



PERSPECTIVE / By Walter M Bortz II

New Year's Day brings with it the opportunity and responsibility to do a check-up, to see how things were and how they are going now, but particularly how they're likely to go in the year ahead. Every person on our planet has a new leaf to turn over on the calendar; a new accounting is to be made.

For me, as a medical doctor, the date yields an important reckoning: I look through my examining lens to see this state of the human condition, its health and its deficits. I search for important clues to the wellbeing and defects in the body, mind and spirit. What grade did our medical science receive? What efforts were made and what are yet to be made? What do we really know of our body, mind, and spirit?

### Body

As I survey the scene concerning knowledge of the human body, I find great excitement. In my view, 2010

After Pasteur, the sulfa drugs and penicillin and a whole array of new medicines quickly were discovered that have added decades to the human life expectancy. With this break in the conceptual logjam, a new era known as biomolecular medicine was opened up. An entire new frontier using vast new technologies permitted my profession to look deeply into our prior ignorance to reveal what was going on in the most intimate recesses of the human anatomy and function.

The general term applied to this progressive search to smaller levels is known as reductionism, the taking apart of the organism to its smallest details, to its components, even down to the molecules and atoms of which we are made. We know how many there are, what kinds there are, and what they do. Mountains full of new information is now available about the body. On the way to this deep understanding, a huge focus on the human genome, developed and reached a flowering in 2008. The ultimate understanding was widely broadcast, knowing

# Reflection time

Through a physician's eyes, let's look at how much we know about our mind, body and spirit

has yielded a revolution in medical progress that is comparable to the era of Louis Pasteur in 1865 when he discovered that the infectious diseases, which had ravaged the entire globe and caused many millions of deaths, were not due to sin and the work of the devil, but to a bacteria.

His brilliant experiments took human wellbeing out of a metaphysical context into one in which medical science could create an entire new world of rapid progress.



every molecule of the human genetic machinery was supposed to solve all medical problems for all future peoples. Many billions of dollars, and many thousands of articles were written about how such and such a gene was the cause of heart disease, diabetes, depression or shoplifting.

Of course, the commercial exploitation of the gene was overwhelming. Medical science embraced the genome as the central dogma of its effort. Unfortunately, such emphasis

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was terribly wrong. The genome is now revealed as being only a minor player in human wellbeing. The gene itself scarcely matters at all. What matters is how the genes are expressed, how the switches are turned off and on and by how much.

So, within just the past few years, medical science enters an entire new, enlarged and much more complex arena, but ultimately more true—that of the gene/environment interface the Nature/Nurture relation. It is the system that matters, and not the components. Aristotle taught this to us eons ago, but we forgot. Now, medical science in 2011 enters a new, more meaningful era, seen through a lens that is much wider and that is able to look clearly at the nature/nurture interface. The definition of the genome yielded much information, but little that was a practical portent. Now, with a more clear focus, emphasising behaviour rather than the component, we can move on to the big challenges which remain.

### Mind

The past decade has yielded fantastic new insight into the human mind and brain. Much of this new knowledge was delivered by the technology. When I was a medical student 50 years ago, our capacity was limited to what showed on the surface of the skull, which showed virtually nothing about how the mind worked. Today, with the new scanners, CT and PET we not only see more deeply, but also see what is working and what isn't. The new vision provided by the scanners has been extended by new knowledge of brain chemistry. Hundreds of new substances are now known in detail and their role in integrating the machinery of the mind is extraordinary. Each day reveals a new connection. The medical journals now bulge with new reports in this field.

To me, the most exciting of these newly revealed molecules is brain derived neuron factor, BDNF, a substance whose nature has been exposed by Carl Cotman at the University of California in Irvine. In both animal and human studies, his work has yielded the hope that the awful brain diseases of late life such as Alzheimer's Disease and Parkinson's Disease, will now become susceptible to new study and remedy. Just imagine a world in which all people can look forward to a life expectancy of 100 vital years—10 decades, unburdened by the terrible worries of losing mental competence along the way! The new year, therefore, offers the prospect of a healthier body to be accompanied by a healthier mind—again, the Greeks had hoped for this 2500 years ago. Now, perhaps their hopes and dreams will come closer to reality.

### Spirit

New Year's Day invites a survey of how the world's spirit and soul are faring. The newspaper headlines are not assuring in this regard. Conflict and misery crowd every page of every report and no region is immune, no country is a haven. Disorder seems to be the general rule.

Health illiteracy is pervasive, and undermines any sustained efforts at global health. As we are newly able to understand our basic nature, it is imperative that our nurture provides a surrounding administrative support system, which allows us to identify and pursue our potential. As we focus on what we know of our nature as a species, we recognise our youth.

Almost all of the world's animal species have been around for much longer than the human, *Homo Sapiens*. Pause a moment to reflect on the name of our species, Knowing Man. But when we consider the nature of our self-knowledge, it is easy to identify our immaturity. It is my sincere hope that with our new universal knowledge expansion of the body and mind we can think differently, and become more one people. We yearn for the unity of the human family.

Already we are able to clearly identify that we are all made of the same stuff—animals and humans alike. We're all made of the same primal dust, carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulphur. These six elements make up almost all of our earthly bodies. But even beyond being made of the same stuff, we play by the same set of life rules. All of our biochemical pathways that control our functioning were delivered to us by the bacteria, which were earth's earliest life residents, about 4 billion years ago. We still live by their design. The bacteria hold all the patents on how the world's metabolism machinery works. We now can control this energy and use it to spark our nutritional machinery to yield movement and thought and all the other miracles of the living world.

The famous French philosopher René Descartes proclaimed "Cogito Ergo Sum", I think therefore I am. In that hopeful statement, I feel we have learned much to illumine where we are, and what we know, on January 1 and beyond, to enrich our hopes and dreams. Happy New Year!

*Stay Well*

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