

## The Paediatric Cardiology Hall of Fame

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### Lucio Parenzan

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WE HAVE ALREADY INDUCTED TWO pioneering cardiac surgeons into our Hall of Fame, John Kirklin<sup>1</sup> and Francis Fontan.<sup>2</sup> Both are universally recognised as giants in their field. The surgeon who now joins them in this Pantheon is of equal stature, and fully deserving to stand alongside them. Lucio Parenzan, almost single handedly, brought world class paediatric cardiac surgery into Italy. For a period of almost 25 years, a good proportion of the Italian neonates, infants, and children requiring corrective surgery for congenital cardiac malformations were referred to the North, with the majority heading for Bergamo. Under the guidance and leadership of Parenzan, the Ospedale Riuniti, in this sleepy and beautiful city in the foothills of the Italian Alps, became a centre of world-renown. The surgeons in this hospital, very much the equivalent of a district general hospital in terms of the United Kingdom, and with no University affiliation, were producing results at the cutting edge of International excellence. But over and above these clinical achievements, the teaching programmes organised and coordinated by Lucio and his co-workers became recognised as the very best in Europe. I well remember my own inauguration to these meetings in the early 1970s. For me, as a neophyte in the field, it was awe-inspiring to sit down at breakfast in the Excelsior San Marco, being able to discuss the finest points of surgical progress with the very best practitioners in the World, whilst admiring at the same time the views of the wonderful skyline of the old walled city of Bergamo. Subsequent to those initial meetings, I became deeply involved in the programme of teaching. It was to my advantage to receive my first fellow, and one of the very best, Giancarlo Crupi, through the recommendation of

Lucio. Since then, we have remained the very best of friends. I was equally pleased to be involved in the organisation of the First World Congress of Paediatric Cardiology and Paediatric Cardiac Surgery, a marvellous occasion which brought the whole World to Bergamo in 1988. I was able to assist in editing the series of books which chronicled the “state of the art” as presented at Bergamo.<sup>3–5</sup> Perhaps more importantly, it was discussions held during this First World Congress that led to the birth of *Cardiology in the Young*. It was largely due to the support provided by Lucio in our initial years that our Journal has been able to progress to reach our healthy state of today. Subsequent to his retirement from the Directorship of Cardiac Surgery in the Hospital, although the Hospital itself has lost some of its earlier glories, Lucio has continued his innovations. It is exclusively thanks to his efforts that the International School, named in honour of John Kirklin, continues to flourish, offering opportunities to those practising under less than favourable circumstances to receive education at the highest level. Thus, it is both a privilege and a pleasure for me to chronicle all these achievements which validate the induction of Lucio to the Paediatric Cardiology Hall of Fame. It is all the more appropriate that the work charting his career should be published in *Cardiology in the Young*.

#### Studentship and apprenticeship

Lucio was born on June 3, 1924 in the village of Comeno, close to Gorizia in the province of Istria, on the border between Italy and what is now Slovenia. His father was a general practitioner who had grown up in Pirano, now on the Slovenian side of the border. He had studied medicine in Vienna and Graz, finishing his studies in Padova and spending one year in Paris studying psychiatry before returning home. Lucio's mother was a teacher, and his early years were spent in Pirano, where he received his primary

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education, rapidly establishing his intellectual capabilities. Sadly, his father died from Hodgkin's disease when Lucio was no more than fourteen. Already, however, so as to ensure that Lucio received the very best education, he had been dispatched to one of the very best secondary schools in Italy, the Badia Fiesolana in Florence. His mother had returned to teaching so as to support Lucio through his education, and he flourished in this environment. By 1942, he was ready to commence his medical studies, and initially entered the medical school in Florence. At that time, of course, Europe was gripped in an international conflict, with Italy part of the axis. In July 1943, fascism was overthrown, but Italy was occupied by the German army. This interrupted Lucio's studies, and he became a medical orderly in Udine. This difficult period also gave him the opportunity to hone his entrepreneurial skills, and he became adept at ferrying salt from Pirano to Padova, returning with shoes which were sold in Pirano. The end of the war did not resolve Lucio's problems, since he was in Trieste at the time it was occupied by the Yugoslavians, and he needed to hide for over a month before escaping to Padova.

Eventually, in February of 1946, he was able to resume his medical education, studying in the famous medical school of Padova, supporting himself by working also as a security guard and performing basic tasks such as chopping wood. This did not deter him also from applying himself with enthusiasm to his studies, aided by his photographic memory. In his final examinations in June of 1948, with each of 11 professors awarding 10 marks, he distinguished himself by scoring 106 out of the possible 110 marks on offer.

Having graduated with such distinction, he moved to Milano to study paediatrics, working initially with an old friend of his father. Although paediatrics was then a medical specialty, Lucio had always wanted to be a surgeon, harbouring this ambition from the age of five. Starting his post-graduate studies in Milano, he became unhappy about the current treatment of pyloric stenosis, and sought to visit the centres of excellence pioneering surgical options. This took him to the Karolinska Hospital in Stockholm, where not only was he able to work with Ehrenpreis, but he also had his initial introduction to Paediatric Cardiology, then being pioneered in Sweden by Kjellberg, Mannheimer, Rudhe and Jonson.<sup>6</sup> By this time, he had become a specialist in Surgery, albeit without performing many operations. His specialisation involved five years attendance in Parma, spending a few days each year for lessons and examinations in anatomy, physiology, and the surgical sub-specialties. With his talent for passing examinations, this posed few problems. He returned to

Milano to work as a paediatrician, but he had been recommended for further studies by Ehrenpreis to Koop, then Chief Surgeon at Children's Hospital of Philadelphia. It so happened that one of Koop's assistants, Bill Kieseewetter, had recently moved to Pittsburgh, so Lucio was able to obtain a position at Pittsburgh Children's Hospital, where he spent two years from June, 1957, becoming Chief Resident in Paediatric Surgery. This period was his making. He was involved in all aspects of paediatric surgery, including orthopaedics, and was introduced to the important principles of postoperative care. More importantly, he received a much deeper introduction to paediatric cardiac surgery, then in its infancy. Prior to leaving Italy, he was asked about research projects. He was offered projects on lipid supplementation or the heart-lung machine. Fortunately for Italian paediatric cardiac surgery, he chose to work on the heart-lung machine.

This work was undertaken in collaboration with Robert Pontius in Pittsburgh. They started their work on dogs, performing bypass on 15 animals before having one survivor. Children proved more hardy, and their initial series of 20 closures of atrial septal defect was uniformly successful. Tetralogies proved more difficult, and their two attempts both proved unsuccessful, with bleeding taking place through the porous Teflon patch. During this period, Lucio himself performed several closed procedures, such as ligation of the arterial duct. Throughout this time, he had been living in the Hospital, permitting him to save money. When the time came to return to Italy, his initial thoughts were to purchase a red Alfa Romeo, but instead he purchased a second hand heart-lung machine. The period spent in Pittsburgh was immensely valuable, with many lessons being learnt, such as the problems with closed cardiac surgery. In his first few days in Pittsburgh, a child developed paraplegia with no obvious cause after resection of aortic coarctation. Since that time, he has always been more concerned about closed than open cardiac procedures.

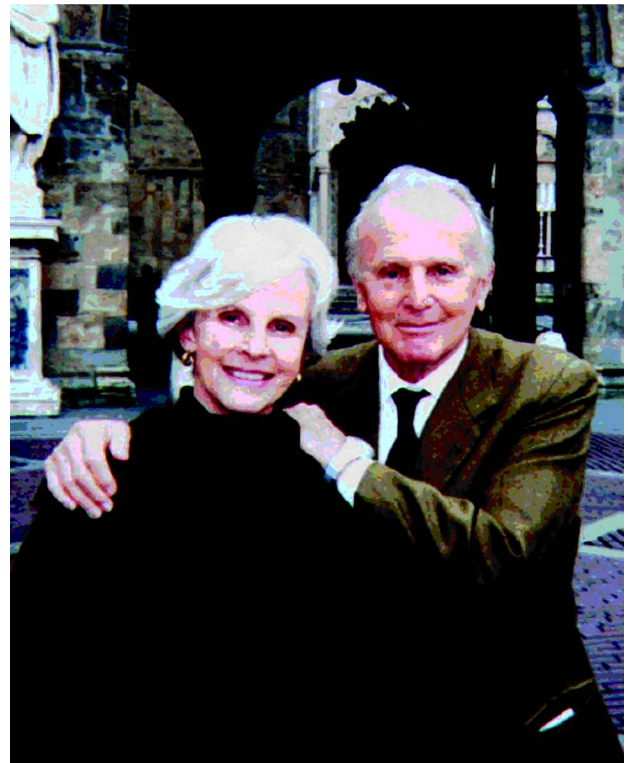
### Establishing the Ospedali Riuniti

When Lucio had returned from America to Milano, he was still working as a paediatrician and, as yet, had not become the Chief. Despite his position, nonetheless, he was actively involved in surgery and, on the second day of his return, he repaired a tracheo-oesophageal fistula. His ambitions, furthermore, were clear-cut. When asked, at the beginning of 1962, what he hoped to achieve, he asked for the opportunity to treat neonates with congenital cardiac disease in the first week of life. Although it would take time to achieve this goal, the opportunity to

move towards his ambition soon arrived. At the end of 1962, whilst still only 38, he was invited to become Chief of Paediatric Surgery in Trieste, by then returned to Italian rule. Eager to be his own boss, he grasped at the opportunity to do things his way. But he spent only one year in Trieste, achieving things such as correction of diaphragmatic hernias and closing the arterial duct. He was disappointed, however, since he was not able to perform paediatric cardiac surgery, as he had been promised when he left Milano. After one year, therefore, he took another stepping-stone on what he presumed to be his return to Milano. He was invited to become Chief of Paediatric Surgery in Bergamo.

Whilst Bergamo is certainly closer to Milano, when he arrived, it could not have been predicted that this scenic walled city was soon to become an International centre in congenital cardiac surgery. As already explained, the Ospedale Riuniti is the equivalent, in the United Kingdom, of a District General Hospital, and lacks any direct links with a University. Furthermore, when Lucio arrived, in 1964, there was no department of paediatric surgery. He needed to build the new centre from scratch, working in rooms donated by his colleagues. Despite the problems, progress was rapid. His first atrial septal defect was closed using cardiopulmonary bypass in 1965, working with a surgeon who shortly thereafter left Bergamo. By 1968, sufficient advances had been made for Lucio to invite his old mentor, Bob Pontius, to spend time away from Pittsburgh and help him build up cardiac surgery in Bergamo. Pontius arrived in March 1968, and stayed until June of that year. In addition to the clinical work, Lucio and Bob spent many hours in the abattoir, practising techniques for cannulation. At that time, Lucio had not himself used aortic cannulation, but Pontius had a big experience. By the end of Pontius' stay in Bergamo, they had successfully repaired totally anomalous pulmonary venous connection in a 2-month infant, and successfully closed a ventricular septal defect on a 6-month infant, the first success in Italy at this age. Also in 1968, Lucio introduced the Glenn procedure as palliation for tricuspid atresia, at about the same time as his good friend Fontan was developing the more complete procedure to bypass the right heart.<sup>7</sup>

By this time, nonetheless, a much more significant event had occurred in Lucio's career. When he returned to Bergamo in 1964, although almost 40, he remained an eligible bachelor. In Bergamo at this time was an equally eligible and independent young lady, whose parents were anxious to see installed in matrimonial harmony. Laura's father was part of the aristocratic Roncalli di Montorio family, and Laura's mother saw Lucio as an ideal candidate for a son-in-law. Laura



**Figure 1.**  
*Laura and Lucio taken together in the Piazza Vecchio, Bergamo in March of this year.*

was initially less sure, and dismissed him from her thoughts subsequent to their first meeting. Six months later, their paths crossed again, when Laura was admitted to Ospedali Riuniti for a minor surgical procedure. Soon they were married. When I asked Lucio to name the most important event of his career, with no hesitation at all he specified his marriage. They remain blissfully happy (Fig. 1), living in a wonderful home built in the old arsenal of Bergamo. They have successfully raised four talented children. Three are boys – one a lawyer, the second an industrial designer, and the third still a student of Italian art and literature. Their daughter is studying geology (Fig. 2).

With the backing and support of Laura, progress in Bergamo was rapid. At that time, corrective surgery for congenital cardiac malformations was being performed at several centres in Italy, notably Rome, Turin, and Milan, but no one had attempted correction in infants. Lucio's ambition was to achieve this on a regular basis, and he set about establishing the necessary infrastructure for success. He attracted a general surgeon from Zagreb to run his pump, and a Spanish paediatrician to take care of electrolyte balance. He had already established the collaboration needed in Cardiology with Giorgio Invernizzi, who would continue to work with him throughout his career. As he began to operate on younger and





**Figure 2.**  
Lucio, Laura and their family photographed in 1990.

younger patients, he attracted around him bright and talented young surgeons. His first pupil was Vittorio Vanini, now Chief in Massa. He was then joined by Guiseppe Locatelli, talented in both cardiac and paediatric surgery. He subsequently returned to paediatric surgery, and is now the Chief paediatric surgeon in Bergamo.

### Spreading the word internationally

Those who flocked to join him in the late 1960s and early 1970s are now dispersed throughout Italy, and include such excellent surgeons and scholars as Otto Alfieri, Piero Abbruzzese, Bruno Branchini, Giuseppe Di Benedetto, Lorenzo Menicanti, and Massimo Villani – all now Chiefs elsewhere in Italy. Paolo Ferrazzi, Pietro Anecchino, and Giancarlo Crupi continue to carry the torch in Bergamo.

For the paediatric cardiac community at large, however, the major innovation of Lucio was to bring the world to Bergamo. Lucio had been convinced during his own travels of the need for cross fertilisation. He continued to travel widely himself (Fig. 3), but recognised that his absences did not educate his own juniors and colleagues. Thus started the Bergamo meetings. The first workshop had been held as early as 1964, and was devoted to cardiac surgery in children below the age of 2 years. In 1966, he combined lectures at the meetings with an invitation for gifted and skilled surgeons also to operate in Bergamo. Through the 1970s and 1980s, the meetings continued on an annual basis. Most, obviously, were devoted to cardiac surgery, and some of these, such as the one concerned with double inlet ventricle, spawned successful books.<sup>8</sup> In others, Lucio highlighted the importance of echocardiography to the surgeon, and encouraged the development of interventional techniques. He still considers some of the very best modern-day



**Figure 3.**  
Lucio pictured together with the author in 1987 on the occasion of his delivery of the Brock Lecture at the Royal Brompton Hospital, London.



**Figure 4.**  
Villa Elios, in the grounds of the Cliniche Gavazzeni, now houses what is perhaps Lucio's greatest achievement, namely The International Heart School created in honour of John Kirklin.

experts in this burgeoning field, Mario Carminati and Philipp Bonhoeffer, "his boys". The culmination of his meetings, however, came with the First World Congress of Paediatric Cardiac Surgery.<sup>3-5</sup> In his opinion, at that time adult cardiac surgery was trying to kill its paediatric offspring. His American colleagues were not enthusiastic about a World Congress, but Lucio saw that the paediatric specialty needed its "shop window". Aably supported by Giancarlo Crupi, without whose help Lucio acknowledges the meeting could not have taken place, the symposium was organised and held over a period of less than one year. Even the weather smiled on the event, which was a huge success. Discussions held at the Congress, as already indicated, resulted in the birth of our own Journal. Initial debates at that time also set the scene for the amalgamation of the newly created Surgical



**Figure 5.**

*Lucio, the author, and Ash Pawade pictured in March, 2001 with the current students of the International Heart School.*

Forum with the World Congresses organised in Paediatric Cardiology, and three hugely successful meetings have stemmed from this union.<sup>9</sup> Equally importantly, initial discussions at the time of the World Congress led to the formation of the International Heart School.

### The International School

Named in honour of his surgical hero, John Kirklin, the International School was established in 1993. It was formed in response to a challenge from the World Forum for Pediatric Cardiology to “bring together physicians and other health professionals with specialised expertise in an interactive environment with physicians and health professionals from disadvantaged areas”. To achieve this goal, the city of Bergamo established their International Academy for Advanced Medical Sciences. Presided over by Giorgio Invernizzi from 1993 through 1998, now under the presidency of Luciana Radici, the Academy has provided Lucio with the facilities to fulfil his global vision.

The International School now occupies the imposing Villa Elios in the grounds of the Cliniche Gavazzeni (Fig. 4). It started its activities in 1993 by accepting 15 students, without charge, and additionally offering facilities for room and board. Since then, it has been attended by 166 students from 36 countries. Lucio and his colleagues have arranged 85 workshops, attended by 125 international teachers, and with contributions from 174 teachers from

within Italy. I have been privileged to take part in two of these workshops, and I can attest to the excellence of the teaching and the enthusiasm of the students (Fig. 5). The International school, honouring as it does a true giant in John Kirklin, is a fitting tribute to another giant, Lucio Parenzan. His energy is remarkable and, although he stopped operating when he reached 70, his scientific activities continue undiminished. It is a privilege and pleasure to induct him to our Hall of Fame.

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