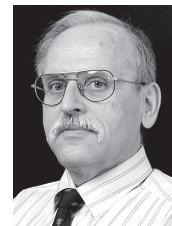


## Aldo R. Castañeda (1930–2021)

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Aldo R. Castañeda, one of the most eminent cardiac surgeons of all time, passed away on 30<sup>th</sup> April 2021. In many nooks and corners of the world one can find surgeons dealing with congenital heart defects employing methods developed over decades by this brilliant surgeon. It has been calculated that he educated and professionally shaped over 100 paediatric cardiac surgeons; of this number, almost one-half of the physicians head and supervise important paediatric cardiac surgery centres worldwide. The group of his disciples and closest collaborators included William I. Norwood, the preceptor of many of us, our master and tutor, who also passed away not long ago, at the end of 2020.

Aldo R. Castañeda was born in Genoa, Italy, in 1930; his father was a citizen of Guatemala, and his mother was from Nicaragua. At the age of 5, he and his parents came to live in Munich, Germany. It was there that he commenced his early schooling, and it was there where he – a young boy then – lived through the beginnings of World War II. He was 14 years old when, hidden in the cellar, he survived the bombing of his family domicile. He recalled these traumatic incidents 1 day after martial law was introduced in Poland, in December 1981, when I was receiving training in the department headed by Professor Castañeda in Boston, and was astonished there by the martial law in my country: “You know, I understand the Poles, I understand you,

I know what the regime of an authoritarian country is like. I was brought up in Nazi Germany. If you want, I will help you to bring your family here ...”. I accepted his words with gratitude, but refused his offer.

He casually related his memories that addressed the German episode of his life, an episode that was deeply imprinted on his psyche and undoubtedly affected his entire life. Many years later, in 2008, during the world meeting of paediatric cardiologists and cardiac surgeons held in Poland, in a fascinating lecture Castañeda recalled his memories of World War II.

As citizens of the country that was hostile to the Third Reich, the family of Aldo R. Castañeda could not leave Germany throughout the war period. They finally departed in 1946. Aldo continued his schooling and completed his secondary education graduating from the Institut auf dem Rosenberg in Sankt Gallen, Switzerland, a private boarding school of high renown. The young years of Aldo R. Castañeda undoubtedly represent a veritable school of life.

The unstable – as it seemed – post-war geopolitical situation induced the Castañeda family to return to their native Guatemala in 1951; it was there that their son Aldo commenced his medical studies. He enjoyed the reputation as the best student and then the best graduate of the university. As an enthusiast of modernity and novelty, while still a student, he carried out experimental studies on implementation of cardiopulmonary bypass in open heart surgery in dogs. These investigations later turned into the first studies in the field in Central America. The fruit of the pioneering experience of the young investigator was his graduation paper entitled *Open Heart Surgery: An Experimental Study*. After 1958, he became a resident in the University of Minnesota, the centre which – as might be assumed – might have been a dream of modern cardiac surgery come true. He had an opportunity of collaborating with Richard L. Varco, a worldwide pioneer of open-heart surgery. His 14-year stay in the Minnesota centre was the time of his fast-track career, starting from his residency and followed by his doctorate in experimental surgery dating back to 1963. He speedily went through consecutive stages of the academic career reaching the position of a fully trained cardiac surgeon, a member of the elite cardiac surgical team, and a professor.

In 1972, he was offered the highly respected position of Cardiac Surgeon-in-Chief in the Children’s Hospital of Bos-



**Figure 1.** Meeting with Professor Castañeda in Poland in 2008. On the right, Dr. Tomasz Mroczek, on the left, the author (photo from the author’s collection)

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ton simultaneously with a university position at Harvard Medical School. This was the moment that he accepted the succession of the legendary department headed by Professor Robert E. Gross, the very department where the beginnings of the world of paediatric cardiac surgery developed. In 1975, when Professor Gross retired, Aldo R. Castañeda took up the position of Head of Chair of Paediatric Surgery of Harvard Medical School, holding the prestigious title of "William E. Ladd Chair of Child Surgery" as it honorarily became the Head of the Chair. Starting in 1981 and continuing until his retirement in 1994, he held there the position of Surgeon-in-Chief. At that time, in 1981, I had the unique opportunity and honour to participate in the scientific advancement of Professor Aldo Castañeda. I could watch his surgical perfection, his unique gift of making only the right decisions, his medical intuition and unsurpassed diligence. He was a man of incredible social culture and etiquette with the ability to lead a team of surgeons. Among the team members, there were highly ambitious individualists. A polyglot, proficient in five languages, he was capable of faultlessly and accurately communicating with visiting cardiac surgeons from all over the world who attempted to imitate the novel therapeutic methods introduced in the Boston hospital. It was yet another reason why he was so highly esteemed by his departmental colleagues, young scholars receiving training and highly experienced visiting professors coming to Boston from worldwide centres of high renown. He treated all of them alike, with the same kindness, personal touch, and hospitality.

In collaboration with the then Head of Department of Cardiology, Alexander Nadas, he revolutionized the strategy of treating heart defects in children. He also closely collaborated with Richard Van Praagh, the cardiopathologist who created the unparalleled classification of congenital heart defects in the years marking the most extensive development of Bostonian cardiology and cardiac surgery. Thus, routine procedures involving infants and neonates commenced, and the principles of perioperative management were developed and implemented, to be taken over and imitated in numerous countries worldwide. Castañeda was a proponent of introducing the deep hypothermia technique with cardiac arrest to routine cardiac surgery. He perfectly understood how vitally important in reaching surgical success were appropriate postoperative management and cardiac surgical intensive care, how significant was understanding the physiology of circulation in the most difficult paediatric patients after cardiac operations. He absolutely demanded his team members to manifest analytical thinking based on knowledge of physiology and haemodynamics. I remember his highly emotional and sarcastic utterance spoken to a resident who was unable to explain his decision made when on call: *Remember! To be half intelligent it is necessary to know anything about cardiac physiology!*

He consequently aimed at lowering the age of paediatric surgical patients, having in mind his mission keynote to let the child avoid the consequences of the cardiac defect,

such as the effect of hypoxia on the patient's intellectual development. He was involved in research programs aimed at determining the relationship between surgery and the development of the central nervous system and the fate of the child. The staff of the Department headed by Castañeda developed the program of surgical treatment of hypoplastic left heart syndrome, which was consistently carried further by William I. Norwood, his deputy and close collaborator. Under the patronage of his boss, Norwood managed to develop a therapeutic method to be used in patients with the defect, which was previously regarded as inoperable.

New teams emerged in Boston, which united cardiologists, surgeons, radiologists, cardiopathologists, highly specialized cardiac anaesthesiologists and intensive care specialists, nurses, perfusionists, and technicians; they all closely collaborated, thus creating a prototype of groups known as HEART TEAMS, which are so popular today. All of this represented the considerable achievements of Aldo Castañeda. In Boston, management methods were developed that became the guiding light for other centres – as a measure of progress. He was blessed with an unparalleled gift of integrating members of various teams, and the charisma that was lavished upon him was a considerable help.

Throughout his entire hard-working life, he implemented the mission of educating young cardiac surgeons from all over the world; he consistently aimed at progress in medicine, at creating technical and organizational improvements. He developed paediatric cardiac surgery with a passion and tenaciously improved the discipline. He was the father of primary corrective procedures in congenital malformations in the neonatal period, including numerous complex defects, omitting the stage of primary palliation. He leaves behind more than 400 excellent research papers, many of them being milestones in paediatric cardiac surgery; the chapters he authored were published in important textbooks. He was elected the 74<sup>th</sup> President of the AATS (American Association for Thoracic Surgery). The American College of Cardiology bestowed upon Aldo R. Castañeda the distinction for his lifetime achievements.

When he retired, he remained active. Together with his closest collaborator William I. Norwood he established a private centre in Switzerland known as the Aldo Castañeda Institute, which operated within the Clinique du Genolier. For three years, in collaboration with his co-workers, Castañeda operated on children with the most severe cardiac anomalies, who came to see him from various countries all over Europe. Having completed the mission in Switzerland, in 1997 Castañeda returned to his native Guatemala, a country which at the time did not have at its disposal either appropriate facilities or a high level of paediatric cardiac surgery. In Guatemala City he set to organizing a ward, which soon became famous as a splendid cardiosurgical centre, and which at the same time was the first institution treating congenital heart defects in children in Central America - Unidad de Cirugía Cardiovascular de Guatemala. Financial support for the centre was provided by a foundation established with that very purpose

in mind (the Aldo Castañeda Foundation); the activities of the Foundation made it possible to treat all needy children, including those who had no financial coverage at all. The centre impressed everybody, not only with its high-level medical services, but also with its well-planned educational program for young cardiac surgeons, and with research programs. Aldo Castañeda was awarded numerous medals and distinctions for his priceless contribution to cardiac surgery worldwide, but also for his noble long-term charity activities in Guatemala.

As related by William I. Norwood, who many times visited the Krakow Institute of Paediatrics, it was the decision of Professor Aldo Castañeda to send him to Poland in order to organize from scratch paediatric cardiac surgery in Krakow. As is commonly known, he performed the task splendidly. And what happened behind the scenes when the decision was made was related by Norwood in the form

of his memory. Thus, in 1976, he was called to the office of his boss to learn that he was named as the physician to visit Poland. The program was to be implemented and financed by Project HOPE, an American foundation. What have I done wrong? Why am I punished ...? . As was later demonstrated, the decision was vital for us, and for many years to come it resulted in further development and the founding of an excellent centre involved in treating congenital heart defects in children. Thus, Aldo Castañeda exerted a tremendous effect on the future of Polish – and above all Cracovian – paediatric cardiac surgery.

So today we are saying farewell to the great cardiac surgeon, our teacher, an imposing figure, the man to whom we owe the foundations and development of the paediatric cardiac surgery we practice today. Without him cardiac surgery would probably not be in the place it occupies today. Cardiac surgery in its global and Polish dimensions.