

The Awakening of Brazilian Climatology



"The contact with the reality determines, by itself, the beginning of all a learning process".

Carlos Miguel Delgado de Carvalho (1884-1980)

In this tenth second edition we go to speak of one of the precursors to diffusion and to systematization of Meteorology and Climatology in Brazil together with Henrique Morize, especially in the Brazilian semi-arid. He was also one renowned professor of physical geography. He received diverse honors and prizes in sight from his dedication to diverse sciences that go since Sociology until orientation of Modern Geography.

Life and Labor of Delgado de Carvalho

Carlos Miguel Delgado de Carvalho was born in 10 April, 1884, at Paris, due his father to be diplomat. At the time, the Countess of *Barral* foretold, in letter to D. Peter II, the one child would not survives, and, however, would arrive at the 96 years old.

Son of Carlos Dias Delgado de Carvalho and Lydia Tourinho (she died some days after his birth, in 08 May, 1884), and grandson of Jose Dias Delgado de Carvalho and Maria Carlota de Azevedo Torres. His family descended from *Viscondes de Tourinho* and Itaboraí, which took his father to exert position of Empire Legation Secretary.

He belonged to an entailed family to Brazilian aristocracy and, as integrant of the wealthy elite had access to famous European schools. He lived with maternal uncles in England where initiated his studies. After second marriage of his father, at 1889, was to live in Lyon, France, where studied from eleven to eighteen old in a *Dominican* College.



Blazon of Delgado de Carvalho Family. Source: Sergio de Freitas: Noble families and their Blazons.

When concluding his studies in the College joined up to the French army. However, when he rendered military service was infected with typhoid fever, thus was obliged to shut up the military career.

He was graduated in Literature at 1905 by University of Lyon, France. Afterwards entered at the University of Lausanne, Switzerland, in the Course of Advocacy. At the same time, studied History of the Civilization, come to conclude his studies in the "*Ecole des Sciences Politiques de Paris*". He also studied

Social Sciences in the "London School of Economics". Because of his European education spoke English, French and German. Portuguese he only learned in 1906 when was to Brazil, because his father loses the position with the Republic advent.

He entered at Course of Diplomacy in the *Sciences Politics School of Paris*, where in his Doctorate thesis, started to study about Brazil. On account of this, his father, Brazilian diplomat and adept to monarchy, disinherited him. In 1906, moved by curiosity, he travelled to Brazil, when came to know country that already studied in his thesis. Come of the Europe with twenty-two years old, he had our citizenship, but did not know the Brazil and in no wise spoke Portuguese.

His first job was at *Journal of the Commerce*, in Rio de Janeiro, where wrote articles of international politics using his European contacts, and that was very important to the elaboration of his thesis. From 1909, he directed the *American Magazine* edited by same periodical. At first edition, published in October 1909, to write the editorial, leaves to be transparent his intellectual role:

"To divulge several spiritual manifestations of America and to follow the same of step, parallel to the superior tracing of its politician-economic evolution, presents especially as an union trace among representative figures of the intellectuality of this part of the world".

As much the periodical as the magazine, provided to Carvalho a construction of a sociability circle with other very important intellectuals for his formation. This contribution in Carioca periodicals deepened his knowledge of geography, through the observation and analysis method. The conviviality with Oliveira Lima, Luiz Delphino, Rocha Pombo, José Oiticica among others was fundamental by his labor to the measure that they were a referential for who live much more time at Europe than at Brazil (SANTOS, 2006)¹.

¹ SANTOS, F. A., 2006. *A Geografia no Ensino Primário: Representações em Confronto*. VI Congresso Luso-Brasileiro de História da Educação, Uberlândia/MG, 17 a 20 de abril de 2006.

In 1913 he published the book that would become landmark in the history of Brazilian geography scholar: *Geography of Brazil*. When blew up First World War he came back to France, where there stayed per six years. He only returned to Brazil in 1919 after to be invited for extraordinary professor of the High Studies School of the Brazilian Historical and Geographical Institute (IHGB).

During 1920s he increases his dedication to the education mainly in the Pedro II College, giving classes of English, Sociology and Geography. Everything started in October 1920, when Delgado de Carvalho inscribed in one concourse to substitute professor for English discipline, classifying himself at first rank. For this he talked on following theme "Historical Outline of the Origin and Formation of the English Language". He was designated at December 23, 1920, and took possession of the position at December 28, of this same year.



Old Photo of the Scholar Unit Center Building of the Pedro II College.

Promoted to lecturer in September 24, 1924, he substituted Carlos Américo dos Santos, died in July 20 of this year. The Pedro II College Congregation at this occasion was presided for the Prof. Dr. Raja Gabaglia. In November 21, 1927 Carvalho was transferred from English to Sociology discipline, which was being temporarily conducted by substitute professor Adriano Delpech (Promoted to French Lecturer of the Pedro II College in December 5, 1927).

From 1930 to 1931, Delgado de Carvalho was Pedro II College Director. At this time it had significant advances at infrastructure of the College, mainly in the laboratory and classrooms, as much that was prepared room destined to Universal History classes, newly created. In November 28, 1931 leaved to College direction, passing the post to the Dr. Enrique de Toledo Dodsworth.



Old room of Geography kept in its original structure at in Pedro II College.

From 1930s he assumes important positions at National Education Council and Educational Research Institute until 1935, when is designated Lecturer of Geography Human at Federal District University (UDF), that he saw to changed to University of Brazil, but did not arrive to visit it as Federal University of Rio de Janeiro (UFRJ). However, immediately afterwards, in 1936, he moves to Modern History and Contemporary cathedra and in his place assumes Pierre Deffontaines, French geographer. In 1943 he was exonerated returning in 1945, as effective Lecturer to teach Modern History and History Contemporary disciplines.

At Schools of Intendancy and Major State Army he was, per ten years, professor of Economic Geography and Geography of Brazil. He also lectured at Bennett College and Education Institute, both located in Rio de Janeiro city.

Amongst his activities are mentioned:

- Rio de Janeiro Geography Society Partner (1931);
- National Education Council Member (1931);
- Director-Founder of Research Institute of the Department of Education (1933).
- Didactic Book Commission Member in 1939;
- *Royal Meteorological Society* Member;
- "Royal Society of Literature" Correspondent;
- Brazilian Historical and Geographical Institute (IHGB) Member;
- Brazilian Sciences Academy Member (ABC);
- Pluviometry Section Director of the "Inspectorate of Services against Droughts Northeast".

In 1910, the first one of a book series was edited by Delgado de Carvalho which would dedicate to write throughout his life. They are part of his labour task: *Le Bresil Meridional: Sur as Étas du Sud São Paulo, Paraná e Rio Grande do Sul* (1910), *Geographia do Brasil* (1913), *Esboço Histórico da Origem e Formação da Língua Ingleza* (1920), *Methodologia do Ensino Geographico* (1925), *Chorographia do Districto Federal* (1926), *História da Cidade do Rio de Janeiro de Acordo com os Programas das Escolas públicas municipais* (1926), *Atlas Histórico com Manoel Maurício de Albuquerque* (1927), *Introdução a Geographia Política* (1929), *Geographia Regional do Brasil para Quarta Série* (1930), *Sociologia* (1930), *Sociologia Educacional* (1933), *Sociologia e Educação* (1934), *Sociologia Aplicada* (1934), *Sociologia Experimental* (1934), *Geographia Humana e Política e Econômica* (1935), *História Geral* (1935), *Práticas de Sociologia* (1938), *Geografia Elementar* (1940), *O Canto das Sereias* (1940), *Geografia Regional do Brasil* (1943), *Geografia Física e Humana do Brasil* (1943), *Súmulas de História Colegial* (1947), *Didática das Ciências Sociais* (1949), *Textos de Sociologia Educacional* (1951), *Aspectos Geográficos da Terra Bandeirante* (1954), *Introdução Metodológica aos Estudos Sociais* (1957), *História Geral; Compêndio de Informação para Uso de Docentes* (1956), *Geografia Humana* (1963), *OSPB* (1967), *Relações Internacionais* (1971), *História das Américas* (1975).

According JÚNIOR and SAMPAIO (1995)¹ the first book of Delgado de Carvalho is considered a landmark to the Brazilian Geography, because it develops a new regional division of Brazil from the study of natural and human elements. Previously, Geography was just descriptive, told to only names and details of geographic accidents and the Brazil division was confused with the regional politician interests of the oligarchies.

His second book was *Geography of Brazil* in 1913. The Oliveira Lima preface beyond to present the author to the readers of the Portuguese language, detaches the importance of this study: the natural regions analysis of the country and its formation since

¹ JUNIOR, R. C.; MACHADO, M. S., 1995. Delgado de Carvalho e o Contexto Pré-Institucional da Geografia Brasileira: Uma Leitura do Brasil Meridional. Rio de Janeiro.



the colonization, launching a regional division that, later, finished being officially adopted.

Many of the intellectuals cited in this book, such as Capanema, Homem de Melo, Sylvio Romero, Euclides da Cunha, João Ribeiro assembled at Brazilian Historical and Geographical Institute, between them proper Delgado de Carvalho, having like objective to provide the knowledge of these two branches of philology (History and Geography) by means of public education. They worked books at the same sense: the exploration of the country, so that from this knowledge, had the construction of a national identity, since they did not consider it one organic one all.

The Awakening Educational of Delgado de Carvalho

Geography of Brazil, published in 1913, passes to be used by professors, although not to have specifically been written with didactic aims. Edited some times, many generations had known geography through it. Everardo Backheuser, Brazilian Education Association member (ABE), compares it with *History of Brazil* (1900) of João Ribeiro and, it defines so: "revolutionizes methods of education and gives new lines of direction. It marks a age". This book finished for constructing a linking of the author with professors, to the measure that he was invited to give to lectures and courses, and awaking him to the Education role, to the nation progress considered uncultured and sick.

Truly, his first book directed to the professors was *Methodology of Geographic Education* edited in 1925. It had a particularity: it was written previously, in 1922, for the Congress of Education, because he belonged to Pedagogical League.

The text of the *Methodology of Geographic Education* book begins making critical to the Brazilian education of geography. According Delgado de Carvalho was based at the imagination and memorization, arriving to compare it to a telephonic list due to extension of knowledge. The preface used the *Geography of Brazil* book (1913) to guide the professors as to give disciplines it. He defended the regional study, from the man-made influences on ambient, language, race and religions, affirm COSTA (2006)².

Delgado de Carvalho declared:

"The moment arrived to study, for example, some demographic phenomena based on censuses and to teach to the pupils to use numbers to future comparisons, scientifically to study the influences of the different climates on habits and things of the life, to understand the role of the islands and the oceans in the distribution and differentiation of the languages, etc."


According to COSTA (2006), in 1926 Carvalho published *History of the Rio de Janeiro City* with same objective of the book previous, but directed toward History. At preface he again emphasized the importance of education from the reality of the pupil:

"It is of large didactic value that preliminarily to be given to the pupils a historical summary whose main elements, local monuments and vestiges, are still our visions, to the reach of our directions and can more easily impress young imaginations, of what other narrations, whose pictures need an effort of the spirit for its reconstitution".

Having awaked for education, Delgado de Carvalho associated to the educational leagues. It must be opened parenthesis to register that the existing Leagues at that time, some States, had been the first initiatives to surpass the republican national delay through the fight by popular education with alphabetization projects and enlargement of primary education. The Leagues worked in the direction to surpass the sentimentalism impeding that the social problem of the country was surpassed, and hence is necessary to alphabetize in mass.

Although Delgado de Carvalho participates of this discussion circle, when writing the book above, had little experience in teaching profession, because he has seen admitted at previous year (1924) in the Pedro II College like English professor, but, however, already was recognized by teachers as the

² COSTA, P. C., 2006. Uma Escrita aos Professores: Os Prefácios dos Livros de Delgado de Carvalho. Uberlândia, MG, Anais do COLUBHE06, pp. 3386-3396.



author of *Geography of Brazil* (1913). Thus presents himself as author of compendiums, assuming the role of adviser establishing so a hierarchy.

In 1924 he creates, together to Everardo Backeuser among others, Brazilian Education Association (ABE), where became its first president, and narrowed bows of work and friendship with other liberal that thought to educational modernization, specially with Anísio Teixeira.

The Brazilian Education Association was a particular initiative of inspired educators who together with the reformer movement of the New School presented solutions to the large national problem: the precarious educational system. Its associates had as goal to divulge new practical educational based in the science defending an education integrated in all Brazil.

Many members of the Brazilian Education Association between them, Delgado de Carvalho, had been signatory of the Manifest of the New Education Pioneers. The "Manifest of the New Education Pioneers" consolidated the vision of a segment of the intellectual elite who, even so with different ideological positions, glimpsed the possibility to intervene with the organization of the Brazilian society through the education.

Between 1925 and 1935, he worked with larger proximity with signatories of the Manifesto of the New Education Pioneers, and used them as communication channel with the professors. This debate space very influence discourse him. In this case, the Historical and Geographical Brazilian Institute (IHGB) and international associations of Geography complete his influence circle (MACHADO, 2000)³.

Precursor of Modern Brazilian Geographic Science

At the beginning of the 20th Century, some peoples had fought to introduce in Brazil to modern geography, before its university institutionalization, in 1934: Manuel Said Ali Ida, Everardo Adolpho Backeuser, Fernando Antonio Raja Gabaglia, the French Pierre Deffontaines and Delgado de Carvalho. Therefore, they are known as pioneers of the modern Geography in Brazil. The understanding of the politician and pedagogical

role of Geography, on the part of these pioneers, is extraordinary: they had clarity of the Geography Teaching role to the education of the Brazilian people, of the character politician of Geography, and of the existence of relations between Geography and Geopolitics (VLACH, 2005)⁴.

Delgado de Carvalho together with Fernando Antonio Raja Gabaglia and Pierre Deffontaines had in common not only extraordinary erudition, but also the intention in modernization of geographic science in Brazil. They had been the pioneers of practical scientific in Geography, and precursors of the modernization of the geographic studies in the country. Keeping the had ratios, all had defended the entrance of a modern criterion of science guided in the model of the modern science practiced in Europe, mainly in French, that was a positive, descriptive, experimental and explicative science.

From the influence of these professionals, can be affirmed that a modern Brazilian Geography is effective, starting to be guided not more for the pure rhetorical and literary style, that dominated medium and superior education at end of the 19th Century and beginning of 20th Century, but for the practical scientific of laboratory and inquiry, supported by empirical evidences.

The research shows that until 1960s little was known on research production related to education and learning of geography, with exception of the critical ones carried through by historians and authors who, like Delgado de Carvalho, wrote books on Methodology of Geography in the decade of 1930 (PONTUSCHKA, 2005)⁵.

Delgado de Carvalho is considered one of the scholars that more contributed to the construction of geography while discipline at curriculum scholar. The publication *Methodology of Geographic Education* (1925), which is consecrated as work most important of Brazilian geography, configures him as a professor worried with basis, organization, methods, learning and research of one discipline that appeared.

He also is known as that one that established better proposal of regional division

³ MACHADO, M.S., 2000. *A Implantação da Geografia Universitária no Rio de Janeiro*. Revista Electrónica de Geografía y Ciencias Sociales. Universidad de Barcelona, Nº 69 (5), 1 de agosto de 2000.

⁴ VLACH, V., 2005. *O Ensino de Geografia no Brasil: Uma Perspectiva Histórica*. In: Vesentini, José William (org.). *O Ensino de Geografia no século XXI*. Campinas: Papirus.

⁵ PONTUSCHKA, N. N., 2005. *A Geografia: Pesquisa e Ensino*. In: CARLOS, Ana Fanni Alessandri (org). *Novos Caminhos da Geografia*. 5ª. ed., São Paulo: Contexto.



(1913), based on the natural regions, adopted for official institutions and in geography learning programs at the age. This division, in five great natural regions (north, northeast, east, south and center-west), was subdivided in physiographic zones, characterized by elements of order human, basically established by means of the regional division of the Technician Council of Economy and Finances.

With a sufficiently erudite intellectual formation, Delgado de Carvalho act in diverse facets of work, overpassing history and geography. Although not working at the university directly with geography, his contribution was basic to the installation of the scientific practical modern in the Brazilian geography area. He was, in fact, the great precursor of modern Brazilian geographic science.

The Systematization of the Brazilian Climatology

The concepts of weather, climate and all synthesis of the knowledge at that age elaborated by *Hann*, the methodological proposal of the regional climates characterization of *Köppen* and the theoretical assays of *Napier Shaw*, in summary, formed the base of all scientific knowledge of the Climatology and Meteorology in Brazil, presents in the end of the 20th Century.

This set of knowledge founded the pioneer studies of our first climatologists, like Louis Cruls, Henrique Morize, Frederico Draenert, Carlos Delgado de Carvalho and Arrojado Lisboa.

With this respect, FERRAZ (1934) apud SANT'ANNA NETO (2003)⁶ commented:

"In Brazil, the first meteorological activities, as were waited, had restricted it the basic climatological observations. Small series here and there, without great uniformity of methods and equipments, however, lead-of, some, with notable care and affection. In the last fourth of the 19th Century and beginning of the 20th Century, point to the first meteorological organizations, always with the same objective limited of the climatology, whose larger series

already are manipulated by the great foreign masters, interested in the worldwide studies". And adds "Not to be for one or another special research lead at the Astronomical Observatory of the Castello, whose Pleiad brilliant of scientists very must to Brazilian Meteorology, all the attentions were turned by Climatology".

Thus, Climatology is previous to Meteorology in Brazil. Even considering that the Rio de Janeiro Observatory has initiated its section of Meteorology, as well as Navy, through its Central Division of Meteorology, in the second half of 20th Century, practically all studies carried through were about topics and analyses eminently climatological.

At any rate, initial conditions for the Climatology development in our country already were given. Of a side, the first institutions of research composed by a select group of competent researchers had been created, and they used information and methodologies proceeding from centers of knowledge of the age, mainly by Delgado de Carvalho. For another one, the production of the first works on the climate, more systematic, in Brazil was beginning.


Thus, Frederico Draenert was pioneer in an approach more geographic of the Climatology in Brazil, and without a doubt must be detached the important role represented by two great scientists who had proceeded to the systematization of the Climatology in our country: Henrique Morize and Delgado de Carvalho.

Henrique Morize, engineer who dedicated to Geography and Meteorology, per many years directed the National Observatory, beyond to teach Physical and Meteorology in the Polytechnic School of Rio de Janeiro. We will not go to say more him because already was cited in previous edition of the Cirrus.

Delgado de Carvalho was one of the most shining geographer of his time and, perhaps, first geographer Brazilian responsible by densest and complete analysis of the climate in Brazil at beginning of 20th Century.

Author of a vast piece that includes varied geographic themes lived most of his life in Europe, having published his paper in French, almost all unpublished ones in Portuguese language: "Un Centre Économique

⁶ SANT'ANNA NETO, J. L., 2003. *A Gênese da Climatologia no Brasil: O Despertar de uma Ciência*. Revista Geografia, AGETEO, Vol. 28, pp. 5-27.



au Brésil" of 1908, "Le Southern Brésil", of 1910, and "Climatologie du Brésil", of 1916, that although summarized, already pointed the general conceptions on weather and climate.

However, his main contribution came with publication "Météorologie du Brésil", published in 1917, better elaborated than previous one, written when he made a period of training at Museum of London, where it dealt more of the climatic aspects than what meteorological. This publication enabled him to work at the Pluviometry Service of Brazil, elaborating, decade following, hundreds of Northeast maps.

Due his long permanence in Europe, mainly in France, Delgado de Carvalho assimilated and divulged in Brazil, the main publications and conceptions of the Geography that was produced in France. Beyond Paul Vidal de *La Blache* and Jean Brunhes, who more influenced him was Emmanuel de Martonne, who few years before had published "*Traité de Géographie Physique*", in 1909.

In contrast to Morize, Delgado de Carvalho searched an explanation geographic of the climate, admitting that the climatology study area was of the zone of contact between atmosphere and solid and liquid globe that would constitute par excellence in the domain of the observation geographer. He assumed the conceptions of De Martonne that not only admitted a geographic conception of the climate, as revealed very critical in relation to the studies which launched hand of the normal averages of the meteorological elements.

The influence of De Martonne at geographic conception of the climate in Delgado de Carvalho appears in all his publications on Climatology and, is more clearly, when he dealt with meteorological factors, which in the reality, was related to the geographic factors of the climate, as continentality, latitude and altimetry.

Delgado de Carvalho structuralized his book published in 1917 in three parts: the first one dealt of the theory and of the elements and climatic factors, specifically in the south hemisphere; second, of the variability, seasonality and distribution of the meteorological factors; e third that he called of "Climatography", considered a climate classification in Brazil.

It is noticed at his publications a concern sufficiently accented in characterizing the climatic types in the perspective to demonstrate the influences of the tropical

climates at economic development and at adaptation of the man. But, in contrast to Henrique Morize, he did not leave to influence for climatic determinism and, assumed a possibility position, such which was dominant thought at French Geography of this time.

On this, Delgado de Carvalho said:

"These general influences of the tropical types on the man, all told very favorable to his development, become intertropical zones of the regions very populated, to a large extent or not dominated by desert. How much to Brazil, its populated part is extended between Amazon estuary and Tropic of Capricorn. One of the reasons of the sudden growth of the tropical populations must have due to extreme easiness of the life, caused by generosity of the Nature and agreeable climate".

After to discourse for three chapters to characterize cosmic influences, wind regimen of the and rain regimen taking as base data of the national meteorological network, in number reduced if compared to Morize in publication made in 1922, Delgado de Carvalho dedicated about 2/3 of his work to the deepening of a proposal of climatic classification of the regional types, what possibly was his bigger contribution to the climatology in Brazil.

The climatic classification proposal by Delgado de Carvalho, although apparent similarity with Morize proposal, was sufficiently conflicting, mainly linked to the limits between tropical, subtropical and tempered climates. But, for ethical questions and enormous respect which Delgado de Carvalho had by Morize, of very elegant form, he did not appear at debates between both.

The climatic division proposal him understood three climatic groups subdivided in characteristic types. Moreover, for each one of climate types, he still considered one another subdivision contemplating regional factures, more or less well delimited, considering aspects term-pluviometrics and general traces of the atmospheric circulation, therefore, of much more meteorological character of what proposal by Morize, with additional advantage to incorporate, in the inferior scales (regional and sub-regional) geographic factors.

The fact is that Delgado de Carvalho not only produced piece most complete on Brazilian climatology of his time, as introduced an eminently geographic analysis. This classification, according to SEREBRENICK (1942)¹ represented a notable advance, given the role most scientific and the used terminology, demonstrating total tuning with production of knowing of his contemporaries of countries most advanced.

All methodological procedure and conceptions used in climatological analyses show that this piece can be considered as the first one produced under a geographic paradigm in Brazil, at a time where Geography not yet existed while specific area of the knowledge and, therefore, was not institutionalized in our country.

Carlos Delgado de Carvalho died in Rio de Janeiro at October 4, 1980, left two sons (Lídia and Carlos Alberto), and remained in history as great educator and professor.

In summary, his contribution was basic for the installation of the scientific practical modern in the Brazilian geography area. Moreover, he was great scholar in Meteorology and Semi-arid Climate Northeastern, at early of the last Century, leaving a legacy for current studies and that all his life and piece can serve as stimulate to the new generations.

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¹ SEREBRENICK, S., 1942. *Classificação Meteorológica dos Climas do Brasil*. In: Congresso Brasileiro de Geógrafos, Nº 9, Florianópolis, Anais: Rio de Janeiro: CNG/IBGE, vol. 2, pp. 440-459.

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