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Rise to the clarion call to produce Nobel laureates by 2020

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AT a function organised by the Academy of Sciences Malaysia, Prime Minister Datuk Seri Dr Mahathir Mohamad challenged Malaysian scientists to win a Nobel prize for the country by 2020.

The call is timely and our scientists have taken the challenge in good part because winning a Nobel Prize will be good for national pride and ego.

A perusal of the Nobel Prize tally so far will show that so far countries like the United States, United Kingdom and Germany have bagged most of the prizes in science, medicine and physiology, with the majority of their laureates concentrated in a handful of world-class universities.

In the US, Harvard, Stanford, Columbia, Cornell, Caltech and Princeton are the Nobel heavyweights.

In the UK, Cambridge, Oxford and London are the stalwarts while in Germany the winning universities are Gottingen, Heidelberg, Munich and Berlin.

According to Professor Stephen Hawking (himself a potential Nobel laureate), during World War II, the British had a gentleman's pact with the Germans not to bomb Heidelberg and Gottingen in return for the Germans not shelling Cambridge and Oxford.

This pact shows how top universities are so jealously prized by their respective countries that they are to be protected at all costs!

The Nobel prizes in the sciences are not necessarily a Euro-American monopoly. Asians too have achieved some measure of success.

Countries like Japan, China, Pakistan and India have made inroads into the Nobel world, especially in physics.

Pakistan's only prize so far has been won by the late Abdus Salam who, however, did his prize-winning work in Europe.

Professor C.V. Raman of India was perhaps the only exception. He was the rare home-grown Nobel laureate in science. He was so confident of winning one that he boldly said this to Sir Ashutosh when he was elected a Fellow of the prestigious Royal Society in 1924. His prize came only six years later.

Aspiring Malaysian laureates should try to emulate Raman who achieved world-class success in the indigenous scientific setting.

Young Raman was not endowed with great physical strength but he more than made up for the deficiency with his superb intellect. As a child he had already devoured most of the books in his father's collection.

Reading the biographies of Nobel laureates, we consistently come across cases where there is an inspiring father figure and a conducive home environment.

Weijia Zhang and Robert Fuller, in their survey on Nobel laureates published in a 1998 issue of Physics Education have identified four father-son pairs among the Nobel Prize winners in physics from 1901-1990.

They are J.J. Thomson and G.P. Thomson; W.H. Bragg and W.L. Bragg; N.H. Bohr and A.N. Bohr and K.M.G. Siegbahn and K.M.B. Siegbahn.

The Braggs had the distinction of winning the prize together in 1915 when Junior was only 25 years old, thus making him the youngest physicist ever to win a Nobel Prize.

The Siegbahns had the practice of discussing physics every day at the breakfast table. This is a very good way for scientific interactions, besides forging closer father-and son ties.

According to Lady Eugenie Peierls, wife of the late famous physicist Rudolf Peierls, physicists (or for the matter scientists) could be categorised into two classes - golfers who single-mindedly pursued a lonely path towards clear goals (like Isaac Newton) and tennis players who made progress by bouncing ideas off others.

The Siegbahns certainly belonged to the tennis player category who stimulated each other not so much by giving the right answers but by asking the right questions.

In looking for the right question, K.A. Muller, a 1987 Nobel co-laureate, has advised us to listen to our hunches. Sir Peter Brian Mcdawar, a British laureate, advised scientists of any age who wanted to make important discoveries to study important problems.

To him dull or piffling problems yield dull or piffling answers.

Sometimes scientific discoveries are serendipitous in nature. In 1927, Clinton Davisson and Lester Gerner of Bell Laboratories originally intended to study the arrangement of atoms on the surface of a nickel sample but an accident which caused a rupture to the vacuum system led them to the discovery of electron diffraction in nickel instead and this later won them the Nobel prize in physics in 1937.

Serendipity or otherwise, Louis Pasteur had long ago observed that fortune favours the prepared mind.

With a prepared mind we should rise up to the clarion call of the nation to make inroads into the mystical Nobel world by 2020.

Forging a conducive home environment may be our first step to world-class success.