was beginning to be portrayed by the Brazilian author Monteiro Lobato as a victim of endemic diseases – is apparent. As a result of work carried out in that city, Alcino Braga reported that he individually

examined 200 children enrolled in the school, noting that "most of the students examined were weakened, with well developed cervical ganglia, and some in an advanced anemic state certainly due to hookworm, a widespread disease in Paraibuna, not only in the city, but also in the surrounding area" (Anuário..., 1918, p.670).

In addition to the weakening observed in the children in the school, a state of numbness compromising mainly the brain was noticed in the children attending the most remote schools. Together with the hookworm reigning in the schools of the region, the children suffered from a gamut of infectious diseases, especially: measles, chickenpox, whooping cough and mumps. The results of the individual examinations of the children in the Northern region of the state thus confirmed Vieira de Mello's hypotheses, since, according to him:

> As was to be expected and the cited reports confirm, the average physical and mental development of Paraibuna schoolchildren is lower than that of the remaining cities in the state, which were dominated by the mixing of races and where debilitating diseases were not seen, thus justifying the dominance of these two factors in the robustness coefficients of the schoolchildren (Anuário..., 1918, p.670-671).

A similar state of weakness was observed by Arthur Neiva in the children in the Iguape region, which was the result, in this case, of hookworm and malaria; these elements, according to the physician, compromised the physical development of the children and their performance in school, since it reduced their capacity for assimilation.

The investigations undertaken in the different regions of the state defined by the head physician highlighted the presence, among students, of debilitating diseases like hookworm, goiter and malaria, indicating their influence on development averages in the regions in question. Without dwelling on the set of results of this study, the question formulated by Vieira de Mello with respect to the physical and mental development of São Paulo schoolchildren is highly suggestive of the racial component that was present in the IME's interventions in São Paulo given that examinations mixed factors such as climatic conditions, racial miscegenation, diet and the predominance of certain diseases.

In this sense, the issue of race was a significant aspect of the many procedures centered on schoolchildren in the IME's strategies. At a time when the immigration approach began to show initial signs of its inability to respond to the challenges of providing useful, productive and disciplined workers due to growing industrialization,[14] the study of the constitution of the Brazilian people and the possibility of racial regeneration appear to be the motivation behind these examinations, record-keeping and production of indexes of normality.

The methods employed and the selection of the subjects examined seems to suggest a belief in "human perfectibility"[15] and a positive view of racial mixing,[16] as long as conducted following scientific criteria and guided by a racial hierarchy, which raises some questions: can Vieira de Mello's project be understood as the expression of an attempt at whitening? What meaning should be attributed to this attempt to identify a "representative São Paulo type" in its connection to the observed miscegenation processes? Which future was visualized in his projects for the "indigenous" population, whose energies were undermined by disease? What future was envisioned for the children whose weight and height were below the average established by his studies?

In the IME's work in São Paulo, weight, height and chest perimeter were aspects to be measured during an anthropometric exam of schoolchildren. These procedures were based on the explicit proposal to develop a mapping of the school population, in which the data resulting from the survey of children's physical characteristics in a given location became significant when correlated with data including the racial composition of the local population. Examining the effort headed by Vieira de Mello in retrospect, Basile mentions, in a dissertation submitted to the São Paulo School of Medicine in 1920, the importance of the studies undertaken by the IME:

> From a purely anthropological point of view, this research identified the distribution of races in Brazil, allowed us to evaluate the degree of mixture and miscegenation, and thus carry out the work of anthropologists.
>
> The illustrious DR. VIEIRA DE MELLO, known as an informed observer, must have noted the scope of these surveys, as he, foreseeing the influence the factors 'place of birth' and 'family origin' could have on growth and weight, that is on physical development, included these fields on the sanitary records with the intention of carrying out a comparative study on the height and weight of students in locations where the indigenous or foreign element and their respective mixing predominated (Basile, 1920, p.219; emphasis in the original).

In Vieira de Mello's forms, "place of birth" and "family origin," environment and inheritance were not merely to identify the child. Rather, they must have been to allow research on the development of "indigenous," "Brazilian" and "foreign" children, categories that sought to capture processes related to immigration and migration and their influence on the racial makeup of Brazilians. The intent to define a well-formed "representative type" through initiatives to ensure adequate conditions for the physical and intellectual development of children, in addition to correcting the "defects" identified, seems to have been at the root of some of the guidelines for the individual examination of schoolchildren (Rocha, 2007).

Basile's comments on what he considered the exemplary organization for the IME in São Paulo, along with studies on the establishment of this institution in Brazil and in different countries around the world, indicate the eugenic proposals underlying the activities of this institution (Rocha, 2007). Among the various functions of the institution, the physician argued that it should establish the standards against which the degree of development of children could be measured, since its purpose was:

> To carry out studies on the physical development of students and establish physical growth curves for Brazilian children, taking into account the manifestations of growth in individuals of the same race and in the same environment and reducing to an average all measurements taken, in order to identify stages of physical development of ideal types that would represent the racial norm (Basile, 1920, p.270).

As pointed out by Stepan (2005) in her analyses on the nuances of eugenics in Latin America, the ties between public health and racial health were a key element in the initiatives carried out in countries like Brazil and Argentina in the years after First World War, a period marked, according to the author, by "some optimism with respect to the possibility of social improvement and 'normalization' of the country through reforms of the medical-urban-

public health environment" (p.95; emphasis in the original). This reform, based on ideas from eugenics with a medical inspiration, did not involve any attempt to change class relations.

Final considerations

Analyzing the constitution of childhood as an object of study and intervention, as part of the process of disseminating public schooling, this article sought to examine the practices implemented by the IME in the state of São Paulo. It focused, more specifically, on the practice of the individual examination of students with the purpose of understanding the motivations behind these practices, the role they played in establishing standards of normality and abnormality, as well as their underlying racial tenor.

In line with the models circulating internationally, this agency, first under the Secretary of Health, then under the Secretary of Public Instruction, established a set of routines for the examination, measurement and testing of children attending schools in the state of São Paulo, together with the filling out of forms and records on which the results of these examinations and measurements were recorded. This information was, in turn, used to define parameters of normality. Through these various operations centered on the bodies and minds of children as the object of continuous examination, this institution provided elements for the production of knowledge on childhood, envisioning the definition of a representative type.

Although the documents studied did not contain elements allowing us to determine the full extent of the use of the data gathered through these examinations, we can imagine that the effect of these operations were not limited to the production of information on childhood in São Paulo. In addition to the proposal to improve the physical and mental health of the children – freeing them from defects and fighting immoral habits, as postulated by Clemente Ferreira – one can imagine that, as part of the structure of the General Board for Public Instruction, the IME also had an important role in the debates on the constitution of the children attending school and, through this means, on investments related to normalizing childhood. It thus responded to Oscar Thompson's desire to create "homogeneous groups" by separating students "into different classes of robust, sick, weak and feeble individuals" (Anuário..., 1917, p.25).

A strong sign, in this regard, is the publication in 1917 of a book entitled *Débeis mentais na escola* (The feeble-minded at school), written by Vieira de Mello, the same year in which the physician published his work *Higiene escolar e pedagógica para uso de médicos, educadores e estabelecimentos de ensino*. This also corresponded to the year in which State Law no.1579 was enacted, providing for the foundation, among other agencies, of an "institution for abnormal individuals," a "school for feeble children" and two "summer camps," with one at the seashore and another in the mountains.

A "school for abnormal children" at the IME's headquarters and a "abnormal class" in the Belém School began operating only in the 1930s, for a short period. The implementation of this type of institution – to which children who did not conform to normal standards should be sent – can help us understand, at least in part, the type of responses given to that disturbing question, arising together with this agency's initiatives, regarding what was to be done with the children that did not respond to regenerative interventions. The construction

of differences, engendered in a race-based discourse, seems to have been an important element in the definition of a place for those considered abnormal, which was not to be confused with a place reserved for teaching "normal" children within the scope of the project to disseminate school attendance.

In line with international experiences, physicians in São Paulo focused on the issue of public health surveillance of schools and students. Influenced by theories on the constitution of human types, they sought to understand them in the light of a civilization built in the tropics, guiding their formulations and interventions in order to constitute a Brazilian type, a process in which the subject or racial miscegenation was a burning question. If the "São Paulo type" established by Vieira de Mello, in his zeal to measure, weigh, record and compare the development of children in São Paulo schools, could not be defined based on the standards established by Quetelet, his definition could not be understood without taking into account these projects to intervene in human development, formulated based on the scientific beliefs held at the time.

NOTES

[1] The relationship between medicine and public schools, discussed from different perspectives, has been the object of study of many authors, particularly the following: Machado et al. (1978); Lima (1985); Herschmann, Pereira (1994); Herschmann (1996); Marques (1994); Nunes (1994, 1996); Carvalho (1997, 1998); Gondra (2000, 2003, 2004); Rocha (2000, 2003a, 2003b, 2004, 2005, 2007); Stephanou (2005); Silva (2001).

[2] The data analyzed was gathered as part of the research project "Public health and school culture: a study on the São Paulo State School Medical Inspection Service," carried out with funding from CNPq (Project no.402796/2004-7). It sought to investigate the foundation and operation of the IME in the state of São Paulo, at the confluence of the different recommendations arising from the international debate that had defended the need for hygienic surveillance in schools since the end of the nineteenth century. I would like to thank Carolina Toshie Kinoshita for her careful literature search in medical journals.

[3] Balthazar Vieira de Mello was born in the state of Sergipe in 1857 and completed his degree at the Rio de Janeiro School of Medicine in 1883 with the dissertation *Natureza e tratamento da elefantíase dos árabes* (The nature and treatment of Arab elephantiasis). One of the health inspectors of the São Paulo Sanitary Service, he was nominated director of hospitals during several epidemics, including the yellow fever epidemic in São Carlos (1895). In 1911, he was appointed director of the recently established IME service by Emílio Ribas, then general director of the Sanitary Service. The physician was involved with important scientific organizations: he was a member of the Brazilian Academy of Medicine and a corresponding member of the Argentinian Medical Circle in Buenos Aires. He was the owner-manager of the periodical *Imprensa Médica* and editor of Brazilian and international scientific journals, including the *Annual of the Universal Medical Sciences*, published in Philadelphia, and *União Médica* (Medical Union), published in Rio de Janeiro. Registering the career of Vieira de Mello, Lima (1985, p.107-108) noted that he was "owner of the journal *Imprensa Médica*, in which he authored a section on social medicine, he founded School Dental Clinics in 1912, which later were transformed into the São Paulo Association for School Assistance, and was the first director of the São Paulo School Medical Inspection Service." See also Rocha (2005).

[4] In this and other citations of texts from Portuguese, a free translation has been provided.

[5] At that time, Belgium was one of the models used by the Brazilian public health physicians promoting the establishment of the IME. In this respect, stated Clemente Ferreira in 1909, "Belgium is one of the most advanced countries in this aspect." In Brussels, Antwerp, Louvain, Liège and other cities in the prosperous kingdom, physicians have been appointed to keep constant watch over the sanitary conditions of schools, examine building floor plans for school facilities, and oversee the implementation of the rules on the provision of light, ventilation and heating. They assess the physical and mental state of students, ensure that students with contagious diseases are isolated in their homes and that regulations on disinfection are followed, determine when students suffering from communicable diseases are well enough to return to school, instruct teachers on the early symptoms of such diseases and teach them first aid in the event of accidents. Lately, dentists and eye doctors have been appointed to systematically examine the students" (Ferreira, 25

out. 1909, p.308). Among Latin-American countries, attention focused on Argentina which, since 1884, had required compulsory hygienic and medical inspections of schools thanks to the efforts of Emilio Coni.

[6] According to Ferreira (25 out. 1909, p.307), the issue of medical inspection of schools became a topic of debate at scientific congresses beginning in 1869. Among the justifications for the defense of the establishment of school medical inspections in Rio de Janeiro, widely debated at the time, was the fact that congresses on school hygiene in Brussels, Nuremberg, Paris, London and Rio de Janeiro itself had unanimously approved the urgent recommendation that a service of this type be organized (Cotrim, 10 mar. 1910, p.74).

[7] The first school medical inspection initiatives began in 1821, when Peter Frank instituted a medical policing system in Austrian schools. In Brussels, the weekly inspection of schools, carried out by the hygiene department, was instituted in 1874. In France, the first laws on the subject were approved as early as the 1830s, making school inspections and the systematic examination of students by Public Assistance physicians mandatory beginning in 1892. See Ferreira (25 out. 1909, p.307).

[8] The physician Clemente Ferreira was linked to initiatives to fight tuberculosis and founded the São Paulo Association of Public Tuberculosis Sanitoriums (Associação Paulista de Sanatórios Populares para Tuberculosos) in 1899, later renamed the São Paulo League against Tuberculosis (Liga Paulista contra a Tuberculose). In 1908, with the support of a group of ladies from São Paulo society, he also founded the Association to Protect the Children of Poor Tuberculosis Suffers (Obra de Preservação dos Filhos de Tuberculosos Pobres). Born in Resende (RJ) in 1857, he graduated from the Rio de Janeiro School of Medicine in 1880. In 1887 he became director of Doctor Moncorvo Figueiredo's Pediatric Service and in 1896 he became a sanitary inspector of the São Paulo Sanitary Service. In 1905 he was appointed by Emilio Ribas to head the Early Childhood Protection Service. Ferreira was a corresponding member of the Therapeutic Society in Paris and a member of the Brazilian Academy of Medicine. He attended several international conferences, including the International Congress on Tuberculosis, held in Paris in 1905, in which the physician represented the state of São Paulo.

[9] IME reports show that the work carried out by the inspector physicians included: visits to public and private schools; inspection of classrooms and dormitories at boarding schools; general medical inspections; individual medical examinations; organization of individual records; vaccination and re-vaccination against smallpox; lectures on individual, collective and educational hygiene; issuing of medical and dental reports, in addition to demands for school improvement and removal of students suffering from communicable diseases from schools.

[10] The pedagogical classification of students, based on intelligence, divided children into "above-normal or advanced, normal, below-normal or delayed," with the latter including: (a) asthenic, indifferent and apathetic children; (b) unstable, restless and impulsive children; (c) cyclothymic children (presenting the characteristics of both prior categories).

[11] The extract of the study performed by Vieira de Mello allows us to understand the limits of the IME's activities, which were confined principally to the state capital. In order to have an idea of the number of children attending schools in São Paulo during the period spanned by his studies, it should be noted that the number of children enrolled in the capital's schools in 1914 reached almost 25,000, with an average school attendance of 21,000 children. That same year, overall enrollment in the state's public schools was about 150,000. With respect to the bounds of the agency's activities, note some further figures: survey data from the General Board for Public Instruction recorded 99,249 students enrolled in the capital in 1917 and 222,205 in all schools in the state. Note that, in 1917, five school physicians were assigned to the capital, in addition to the head physician. In other São Paulo towns, municipal authorities had to appoint medical inspectors or to task municipal sanitary officers with inspecting schools, whose activities were, in both cases, under the direction of the head physician.

[12] In 1835, Quetelet published his work entitled *On man and the development of his faculties, or an essay on social physics* (*Sur l'homme et le developpement de ses facultés, ou essai d'une physique sociale*) in which he presented his studies on human development, based on the concept of the "average man," conceived based on the distribution of averages of human characteristics on a normal curve. According to Vieira de Mello (1917, p.156), Quetelet's conclusions could not be "applied to Latin American races," because the anthropometric guidelines he had developed were based on data from Belgians, which were taller.

[13] According to Basile (1920), the record book was adopted by Vieira de Mello in order to compile the data extracted from the individual form, including items identifying the students, such as place of birth (indigenous, Brazilian, foreign), family origin (Brazilian, Brazilian and foreign, foreign), diseases contracted in school or outside it, in addition to a physical classification, consisting of height (normal, short or tall), and weight (normal, underweight or overweight).

[14] It is important to remember that European immigration, while representing the possibility of race purification, gave early signs of being a threat to order. Recall that printers held their first strike in São Paulo in 1890 and the movement became constant, culminating in the strike of 1917, which paralyzed all segments of the economy (Romero, 2002). As noted by Stepan (2005), the 1917 strike was evidence of the political potential of the emerging industrial working class, bringing with it the fear of disorder and violence introduced by factory workers born abroad.

[15] On the concept of perfectibility and its ties to the notion of progress in the racial theories of the nineteenth century, see Schwarcz (1993).

[16] It is interesting to note the departure of Vieira de Mello's initiatives from the racial theories of the nineteenth century. Exemplary in this regard is his concern in affirming that he was not interested in showing the strength of the "São Paulo type," taken here, probably, in the sense of a pure racial type. His thinking thus sought to distance himself from positions such as that of Goubineau, for example, to whom the mixed-race person was considered as part of a "degenerate sub-race," since it supposedly inherited only the negative aspects of each race. According to this theoretician, the interbreeding of different races necessarily resulted in the "degeneration" of pure "types," leading to the decay of the human race. On these issues, Schwarcz (1993) points out that, in Brazil, racial theories were formulated uniquely, in which elements from different sources were mixed, with hope based on whitening "to the extent that the social Darwinian interpretation coincided with the evolutionist and monogenist perspective. The racial model served to explain the differences and hierarchies but, after certain theoretical rearrangements, did not prevent the idea of the viability of a mestizo nation" (p.65).

REFERENCES

ANUÁRIO...
Anuário do ensino do Estado de São Paulo. São Paulo. 1918.

ANUÁRIO...
Anuário do ensino do Estado de São Paulo. São Paulo. 1917.

BARBOSA, Rui.
Reforma do ensino primário e várias instituições complementares da instrução pública. In: Barbosa, Rui. *Obras completas*, v.10, t.1-4. Rio de Janeiro: Ministério da Educação e Saúde. p.1-67. 1947.

BASILE, Pedro.
Inspeção médica escolar. Tese de doutorado – Faculdade de Medicina e Cirurgia de São Paulo, São Paulo. 1920.

BRASIL.
Assembleia Legislativa do Estado de São Paulo. Decreto n.2.141, de 14 de novembro de 1911. Reorganiza o Serviço Sanitário do Estado. *Coleção das Leis e Decretos do Estado de São Paulo (1912)*. t.21. São Paulo: Tipografia do Diário Oficial. 14 nov. 1911.

CARVALHO, Marta M. Chagas de.
Molde nacional e forma cívica: higiene, moral e trabalho no projeto da Associação Brasileira de Educação (1924-1931). Bragança Paulista: Edusf. 1998.

CARVALHO, Marta M. Chagas de.
Quando a história da educação é a história da disciplina e da higienização das pessoas. In: Freitas, Marcos Cézar de (Org.). *História social da infância no Brasil*. São Paulo: Cortez; Bragança Paulista: Edusf. p.269-287. 1997.

COTRIM, Torres.
Inspeção médica escolar. *Imprensa Médica*, v.18, n.5, p.74-75. 10 mar. 1910.

FERREIRA, Clemente.
A inspeção médica dos colegiais (conclusão). *Imprensa Médica*, v.17, n.21, p.330-336. 10 nov. 1909.

FERREIRA, Clemente.
A inspeção médica dos colegiais. *Imprensa Médica*, v.17, n.20, p.305-312. 25 out. 1909.

GONDRA, José Gonçalves.
Artes de civilizar: medicina, higiene e educação escolar na Corte imperial. Rio de Janeiro: Eduerj. 2004.

GONDRA, José Gonçalves.
No cenáculo da ciência: a ordem médica e a questão da instrução. In: Magaldi, Ana Maria; Alves, Claudia M. Costa; Gondra, José Gonçalves (Org.). *Educação no Brasil*: história, cultura e política. Bragança Paulista: Edusf. p.203-226. 2003.

GONDRA, José Gonçalves.
Medicina, higiene e educação escolar. In: Lopes, Eliane Marta; Faria Filho, Luciano Mendes de; Veiga, Cynthia Greive (Org.). *500 anos de educação no Brasil*. Belo Horizonte: Autêntica. p.519-550. 2000.

HERSCHMANN, Micael.
Entre a insalubridade e a ignorância: a construção do campo médico e do ideário

moderno no Brasil. In: Herschmann, Micael; Kropf, Simone; Nunes, Clarice. *Missionários do progresso*: médicos, engenheiros e educadores no Rio de Janeiro. Rio de Janeiro: Diadorim. p.11-67. 1996.

HERSCHMANN, Micael; PEREIRA, Carlos A. Messeder.
O imaginário moderno no Brasil. In: Herschmann, Micael; Pereira, Carlos A. Messeder (Org.). *A invenção do Brasil moderno*: medicina, educação e engenharia nos anos 20-30. Rio de Janeiro: Rocco. p.9-42. 1994.

LIMA, Gerson Zanetta.
Saúde escolar e educação. São Paulo: Cortez. 1985.

MACHADO, Roberto et al.
Danação da norma: medicina social e constituição da psiquiatria no Brasil. Rio de Janeiro: Graal. 1978.

MARQUES, Vera R. Beltrão.
A medicalização da raça: médicos, educadores e discurso eugênico. Campinas: Editora da Unicamp. 1994.

MELLO, Balthazar Vieira de.
Higiene escolar e pedagógica para uso de médicos, educadores e estabelecimentos de ensino. São Paulo: Casa Vanorden. 1917.

MELLO, Balthazar Vieira de.
A organização do Serviço de Inspeção Médico-Sanitária das Escolas em São Paulo. *Imprensa Médica*, v.19, n.24, p.372-381. 25 dez. 1911.

MELLO, Balthazar Vieira de.
A escrófula e as vegetações adenoides nos escolares: vantagens da inspeção médica escolar. *Imprensa Médica*, v.16, n.22, p.343-346. 25 nov. 1908.

MELLO, Balthazar Vieira de.
A inspeção sanitária das escolas. *Imprensa Médica*, ano 13, n.9, p.161-162. 10 maio 1905.

MELLO, Balthazar Vieira de.
A higiene na escola. São Paulo: Tipografia do Diário Oficial. 1902.

NUNES, Clarice.
Cultura escolar, modernidade pedagógica e política educacional no espaço urbano carioca. In: Herschmann, Micael; Kropf, Simone; Nunes, Clarice (Org.). *Missionários do progresso*: médicos, engenheiros e educadores no Rio de Janeiro. Rio de Janeiro: Diadorim. p.155-224. 1996.

NUNES, Clarice.
A escola reinventa a cidade. In: Herschmann, Micael; Pereira, Carlos A. Messeder (Org.). *A invenção do Brasil moderno*: medicina, educação e engenharia nos anos 20-30. Rio de Janeiro: Rocco. p.180-201. 1994.

QUETELET, Adolphe.
Sur l'homme et le developpement de ses facultes, ou essai d'une physique sociale. Paris: Bachelier. 1835.

ROCHA, Heloísa H. Pimenta.
Entre a ortopedia e a civilidade: higienismo e educação do corpo no Brasil. *Historia de la Educación*, v.28, p.89-107. 2009.

ROCHA, Heloísa H. Pimenta.
A escola como laboratório. In: Bencostta, Marcos Levy (Org.). *Culturas escolares, saberes e práticas educativas*: itinerários históricos. São Paulo: Cortez. p.237-261. 2007.

ROCHA, Heloísa H. Pimenta.
Inspecionando a escola e velando pela saúde das crianças. *Educar em revista*, n.25, p.91-109. 2005.

ROCHA, Heloísa H. Pimenta.
Do exame da criança à produção do aluno: notas sobre o estudo científico da infância. *Revista Pedagógica*, n.13, p.201-218. 2004.

ROCHA, Heloísa H. Pimenta.
Educação escolar e higienização da infância. *Cadernos Cedes*, v.23, n.59, p.39-56. 2003a.

ROCHA, Heloísa H. Pimenta.
A higienização dos costumes: educação escolar e saúde no projeto do Instituto de Higiene de São Paulo (1918-1925). Campinas: Mercado das Letras. 2003b.

ROCHA, Heloísa H. Pimenta.
Prescrevendo regras de bem viver: cultura escolar e racionalidade científica. *Cadernos Cedes*, v.20, n.52, p.55-73. 2000.

ROMERO, Mariza.
Medicalização da saúde e exclusão social: São Paulo, 1889-1930. Bauru: Edusc. 2002.

SCHWARCZ, Lilia Moritz.
Dando nome às diferenças. In: Samara, E.M. (Org.). *Racismo e racistas*: trajetória do pensamento racista no Brasil. (Cursos e Eventos: Nova Série, n.2). São Paulo: Humanitas/FFLCH/USP. p.9-43. 2001.

SCHWARCZ, Lilia Moritz.
O espetáculo das raças: cientistas, instituições e questão racial no Brasil – 1870-1930. São Paulo: Companhia das Letras. 1993.

SILVA, Anete Charnet G.
Inspeção médica escolar em São Paulo (1911-30): a escola como lugar de higiene e saúde. São Paulo: Dissertação (Mestrado em Educação) – Pontifícia Universidade Católica de São Paulo, São Paulo. 2001.

STEPAN, Nancy Leys.
A hora da eugenia: raça, gênero e nação na América Latina. Rio de Janeiro: Fiocruz. 2005.

STEPHANOU, Maria.
Discursos médicos e educação sanitária na escola brasileira. In: Stephanou, Maria; Bastos, Maria Helena (Org.). *Histórias e memórias da educação no Brasil*. v.3: século XX. Petrópolis: Vozes. p.142-164. 2005.

VIÑAO FRAGO, Antonio.
Higiene, salud y educación en su perspectiva histórica. *Areas*, n.20, p.9-24. 2000.