

Vestibulocerebellar Dysfunction in Schizophrenics With Perceptual Disorders

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Summary

Schizophrenic patients have long been known to have important distortions of both simple sensation and perception of the world about them. In 1933 Paul Schilder attributed many of these symptoms to a vestibular disorder. These symptoms are readily revealed in the frequent elevations of the Perceptual Score when they take the Hoffer-Osmond Diagnostic Test. It is proposed that the basis for this is a disturbed integration of vestibulo-cerebellar-reticular formation function. Two recent papers support this proposal. One reveals that a vestibular disturbance can be demonstrated in the majority of schizophrenics. The other reveals that as many as 40 percent of the chronic schizophrenics have atrophy of the anterior vermis of the cerebellum.

When the brain is defined as a complex biocomputer, the vestibulo-cerebellar system is involved in "data input" mechanisms. When this system cannot function properly the input of sensory data can become distorted. In this event the schizophrenic

will indeed be living in a strange world. His problems will be aggravated if he is told that his perceptual disorder is psychological. There is value in assuring him that we have found an organic basis for this sort of disturbance.

Schizophrenic patients frequently experience disturbing hallucinations and dramatic delusions. They can grab our attention and seduce us into ignoring the bland and colorless distortions of sensory perception the patient may also be experiencing. Paul Schilder (1933) places an emphasis upon the vestibular system centers of the brain stem as playing a crucial role in many of the disturbances of both psychotic and neurotic patients. His work provided a logical basis for many subsequent speculations about the dyslexic learning disorders. The vast majority of these children have signs of a cerebellar defect in coordination as well as a disorder in scanning vision (Buckley, 1981).

Apparently Paul Schilder's important proposals about the development of a "body image" were ignored by his fellow psychoanalysts because they could not integrate a physiologic concept into their speculations. The focus of psychiatry for the next two or three decades has been upon the psycho-

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dynamic soap opera about the patients' emotional transference and the therapists' intellectualized counter-transference. The time has come when the pendulum of psychiatric interest has begun to return to validatable biologic facts, and how they are linked to subjective awareness.

Schizophrenia and Information Theory

Our culture has long maintained that there are two major aspects to man's total being. One component is objective and physical, while the other is subjective and personal. A few centuries ago they were called body and soul. In our current century we separate the brain and the mind. The past half century has seen attempts to bring these abstracted parts of man back together, as seen in Adolph Meyer's concept of "psychobio-logy". The essential unity of these concepts was best expressed by C. Judson Herrick when he observed: "My mind is not something that I have, it is something that I am. I am a minding body".

In the past couple of decades we have begun to describe man's mind-brain complex as if it were a biological computer. The computer is said to have objective parts which are deliberately constructed circuits capable of performing certain sorts of computations. This is the computer "hardware". The computer also has mechanisms which handle incoming data in certain ways so that a memory data bank can help the hardware to make certain sorts of decisions. This aspect of the computer is called its "software" because it is primarily learned or inserted into the computer to instruct it for the proper use of incoming data.

We can see that even the computer can be described as if it had "objective" hardware and "subjective" software components. The conflict between the orthomolecular psychiatrist and the rest of conventional psychiatry can be described in the terms of the bio-computer model. The orthomolecular psychiatrists maintain that people are biologically pre-programed to break down in certain ways when they are placed under sufficient stress. The schizophrenic patient is biologically prone to a disturbance in reticular formation and limbic system circuits which deal

with basic needs and primary drives. They have a disturbance of chemical equilibrium in the neurons of their biocomputer "hardware". This can sometimes be effectively helped by the addition of vitamins, minerals, and amino acids, along with the avoidance of foods or chemicals to which the person may be sensitive.

The larger group of conventional psychiatrists have accepted the psychodynamic proposals of the psychoanalysts. They have been taught that we did indeed begin life as a "tabula rasa", a blank tablet (or computer) which was entirely programmed by learned experiences. If this is so, the schizophrenic patient has a "software" disturbance rather than a "hardware" disorder. This belief by the psychoanalysts was expressed by Frieda Fromm-Reichman in 1948 when she proposed that schizophrenia was caused by "schizophrenogenic mothers". This label can be used to describe the basic assumption of a number of studies of families which have schizophrenic members. One major study program was done at the National Institute of Mental Health by Murray Bowen. He found the mother to be making contradictory demands upon the child: to remain helpless and also to become a gifted mature person (Bowen, 1960). Lyman Wynne took over the family section of the NIMH from Bowen in 1958 and produced some psychoanalytically biased papers which extended these concepts from the "individual" to the "whole family". He extended the concept of the "internalized parent" to the internalization of the whole family-role structure. The person who would later become schizophrenic would internalize faulty family communications and contradictions. These were proposed to be the basis for the later delusions, thought disorganization, and perceptual disturbances (Wynne, 1958).

A group in Palo Alto led by psychoanalyst Don Jackson and anthropologist Gregory Bateson were doing their research and teaching while I took my psychiatry residency at the Palo Alto Veterans Administration Hospital in 1958. They described communications as being of two types; the overt

or apparent message, and the covert one which was contained in the body language and style with which the message was sent. They emphasized messages with contradictory implication such that any simple interpretation of the communications in the family was probably wrong. They called this situation the "double bind". Their basic finding dealt with an ambivalent mother who becomes anxious and withdraws when the child reaches out with love to her. This withdrawal is covert punishment. Yet if the child withdraws he can be punished because mother needs to deny her own ambivalence. This group developed some sophisticated ways to describe communications, and the "double bind" concept is a clever one. They were aware that they found these distorted messages in schizophrenic families because they had a grant to study such families. They could not say how common it was in the families of neurotics or juvenile delinquents, but they thought it was more common in the families of schizophrenic patients.

This concept of internal contradiction and "double bind" was taken up by the English psychiatrist Ronald Laing and others of the protest or radical psychiatry movement. They proposed that schizophrenia is a social event which stems from the contradictions in a family or society. The group can somehow select a "target child" to be the victim of a pathology imposed upon her/him. (Laing and Esterson, 1964). We can be sure that Frieda Fromm-Reichman would have been surprised to see how her proposal about schizophrenic mothers could be used.

All of this activity concerning the family communication and information system as being the basic cause of schizophrenia was bound to lead to some skeptical studies. The most important early one was by Pit-field and Oppenheim in 1964. They investigated the proposal that the mothers of autistic or schizophrenic children were emotionally frigid or gave their children mere mechanical care. Carefully matched groups of one hundred mothers of normal, autistic and Down's syndrome children were studied. The responses of these mothers to the frustrations of child rearing were found to be quite similar, and to depend on the personality of the mother at least

as much as upon the pathology of the child. There was little difference in such traits as over protection, acceptance and rejection.

A much more important study was done at Maudsley Hospital in London. Hirsch and Leff (1975) found that there is a considerable difference in the criteria which are used for the diagnosis of schizophrenia in the United States and in Europe. If the family communication theory were correct, it should be just as true in the families of carefully diagnosed English schizophrenics as it was in the families of the more casually diagnosed Americans. This extensive study failed to confirm the assumptions that social-family factors were at fault.

Schizophrenia was first described as a group of disorders, and we can now begin to identify some of the subgroups. Some schizophrenic patients have frequent disturbances of perception and these will contribute stresses and aggravate the disorder. We can now discuss the way that some of these patients can be identified using the Hoffer Osmond Diagnostic Test.

The H.O.D. Test

The broad variety of curious distortion and delusions and thought disorders are reviewed in the Hoffer Osmond Diagnostic Test. It has 145 statements on cards which are to be placed in a "true" or "false" box. The Perceptual Score is counted from 53 of these items. It can reveal some curious sensations, and attitudes about why they may be there. Patients will characteristically admit more symptoms to this test than they will reveal during a verbal interview. They may be quite willing to talk about some of these symptoms once they have been objectively stated.

Some of the statements seem clearly paranoid, such as: *People watch me all the time, and / have heard voices coming from the radio, television or tape recorders talking about me.* Other items in this scale reveal some quite obvious sensory distortions: *Peoples' faces pulsate as I watch them. Now and then when I look in the mirror my face changes and seems different. My body now*

and then seems to be altered - too big or too small. Some of my organs feel dead. I can no longer tell how much time has gone by. Sometimes I feel very unreal. My bones feel soft.

Learning and the Brain Stem

The brain can be described as a complex bio-computer, and the centers and circuits which developed first were those which integrated incoming sensations with reflex motor responses. These proposals were made by Hughlings Jackson nearly a century ago.

Paul Schilder proposed that mechanisms register and integrate incoming sensation to a body image. This must be firmly learned and imprinted in order for the CNS to be able to regulate and smoothly control motor responses. The developing infant must first integrate the influence of gravity and the vestibular system into our non verbal motor response system. It has also been found that both auditory and visual information is channeled through the cerebellum before returning to mechanisms of the mind which have relay centers at the top of the brain stem.

Jean Ayers (1974) has emphasized that "sensory integration is crucial for the development of an adaptive response with which the person integrates smoothly with the environment". This system must develop in order for the person to separate the background of information from the external world, from the foreground of sensations which result from our own motion and activity in that world.

Mind Mechanisms and the Reticular Formation

These concepts about sensory input and integration were being quite effectively developed in the late 1930's. This is revealed by the great neurosurgeon, Wilder Penfield, in his 1938 Harvey lecture to the New York Academy of Science:

There is much evidence of a level of integration within the central nervous system that is (functionally) higher than that to be found in the cerebral cortex, evidence of a regional localization of neuronal mechanism involved in integration. I suggest that this region lies not in

the new brain (the cortex) but in the old (the brain-stem)...The indispensable substratum of consciousness lies outside the cerebral cortex, probably in the diencephalon (the higher brain-stem).

These comments were made a decade before Moruzzi and Magoun summarized knowledge about the central grey matter of the brain stem and called it the ascending reticular formation.

Structures here at the upper part of the reticular formation were proposed to be crucially involved in schizophrenia almost forty years ago. Roy Grinker (1938) proposed that incoming sensory data were being distorted by mechanisms with relay centers in the hypothalamus. His study compared schizophrenic and normal subjects when an electrode placed in the basal forebrain below the hypothalamus was activated. He found significant differences in the electrical response of the neocortex of these two groups. While this study appears to confirm an organic difference between them, Jules Masserman attacked the study because it was difficult to scientifically confirm just what tissue had been stimulated. The study has been ignored because there is no way to act on the observed facts. The psychoanalysts managed to dominate psychiatry for the next twenty-five years during which time Frieda Fromm-Reichman claimed that the cause of schizophrenia was "schizophrenogenic mothers". It has taken quite a few years for American psychiatrists to finally accept the return of attention to the organic basis of this disorder.

The Mind's Mechanism In his last book, **Mysteries of the Mind,**

Wilder Penfield described two units which constitute a centrencephalic integration mechanism. He calls one of them the "mind's mechanism", with important centers in the diencephalon or brain stem. The other is an automatic sensory-motor mechanism which he calls the "computer". I am proposing that the data input mechanism serves to organize incoming data for presenting a comprehensible sequence to centers at the top of

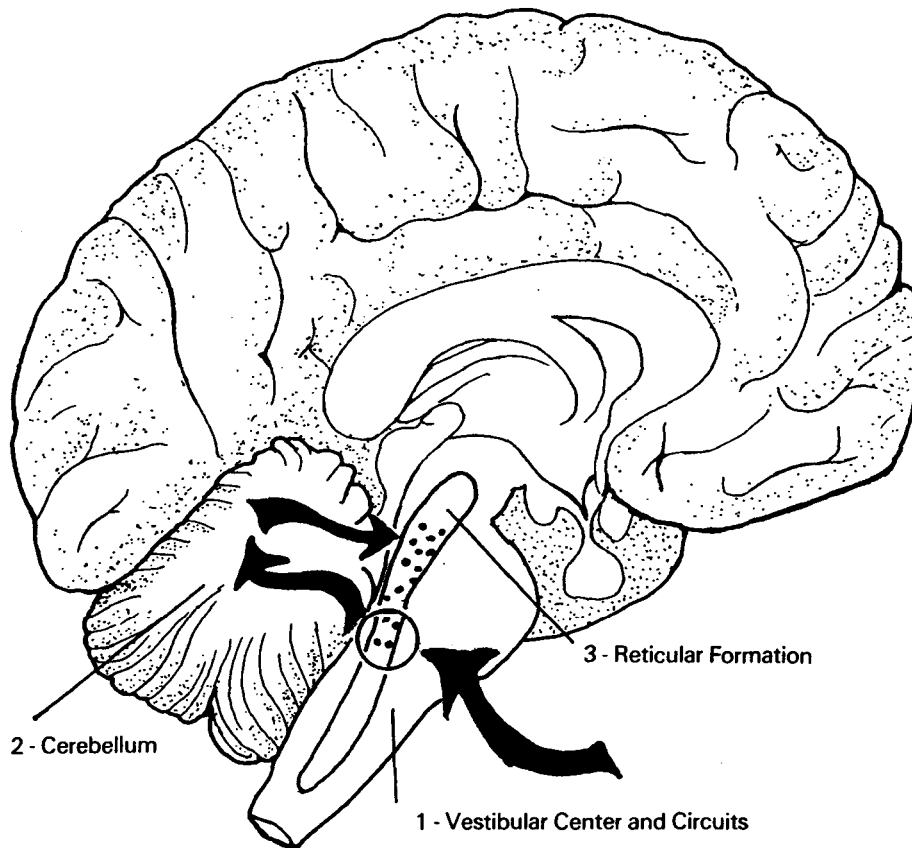


Illustration by Crystal Stevenson

FIGURE 1
Brain Stem Centers Involved in Perception and Sensory Integration

Vestibular function has long been known to be disturbed in a subgroup of schizophrenics. The vestibular pathways are integrated with the cerebellum and the reticular formation. A subgroup of schizophrenic patients has been found to have atrophy of the phylogenetically ancient vermis of the cerebellum. The cerebellum is involved in visual and auditory sensory input in addition to the better known proprioceptive muscular sensory input. The cerebellum integrates with reticular formation. The interaction of the reticular formation with the cerebral cortex is essential in order for conscious awareness to occur. Robert Heath has found a network which extends from the cerebellar vermis to the reticular formation and then to limbic system centers in the septum and the temporal lobe. This system is involved in pleasure and aversive responses. It is proposed that schizophrenic patients with perceptual defects have a disturbance of data input mechanisms regulated by these brain stem circuits.

the brain stem's reticular formation, where Penfield located part of the "mind mechanism". There is a disturbance of data input in many schizophrenic patients and this is revealed in items in the Perception Scale of the HOD test.

In the past year an atrophy of the anterior vermis of the cerebellum has been found in CAT scan studies. Weinberger and colleagues (1980) have studied autopsy specimens of the Yakovlev collection of brains from normal and schizophrenic patients. They found clear evidence that there is a subgroup of schizophrenic patients who have a structural abnormality of the anterior cerebellar vermis.

A study of vestibular function in schizophrenics was reported at the May 1980 national meeting of the American Psychiatry Society. Betsy Hirsch and associates from the University of Cincinnati (1980) used electronystagmography (ENG) to evaluate vestibular function of 16 schizophrenic patients. Vestibular abnormalities were present in 62 percent, and many more paranoid patients had a disturbance of this system than the non-paranoid ones.

These findings support the proposal for an organic basis for these perceptual disorders of schizophrenics. The real importance of these findings can only be appreciated when we can recall the recent work of Robert Heath at Tulane University (1977, 1980). He has extended the cerebellar pacemaker work of Irving Cooper from use with epileptics to the therapy of assaultive psychotic patients. The pacemaker electrodes are placed on the midline cerebellar vermis and connected to subcutaneous activators so that prolonged stimulation of the cerebellum can be maintained. He found that stimulation at 100 Hertz had an effect which is vaguely analogous to that which occurs when kindling stimulation is repetitively given at limbic system temporal lobe nuclei.

Heath has found that stimulation of the vermis activated a network which extends from cerebellar cortex to the fastigial nucleus and over to the brain stem. It tends to activate pleasure system responses in the septum and certain sites in the amygdala. It

simultaneously inhibits adverse system centers of the hippocampus and other focal sites in the amygdala. This network seems to connect centers which deal with aggressive behavior in both schizophrenic patients and patients with intractable depression. These findings show some of the connections from the phylogenetically ancient cerebellum to the brain stem limbic system.

Conclusion

These findings all support the conclusion that there is a clear organic basis for the sensory distortions which plague schizophrenic patients. These mechanisms involve an integration of vestibular centers and circuits with both the brain stem reticular formation and the cerebellum. This system is somehow involved in sensory integration of sight and sound as well as muscle proprioceptive input. Many schizophrenic patients, and particularly paranoid schizophrenic patients have an organic defect in brain stem mechanisms involved in data input. There is a subgroup of schizophrenic patients with a disturbance of sensory integration which involves vestibulo-cerebellar function.

Note: *The HOD test is available from Behavior Science Press, P.O.Box BV, University, Alabama 35486. A text describing the test, its concept and application entitled the Hof-fer-Osmond Diagnostic Test by A. Hotter, H. Kelm, and H. Osmond is also available from this source.*

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To The Editor:

The following is a submission I made in defence of Orthomolecular Medicine/Psychiatry to a Medical Benefits Revision Committee whose plan it was to make food allergies, vitamin/mineral assays "screening tests" and not eligible for government subsidy/health fund payments. I was given 15 minutes to present my case:

Orthomolecular Psychiatry (as defined by me in The Australian Medical journal, July 14,1979, p. 40, and noted in Index Medicus, March, 1980) "is the study of genetic, metabolic, endocrine, immunological and toxic disturbances that are contributing to, perpetuating, exacerbating or even causing the psychiatric symptomatology".

The other half of the definition which is often left out when people criticize orthomolecular psychiatry, and to distinguish it from biological psychiatry where usually vitamins, minerals, food allergies are not measured, is as follows:

"It is the investigation of vitamin (coenzyme) levels, mineral (cofactor) levels (or toxic levels of lead, copper and so on), hormone levels (we can't measure endorphin levels, exorphin levels, or prostaglandin levels at the moment), immunoglobulin levels (especially IgA and IgM), electrolyte

levels (especially bicarbonate, calcium, (and) blood sugars, and so on). What can be corrected is corrected and the patient is followed up regularly."

Such a definition was not challenged by Professors of Psychiatry, the College of Psychiatry, the Fund Directors or the Commonwealth Health Department and is accepted into the world literature and well accepted by orthomolecular psychiatrists here and overseas. It clearly states any organic factors that could be causing the psychiatric symptoms become the concern of the orthomolecular psychiatrist including vitamin and mineral deficiencies and food allergies.

The medical literature is full of organic conditions presenting as psychiatric symptoms and I refer to "Medical Screening of Psychiatric Patients" by Earl Gardner and Richard Hall, Journal of Orthomolecular Psychiatry, Volume 9, No. 3, pp. 207-215, where they look at the incidence of medical disease in psychiatric patients and state the "following conclusions seem justified for the study:

1. Approximately 80 percent of state psychiatric hospital inpatients have some medical illness requiring treatment.

2. It is difficult to distinguish physical disorders from functional psychiatric disorders

on the basis of psychiatric symptoms alone.

3. A large percentage of patients admitted to a state psychiatric hospital have previously undiagnosed medical illnesses which cause or exacerbate their psychiatric symptoms.

4. The endocrine and central nervous systems are the physiological systems of the body most often associated with medical illnesses which cause or exacerbate psychiatric symptoms.

5. Patients with medically determined major psychiatric symptoms are most often diagnosed as suffering from schizophrenia or depressive disorders.

6. The vast majority of medical illnesses which cause or exacerbate psychiatric symptoms respond rapidly to treatment with medication.

7. A combination of complete psychiatric history, indepth physical and neurological examinations, SMA-34 blood chemistry, electrocardiogram, routine urinalysis, and sleep deprived electroencephalogram should be considered the minimum standards for the medical evaluation of all patients being admitted to an inpatient psychiatric facility."

Also in the Archives of Psychiatry, Volume 37, September 1980, pp. 989-995, Hall et al. state: "One hundred patients of lower socioeconomic class were intensively evaluated medically on a research ward for the presence of unrecognized medical illnesses that might have affected their hospitalization. Forty-six percent were thought to have medical illnesses that directly caused or greatly exacerbated their symptoms and were consequently responsible for their admission, while an additional 34 percent of patients were found to be suffering from a medical illness requiring treatment. A diagnostic battery of physical, psychiatric, and neurologic examinations, coupled with a 34-panel automated blood analysis, complete blood cell count, urinalysis, ECG, and sleep deprived EEG established the presence and nature of more than 90 percent of the illnesses detected, and is therefore recommended as an initial evaluation battery, particularly for patients facing involuntary commitment to a mental hospital."

The cases listed include 56 schizophrenics where such things as folic acid deficiency, malnutrition, hypoglycemia, iron deficiency anaemia, thyroid, liver, and adrenal disorder, infections, toxic metal poisoning and renal disorder caused or exacerbated symptoms. The same applied to other disorders such as depression, manic depression, personality disorders and organic brain syndromes and such autoimmune diseases as Hashimoto's thyroiditis, parathyroid disorder, and adrenal disease. Thus not surprisingly when I looked at chronic long term patients in Ward 5, North Ryde Psychiatric Centre, 1973, using some of the tests, I increased by 10 fold the discharge rate from 12 per year to 120 per year at a time when 80 patients in hospital a year cost the state a million dollars — thus saving 1.5 million dollars in 1973.

The vitamin profiles provided free at the time by Roche Laboratory showed that of 18 schizophrenics looked at (1) 17/18 (94.5%) were low in Vitamin C; (2) 15/18 (83.2%) were low in Vitamin B1; (3) 13/18 (72.2%) were low in B6; (4) 13/18 (72.2%) were low in Vitamin A; (5) 11/18 (62%) were low in folic acid and 6/18 (33.3%) were low in Vitamin B12 - of these none were anaemic, hence article on Latent Pernicious Anaemia, original article, Australian Medical Journal, January 25, 1975. Note 33 percent had five vitamin deficiencies; 50 percent had four; 16 percent had three and only one percent had one.

Patient (S12) came to the ward on 120 mg/day of Stelazine and exfoliative dermatitis and left a few months later mainly on IMI B12.

Patient (S6) left hospital after twelve years in hospital and did well on IMI B12 for six months and vitamins, was working, and then the community psychiatrist ceased her injections because he thought she was so well, sending her back into hospital where she has remained since 1973. She was also developing anterior lens changes from largactil and had severe iron deficiency anaemia several months before discharge and hypogam-maglobulinaemia. At one stage her main treatment was ECTx3/week.

Patient (S2) left hospital after three years

on high doses of fluphenazine enanthate weekly and tofranil daily, only needing B1, folate, Vitamin C and remained out of hospital for a year travelling overseas but relapsed after returning and going off her vitamins.

Those patients tested before treatment with TAT, WAIS, Rorschach and Graham Kendall memory scale all showed improvement on the vitamin treatment after six months. Tony Diment (Sydney University School of Psychology — unpublished).

It was several years later that the true mal-absorption was learned. See table of food allergies in 20 male and 20 female schizophrenics tested by cytotoxic testing. Note in the females 70 percent were allergic to cow's milk, and 70 percent allergic to gluten containing foods especially wheat, malt, oats, rye (this is exactly what Dohan found). Fifty-five percent of males were allergic to cow's milk and gluten containing foods. Thus of the 40 schizophrenics:

	Percentage	Allergic to
62		cow's milk and gluten containing foods
35		yeast
25		mushrooms
25		wheat
22.4		curry
22.5		malt
22.5		oranges
20		coffee
20		egg
20		rye
17.5		chocolate
17.5		ginger
15		garlic
15		oats
15		tomatoes
15		lamb
12.5		prawn
12.5		skimmed milk
12.5		cane sugar
12.5		beef
12.5		bran
12.5		pineapple
10		onions
10		corn
10		potatoes
10		sunflower

10

- 7.5
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- pork
- green beans
- apples
- fish
- peas
- peanuts
- soya bean
- grapes
- tea
- barley
- hops
- chicken
- safflower
- bananas
- dates
- rice

Hence my letter in ARAFMI newsletter August 1980 and conclusion. "Thus I can say schizophrenia is a treatable/reversible organic illness that results from a genetic tendency to have gluten/ agliaden/ acasein (and toxic components of yeast, eggs, curry and many other foods) intolerance/hyper-sensitivity resulting in malabsorption for vit-amins/minerals/amino acids/tendency to hypoglycemia, and acidosis and defective immune system associated with abnormal IgM, IgA levels in particular and autoantibodies (especially reticulins and bile duct antibodies) and complement defects.

The treatment involves total avoidance of the food allergies, correction of the low vit-amins/minerals/hypoglycemia/acidosis and the patient will need less and less tranquilizers until within six to 18 months they are usually not required at all."

Similarly, looking at severely ill patients with neurasthenia/depression/arthritis/mi-grain/early hair loss and host of other problems I picked up seven SLE's confirmed by biopsy and another 25 still to have biopsy because immunologically/clinically they have SLE (i.e. high ANF titres, elevated ds DNA, immune complex abs, anti lymphocyte abs, other autoantibodies and low complements). Unfortunately one patient had been ill for 29 years; another for 10 years and was deeply depressed, had not responded to tryptanol for the last three years and was on 12 Tolvon/day, two Noctec and three Altovite and about to have

myelogram for a spinal and advised to have psychosurgery which she didn't want. She not only had SLE but also low vitamins, minerals and food allergies and is now off all psychiatric medications.

They are doing well on a milk/gluten free diet and correction of their vitamin and mineral deficiencies. Most not needing cortisone.

The prevalence of SLE is two to three per 100,000. Most recent estimates indicate that 77 percent of patients with SLE survive five years and thus 23 percent or more than one fifth die before five years. (Harrison textbook of medicine 9th edition.) Thus to see as many SLE patients as I have seen, you would normally have to see half a million people.

In July 1980, to assess the efficacy of orthomolecular treatment and the effect on reducing not only psychiatric symptoms, but also somatic/physical problems such as arthritis, proneness to infections, etc. and evaluate cost effectiveness, I sent out a questionnaire to my patients and 558 persons returned it by 1.10.80. See table.

Note: of 39 conditions treated 14/39 (35.8%) showed between 90 and 95 percent improvement and 21/39 (54%) between 80 and 85 percent improvement and only 4/39 (10%) improvement rate of 74 to 80 percent.

Thus 90 percent of 39 symptoms listed showed an improvement rate of between 80 and 95 percent. Also note the following findings:

163 patients admitted to psychiatric medication at commencement of orthomolecular treatment

1 now takes more	.61%
21 take the same amount	12.88%
47 take less	28.83%
29 take much less	17.8%
65 take none at all	39.88%

87 patients admitted to hospitalization for psychiatric reasons in 5 years prior to treatment. Of these 4 had almost continuous treatment for 5 yr 1 had almost continuous treatment for 2 yr 1 had daily treatment for 8 months 1 had weekly treatment for 5 years a total of 38 visits for others a total of 3,521 weeks treatment for the rest

12 patients admitted to hospitalization for

psychiatric reasons since treatment commenced. Of these

1 still has continuous treatment
2 commented that they each had one visit a total of 41 weeks for the others

23 patients admitted to hospitalization for physical reasons in 5 years prior to treatment, Nil since commencement of ortho-molecular treatment.

General Physical Health

- 272 are less prone to infections
- 234 show fewer white dots in nails
(correlates with malabsorption for B6 and zinc)
- 195 have less acne, better skin/hair/nails
- 125 have less sinusitis
- 110 have less indigestion
- 106 have less diarrhoea
- 105 have fewer mouth ulcers
- 102 have less constipation
- 98 are less underweight/have been able to put on weight
- 97 had fewer cramps
- 89 have fewer palpitations (heart racing)
- 89 have fewer migraines
- 75 have less rash/dermatitis
- 75 are less obese/overweight
- 72 have fewer cold sores (herpes)
- 67 have less premenstrual tension
- 62 have less arthritis
- 48 have less asthma
- 14 have fewer epileptic turns

The orthomolecular approach has helped

293 in their general physical/mental health so they have fewer complaints 202 to make new friends 201 in their ability to exercise 201 to take new interests 185 in their school situation 135 in their work situation

126 to renew old interests not previously possible

Conclusion

The above strongly supports the literature in the relevant tests done for the correct diagnosis and correct treatment and thus

management of the patient is essential and mandatory and orthomolecular psychiatry as defined by me is an effective cost saving, even life saving form of therapy and helping a wide variety of conditions.

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TABLE 1

THE FOLLOWING FIGURES WERE DERIVED FROM A QUESTIONNAIRE SENT OUT ON THURSDAY 17th JULY 1980 TO ALL PAST AND PRESENT PATIENTS (Total 12301. THE PATIENT GAVE DETAILS OF CONDITION TREATED AND PERSONAL OPINION OF PROGRESS.

Condition Treated	No. of Patients who Commented	Extremely Good Progress	Good Progress	Fair Progress	No Progress	Problem Is Worse	% Showing Improvement
Concentration	407	90	169	113	33	2	91.4
Less angry/irritable	331	80	146	80	23	2	92.44
Tense/anxious	327	74	144	84	20	5	92.35
Chronic lack of energy	309	112	118	62	16	1	94.5
Depression	302	111	125	47	17	2	93.7
Memory	291	57	115	85	32	2	88.32
Increased frustration tolerance	281	56	131	78	14	2	94.31
Change to more pleasant personality	266	78	115	54	18	1	92.86
Motivation	260	80	86	72	20	2	91.54
Learning difficulties	239	56	91	66	23	3	89.12
Less shy/self conscious	220	50	101	55	14	-	93.36
Confused	220	61	80	48	30	1	85.91
Co-ordination	217	57	90	59	9	2	94.93
Less indecision	216	61	84	56	15	-	93.05
Headaches	215	84	71	37	19	4	89.3
Insomnia	195	61	76	33	22	3	87.18
Tendency to make mistakes	182	38	75	46	20	3	87.36
Fearful	183	49	75	40	16	• 3	89.62
Behavioural problems	181	42	80	44	12	3	91.71
Hyperactive problems	154	41	72	31	8	2	93.51
Sleep disorders	152	53	58	23	15	3	88.16
Lose things	141	28	50	43	19	1	85.82
Panic attacks	133	45	47	26	15	-	88.72
Irrational fears	113	37	43	20	11	2	88.5
Suicidal ideas/attempts	105	56	24	14	9	2	89.52
Libido/sex drive	100	24	29	21	23	3	74
Obsessional	100	33	20	26	17	4 !	79
Irrational ideas	85	27	33	15	8	2	88.24
Phobic	81	29	26	17	8	1	88.89
Odd behaviour	80	25	27	19	5	4	88.75
Depersonalisation	77	27	27	13	9	1	87.01
Violence	65	26	23	6	7	3	84.61
Derealisation	54	23	13	15	3	-	94.44
Bed wetting	45	21	9	10	5	-	88.89
Seeing imaginary things	42	24	10	3	4	1	88.1
Hearing imaginary voices	40	19	11	5	3	2	87.5
Autistic problems	31	14	6	6	4	1	83.87
Alcohol abuse	29	13	7	6	2	1	89.66
Drug abuse	24	16	5	2	-	1	95.83

A total of 558 persons returned the questionnaire by 1.10.80. Of that number, 353 had seen General Practitioners about the above problem before being referred here. 110 had seen Paediatricians about the above problems before being referred here. 189 had seen Psychiatrists about the above problems before being referred here. 163 had seen other specialists/counsellors about the above problems before being referred here.

To The Editor;

Dr. Osmond's memo, JOP Vol. 9, No. 3 about Mrs. D.W. intrigued me. Perhaps if she had been under good dietary control, her hallucinations would be less bothersome or she would not have any, or she would be able to interpret them better. She had very marked dysperceptions and was unable to manage when the article was written. Dr. Osmond seems more concerned with how to manage her dysperceptions than with getting rid of them. Is this the difference in approach between a GP and a psychiatrist? We practitioners in private practice have to be more pragmatic in our approach and therefore look for the direct route. Treat cause, not effect, if possible. I have had more luck in the treatment of hallucinations by diet than any other method. Diet is first and foremost; only if the diet fails, do I try a psychological approach. By studying and dissecting the diet it is often possible to spot the food and help the patient. If a diet diary were kept for two weeks on Mrs. D.W., I suspect you would find some foods which the patient eats more often than others. These foods are suspect until proven otherwise. "Proof of the pudding is in the eating." The most common food allergens are wheat, milk, beef, coffee, citrus and so on. In

Canada, corn is not the allergen it is in the States so this must be borne in mind. I suggest the patient stop her most commonly eaten foods for seven days. Then check her perceptual changes. Not infrequently the patient has fewer and is feeling better. Then introduce the suspected foods one at a time and again watch for changes in perception. Green's Perceptual Dysfunction Test is handy for this. The food which caused the trees to move around should be a-voided for some weeks. If her symptoms are not relieved, the problem is one of malabsorption and is much more difficult to treat. You must go even farther down the food scale and start single food feedings to see if the patient can handle food at all. This helps quite a few patients. The others have to go on juicing, enemata, auto-immunization, Glyxoylide, Myo-Flex and whatever. It goes without saying the patient must be off refined CHO, stimulants, condiments, be doing exercises and usual things suggested by orthomolecular physicians. If food is the cause, and it usually is, then food will cure, and it usually does. Try elimination diets and food testing. It can be done in the office and at home.

R. Glen Green, M.D., CM.