THE INCREASING CROSS-TALKS BETWEEN THE "DRY" AND "WET" SCIENCES

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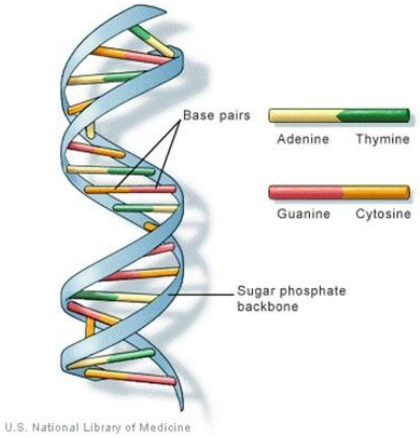
In the early 1960s, the Higher School Certificate Course was the track to direct entrance to Nigerian universities. There was a clear dichotomy between those who opted for Additional Mathematics, Mathematics and Physics and those who followed the "wet sciences" of dissections, buffers, enzymes in Botany, Zoology and Chemistry. The would-be "dry scientists" toted around slide rules, mathematical sets, and pencils and were destined for careers in the computational sciences and engineering. Those in the "dry areas" acted as if they were smarter, and the two groups lived in different scientific worlds. Increasingly, however the two scientific worlds are having serious conversations.

Exactly sixty years ago, James Watson and Francis Crick announced to an astonished world that they had deciphered the structure of Deoxyribonucleic Acid (DNA), the building block of life, [1]. I remember as a young PhD student visiting the Cricks in Cambridge and gawking in awe at a five-foot paper model of DNA on their porch and wondering to myself how anyone could have made such a stupendous discovery. Many now believe that the honors and Nobel Prize should have been extended to a brilliant, beautiful, but doomed X-ray crystallographer, Rosalind Franklin, whose data was delivered to the duo of Watson and Crick without her knowledge. Crick was a physicist, Watson a virologist, but without Franklin's data no one would have predicted the double helix and the genetic code. This was a case of physics talking to biology at the Cavendish laboratory where many things are discovered. Sadly, Ms. Franklin died of cancer at the age of 37. Before the discovery of DNA, there were many claimants to the discovery of the compound microscope. In my opinion, it was Leeuwenhoek who, in the late 17th century, first observed bacteria and yeasts in a drop of water and presented his observations to the Royal Society of England and the French Academy, [2]. Without the microscope, microbiology would have remained in its infancy. There are now few areas of science where computational and dry sciences do not loom large. In discovery of new drugs, combinatorial chemistry is now routine. Many years ago, we were involved in treating large populations of river blindness patients with the drug ivermectin, [3]. The drug was magical in that a single tablet was effective in clearing skin and ameliorating eye lesions for up to a year, and yet the drug disappeared from the body within twenty-four hours. This phenomenon is common with chemotherapy where the curative agent disappears from the body before the destruction of the parasite or bacteria commences. I traveled to the University of Buffalo, USA in 2006, at the age of 64, to undergo a course in pharmacodynamic modeling in order to suggest an explanation for this phenomenon. This would have been unnecessary if we had had willing collaborators in computational sciences, or if I had had requisite courses in advanced calculus as a young man. Incidentally, it has just been announced that our ivermectin may also be useful in malaria prevention, [4]. In our universities now, students run away from dry sciences with the exception of the engineering sciences. A Vice-Chancellor had several professors of Mathematics, but no students. He even offered scholarships for new students, but there were no takers. The situation is quite grave. A plan is to be devised to rescue pure sciences as a whole. Mathematics should



be emphasized from kindergarten, and there should no longer be a gap between the dry and wet sciences. Therefore, as we celebrate 60 years of the discovery of the structure of DNA, (structure is shown above courtesy of U.S. Library of Medicine) let us inculcate the collaborative spirit that engineered that iconic feat. Let us encourage the study of Mathematics and at the same time affirm the unity of all Science.

References

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