MENTORS IN ORTHOPEDICS

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SUMMARY

Professor Hernan del Sel, President of the World Association Against Infection in Orthopaedics and Trauma, represents a bridge between historical surgical foundations and modern global collaboration. His trajectory from Buenos Aires to the clinics of John Charnley and Ray Gustilo informs a career dedicated to hip and knee arthroplasty. Beyond technical mastery, del Sel champions an inclusive scientific exchange, integrating data from low-resource regions into the global discourse. He advocates for rigorous self-honesty and mentorship to secure the specialty's future.

Hernan del See is the current president of WAIOT and worked as a Professor of Orthopedics at the Catholic University until his retirement and is currently the Chief Medical Officer at the British Hospital in Buenos Aires, Argentina. He looks back to a very successful and fascinating career in Orthopedcis. He shares with us some very interesting stories on giants in Orthopedics he was able to meet during his training in Europe and the US. His father and these teachers had a strong influence on his career and the development of Orthopedics in Argentina.

Professor del Sel, you are the current president of WAIOT. Can you explain what WAIOT is?

> WAIOT stands for World Association Against Infection in Orthopaedics and Trauma. It's an international society that gathers about 2000 members in about 100 countries. As the name says, it is focused only on infections in the locomotive apparatus. Most associations that we know so far, collect information from well-developed countries only. Although this is very valuable information, we at WAIOT believe sometimes it is slightly biased, because you don't get the deep information from less developed countries. We believe this is one of the strengths of WAIOT, since we have scientific input from all over the world: Middle East, Africa, the Indian subcontinent, Latin America and so on. WAIOT is an electronic society mostly. It has a free membership to whoever joins us through the internet and where you get most of the information that would be published or presented by our members.

The first WAIOT congress in 2021 unfortunately was possible online only, but the second congress will be September 1st and 2nd this year in Cairo. What are the topics, and which people should join that congress?

> We had our first WAIOT congress last year. It was originally planned as a live congress in Greece, but then we had to go virtual since the pandemic went on. But this year we are having our second world congress and it will be the first one live. It will be mixed face to face and online, because there will still be some presentations in remote mode. Cairo in Egypt is a quite interesting location because in a way it is a sort of crossroads of civilisation. We are close to Europe with the European knowledge, and we are also in the north of Africa which has a lot to say about some infections that we don't usually see in Europe. The topics cover most of the infections of the musculoskeletal system, and there are some topics that are not usually seen in other meetings. For example tuberculosis, which is still prevalent in some countries. We go in a way from A to Z, and we will be covering not only infections in prosthetics, in implants, but there is a large

experience in acute and chronic osteomyelitis. There is also a very nice presentation on open fractures and different treatments for open fractures. Mainly in low-resource countries in which they largely used Ilizarov methods with very excellent results. We all know that Ilizarov frame is a great method but sometimes is left aside for some other reasons. There will be also a spine symposium with infections of the spine. It is not too common to find a full whole symposium on spine infections, which is a very interesting topic.

What do you see for the future of WAIOT?

The future of WAIOT very much depends on what WAIOT does in the present. What we have to do, like anybody, is do a good job. If you do a good job, you will be rewarded for it. If you don't do a good job, you will probably disappear sooner or later. We are very proud that WAIOT has grown from 200-300 members five years ago, but about 2000 nowadays and we are still growing. Our success has probably only one clue, which is hard work and open arms. Open arms mean an open door to the entrance to WAIOT, to be able to share your experience regardless of where you come from. So, I believe the future of WAIOT is holding on to what we are doing today. Which is having this open policy. Of course, there is a selection committee for papers, but regarding the possibly of giving your opinion, WAIOT is a very open society.

How do you cooperate with these existing infections societies, and what do you think is the advantage of WAIOT compared to the European or American infection society, for example?

The cooperation has mainly been within SICOT so far, which is the international orthopaedic society. Some of the European members of WAIOT are members of the European Bone and Joint Infection Society. We lag behind in adherence from the infectious and orthopaedic specialists in North America and Canada. However, I don't think there is anything better or worse between the societies. It very much depends on your scope or your area of influence. This is what I see, not better or worse but different. In WAIOT we have the open-door policy of having input from France, Egypt, Saudi Arabia, India from Brazil and many other countries. You get to listen to the bells ringing from different areas of the world.

Let's come to your personal career. Where did you do your training?

I graduated in 1972 in Argentina and I don't know if I have to be proud, but this August I will be celebrating 50 years as a doctor in Argentina. I come from a family of doctors. My grandfather was a GP, a well-known clinician in Buenos Aires, and my father, who would be 110 years old today, he was one of the professors of orthopaedics in Argentina. Argentina had a very strong European influence regarding its school of orthopaedics. For the best part of the 20th century, we had a very strong British, Italian and German influence. Not so much an American influence, which only came in the last part of the 20th century. I've been working in orthopaedics since I graduated. As I said, my father was a professor of orthopaedics in those days. But for some juvenile rebel impulse, I decided, at least in the first few years of my career, not to work under my father. So, I pursued a postgraduate career overseas, not in Argentina. My father had personal experiences as well in Europe. So I said, I'm going to the US to see what a residence would be like there. Of course, knowing that the residence would be a very fruitful one.

You did your residency in 1974 to 1977 in Ohio. Please explain why you chose Ohio and why you left the umbrella of your father?

> I had some informal orthopaedic education from my father before graduating, but right after I graduated, I had a very good relation with my father, and in a way he encouraged me to have some training overseas, because at my return I could always give input to the Argentine society regarding training overseas, which was not so common in the early 70s. In those days, you had to apply for America with an exam which was called the Educational Council for Medical Graduates, which was a very hard examination. Then once you were there, you had to apply to whichever institutions you could. Those were quite heavily disputed spots, so you could not always choose the number 1 places like HSS in New York or Mayo Clinic in Rochester. I was accepted at Medical College of Ohio what was in those days a sort of new university, which had hospitals in different cities. I worked mostly in a mid-size town which is called Toledo in Ohio. However, with all the technical possibilities that the US gives you, working in a medium size city is the same as working in a large city. It was a very great and nice experience. After doing my orthopaedic residency in the US, and being in contact with my father, I said that I would like to pursue a career in some subspecialty. Mostly in those days I was thinking about hips and my father got in contact with Sir John Charnley. The story is quite nice, because my father had been a roommate of John Charnley right after the war in the UK, as a scholar of the British council. They had been good friends, even before John Charnley went on to be Sir John Charnley. So, he wrote to John Charnley, and John Charnley said, well I don't need to ask many more questions because he's your son, and if he's been trained in America, we don't even have to worry if he speaks English. I was accepted at the well-known Wrightington Hospital, and that was for 1 year. They don't call it a residency in the UK, they call it a registrar. So I went during 1978 as a senior registrar at the Centre for Hip Surgery in Wrightington Hospital. John Charnley was close to retiring then, and as you know, that was the mecca for hip surgery in those days. We had visitors from all over the world, every single week, with their noses close to the laminar flow enclosure. So that was a fantastic experience because we got to interchange opinions and knowledge with people from all over the world.

Then you finally returned to Argentina, and how did you career proceed then?

> I would also like to add that I was fortunate enough during my career to be able to meet some other giants of orthopaedics. I had the pleasure of meeting Professor Ortolani in Ferrara, Italy and he was extremely kind to me, giving me his knowledge. I was a young surgeon, and I was like "wow" being with Professor Ortolani face to face. And there was a very nice professor in Gothenburg, Sweden, called Bertil Stener. And he worked alongside Alf Nachemson who was one of the great scoliosis surgeons of those days turning around the science. Working in the USA, I met Ray Gustilo, the open fractures titan. In those days, orthopaedics was at a turning point regarding technology and knowledge. I had the pleasure and the honour to be able to live along them. After my training upon returning to Argentina, my father was in those days working at the main university hospital. I went on to work at what was the Spanish Hospital, which was a hospital associated with the university and whose chief was one of my father's initial pupils. Dr Scaramuzza, a very nice surgeon who was very nice to me. He said, come on, work with me, I would like to have a Del Sel; I had a Del Sel as a teacher, and I would like a Del Sal as a junior. So I went on and joined Dr Scaramuzza at the Spanish Hospital which is where I started to develop my career in Argentina in hip and knee surgery.

I had a complete orthopaedic training residency and coming back from the UK I was at the start of my career as a hip and knee surgeon. The first 8-10 years of my career in Argentina, I did most of the specialties, not only orthopaedics but also trauma. I was never very keen on hand surgery, which in those days had already been one of the first subspecialties to be defined together with spine surgery. Mostly I did limb surgery, both upper limb and lower limb trauma. But leaning towards hip and knee implants quite early in my career. However, I continued doing general orthopaedics until about the early 90s, when I started giving up ankle fractures, elbow fractures and so on, and dedicated mostly and specifically to hips and knees.

When did you subspecialise in infection? Or was it just by being a hip and knee surgeon that you had to deal with infection?

That is a good question. I returned from my training in the UK at Wrightington, which as you know was a centre for hip surgery. But even in those days, in the late 70s, we were doing a fair amount, about 20% knee surgery. And although the centre for hip surgery was focused on the prevention of infection by operating in laminar flow enclosures, we did get in those days already the severe complications of infections. Not only from those that occurred at Wrightington, but those coming from elsewhere in the UK. In a way, developing a 'taste' or a 'like' for infection when you do implants is a must, because infection is a complication that you will be facing, and you will have to be trained in it sooner or later. The knowledge and treatment of infection is very much dependent on your understanding of the infectious process. You will never heal it if you don't understand how it works and how the infection changes the metabolism of the bone and the bone turnover, which is the worst aggression that infection does on bone. So in a way, the liking of infection is something that I would say every hip and knee implant surgeon should know. Although the best of all worlds is having specialist centres for muscoloskeletal infections, at which of course the knowledge of implant infection will be paramount.

Now let's move to your academic career. What was the topic of your PhD or your professorship? Was it already arthroplasty or what was the topic?

That's interesting because my doctorship was on a specific area, which was osteonecrosis of the knee. You probably remember that osteonecrosis of the knee was an unknown entity until I think it was the last 70s or early 80s in which Bauer from Sweden described the individual osteonecrosis of the knee - remembering that osteonecrosis of the hip had been described only about a decade before. Osteonecrosis of the knee: I remember I spoke to my father about it and he said he didn't know what it is. Because most osteonecrosis went on to develop into full blown medial degenerative arthritis. But when you looked back at the patient's records and x-rays, it was not primary osteoarthritis but osteonecrosis. So that was my field of interest in those days and the title of my thesis was the not so well-known issue of osteonecrosis of the knee, which gave the way to my academic career. After that, I pursued my academic career at the New University of Buenos Aires and I ended up being the professor of orthopaedics at the Catholic University in Buenos Aires in Argentina, which is a private university sponsored by the catholic church.

How developed was the scientific community in Argentina when you started your career?

Argentina has had quite a strong scientific influence in most of Latin America for many years. Perhaps for the past 20–25 years, Brazil has grown and developed very much. But Argentina for the best part of the middle of the 20th century was the scientific place to come for knowledge in medicine and many other areas. My scientific career started in the early 80s, after I came back to

Argentina in 1978. I studied my academic career alongside being an assistant surgeon, and my academic career was mostly at the University of Buenos Aires. Our links to the Catholic university came from the fact that the Catholic university has a British hospital as it's university hospital. So all the medical students from the catholic university do their pre-grad hospital work at the British Hospital in Buenos Aires.

Currently you work at the British Hospital, but you are a member of the catholic university.

I started my career at the Spanish Hospital in Argentina. As you know the Spanish community is very strong in Argentina, and the Italian as well. In Buenos Aires there is a Spanish, Italian French, German and a British hospital which are very well known. There is also a Jewish hospital, because they were tending to the large immigration community in those days. Funnily enough, I started my career at the Spanish Hospital, and I worked there for about 20 years. In 1997, I was appointed chief of the department of orthopaedics at the British Hospital, so I moved from one community to the other and I was the chief of orthopaedics at the British Hospital from 1997 to 2020. When I turned 70, I retired from my post as chief of orthopaedics and I'm presently the Chief Medical Officer at the British Hospital. My heart is always sitting at my desk in orthopaedics, so I still work as an orthopaedic surgeon, mostly.

With this position you always had scientific contact with the British?

Yes I always kept a strong scientific link with the UK. The Argentine school originally had strong links with Europe: UK, France, Germany, Austria as well, the Böhler school is very well known by all of us. I have visited Georg Ender at the Unfallkrankenhaus in Vienna because we were very keen on the Ender nails. So again, the connections between Argentina and Europe were very strong. Then the Americans began being strong in the second part of the 20th century, and most of us had some liaison with the Americans. Having been a pupil of John Charley it was not so hard to me to meet with John Insall, who was the father of total knee arthroplasty in the US. Having been able to personally meet John Insall and host him in Argentina was a very strong influence in our school regarding America. As I mentioned before, I also had the privilege to meet Ray Gustilo from Minneapolis, who was the father of classification of open fractures. Having the chance to be on the shoulder of giants gives you a much better scope, and a wonderful vision of the orthopaedic field. I feel privileged of having had that in my career and bring many of them personally to Argentina and lecturing with us in our yearly congress.

Which of your teachers had the most influence on your career?

That's a great question, because I had the privilege of having great teachers. There is a talk I am always asked to give at the national meetings which is exactly this: who had the most influence on my career? As I've said, but this is not my creation, we are always standing on the shoulder of giants. I always say my first giant is the one I had next door, which was my father. My father was one of the forefathers of infections. He had his very strict adherence and ideas on chronic osteomyelitis, which as we know is not a microbiological problem, it is a bone turnover problem. If you understand that you can cure it, if you give just antibiotics, you can never cure it. John Charley was one of my giants as well, as you can easily imagine. Because John Charley was not only a hip surgeon; he was an original thinker. The original thinkers blow up your mind when they start thinking. John Charley was somebody unbelievable to be with, because you could have lunch with him and ask him what he thought about, say, ankle fractures, and if he was in the mood he would give you an unbelievable lecture about ankle fractures, and if he was not in the mood, he

would carry on talking about other things. He was an unbelievable genius. John Insall and Ray Gustilo also exerted an influence on me too.

You were traveling a lot, building a scientific career and being head of several departments. How did you balance your private life with your family?

This is probably the hardest question of all. Because when we start our careers, we want to do everything, because we are young and the whole road is ahead of us, and we want to travel the road as fast as possible and cover it all. I mean, we want to travel the road and get to know every place we travel to. We all know that having a strong and busy academic and assistance career in a way takes precious time from your personal life and from your family. We have all sacrificed time from our families. However, I did get married in 1980, and I have today two sons who are 38 and 35 years old. None of them pursued a medical career! One lives in Canada and he works on the environment, and my other son works in Argentina in the economy. The medical tradition, at least on my side coming from my grandfather and my father and myself, was cut. But I do have a brother who is an orthopaedic surgeon as well, so you can imagine the influence that my father exerted. And my brother has two sons who carry on the family name in orthopaedics. Regarding time, fortunately enough, I did have a very understanding wife and children. We went along many years and they allowed me to do my career and I did take care of them to the best of my ability. Then again, I have always been very keen on sports. When you come home at 7 or 8 in the evening and you're tired from working and having your brain working all day, I believe one of the best things you can do is something for your body. You can either go swimming or play tennis or ride a bicycle. I personally have a very strong affinity with horses and like to play polo. In Europe, it sounds like only the rich and the royals do it, but in Argentina it's not expensive at all. What is kept for the royals and millionaires in Europe and US, we do it in Argentina. It's very nice having a communion between the horse, which is a wonderful noble animal, and the human being. It's a very nice sport. Kind of dangerous as well, but it's nice!

If a young surgeon approaches you now and asks, what do I need to be as famous and good surgeon as you? What do you recommend?

H.D.S.: That's a good question. Good question are ones you know the answers. The interesting thing is what you're asking me has fortunately been put to me many years ago already from the people that trained with us or asked advice for what they have to do in their careers. Our school of orthopaedics has widespread pupils all over the country and Latin America. The answer is, it's not easy to accomplish but it's easy to answer. To be successful, you have to be honest, you have to work hard, and you have to do that every single day. Be honest and work hard. And the results will come, sooner or later. But honesty is not easy – you have to be very cruelly honest with yourself. You have to learn from what you do well, and mostly you have to learn twice as much from your mistakes. When you have poor judgement. you always can say you can have poor judgment by not knowing, and you can have poor judgement by asking someone who doesn't know. So choosing your counsellors, your masters and your giants is what you have to do, to emulate what others have done before you. Be honest, work hard, and that's about it.

Thank you very much Professor Del Sel for this nice interview.