A recent issue of *Science* (2 October 1981) describes the manifestations of a new era in psychiatry, one in which, according to Joseph Schildkraut of Harvard Medical School and the Massachusetts Mental Health Center, “clinical laboratory medicine is starting to make an impact on the practice of psychiatry.” Schildkraut and his friendly rival, James W. Maas of the Yale University School of Medicine, have been measuring concentrations of specific compounds in body fluids, to aid other psychiatrists in diagnosing mental illness, determining appropriate medication, and monitoring therapy. In the early 1960’s when Schildkraut entered psychiatry, he recalls “the whole notion that one could measure anything in urine that would give any information about the biochemistry of the central nervous system seemed quite farfetched.” Nevertheless, he and others were convinced that understanding brain biochemistry was fundamental, and their pioneering work led to an hypothesis in 1965 which became a focal point for research during the next decade. They proposed that mental depressions are associated with a deficiency of the neurotransmitter norepinephrine at important receptor sites in the brain, and suggested that specific tests of patients’ body fluids might provide a biochemical index to the diagnosis of manic-depressive illness. The years since have seen a growing acceptance in the profession of the concept that imbalances and abnormalities in brain chemistry may indeed play a role in the etiology of mental illness; but the adherents are still in a minority, and the conflict with proponents of the psychogenic theory (emotional conflict as the origin of mental disorders) is not unmarked by acerbic exchanges and bitterness.

**Orthomolecular Psychiatry**

Another group as early as the 1950’s were following a tangential Yellow Brick road, which led to the kingdom of orthomolecular psychiatry. There, vitamins and other nutrients have become the chief weapons replacing psychoactive drugs in the battle with schizophrenia and other serious mental diseases. The rationale is given by Linus Pauling in an earlier *Science* (19 April 1968):

*Orthomolecular psychiatric therapy is the treatment of mental disease by the provision of the optimum molecular environment for the mind, especially the optimum concentrations of the substances normally present in the human body . . . . The functioning of the brain and nervous tissue is more sensitively dependent on the rate of chemical reactions than the functioning of other organs and tissues. I believe that mental disease is for the most part caused by abnormal reaction rates, as determined by genetic constitution and diet, and by abnormal molecular concentrations of essential substances.*

Of the growing number of psychiatrists who recognize the importance of aberrant brain chemistry in mental disorders, few are as yet willing to accept the key role that nutrients may play. Interestingly, the October 2, 1981, *Science* article, while not discussing the brain-nutrient aspect, does note that a biochemically determined condition found in 30% of manic-depressive patients, called the “lithium defect,” has recently been associated with an abnormality of cell membrane composition, specifically a low concentration of phosphatidyl choline. Phosphatidyl choline is a chief ingredient in lecithin which our bodies synthesize. For years, ‘radical’ doctors and nutritionists have been suggesting dietary lecithin to augment waning body supplies, and as an added source of choline which we can make into the neurotransmitter acetylcholine. Dietary lecithin has also been found to have valuable alleviating effects on a tragic disorder called tardive dyskinesia, which develops in some psychiatric patients from years of tranquilizer use and as yet has no cure.

**FOOD FOR THE MIND**

In October, I attended a conference in Berkeley by the University of California’s School of Public Health on *Nutrition and the Brain*. Participants were not necessarily believers in ortho-molecular medicine but were convinced that specific nutrients can affect such critical brain functions as sleep, memory, and behavior. Clinicians, researchers, and social scientists explored aspects of nutrition in early brain development, childhood intelligence, and sociopathic behavior.

**Children and Sugar**

Gary Franklin, M.D., postgraduate Fellow in Nutrition at U.C. Berkeley’s School of Public Health, spoke on sugar, mood, and learning. Taste buds begin to develop at 14 weeks of age in the fetus, and even in one-day-old infants very strong preference for sweet tasting liquids is seen. [Sugar consumption currently is around 120 pounds a year per person. Most records of U.S. sugar consumption begin at the turn of the century — apparently when official trade figures were first being kept — and show Americans then to be consuming about 90 pounds, which implies a “normal” consumption rate. However, British trade records spanning many centuries show that until 1815, sugar was a rarity, with no more]
than 10 to 15 pounds a year available per soul. With the advent of refining technology around 1860, mankind began catering to its sweet tooth on a scale clearly unattainable in the natural world.

Dr. Franklin said that children from six to 23 months of age are now consuming sugar at a rate seven times greater than adults, in terms of grams of sugar per kilogram of body weight. "This high sugar consumption in the very young must be looked at very critically in the light of new information on how susceptible the brain is to the things we eat."

In a 7-day dietary study with a group of hyperactive and normal young children observed through one-way mirrors, destructive and aggressive behavior in the hyperkinetic children was correlated with high sugar intake, but even the normal children showed some of this effect. The nervous system continues to develop for at least the first two years of life and probably till the age of 10 or twelve, primarily in the interconnections of processes between nerve cells of the brain. There is scanty data, Franklin said, on why learning-disabled kids are that way and when those lesions developed. "No one has really looked at whether in fact early nutrition could have an effect on hyperkinesis or specific brain disabilities."

**The Additives Controversy**

Benjamin Feingold, M.D. (Chief Emeritus, Dept. of Allergy, Kaiser Foundation Hospitals, Northern California) spoke on food additives and childhood behavior. Advocacy of the "Feingold Diet" has become a nationwide grass roots movement among parents of children suffering from hyperactivity, a term used to denote behavioral disorders where great difficulties in concentration, high levels of aimless activity, disruptive behavior, etc. create problems for parents and teachers alike. The chief offenders in diet, Feingold stated, are the artificial colors, flavors, and preservatives contained in about 80% of our processed food supply. Hyperactivity is only one manifestation, he said. Other symptoms in children that have cleared up when the diet was corrected are:

- **RESPIRATORY**: Rhinitis, nasal polyps, cough.
- **SKIN**: Hives, itching.
- **GASTROINTESTINAL**: Canker sores in mouth, enlarged tongue, heartburn, flatulence.
- **EARS**: Recurrent inflammation.
- **GENITOURINARY**: Enuresis (bedwetting).
- **NEUROLOGICAL**: Headaches (very common), seizures, retardation.
- **SKELETAL**: Arthralgia with edema (pain and swelling in joints).

Dr. Feingold believes that placing the child on an additive-free diet can best be accomplished if all the family wholeheartedly follows the same program. The removal of foods containing natural salicylates is also recommended, but Feingold feels that when a child shows a good response to both these measures, eventually the salicylate foods (which include otherwise excellent foods such as almonds, apples, apricots, berries, cherries, grapes, raisins, nectarines, oranges, peaches, plums, prunes, cucumbers, and tomatoes) should be very gradually reintroduced, except in those who have a known sensitivity to aspirin.

The child's reactions to chemical additives in food are NOT allergic ones; the immune system is not involved. "They are pharmacological reactions. This means that any individual — anybody in the world — has the potential to react adversely to these compounds."

Feingold has found that the younger the child, the more rapid and complete the recovery. In new infants, a common manifestation is sleeplessness. The baby will sleep an hour or two at a time, and will cry a good part of the night. "In a great many of these children, we found the cause to be pediatric vitamin drops which are synthetically colored and flavored. Remove these, and they respond within 24 to 36 hours. Prognosis is usually complete reversal of symptoms. If you challenge them [i.e., administer the drops again], the whole pattern returns in a matter of hours." If this kind of irritable, colicky pattern occurs in a breastfed child, removing artificial colors and flavors from the mother's diet may bring about improvement.

The Nutrition Foundation (created and funded by the food industry) and other scientists have challenged Feingold's hypothesis, but the growing network of parents who form the nonprofit Feingold Association chapters apparently feel strongly about the benefits to their children. The difficulty in assessing these changes objectively by academic scientific parameters is, nevertheless, a problem with no easy solution. On this, Feingold says:

"A lot of what I've described is on the basis of clinical experience, and I'd like to point out that it is extremely important to those of us who are practitioners, clinicians, and teachers — NOT academicians, that we not confuse the clinical with the academic. Clinical medicine, we must recognize, is not a science. It is an art. In part, it's structured on very limited scientific knowledge... augmented by experience, intuition, and art: that's the practice of medicine."

Note: For bibliography of Nutrition and the Brain conference and related topics, send me a stamped self-addressed envelope.
MARC AND THE TONSILS
‘MIRACLE’

In the October FELIX LETTER, I talked about going back to school and getting my degree in nutrition in 1977 at the University of California at Berkeley. To those of you who may not be aware of the killer pace in the science curricula of today’s universities, let me state simply that my middle-aged college days were only a touch more fun than having teeth drilled sans novocain. Apart from being a 4-star masochist, I had to have had some pretty impelling motivation to keep me hanging in there, and it was this: I was going to be a card-carrying member of a scientific discipline which had caused miracles to happen in my life. These dated from the first Adelle Davis book I had read in 1955, LET’S EAT RIGHT TO KEEP FIT, and I wanted to be a nutritionist just like that great lady. Little did I know until enlightened by my first instructors in Morgan Hall: she was anathema to the nutrition department! — a name to evoke curled lips (with all the others injudicious enough to flee orthodox nutrition for the primrose path of the counter-establishment). She had lost credibility with them because of her ‘unfortunate’ tendency to act on theory before all the evidence was in. Very soon, I learned that my professors, by and large, did not buy my ‘miracle’ concept of nutrition. As it turned out, they weren’t a strikingly healthy-looking group; several were ponderously overweight; quite a few smoked. At the weekly department tea, Oreo cookies were standard fare. Nobody waxed rhapsodic about alfalfa sprouts and vitamin C. Nutrition was their work, not — as it had been for me — a captivating avocation. Their attitudes reflected the sobering years in laboratories pursuing elusive increments of knowledge, in the face of struggles for funding and the usual network of academic red tape. There were no easy answers in their world. They were not amused by the facile claims of the nonorthodox nutrition enthusiasts.

I liked and respected them and finally understood their concern that students not confuse the ready solutions preferred by Adelle Davis and others with the necessary long, cautious process of the scientist. But I wanted to say to them: Don’t sell your own field short. Nutrition does produce miracles. It may not be possible to substantiate them on the basis of present knowledge, and for the time being they may better fall within the province of folklore, but they HAPPEN. They have to do with the subtle, pervasive forces that begin to work in a person (or an animal) when nutrition wrongs are righted. Sometimes it’s a single nutritive factor, more often it’s a whole panopoly. Sometimes it involves the removal of certain nutrients; other times it’s the added ones which effect the transformation. The process may take months; or it may happen with great speed, like a sudden shaft of sunlight turning an object bright gold. When I look back over the experience of twenty-five years of accumulated wonders, I feel they should be heralded by a clear flourish of trumpets — not by the windy and skeptical dirigés of the academic nutrition community!

In 1955, Marc was four-and-a-half and my own children five, seven, and nine years of age when I married his father, a year after Marc’s mother had died of polio. Since babyhood, his father explained, Marc had been plagued by earaches and sore throats, and the pattern continued when I became his stepmother. First came the colds, with sore throats and earaches quickly following. The clinic scheduled him for a tonsillectomy when he was five, the doctor describing Marc’s tonsils as swollen and cryptic (full of diseased pockets) and a continuing source of infection. Just before the scheduled date, he came down with chicken pox so surgery was postponed. Soon it was summer; doctors avoided performing tonsillectomies then, fearing an increased risk of polio for the child.

Meanwhile, back in their San Fernando Valley home, the not-really-wicked stepmother, having just been hit by her first Adelle Davis book as with a bolt of lightning, was beginning to see the family’s health problems with new eyes. Page after page of LET’S EAT RIGHT TO KEEP FIT dealt with the common garden variety of ailments which had always plagued my own three children as well as my stepson despite conscientious medical attention...and explained in unfamiliar but understandable biochemical terms how the lack of a single nutrient or group of nutrients could be a crucial factor in each disease. To be truthful, other than an awareness as a college biology major of severe deficiency diseases such as rickets, scurvy, pellagra, and beri-beri, I had never before connected illness with nutritional lack, nor health with any particular dietary replenishment. No doctor had ever hinted to me of any such association. Adelle Davis was a biochemist as well as a trained nutritionist, and she was saying with great logic and plenty of case histories that the right foods plus vitamin and mineral supplementation could make people and animals well.

The concept that I now could utilize a simple weapon to fight the endless mysterious and petty ailments that sore our lives was stunning. I did a sweeping review of our kitchen cupboards and refrigerator. Candy, white flour, sugared cereals, and jelly donuts went in the trash, and I found my first health food store in the yellow pages. The great experiment had begun.

In a matter of weeks, I was confidently feeding the family (including, of course, my little stepson) with whole-grain-everything, liver once a week, heaping bowls of vegetables cooked and raw, wheat germ
Marc had developed tonsillitis and an ear infection. During the months of his exile, he had at least three such episodes. They stopped only after he came home, was back on the family diet, and reinstituted his daily supplement regimen. In a short while, the infections ceased and his tonsils shriveled to normal size.

Unquestionably, there was a stressful emotional component in Marc’s exile which compounded the picture, but anguish and puberty can go hand in hand, and none of the children was so fortunate as to be a stranger to traumatic emotional upset. Simply, as long as they followed the family dietary practices, they hardly ever got sick. They all kept their tonsils.

At present, this doesn’t happen. Professional journals in nutrition and medicine generally do not deal with this kind of anecdotal material. Except for patients who may share experiences of this nature with their doctors, the information is restricted to popular nutrition publications . . . the ones we were specifically warned against for their unscientific approach in my classes at U.C. Berkeley. Nor can these magazines by any stretch of the imagination be considered recommended reading for medical students, doctors, or other health workers. Unless the health professions are full of “closet” food faddists, the chances of this material filtering down to the clinicians remain dim.

Twenty-five years after my first nutrition ‘miracle,’ tonsils are still being routinely yanked when they offend. Impeccably designed double-blind studies “prove” that vitamin C doesn’t do a lot for colds. Currently, the scientific community is showing interest in the “new” possibility (NEW?) that certain nutrients may directly affect the immune system. Several groups are attempting to investigate this theory (in rats), nutrient by nutrient, before interest and research funds run out. Good luck!

Yes, I understand that science is unable as yet to set up studies that can manage the multitude of factors in anecdotal material like my ‘tonsils’ account and sort them out with any kind of verifiable conclusions. Epidemiologic studies, which are designed to extract information about large populations, sometimes do attempt to deal with an unwieldy number of variable factors, but they can serve only as statistical straws in the wind to indicate possible trends.

Nevertheless, I’m still hoping some intrepid researchers will come up with a flawlessly designed study to determine the effects on diseased tonsils in children (and why not in adults as well?) of a dietary program using whole grains, good natural foods exclusively, daily supplements of minerals and vitamins with lots of C, and an awful tasting drink called “tiger’s milk.” I know they’ll say it can’t be done — the experimental design would sink in a sea of “variables” — but I want to believe that nutrition scientists, someday soon, will come up with this miracle, too.

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