Editorial

The Controversial Vitamins

Recently, while travelling in Australia and New Zealand visiting orthomolecular colleagues, lecturing at seminars and enjoying Dunk Island (in the Barrier Reef area off Queensland), I read R.F. Atkinson's good book entitled Your Health — Vitamins and Minerals. Atkinson described Vitamin K as the serene vitamin because it was introduced without any medical controversy. Other vitamins have been engulfed in controversy from the beginning. These include thiamin, Vitamin B3, Vitamin C and Vitamin E. Pyridoxine was involved briefly in controversy. Riboflavin, using Atkinson's term, is also serene, as are Vitamin B12, folic acid and others. Perhaps they still may become involved in controversy — I expect they will.

The apparent irrationality of medical acceptance of vitamins is, in fact, a rational approach by medicine which has always been orthodox and conservative and which does not teach its graduates its own history; they do not know that what is today's orthodoxy was yesterday's heresy. If they were taught the history and philosophy of medicine they would be more open to new ideas and the time necessary to move from heresy to orthodoxy would be reduced greatly.

The acceptance or rejection of vitamins illustrates how concepts generally believed to be true hinder the development of better treatment, for in considering itself a science, medicine pays more attention to theory and hypothesis than it does to observation. Medicine seems unaware that theories are evanescent, changing with each new fact, while observations are permanent. The facts of medicine are observations. The first description of epilepsy remains accurate today. The explanation of several thousand years ago is not acceptable today.

A new set of observations which challenge established orthodoxy is called a new paradigm; an example is Harvey's proof that the heart pumps blood. New paradigms are always rejected at first hand. Only after a number of hard-fought battles do the new ideas take root and eventually displace the old. They become the new orthodoxy which in turn rejects new ideas.

Once a new idea has been accepted, minor variations of the theme present no problem; once the concept of antibiotics had been accepted after the last war, newer antibiotics have been introduced fully with no controversy. Tranquilizers were introduced into medicine rather quickly because they (1) were very powerful, (2) were patented and supported by their parent drug

companies by huge advertising budgets and (3) were pushed by over forty members of the Senate and House in Washington. The psychiatric establishment, led by the psycho-analytic leaders of the National Institute of Mental Health, had to give way.

The vitamins have been involved in a number of new paradigms.

1. That diseases can be caused by an absence of something. By 1900 medicine's orthodoxy was the germ theory of disease. Each disease like smallpox or tuberculosis had its own germ or virus or parasite. One of the world's most eminent pathologists, Virchow, proclaimed that no disease could be caused by the absence of something. This anti vitamin stance held back the introduction of the vitamin concept for several generations.
2. The new vitamin orthodoxy ruled that (1) vitamins were required only for classical vitamin deficiency diseases such as beri beri, scurvy, pellagra, rickets (2) that only minute doses were necessary, (3) that classical diseases such as arthritis or schizophrenia were not to be treated by vitamins for they were not caused by deficiencies.

The rules followed by orthodox physicians are (1) reject any new paradigm (2) accept any variation of an accepted paradigm (3) reject any new paradigm by downplaying any therapeutic success and overemphasizing any possible toxicity, real or not.

Bearing these rules in mind we can analyze why a few vitamins sailed serenely into medicine and why others sailed into very rough and turbulent seas.

The first nutrients identified as vitamins were, in chronological order, Vitamin A and Vitamin B. Later the B vitamins were found to contain a large number of water soluble vitamins. Thus Vitamin A and Vitamin Bl, necessary to prevent Vitamin A deficiency and beri beri, had to bear the brunt of the onslaught of the anti vitamin orthodoxy.

The cure for vitamin deficiency diseases such as xerophthalmia was known by ancient Greeks and Egyptians. It was raw liver, rich in Vitamin A. After several thousand years of neglect it was again studied in Brazilian slaves in 1883. In 1904, Dr. M. Mori published a cure; chicken livers and cod liver oil. The great Dr. E. McCollum, against the opposition of the medical establishment, pushed Vitamin A into national consciousness by a series of public lectures and articles. By 1937 it had been synthesized and soon after came into general use. This required 50 years after Dr. Lunin suggested Vitamin A was present in milk.

Thiamin, Bl, was first isolated in pure crystalline form by Dr. Robert Williams, brother of Dr. Roger Williams, who received the Nobel Prize. But when Dr. Eijkman in 1890 suggested beri beri could be cured by brown rice he was laughed at by the medical profession. Dr. Casimir Funk at the turn of the century coined the word "vitamin" for this type of nutrient.

By the time the first two vitamins were introduced to medicine and accepted there were no further objections to the vitamin concept. In fact, the concept became fossilized and still prevents the proper examination of vitamin therapy for a large number of diseases.

Vitamin therapists now began to bump into the vitamin paradigm, i.e. they are needed only for treating classical deficiency diseases. Claims that Vitamin B3 improved treatment for schizophrenia, that pyridoxine helped infantile autism, that Vitamin C decreased frequency and severity of the common cold and flu and helped treat cancer, and that Vitamin E would treat heart disease, were all rejected promptly and vigorously. For these vitamins the waters are now less turbulent, but they are not yet calm. I suspect the serene vitamins like K and B2 will have to endure their share of debate once a claim is made they are helpful in large doses for classical medical or psychiatric conditions.

Vitamin E was the first major controversial vitamin. Just before 1950 Drs. W. Shute and E. Shute claimed it would improve markedly patients with heart disease. Later they claimed it would accelerate healing after burns. There were a few half-hearted attempts to reproduce their work by not following the Shutes' methods. The Medical Letter**,** a popular dispenser of information about drugs, summarized the studies which were supposed to have disproven these Vitamin E claims, once and for all time. I read

these so-called classic papers carefully and found the authors did not use double blind studies, used too little Vitamin E and for too little time.

Another rule is to demand the most rigorous proof before accepting any new treatment and to accept any study no matter how badly done which finds the treatment ineffective. In the same way, new treatments must be bolstered by double blind controlled designs while anecdotal studies are perfect if they prove the treatment to be ineffective. Reports of toxicity may be anecdotal if they are to be used to attack any new treatment; when discussing a standard treatment toxicity studies are better balanced and reported in such a way as not to frighten anyone.

Vitamin E is winning general acceptance. Recently the New York Academy of Sciences published one of its symposiums on Vitamin E. The authors therein seemed unafraid of using megadoses. It is too bad neither Shute could have survived until they had received proper recognition. There are no posthumous Nobel Prizes in medicine.

Vitamin B3 became the next vitamin to enter the fray when my group published our first clinical paper in 1957. The fact we were the first to use double blind techniques in psychiatry did not make matters any easier. We claimed that Vitamin B3 improved treatment of acute schizophrenics. Nearly every psychiatrist "knew" schizophrenia was not a vitamin deficiency disease; that it was, in fact, a psycho-social disease. They therefore "knew" it could not respond to a vitamin. Today, twenty-six years later, there is still no general acceptance. However, several thousand physicians are now using Vitamin B3 as a main part of their treatment program.

Niacin as a broad spectrum hypolipidemic agent came in much more quickly following our first announcement in the Archives of Biochemistry and Biophysics in 1955. This introduction had a new reason for ready acceptance. In 1955 cholesterol was considered a main factor in causing hardening of the arteries and many companies were searching for a substance which would lower cholesterol. It was relatively simple to measure the effect of niacin on blood cholesterol. It worked very quickly. Our 1955 report was based upon a series of patients receiving niacin a few days. This caused a significant reduction in cholesterol levels. The first corroboration came from the Mayo Clinic a few years later. But the action of niacin, a vitamin, in decreasing cholesterol was so astounding, the first reviewer in Nutrition Reviews totally misread our tables of data and concluded niacin had no effect. He did not retract but the journal published my corrective letter. When there is an objective laboratory test to support a new idea it will be accepted much more readily.

But niacin was not patented. I had advised my employer, the Government of Saskatchewan, to take out a use patent. They refused. As a result, our research was deprived of ample research funds and no company found it beneficial to promote its use. Instead, a British company developed Atromid and promoted that, even though it is more toxic and has been banned in some countries. Most physicians were educated *to* use Atromid. The last edition of Goodman and Gilman's Textbook of Pharmacology, the doctors' bible, contains an adequate section on niacin as a hypolipidemic agent. It lowers cholesterol, triglycerides, low density lipoproteins — all desirable changes.

Physicians in the U.S.A., Australia and Canada are using Vitamin B3 to successfully double their schizophrenic recovery rate, but it has been moving in against a stubborn and hostile orthodoxy, represented by physicians, phychologists, social workers and nutritionists. The main support has come from patients and their families who have seen what orthodox tranquilizer therapy has failed to do and what orthomolecular therapy has done.

It is beginning to move into psychiatry, especially the private practice sector and private hospitals. Orthomolecular treatment is freely available to those who can afford it. The remainder must remain with tranquilizers only. Full recovery on drugs alone is rare, probably at a rate less than the natural recovery rate.

Vitamin C became controversial after Irwin Stone and Linus Pauling published their important books. Dr. Linus Pauling was exposed to a shrill, unreasonable, unintelligent attack for summarizing the medical literature and concluding Vitamin C reduced the frequency *of* colds and influenza. The

current attack is more muted, but ascorbic acid still has not become generally accepted by the medical establishment. The American public is much more accepting, happily using one and a half grams per person per day. Assuming only 25 percent of the population are using Vitamin C, this means they are using an average of six grams per day. There is bound to be a significant improvement in the health of the American population which will appear in their annual statistics.

Veterinarians and zoo keepers have been much more interested in using newer nutritional ideas. Thus, in 1858, Dr. H. Muller reported a strong connection between bone growth and rickets. The London Zoo in 1890 added crushed bone to their animal menu. By then the public were receiving much more information in almanacs and journals than doctors were receiving in medical journals. Today the top zoos use vitamins and minerals liberally to ensure the health of their animals. Hospitals almost totally ignore the nutritional quality of food served their patients.

The problem is one which must be faced by medicine. Orthomolecular practitioners need feel no guilt. The onus is not upon our group to produce ever more data, for no matter how much data is forthcoming it will be rejected and kept out of orthodox medical journals. Unless orthodox medical groups learn how to adopt new and well-tested ideas serenely, society will act, probably by taking away from these orthodox groups the power to suppress new ideas. The costs of the present orthodox attitude are enormous and society will not be able to tolerate these methods any more.

The gap between discovery and its application is too great. After Sir James Lind proved citrus fruit cured scurvy, during a time when James Cook knew how to protect his sailors, the British Navy waited over forty years before taking action. During this patient wait they lost 100,000 seamen from scurvy. We can not estimate how many people died from pellagra even though Frapolli knew it was caused by a monotonous diet of corn. The total number of people lost due to nutritional diseases because physicians were orthodox is too great to be estimated. Moses marched the Israelites out of Egypt, around and around in the desert for forty years. He needed this time to allow two generations of people brought up as slaves to die, for only free men could have captured the Promised Land. Why do we have to wait forty years for physicians enslaved by orthodoxy to pass on before the discoveries in medicine are made available to those who require them? I believe we can shorten this gap by (1) teaching medical students the history of medicine and philosophy (2) changing the rules by which medical licensing bodies keep physicians enthralled (3) establishing special research therapeutic testing centers.

The first step would introduce physicians to the conflicts of the past. This would reduce the dogmatism of most medical graduates.

The second rule would remove from physicians their fear of using new treatments. I suggest that whenever an official medical body decides to take action against any physician, the onus will be on that medical body to prove what the physician is doing is (1) dangerous (2) non therapeutic.

The third suggestion would lead to the creation of research institutes. These would have no affiliation with any other institution. By law they would have to test any treatment which is safe and for which claims have been made using established clinical methods. Thus, if such an institute had been in existence in 1750 it would immediately have tested Sir James Lind's conclusion and then would have issued a public report. Many safeguards would be built into these institutes to prevent them from being captured by orthodoxy, but this would not be very difficult.

Only when we have such a system, or any alternative one, will discovery in medicine be followed within a reasonable time by application. I think five years is such a reasonable period.

Research institutes and university departments of psychiatry should be asked by governments and universities which fund them (1) what have they done to examine new treatment ideas by running scientific therapeutic tests and (2) if they have not, why should they continue to be funded.

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