SPECIAL ARTICLE

Letters between Pedro Cossio (1900-1986), Luis Becú (1927-1997) and Francisco Torrent Guasp (1931-2005)

Epistolario entre Pedro Cossio (1900-1986), Luis Becú (1927-1997) y Francisco Torrent Guasp (1931-2005)

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Clarification

This unpublished and research material was made in the archive of the house of Francisco Torrent Guasp, Dénia, Spain, in June 2017. In the framework of the development of Francisco Torrent Guasp's biography a correspondence was found between the doctor and Spanish researcher with two figures of Argentine cardiology, Pedro Cossio and Luis Becú.

Since the year 1954 Francisco Torrent Guasp carried out anatomical researches in which he demonstrated that the cardiac architecture is composed of a muscular band folded in a double helix to form both ventricles. This band anatomy determines its function of torsion during systole and of distortion during the isovolumetric phase, which is active with energy expenditure to produce a suction effect. In this way the heart consists of three times: systole, suction and diastole. (1)

Pedro Cossio was the initiator of the Journal and of the Argentine Society of Cardiology. With a great teaching career, he encouraged the beginning of modern cardiology in Argentina. His works on cardiac hemodynamics and interventionism should have led him to the Nobel Prize, in the words of those who received it for this development.

Luis Becú, pathologist, was a precursor in the study of congenital cardiac malformations. The current classification of interventricular communications is due to his work. He participated actively in the first cardiac surgery with extracorporeal circulation performed in the world.

I. DINNER IN LONDON

The World Congress of Cardiology is held in London. It was 1970. Francisco Torrent Guasp crosses to the north with his ideas and accomplishments on the myocardial band and the function of the heart. He tries to contact Donald Ross, very prestigious Englishman for his technique of aortic valve implantation with pulmonary valve autograft. He finds it impossible to establish a conversation. In a last attempt he sends him a note and the book "*The Cardiac Cycle*" (Madrid, 1954). (2) Surprisingly, he receives a call from Donald Ross on the following day. He thanks him for the information and comments favorably on the idea he pursues in the publication. What is more, he invites him: "*Doctor Torrent, tonight I hold a dinner at my house with prestigious cardiologists. I look forward to seeing you*." Francisco attends with Teresa, his wife. When they arrive, all the guests were there. Among them, an Argentinean, Luis Becú, a pathologist, who would become a good long-distance friend in the years to come. One of the invited doctors present is surprised with the arrival of Francisco Torrent Guasp. He is a prominent and prestigious Spanish physician. What follows reveals the little importance that Francisco's studies on the structure of cardiac function had in his country. The case is that with his work Francisco repeated the journey of Ulysses, wandering around the world with his achievements which could only recently settle in his native homeland. Spain began to dust off the indifference and rejection that it had always shown towards him, after his death in 2005.

At this point of the two Spaniards' casual encounter at the dinner, the prestigious cardiologist asks Francisco, surprised "*what are you doing here?*" The hard-working researcher did not flinch or comment on his recent but promising relationship with Donald Ross, who would become with Pedro Zarco, an essential friend in his life. He answered only with intelligence not devoid of sarcasm "*you see Doctor; I have come to dine just like you.*"

II. THE VOTE. ARGENTINA ELECTED FOR THE WORLD CONGRESS, 1974

The man is fervent in the search of what has happened. In view of this situation he is faced with an uncertainty, which is paradoxical. Those bifurcations of existence trekked backwards should lead him to the correct course. But sometimes there are no traces left. He glimpses "bits of light" in the composition of that chronology he explores.

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They are fragmentary, discontinuous. Scattered in the darkness of time. There are difficulties in connecting them. Those scarves of light will also be reached by a last glance if they are not recovered. When the last breath of consciousness is no longer posed upon them, they will cease to "be". They will extinguish, when they are no longer observed with the desire to value them.

The delegation of the Argentine Society of Cardiology went from the Hotel to the Convention Center of the World Congress of the specialty (London, 1970). Francisco Romano, its President, Pedro and Patricio Cossio, Bernardo Malamud, Albino Perossio, Jacobo Muchnik, Ruben Posse, Carlos Bertolasi, Bernardo Boskis, René Favaloro, were strongly bound into a spiritual force of solidarity. There was transcendence in the march, manifested by a nervousness that kept them silent. The President approached the banks of the Thames for a moment to watch the current slide in the enormous clepsydra. He perceived that against the wall its needle represented a turning point. The waters to the ocean were taking the uncertainty; the new ones would bring reality.

They entered the amphitheater. Bernardo Malamud arranged his ideas repetitively. As the national delegate to the definitive session of the Congress, he knew very well his speech in the defense of Argentina as the site of the next 1974 World Congress, the VII, but the hands conveyed restlessly what his lips hushed. There were three postulants. First Canada. Second the Arab country that made no presentation. Bernardo increased his firmness and ascended the platform. He felt like a gladiator, with the necessary vehemence not to be defeated. Above him, in the stands, his fellows heard him dissect an accurate persuasive speech. At the end, the Argentine group patted him warmly, but their eyes were absorbed in the ballot box that began to receive the votes of the member countries.

Then the counting. For half an hour they observed three delegates scrutinizing the election, increasing the mountains of paper. They sat tight, dreaming together. Only one breathed for all. They stood still listening to the verdict. Argentina had doubled Canada in the number of votes.

Romano as President of the Argentine Society of Cardiology asked to speak. It was past five p.m. when he stood up to thank the audience with simple, heartfelt phrases. He restrained the emotional overflow that spilled unceasingly towards a horizon where he glimpsed Buenos Aires lying under the midday sun. Still ignorant of the feat. That night with Pedro Cossio they would endlessly celebrate the success. (3)

III. LETTERS

These episodes, dinner at Ross's house and the proclamation of Argentina for the 1974 World Congress, began a correspondence that links Francisco Torrent Guasp, Luis Becú and Pedro Cossio. This epistolary relationship begins when Torrent sends the book "*The Cardiac Muscle*" (4) to Pedro Cossio with "*a kind dedication*" as expressed by the Argentine cardiologist's reply dated December 26, 1972, who also congratulates him "*... for the originality and tremendous research work done for years to achieve it, with new anatomical conclusions and revolutionary physiological concepts, based on proven facts and not as a result of a lush imagination.*" This letter is accompanied by the instructions of the Cossio Foundation Prize to be disseminated in the old continent. The following letter found and dated December 24, 1973 reveals the gratitude of the Cossio Foundation for the diffusion of the previous request. Surely these events motivated the invitation addressed by Pedro Cossio and Luis Becú to Torrent Guasp for the 1974 World Congress in Buenos Aires to lecture on the "*helical heart.*" The reply of the invited speaker was a refusal. It was motivated by economic issues. (5)

The correspondence between Luis Becú and Torrent is restarted on May 6, 1996. Its beginning clarifies "*You must not remember me. I had the pleasure of visiting you in Denia on January 23, 1977, led there by Jane Somerville* [English cardiologist who nicknamed Torrent, who was an excellent drawer, the Leonardo of the 20th century] *... I had a lot to do with the initial development of cardiac surgery, since I was actively involved in the world's first cardiopulmonary bypass surgery performed at the Mayo Clinic by John Kirklin.*" Later, he says: "*I have, I believe, everything written by you ... Now, gladly and happily retired I have set up a research laboratory ... we have repeated and perhaps improved* [cardiac] *dissections. And we are prepared to publish. I cannot and should not do it without knowing if you have continued with your investigations. The anatomo-functional concept of the "fascicle" received formidable confirmation when the submicroscopic anatomy of collagen became known in the last 10 years ... and on this basis we have moved forward.*"

Torrent's reply is not long in coming. On May 29, 1996 he began the letter expressing "*Of course I remember you. You're one of the few people I've been able to talk to about heart anatomy; most cardiologists have never seen or had one in their hands ... I attach several documents with an elastic model of the heart, faithful reproduction of the morphological vicissitudes of the ventricular myocardium*." And he adds: "*I still keep the small knife you took from the belt, and gave me as a present. I'm waiting to use it when I have a good steak before me.* "

On June 3, 1996, Luis Becú writes: "*Knowing you are alive and also very active has given me special joy and your recent wanderings an inevitable envy. I have placed a "war cry" on the laboratory's front door. It says: "No physiological theory can be true unless it gives a complete and final explanation of all points of structure" William Harvey in "Motu Cordis", 1628 ... These are words of one who is considered by all to be the initiator of scientific physiology ... this same concept, that the function is a subsidiary of the morphology, said by mysself would have justified my dismemberment at the hands of my cardiophysiological friends. As it is displayed, it announces my sacrilegious purpose of questioning the*

very essence of the analog model that is used today to describe and interpret cardiac function".

"[The] *fascicles of muscle over one another but in discordant orientations have been objected in various ways, but a basic objection is that if it were true the friction between them would be very big, calorific and energy-wasting ... a lubricant antifriction mechanism was required...* [there is] *a vast system of flat and lacunar blood spaces usefully disposed in the gaps between sheets and bands of muscle tissue ... they have wide communication with the coronary veins ... and what is much more significant and interesting with the lumen of both ventricles through the ghostly Thebesian veins".*

"I intuitively recognized the organization of the myocardium in fascicles, sheets, and bands when I saw them deformed to successfully compensate the function of the fetus altered by a congenital malformation. And there fate left in my hands your small book "The cardiac cycle," Madrid 1954. (2) At the end of the letter and with the need of digesting the perimyocyte collagen he expresses: *"I wonder if you haven't trodden already that path, without detriment of the virtues of the ancestral technique of the acidulated boil. Who but you can know something about collagen dissolution?"*

Francisco Torrent answers on the same date…*"the first question I ask myself is, has interfascicular friction been or may be quantitatively evaluated? Because except in two very specific areas (one of them occupied by aberrant fibers and the other corresponding to the interventricular septum, in which adjacent fibers are attached crosswise at right angles), in the rest of the large fiber group constituting the ventricular myocardium the adjacent fascicles run parallel to each other, all of them simultaneously showing progressive twisting which is the determining cause of the disparate arrangements adopted by the non-adjacent fascicles corresponding to the same topographic region. That is, what can the friction value be between two parallel fascicles that enter in contraction simultaneously? I ignore it… Regarding to the collagen dissolution problem I can only tell you that, after 43 years, I have come to a conclusion: the best procedure is a proper boiling of the piece, without further ado.* "He then adds : *"... I point out the certain and always coherent relationship between form and function in every organ, i.e., both you and I have come to the same conclusion, the morpho-functional interrelationship ... but very few have noticed it."*

On July 11, 1996 Francisco Torrent sends a letter to Becú that begins with "*I notice in the writing of your letters that you have some innate proclivity to poetry, a fact that could not be otherwise given the sensitivity that you show towards the problems of the heart."* Then Torrent goes back to the anatomical work: *"The connective tissue, scaffold that imprisons the myocardium, represents of course an obstacle to dissection ... but the dissection of the pieces fixed in formaldehyde presents another difficulty: the acquired rigidity ... I wonder wouldn't it be better to achieve that dissolution of the connective tissue with the water and heat supplied by boiling in the fresh hearts? ... the perennially elastic anatomical parts* [are achieved] *if I remember rightly [in a] glycerin-based solution."*

The next letter found is a letter sent by Torrent to Becú on September 9, 1996, in which he informs him that he has read his work *"Collagen in the myocardium"* published in the Argentine Journal of Cardiology.(6) At the beginning of the letter he comments amusingly *"... I thought you wanted nothing to do with me"*. Then he introduces a concept of physics that medicine has been reluctant to adopt. I quote: *"I think knowledge of the structure and function of the motor collagen tissue opens a new path in the field that I call quantum cardiology"*. Concerning the doubt in the dissection of the myocardial band that was always a stumbling block in its acceptance, his opinion is solid: *"it is better to see things on the field, with a heart in the hand ... you will have to destroy some hearts before you can get a clean and demonstrative dissection. When you achieve it, you will not discuss the matter any longer, as has already happened in Germany or the USA*". He concludes with the pending debt of the trip he always wanted to make to Argentina (5):*"I must tell you, however, that despite the very attractive idea of knowing Argentina, the effort of traveling is getting harder and harder for me"*.

In his reply of September 22, 1996, Luis Becú admits *"... I have already destroyed a couple of hundred hearts, including more than one example of congenital heart disease with wonderful distortions of the fascicular bands"*. The letter ends with "[I am] *"going to give a lecture in the Argentine Congress of Cardiology. It is entitled "The myocardium is helical" ... and I will tell you the reactions produced by my lecture that falls on scarcely warned ears, as you can imagine."*

Torrent Guasp, after a time without communication, must have been left with the dilemma about his friend's luck in the conference. It is what he says in a brief note sent to him on December 22, 1996, "[I wish] *to know if you have suffered any mishap that explains your prolonged silence, since I am afraid you have been locked up or something similar, after pronouncing your lecture "The myocardium is helical' (Argentine Congress of Cardiology)"*.

Becú answered immediately (December 24, 1996) in what would be the last correspondence between them, since he would die soon after (June 1997). He expresses: *"My prolonged silence is attributed to two circumstances: I have nothing intelligent that is worth saying, and after my lecture I slid into a kind of spiritual collapse which I will end up overcoming with my enjoyment in the Sierras de Córdoba. My lecture enabled reaffirming the actual architecture of the myocardium and the proposition of morphological bases, a new interpretation of cardiac mechanics quite different from that of Starling/Wiggers. I introduced the concept of velocity and inertia of a viscous fluid instead of considering its hypothetical pressures (which vary in each spiral and pulsatile fluid sheet). The isometric periods and the residual volume disappear and the diastolic acceleration reappears by*

suction. It would have especially amused you to see the faces and hear the comments. You received ample credit for your trajectory at the moment of explaining your dissections. A hug that will extend for more than a month, from your friend."

This would be the last communication of a series of letters that had as protagonists three great creative figures of cardiology. It was initiated by Pedro Cossio, who, knowing the works of Torrent Guasp on the cardiac band, invited him to the World Congress held in Buenos Aires in 1974 through its Congress Secretariat directed by Luis Becú. Then it would continue in letters of undisputed scientific and human content. They should be considered a complement of reflections now deprived of being enriched by the positivism of language and the scientific form based on the immediacy. In the final paragraph of this last communication between the protagonists, Luis Becú expresses to his friend Torrent *"you know how awfully difficult it is to say, everything! in a few pages."*

REFERENCES

1. Trainini JC, Elencwajg B, López Cabanillas N, Herreros J, Lago N, Lowenstein J, Trainini A. "Basis of the New Cardiac Mechanics. The suction pump". Buenos Aires: Ed. Lumen; 2015.
2. Torrent Guasp F. El ciclo cardiaco. Madrid, 1954.
3. Trainini JC. Pedro Cossio. El Premio Nobel que no fue. Buenos Aires: Ed. Lumen; 2007.
4. Torrent Guasp. El músculo cardiaco. Madrid, 1972.
5. Entrevista a la familia Torrent realizada en junio de 2017 en la casa de Denia, a orillas del Mediterráneo.
6. Becú L, Brusca G. Collagen in the myocardium. Rev Argent Cardiol 1996;64:235-43.