Medicine during the republic

(1821 - presente)
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The teaching and practice of medicine lost significant ground during the years following Peruvian independence. With the transient and successive military governments plus the external conflicts, the country entered a period of great political, social and economic instability which had great economic consequences. This undoubtedly had an impact in the teaching of medicine; thus, during this period, the Independence School was totally disorganized.

One important occurrence on the XIX century was the self-inflicted death of the intern Daniel Carrion Garcia who, in an attempt to better understand the prodrome of Verrucose Warts, died after inoculating himself with material from such warts. The experience of Carrion was a landmark event which is registered in the Peruvian medical history; this event marks also the beginning of medical research in Peru which would grow over the ensuing decades until the 1970’s when it declined.

Another notable medical occurrence during the Republic was the study of the consequences of living at high altitudes. It was Doctor Carlos Monge Medrano who in 1925 started those studies which grew in importance over the years reaching its peak towards the later part of the 1970’s.

The study of Verrucose Warts or human bartonellosis, and the adaptation (and its lost) to high altitudes have been the two major themes of medical investigation in Peru. Of course there were also other areas spearheaded by the inquisitive minds and dedication of other researchers, but these investigations did not reach the recognition of the other two. There were also personal contributions of Peruvian physicians in different areas of medicine, but they have been, for the most part, individual efforts, which did not give rise to the establishment of research groups and therefore did not have the transcendence of the main two: Bartonellosis and High Altitude. There is no space for them in this brief account.

CAYETANO HEREDIA AND THE SCHOOL OF MEDICINE IN LIMA
Cayetano Heredia was born in Catacaos (May 8, 1797). He was admitted to Saint Ferdinand Medical School in 1813 when Don Fernando de Goya was its President and facilitated his studies. During his formative years in Saint Ferdinand he shared with classmates and faculty the patriotic fervor of the times in favor of independence; he graduated as a physician in 1826 (1).

Heredia also lived the period immediately after Peru’s independence, the so-called «first militarism» during which there were internal fights among different military factions with the support of some civilians; there were many transient governments during that time. This brought political, social and economic instability at a time in which Peru was a very large country, with a rich colonial inheritance but without the necessary infra-structure in part due to its complicated geography which did not allow for an adequate government of the nascent republic. Under these
circumstances, the teaching of medicine reached its lowest point.

Heredia, as a military surgeon for General Luis Jose Orbegoso, was named Surgeon General of all military surgeons and as such he was named President of the Independence School, position which he occupied between 1834 and 1839, when he was removed from it. During those years he could not achieve a real reform. In 1843, he again was named president of the school; it was then when he started giving form to his ideas of reforming the teaching of medicine. However, the conditions were not favorable until 1856 when under Castilla’s provisional government, the School of Medicine was constituted using the Independence School as the basis. Cayetano Heredia was named Dean of the School. He put in practice an Organic Regulatory document which, like the «Synoptic Scheme» approach of Unanue, constituted a significant reform in the teaching of medicine in Perú. Heredia died in 1861.

CARRIÓN, PERUVIAN MEDICINE NATIONAL MARTYR
Daniel Carrión García was born in Cerro de Pasco (august 15, 1857) [5,3] He came to Lima and finished his secondary education at Guadalupe High School. He entered the School of Sciences of Universidad Nacional Mayor de San Marcos in 1877 and after two years he unsuccessfully applied to medical school. He studied one more year in the School of Sciences being admitted to medical school in 1880. His years as a medical student coincided with those of political, social and economic unrest as a consequence of the War with Chile, in which Perú lost to Chile. In fact, in 1881, the enemy was ready to take Lima. After Lima’s defenses broke, the Chileans took over the city and Carrión continued his studies under their occupation. After Chile and Perú signed the Treaty of Ancón in 1883 in which Perú conceded territory to Chile, there was internal disagreement between military heads including Cáceres, Montero and Iglesias. In fact, the last one took over the government while the other two did not recognize the treaty and continued to fight the Chileans. In 1884, Don Manuel de Odrizola, Dean of the medical school was fired by Iglesias for failure to obey his orders; that gave rise to the massive resignation of the Faculty and the appointment of new authorities to the medical school. The resigning members of the Faculty constituted the Free Medical Academy and started to have sessions in which the health problems of the population were discussed.

Daniel Carrión began his internship in 1885 at Saint Bartholomew Hospital but he frequently also attended Dos de Mayo Hospital given that more cases of Verrucose Warts were seeing there. He became very interested in the study of these patients. The febrile forms usually did not reach the capital (Lima), but rather occurred among those people who visited the so-called «Verrucous Valleys» given that it was there that the vector, the mosquito of the Lutzomya genre, resided. Carrión had gathered nine clinical cases of verrucose warts by 1885. His main interest was in deciphering the prodrome of the disease so it could be treated promptly. To that end, on August 27, 1885 he had himself inoculated with material from a patient’s wart by having an area of his skin lanced. Three weeks later, disease manifestations ensued; first vague but gradually they compromised his general condition. He had fever only the first five days, he became quite pale and mildly jaundiced. He was looked after by a group of physicians who hoping he had malaria, administer him quinine. His general condition deteriorated further, he became oliguric; his physicians recommended his transfer to the French Hospital for a blood transfusion (Maison de Sante) where he died on October 5, 1885.
Peruvian Medicine and Rheumatology

The day after his death, some of the Faculty censured Carrión’s behavior and accused the Faculty of the Academy for having allowed him to go on with the experiment. A committee was constituted to investigate Carrión’s death and determined if it was suicide or homicide; the autopsy failed to reveal any important macroscopic findings. Doctor Evaristo Chavez, who had inoculated Carrión, was indicted and taken to court but he was absolved two months later. In the meantime the local press indicated that Carrión’s death was a sacrifice for science which allowed him to recognize that fever and warts were not but two different phases of the same disease and the fact that warts themselves could be inoculated. In reality, Carrión’s image was rescued and recognized as an example of a medical student avid to know more about a regional disease and who, unfortunately, died in the process. Inoculations were then common practice despite the fact that the experimental method had been known for 20 years thanks to the studies of Claude Bernard.

It has been said that Carrión’s motivation was to win the prize established by the Free Medical Academy on July 29, 1885 for the best study on the etiopathogenesis and microscopic anatomy of Verrucous Warts. It is indeed possible that this had been an additional incentive for Carrión, but the concrete facts are that he had been studying this disease for quite some time having published some work on urinary findings on patients afflicted with it.

Carrión’s experience was a call to Peruvian physicians and allowed them to wake up from the intellectual torpor of the times, apparently resulting from the terrible consequences of the Pacific War (Chile). Verrucous warts became the focus of research in subsequent years. In 1909 Doctor Alberto Barton discovered the presence of endoglobular bodies in the red blood cells of patients in the febrile phase of the disease; in 1913, Richard Strong named this organism *Bartonella bacilliformis*. Also in 1913, an entomologist, Charles Townsend, demonstrated that the mosquito *titira*, initially categorized as *Phlebotomus verrucarum*, was the vector transmitting the disease in humans. Finally, in 1927 Hideyo Noguchi was able to culture bartonellas.

With the development of AIDS and the advances made in molecular biology, the study of bartonellosis has become of interest explaining diseases which had not been elucidated for years. Different Bartonella species give rise to trenches fever (or Quintana fever), cat-scratch fever and bacillar angiomatosis, among others.

**ALBERTO BARTON (1870-1950): TROPICAL AND INFECTIONOUS DISEASES**

Alberto Barton discovered the pathogen causing Peruvian Warts (Verricosae Warts) in 1909. It was designated *Bartonella bacilliformis* in his honor by the Harvard’s Strong Commission in 1913. He was a staff physician and bacteriologist at Guadalupe Hospital in the Port of Callao (1909-1916). He participated very actively in the fight against tuberculosis and malaria.

He was also the first one to identify Brucellosis in Perú, and in identify and culture the typhoid bacillus as well as meningococci. He also identified the Leishman-Donovan bodies in lesions of *uta* or mucocutaneous leishmaniasis. He was Professor of Tropical Medicine and authored numerous papers on Carrión’s disease and other diseases caused by bacteria. He was President of the Peruvian National Academy of Medicine (1937-1938) [4].

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GUILLERMO GASTAÑETA (1874-1958): PIONEER OF PERUVIAN SURGERY
Guillermo Gastañeta was a notable surgeon and teacher. He pioneered abdominal and neurological surgeries. He also, together with Dr. Constantino Carvallo, introduced radiation therapy to Perú. He was Professor of Topographic Anatomy and Surgical Medicine as well as of Clinical Surgery. He was Dean of the School of Medicine (1922-1931) and President of the Peruvian Society of Surgery (5).

MANUEL NÚÑEZ BUTRÓN (1900-1952) AND RURAL MEDICINE
Núñez Butrón was born in Samán, a district of the Province of Azángaro in Puno. When the School of Medicine in Lima closed in 1919 during the University Reform Movement, he migrated to Spain where he studied Medicine in Barcelona. Upon his return in 1925, he went to Huancavelica, Azángaro, Huancañé, Lampo and Juliaca, where he finally settled. There he established the movement Rijcharism, which in quechua means «to wake up». With his brigadiers or rijcharis or wake up callers, and having as symbols water, soap, pencil and notebook, he dedicated himself to assist the Indian Communities promoting personal hygiene and education as measures to prevent disease, combat ignorance, alcoholism, cocaism as well as the general apathy of their people given the abuse exerted against them by Hacendados and gamomales of the time. Between 1935 and 1948, he published the newspaper Runu Soncco (Indian Heart) where he disseminated his doctrine. Núñez Butrón was a real pioneer of rural medicine; he was certainly ahead of the times since he promoted Primary Care decades before the World Health Organization would sanction it in Alma Alta (Allamy in current Kazacztan) in 1978 (8).

CARLOS GUTIÉRREZ NORIEGA (1906-1950) AND ETHNOPHARMACOLOGY
Gutiérrez Noriega was a pharmacologist who dedicated himself to the study of the pharmacological properties of the plants used in folkloric medicine. He was a great defender of cocaism or the chewing of coca leaves by the Indians; he studied the Indian's cultural anthropology. He edited the Journal of Experimental Medicine from the National Institute of Hygiene and Public Health in 1944. He was also Editor of Current Peruvian Medicine, a journal in which he published many of his papers. With the support from the President of the University, Dr. Luis Alberto Sánchez, and the Dean of the School of Medicine, Dr. Sergio Bernales, he founded and directed the now defunct Institute of Pharmacology and Experimental Therapeutics at Universidad Nacional Mayor de San Marcos and the Journal of Pharmacology and Experimental Medicine. He died prematurely in an accident in Pisa, Italy (7).

HONORIO DELGADO AND PERUVIAN PSYCHIATRY (1892-1969)
Born in Arequipa, Delgado graduated from Universidad Nacional Mayor de San Marcos as a Physician. He was a Psychiatrist, Educator, Philosopher, Essayist, Men of Letters, Esthetician, and, overall, a Humanist. He succeeded Herminio Valdizán as Professor and Chairman of the Department of Psychiatry which he headed between 1929 and 1961. He was Dean of the School of Medicine in 1961, when the massive resignation of the Faculty which originated Cayetano Heredia Peruvian University occurred; he became a founding member and the first President of the newly found University. With Valdizán he founded the Journal of Psychiatry and Related Disci-
plines (1918-1924) and with Óscar Trelles the Journal of Neuropsychiatry (1939), the oldest Medical Journal in Perú. He introduced psychoanalysis, biological and pharmacological treatments, group and individual psychotherapies and psychological and sociological techniques to diverse psychiatric disorders to this part of the American Continent.

INVESTIGATIONS INTO THE PHYSIOLOGY AND DISEASE OF HIGH ALTITUDES

Early in the XX century, and within the context of an artistic and literary but also political environment which rescued and vindicated the Natives or Indians, a young physician decided to study the physiology of those living at high altitudes. It was Dr. Carlos Monge Medrano (1884-1970) who in 1925 started these studies and became a great promoter of Peruvian medical investigation. It is true that there had been some interest prior to that time; Barcroft, an English physiologist had come to Cerro de Pasco along with American and British scientists in an expedition. Barcroft's group performed a number of measurements in the Andean inhabitants between late 1921 and early 1922. The group concluded that the Andean inhabitants have less physical and mental capabilities than the ones living at sea level. Barcroft's publications stimulated Monge to prove him wrong. It was with the support of the medical school that Monge organized in 1927 a medical expedition to Morococha and Oroya. Cesar Heraud, Enrique Encinas and Alberto Hurtado went with him. It was in that manner that the physiological and pathological studies of the Andean inhabitants started.

The successive expeditions and numerous experimental studies gave medical research in Perú a tremendous impulse; findings from these studies were published in prestigious national and international journals. The clinical entities of Acute and Chronic Soroche (loss of adaptation to high altitudes) were described. The later one is now know as Chronic Mountain Sickness or Monge's disease.

Dr. Monge founded the Andean Biology Institute within San Marcos University in 1930; Dr. Alberto Hurtado, became its Research Director in 1935, shortly after his return from Harvard and Rochester. Young physicians such as César Merino, Julio Pons Musso, Julio C. Preto and Hurtado's collaborators Humberto Aste and Andrés Rota were part of the group that conducted studies at the Institute. The institute became a center which attracted many qualified young Peruvian physicians, some of them returning home after being trained abroad. In that manner, a solid research group emerged which studied different aspects of life at high altitudes (in health and disease). We can cite, for example, the work of Drs. Humberto Aste Salazar, Andrés Rota and Enrique Encinas, among others. With Hurtado, modern scientific research was born in Perú. He introduced and supported changes and innovations in laboratory techniques and procedures, placing emphasis in quantitative statistical measurements.

Under the auspices of the US Rockefeller Foundation, the Air Force Medical School, and the National Institutes of Health, Hurtado's research and that of his collaborators intensified during the 1950's. In this journey, Hurtado was accompanied by his disciples César and Baltazar Reynafarje, Tulio Velasquez, Emilio Picón, Rodolfo Lozano and Dr. Carlos Monge Medrano's son, Dr. Carlos Monge Casinelli. The peak of these investigations was in the 1970's; the institute's researchers had the support
of important US centers and universities which coincided with advances in the aeronautic industry and the great interest to learn the physiological impact of humans exposed to hypoxic atmospheres.

In 1966 the breakdown in the School of Medicine of Universidad Nacional Mayor de San Marcos occurred; this resulted in the massive resignation of its faculty, which later constituted the Universidad Peruana de Ciencias Médicas y Biológicas, now Universidad Peruana Cayetano Heredia. Hurtado continued his studies in this new center where he established the High Altitude Institute. Unfortunately, neither this new institute nor the one in San Marcos, kept up their research missions. At the present time, some level of research is still ongoing at Cayetano Heredia, but it is our impression that the best years of high altitude research in Perú have already passed. Finally, it must be said that Hurtado was not only a brilliant investigator but also an effective teacher.

PEDRO WEISS (1893-1985):
MODERN ANATOMIC PATHOLOGY AND PALEONTOLOGY
In 1919, being the School of Medicine at San Marcos in recess, Pedro Weiss went to Spain where he finished medical school. After studying pathology in Germany and Dermatology in France, he came back to Peru where he received the degree of Doctor in Medicine in 1928 with the thesis «Towards a conceptualization of Peruvian Warts». He traveled numerous times to Peruvian's countryside to study its geography, ecology, anthropology and epidemiology in an effort to know the uncommon «becoming the biologist of the lizards and witchcrafts», as Dr. Uriel Garcia has said. He studied diverse endemic and epidemic diseases affecting our country, including the Peruvian Warts, uta, syphilis and pinta. In 1954, he described the nasal lymphoma known as Weiss' lymphoma currently classified as Non-Hodkins diffuse infiltrative endonasal lymphocytic lymphoma (angiocentric nasal lymphoma of T/NK cells).

He published his work about the trepanations and skull deformations, osseous syphilis and pre-hispanic mummies. He made a notable description of the Peruvian hairless dog or viringo, concluding that its integument characteristics were due to congenital ectodermic dysplasia. He was Professor of Anatomic Pathology in San Marcos; later he was among the founder professors of Universidad Peruana Cayetano Heredia. He is considered the founder of Peruvian Modern Anatomic Pathology and Paleopathology.

THE BEGINNINGS OF PERUVIAN RHEUMATOLOGY
The identification of rheumatologic conditions when their etiopathogenesis was largely unknown must have been a very difficult task. Rheumatologic problems were circumscribed to gout, rheumatoid arthritis, osteoarthritis, infectious arthritis and, foremost, rheumatic fever. This last one had a very high incidence during the pre-antibiotic era producing in many cases important cardiac (valvular) lesions. Therefore, in 1943 the Peruvian League Against Rheumatism was established; the League evolved into The Peruvian Rheumatology Society which was founded on July 25, 1963; it was constituted by internists, physiatrists, orthopedic surgeons, cardiologists and other interested in this specialty. Towards the 1970’s, and with the return of several specialists after training abroad, mainly in the US, rheumatology outpatient services started to function at many hospitals.
The first Peruvian Rheumatologist, Dr. Antenor Mogrovejo from Arequipa, trained in Spain. Shortly thereafter, Drs. Hernán Ponce and Raúl Portocarrero, also from Arequipa, trained in Chile, followed by Dr. Luis Andrade from Lima. Dr. Ponce established himself in Trujillo, whereas Dr. Andrade did it at The Dos de Mayo Hospital in Lima. Dr. Enrique Robles, who trained in Toronto, Canada established himself at the Hospital Obrero in Lima (now Hospital Guillermo Almenara). Young physicians who chose to be rheumatologists flocked to these pioneers of rheumatology in our country; later formal training programs were established under them.

It was in 1978 that rheumatology as a subspecialty was established at the Medical School of Universidad Peruana Cayetano Heredia, at Cayetano Heredia National Hospital; this resulted from the initiative of Dr. Graciela S. Alarcón who counted with the unconditional support of Drs. Armando Silicani Della Pina, the enthusiasm of Dr. Oswaldo Castañeda and the collaboration of the immunologist Raúl Patrucco Puig (15). This initiative was followed by similar ones in other medical schools; in fact, we now have a good number of dedicated rheumatologists practicing in Perú.

It is important to honor the memory of Dr. Carlos Subauste Perona (1926-1994), distinguished internist who had two passions: rheumatology and endocrinology. He left two pioneer studies, both precisely in the field of rheumatology. He completed his medical studies in Universidad Nacional Mayor de San Marcos in 1953, having demonstrated an interest for rheumatology even then (16). In 1955, a year after returning from Harvard, he was distinguished with the Camino Award, which was offered by the Peruvian Society «Daniel Alcides Carrión» for his work on the etiopathogenesis and pathophysiology of systemic lupus erythematosus.

In 1972, Don Carlos Subauste Perona presented his Doctoral Thesis to the faculty of Universidad Peruana Cayetano Heredia’s medical school. It is in this thesis that his extensive rheumatologic experience throughout the years is recorded: «Clinic Profile of the Collagen Disorders: The Classic and the Not-well Defined Forms». This was a descriptive study which included (conserving the terminology he used) 307 cases of rheumatoid arthritis, 164 cases of systemic lupus erythematosus, 88 of scleroderma, 11 of dermatomyositis and four of polyarteritis nodosa which he studied between 1952 and 1972 at the Archbishop Loayza Hospital in Lima, which in those years was exclusively for women (17).

**SUMMARY**

In summary, at the outset of Republican era in 1821 a period of political, social and economical instability that lasted until the mid of the XIX century, ensued. In 1856, the School of Medicine of Lima was founded and with it modern medicine in Perú was born. In 1885, Daniel Carrion’s sacrifice after he inoculated himself with verrucous fluid unquestionably demonstrated that this disease and Oroya fever were but one (now called human bartonellosis), and it served as a driving force for Peruvian medical research.

The second driving force was, Carlos Monge Medrano who in 1925 began the study of the physiology and pathology of the inhabitants of high altitudes.

There are many other contributions of variable relevance by outstanding Peruvian medical investigators; the impact these investigators have had on Peruvian, and in some cases, world medicine, should be also recognized.
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