

Marvels and Shadows: Science and Education at the University of Puerto Rico School of Tropical Medicine under the Auspices of Columbia University: An Introduction

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This essay introduces a series of five historical articles on the scientific and educational contributions of the University of Puerto Rico School of Tropical Medicine (STM), under the auspices of Columbia University (1926-1949), to the fields of tropical medicine and public health. The articles will appear in several consecutive issues, and will address various themes as follows: 1) historical antecedents of the STM, particularly institutional precedents; 2) the educational legacy of the STM; 3) a history of the STM scientific journal (“The Puerto Rico Journal of Public Health and Tropical Medicine”); 4) the scientific practices and representations that prevailed at the institution; and, 5) a brief sociocultural history of malaria in Puerto Rico, mainly from the perspective of the STM’s scientific and public health activities. The authors have systematically and comprehensively studied a wide variety of documents from different sources based on multiple archives in Puerto Rico, the United States and England. The authors treat the fluid meanings of the examined historical encounters from a research perspective that privilege complex reciprocal interactions, multiple adaptations and elaborate sociocultural constructs present in a collaborative exemplar of the modernity of medical science in a neocolonial tropical context. [P R Health Sci J 2016;35:49-52]

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A marvel, an amazing thing, a wonderful example.

A shadow, an area of shade or dark shape.

If we only reflect on the golden aspects of an institution, such as the University of Puerto Rico (UPR) School of Tropical Medicine, the subject of this historical quest, we may not be able to see its shadows and, thus, our sight could be blinded by the direct rays of its shining lights. Institutional histories face the paradox of being caught in the darkness of pure triumphalism, or in the uncompromising representation of the mishandlings. A conscious effort was made by a multidisciplinary group of authors to search for the many shades of meanings, representations, and interplays embedded in this type of study; so as not to be thoughtlessly blinded by marvels nor by shadows.

This series of historical articles focuses on the scientific and educational contributions of the UPR School of Tropical Medicine (STM), under the auspices of Columbia University (1926-1949), to the fields of tropical medicine and public health. The main purpose of the research is to capture the creative and dynamic environment of the graduate research institution that enabled work that achieved international recognition for its impact in addressing the understanding of tropical diseases and the health of the Island’s population. One of the authors’ aims is to examine the case of a singular and prolific collaboration

between two sociocultural distinct universities and their reciprocal interactions in a neocolonial context. The study seeks to expand knowledge on the science and education of tropical medicine and public health in Puerto Rico, and the first school of tropical medicine established in the Caribbean.

The origins of the UPR School of Tropical Medicine were bounded by two historical antinomies. On one side, it was not the school of medicine that the Puerto Rican legislators wanted at the time. They “envisioned” the creation of an academic institution, as a branch of Columbia, to satisfy the need to train local physicians and medical students from Columbia in tropical

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medicine. Columbia only endorsed the offering of "courses of advanced instruction and research in tropical medicine," under the College of Physicians and Surgeons and the University Extension program. A "marriage of convenience" was reached: Puerto Rico would have a research and educational postgraduate institute which offered no degrees; Columbia "an overseas laboratory" in tropical medicine (1). This agreement brought to the Island a congenial partnership of excellence in science and education. On the other side, the establishment of the School under this partnership caused the abrupt termination of its predecessor, the Institute of Tropical Medicine and Hygiene (ITMH). This institutional rupture produced a schism among the leadership of the medical scientists on the Island that had been collaborating since the times of the Puerto Rico Anemia Commissions (PRACs) (2).

The UPR STM was created by law in June 1924. A UPR Special Board of Trustees of five members, two of them nominated by Columbia, was established to oversee the STM. All assets of the former ITMH (1912-1924), which had its origins in the PRACs (1904-1908), were transferred to the STM to accommodate this new venture. Funds also were allocated to build the new facilities. By mutual agreement, Columbia had the authority to determine the educational policy of the STM and appoint its faculty, subject to the approval of the Special Board (3). The establishment of the STM was depicted by a

Joint Commission (Columbia & P.R.) as the first of its kind in the Americas. Puerto Rico was viewed as a site with special advantages: a) as part of the U.S., it had close relations with the mainland and Canada, and "ties of race and language" with peoples of Central and South America; b) a "tempered" tropical climate that allowed scientific investigations throughout the year; and c) a strong centralized health department and an excellent road system, which made possible studies "that would be difficult in a less well-developed section of the tropics" (4).

The STM opened its doors for its first academic session in October 1926 (5). Its primary goal was to "give the opportunity for the study in a tropical environment of those large ill-defined groups of disorders known as tropical diseases, and at the same time to observe the influence of exotic conditions on diseases in general" (6). In its initial years, the activities of the STM were geared to attract medicine graduates to pursue post-graduate training in tropical medicine and hygiene. It expanded its activities in later years to train health professionals to support the sanitary and public health initiatives of the Island. The STM was in full operation as a semi-autonomous academic and research unit of the UPR until 1949, when it was closed to bring to life a new institution that fulfilled past and present longings: the UPR School of Medicine (7). The STM operated under the auspices of Columbia University for 23 years in a unique academic partnership, never seen before or after at the

UPR. It became one of a group of notable schools, institutes, academic departments, and research and training laboratories that emerged around the world following the path established by diverse European medical centers (e.g., England, France and Germany) between the 19th and 20th centuries (8). Collectively, the upcoming articles will showcase the essence of the STM, and expose the characteristics that made it part of the golden era of tropical medicine.

The series of five articles starts in this issue with an essay by Professor Raúl Mayo Santana (School of Medicine, MSC, UPR), Doctoral Student Lucy I. Peña Carro (Department of History, UPR Río Piedras Campus), and Professor Silvia E. Rabionet (Graduate School of Public Health, MSC, UPR; and College of Pharmacy, Nova Southeastern University), about the contextual, institutional and conceptual precedents of the STM. The article, entitled “The historical antecedents of the UPR School of Tropical Medicine,” mainly focuses on the distinct milestones of preceding institutional events: the PRACs and the ITMH. Their nature and work led the way to the establishment of the STM. The essay also discusses the notion of tropical medicine and considers it a historical concept with different meanings that changes in time-space (e.g., emphasis on climate or geography). The authors probe the continuities and discontinuities surrounding the imperial transitions at the turn of the 20th century to gain a better understanding of the relative significance of Bailey K. Ashford’s discovery of the biological determinant of the so called “peasants’ anemia.” This analysis also served to contextualize the controversies surrounding the discovery, and the establishment and dissolution of the PRACs (1904-1908). Finally, the article examines the creation of the ITMH (1912-1924) four years later, and considers the active participation of the previous PRACs leadership in the development of a tropical medicine academic center.

The second article, entitled “The educational legacy of the UPR School of Tropical Medicine: Curricula, faculty and students,” by Professor Silvia E. Rabionet, will be devoted to the evolution and contribution of the STM within the framework of its educational and training activities. This development will be examined by using as reference points advancements and training traditions in tropical medicine and public health. The study will assess critically the educational legacy of the school by analyzing the curricula over at least two decades, the innovative educational and training models that it introduced, and the impact it had in creating and sustaining a well-trained group of scientists, academicians and practitioners. It also will review and discuss the characteristics of the educational environment that enabled training activities, and the challenges that the faculty had to face during the two decades of its existence. Special attention will be given to the role of the STM in the professionalization of health care workforce on the Island, while adapting and adopting trends and models from other countries. The author will highlight the collective and individual contribution of faculty and graduates to the teaching and dissemination of knowledge in tropical medicine and closely related fields.

“The Puerto Rico Journal of Public Health and Tropical Medicine (1925-1950),” by Professor Raúl Mayo Santana, is the title of the third article of the series. It is conceived as a history from the perspective of the literature of journal genre. The STM scientific journal, precursor of the Puerto Rico Health Sciences Journal, had three main stages. First (1925-1927), it originated as an official bulletin of the Health Department (“Porto Rico Health Review”). Second (1927-1932), it became a project of mutual collaboration between the Health Department and the STM; in 1932 it received its final name (“The Puerto Rico Journal of Public Health and Tropical Medicine”) and, by the end of the period (~1928), the journal acquired a full scientific format under the second STM director, Earl B. McKinley. And third (1932-1950), it became a bilingual journal, mostly under the editorship of the STM, and published by Columbia. When considering publications by members of the STM community of scholars, the themes and contents of the STM’s Journal had a magnified echo in the *Boletín de la Asociación Médica de Puerto Rico*, and in other U.S. and international journals and books.

The fourth article of the series, by Professor Raúl Mayo Santana (School of Medicine, MSC, UPR), is entitled “Paths and images of science: Research practices, representations and legacies at the UPR School of Tropical Medicine.” It approaches the theme from a historical and philosophical perspective, in which scientific research and productivity illustrates the strengths and the limits of the unique academic environment prevalent at the School. The article captures the myriad of research networks, communities, paradigms and legacies. The richness and varieties of the practices of science at the STM are viewed as historical models of scientific knowledge. The STM community of scientists-educators amplified its professional networks, with relative merit and success, locally and internationally. The study of ideas and representations brought out the coexistence of real and imagined scientific communities, contextualized through elusive moments of fissures, accommodations, and continuities. This scenario of science is conceived as exemplary of the modernization of medical science in Puerto Rico and the Caribbean. The STM started and ended with significant ruptures, but its scientific outcomes and legacies became romanticized and preserved in reminiscent time.

The fifth and last article of the series presents a brief sociocultural history of malaria in Puerto Rico, as seen from the scientific and public health activities of the UPR School of Tropical Medicine, and from other important documentary sources. It is authored by professors Raúl Mayo Santana and Adelfa E. Serrano (School of Medicine, MSC, UPR). This history of malaria, although it refers to events from previous centuries, is based mainly on more reliable information from the twentieth century, before and after the creation of the STM; however, its view has been extended to cover the present era of imported malaria. The modern sanitary period within the 20th century covers the traditional and continued management of epidemics, including the use of quinine, to more effective control measures of the disease and anti-malaria campaigns

(i.e., with the addition of epidemiological surveys, soil drainage, policing of irrigation canals, dwellings screening, educational interventions, larvicides use and new therapeutic drugs); and then, to a final stage: eradication (9). This last phase has been labeled, somewhat misleadingly, as the “Era of DDT” (10); because of the practical value that the use of insecticidal residual DDT spraying had in the control of the malaria vector in Puerto Rico (11). However, it should be more properly characterized as the product of the interactions and reciprocal interplays between control and eradication campaign efforts. Puerto Rico was free of malaria by 1962, but imported malaria upsurges have been active as recent as the end of 2015. The article explores the contribution of the STM, a modern research institution specialized in tropical medicine, to the control and eradication of malaria in Puerto Rico.

The authors of this series have systematically and comprehensively studied a wide variety of sources (e.g., official reports, correspondence, images, collected papers, original notes, institutional administrative documents, scientific notes, and published materials). The documentation reviewed has been accessed from multiple archives in Puerto Rico, the U.S. and England (12). The analysis and interpretations of the collected information have been discussed critically from multidisciplinary perspectives. The articles have been enriched by the dialogue and collaboration among the research group, while maintaining diverse narratives and ensuring individual creativity. Collectively, the series portrays a multilayered, profound and incisive look into the essence of a significant institution of higher learning in the health sciences. The authors treat the fluid meanings of the historical encounters studied from a research view that privilege reciprocal interactions, multiple adaptations, and elaborate sociocultural constructs as a collaborative exemplar of the modernity of medical science in a neocolonial tropical context. It has been a singular, congenial, at times conflictive and oppositional, mutually beneficial, and prolific scientific and educational collaboration. Polyvalent relations; polyphonic stories.

Resumen

Este ensayo introduce una serie histórica de cinco artículos que giran en torno a las contribuciones científicas y educativas de la Escuela de Medicina Tropical (EMT) de la Universidad de Puerto Rico, bajo los auspicios de Columbia University (1926-1949), en los campos de la medicina tropical y de la salud pública. Los artículos de la colección se publicarán en números consecutivos de la revista y cubrirán los siguientes temas: 1) los antecedentes históricos, particularmente los precedentes institucionales; 2) los legados educacionales de la EMT; 3) la historia de la revista científica de la EMT (“The Puerto Rico Journal of Public Health and Tropical Medicine”); 4) las prácticas y representaciones científicas prevaletantes en la EMT; y 5) una breve historia sociocultural de la malaria en Puerto Rico desde la perspectiva de las actividades científicas y de salud

pública de la EMT. Los autores realizaron estas investigaciones históricas utilizando una variedad de documentos provenientes de diversas fuentes ubicadas en múltiples archivos en Puerto Rico, los Estados Unidos e Inglaterra. Los diversos significados de los encuentros históricos estudiados son considerados dentro de un enfoque de investigación que privilegia las complejas interacciones recíprocas, las múltiples adaptaciones y las elaboradas construcciones socioculturales que se manifestaron en un caso singular de la modernidad científica médica en un contexto tropical neocolonial.

References

1. Ramírez de Arellano, AB. The Politics of Medical Education in Puerto Rico; School of Public Health, Columbia University; Doctoral Diss; 1985: 20-27p.
2. Mayo Santana R, Rabionet S. “They could not accept a master”—Bailey K. Ashford. Conflictos en la fundación de la Escuela de Medicina Tropical. Conference held under the auspices of AAAS-Caribbean Division, MSC, UPR. San Juan, PR; 5 April 2005. Ashford BK. A Soldier in Science: The Autobiography of Bailey K. Ashford; London, England; George Routledge, 1934: 359.
3. School of Tropical Medicine of the University of Porto Rico under the auspices of Columbia University, Announcement 1926-27; San Juan, PR; University of Porto Rico and Columbia University; 1926. 11p. (Archives and Special Collections, A.C. Long Health Science Library, Columbia University).
4. School of Tropical Medicine of the University of Porto Rico under the auspices of Columbia University, Announcement 1926-27; San Juan, PR; University of Porto Rico and Columbia University; 1926. 12-13p. (Archives and Special Collections, A.C. Long Health Science Library, Columbia University).
5. Padín J. The School of Tropical Medicine. Columbia Univ Q 1939; March: 22-32. Ramírez de Arellano, AB. Columbia’s Overseas Venture: The School of Tropical Medicine at the University of Puerto Rico. Med Geographic Heritage 1989;5:35-40.
6. School of Tropical Medicine of the University of Porto Rico under the auspices of Columbia University, Announcement 1926-27; San Juan, PR; University of Porto Rico and Columbia University, 1926: 12. (Archives and Special Collections, A.C. Long Health Science Library, Columbia University).
7. Creation of a School of Medicine at the University of Puerto Rico. Law No. 378 (May 15, 1949).
8. Arnold D, editor. Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500-1900, 2nd Ed; Atlanta, GA; Rodopi, 2003. Cook GC. Tropical Medicine: An Illustrated History of the Pioneers; London, England; Elsevier, 2007. Scott HH. A History of Tropical Medicine, 2 vols.; London, England; Edward Arnold, 1939. Caponi S. Trópicos, microbios y vectores. História, Ciências, Saúde. Manguinhos 2002;9(Suppl):111-138.
9. Palacios, LD. Informe sobre la lucha antimalárica en Puerto Rico; San Juan, P.R.; Departamento de Salud, 1961; Julio.
10. Stapleton, DH. Lessons of history? Anti-malaria strategies of the International Health Board and the Rockefeller Foundation from the 1920s to the era of DDT. Public Health Rep 2004;119:206-215.
11. Stephens PA, Pratt HD. Work with residual DDT spray in Puerto Rico: A Report of the First Year’s Work. Science 1947;105:32-33.
12. Archives consulted: Puerto Rico (Puerto Rico General Archive, UPR Institutional Archives, Conrado F. Asenjo Special Collections, and José M. Lázaro Puerto Rican Collection); United States (Columbia University Archives & Special Collections, Rockefeller Foundation, and Library of Congress); and England (Liverpool School of Tropical Medicine, and London School of Tropical Medicine).