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Dear Janusz,

Warmest best wishes to you and your colleagues.

Why am I writing this letter to you now? Well, it's all about you and I thought you should know about it.

First of all, the Aristotle book was very gratefully received by the Rare Books Department of the Countway Library of Medicine, Harvard Medical School.

Our 16th century experts told me that there were only 3 such books known to be in the United States of America, and Harvard did not have a copy. They were very excited and immediately put this beautiful volume from 1575 on display. Imagine! 1575 was about 200 years before the USA would become an independent country (1776).

What a wonderful gift from the Old World to the New — from YOU to Harvard Medical School and the United States of America.

There is no way that I can ever thank you adequately.

As you will remember, you asked me to write a paper for your journal, and I did — two papers, actually.

But you didn't tell me what it had to be about. I was free to choose. That was key.

I thought for days. What needs to be said? What REALLY needs to be said? I thought for days. I had no idea.

Then suddenly, I knew. I can't tell you how I knew. It just happened to me.

The new idea — new at least to me — was the realization that normally related great arteries are produced by complete R-L asymmetry in the development of the subarterial conal free walls.

It was at this point that I wrote my two papers for you.

But then it kept on going. This new understanding turned into equations.

François Lacour-Gayet, who I had known for years at the Centre Chirurgical Marie Lannelongue in le Plessis Robinson on the outskirts of Paris, France, and who then went to Denver, Colorado and then Montefiore in New York City, and now is at the Royal Brompton Hospital in London, England — François telephoned me and asked me if I thought it would be a good idea to write a multiauthor book about The Surgery of Conotruncal Malformations.

I said, "Absolutely. Let me tell you about my equations!"

So I wrote him a letter, and we were both amazed.

For example, after D-loop formation —
(1) $SNRGA = OR + 4+L$

In words:
Solitus normally related great arteries equals complete involution of the right-sided subaortic conal free wall plus good growth and expansion of the left-sided subpulmonary conal free wall.

Following D-looping,

(2) $D\text{-}TGA = 4+R + OL$

In words: Following D-looping, D-TGA = 4+ development of the right-sided subaortic conal free wall + complete resorption of the left-sided subpulmonary conal free wall.

Now compare equations 1 and 2, D-TGA is characterized by conal inversion, i.e., R-L reversal.

After L-looping

(3) $L\text{-}TGA = OR + 4 + L$

In words: After L-looping, L-TGA = complete involution of the right-sided subpulmonary conal free wall plus good development of the left-sided subaortic conal free wall.

Now compare equation (3) with equation (1). The "recipe" for the subarterial conus in L-TGA is the same as the "recipe" for the subarterial conus of solitus normally related great arteries!!!!

Did I ever know that before?

No.

And YOU are to blame.

(Congratulations!)

If I hadn't gone to your meeting, and if I hadn't written that magic paper for you, there wouldn't be any infundibuloarterial (conotruncal) equations.
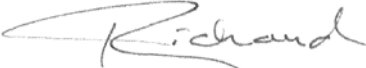
Really. I'm serious.

So, this is an altogether too long Canadian way of saying "Thank you!!!"

There are 10 equations that I sent to François — and many more than that, no doubt.

Equations are clearer than paragraphs.

It's almost 1:00 AM. I should go to bed. But I had to tell you what's going on in my little world, if only to say thank you.

Best wishes!

Cheers!

Richard

Richard

P.S.: I hope very much that this letter finds you in good health.

I'll be 84 in less than 2 weeks. I'm still feeling good (but don't tell anybody.)

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Kraków, April 6th, 2014

My Greatest Mentor,

Your letter – beautiful as always – has made me very happy, again as always. As to Aristotle, I am absolutely positive not a single work nor a book will be a sufficient compensation for the chance of drinking from the vast fountain of your exquisite knowledge and of being your disciple in general. The work of Aristotle, the most eminent naturalist of all times (side by side with Leibnitz and Newton), may only be a symbolic token of my thanks to the fate that has let me be your student and enjoy your friendship.

I am deeply moved that my humble person has contributed to inspiring you to write another revelatory research paper. I am proud and happy; now, we are all awaiting the implementation of the task. The new viewpoint you described that addresses the formation of cardiac defects is absolutely stunning. I read and reread your letter several times; it is so interesting that with your permission I would very much like to share it with my Polish colleagues. Thus, may I seek your consent to have your letter published in our cardiac surgical periodical (having previously deleted your very private remarks which are addressed solely to me)?

With my utmost gratitude I send you best greetings from me, the team, the University, all the staff of my hospital, the Polish Society of Cardiac Surgeons, and the City of Kraków.

Your grateful student,
Janusz

April 9, 2014

Dear Janusz,

Thank you for your very kind letter of April 6th.

Yes, you certainly have my permission to publish my letter to you, with whatever deletions you may feel to be appropriate.

These infundibuloarterial (or conotruncal) equations are really quite interesting. They are in press, but have not been published yet. So, publication of this letter probably will be the first publication of some of these equations.

(…)

I knew that cardiac morphogenesis *is* biological engineering.

That may be why the equations are so clarifying and simplifying.

Best wishes,
Richard

RVP/sb