

THE JOURNAL OF COLLEGIUM AESCULAPIUM





THE JOURNAL
OF COLLEGIUM
AESCULAPIUM

SPRING 1997

A PERSONAL NOTE FROM THE EDITOR

RU-486, The Flat Earth, Serotonin Syndrome, Killer Sunbeams, Medicine in Russia & More



Don't even think about putting this issue down till you read about *The Attack of The Killer Sunbeams* and the *Serotonin Syndrome*, which can be a *real* killer.

Did you know that if one of your patients takes a couple of serotonergic agents like the diet combo Phen/Fen, melatonin, Prozac, or even St. John's Wort (in many herbal teas), or the DM (dextromethorphan) part of common cough remedies, the combination may have profound adverse results with the serotonin syndrome? You'll want to read the details, but the result is a frightening condition with symptoms that might remind you of toxic shock. Bruce Woolley, who is a recognized expert on the serotonin syndrome, tells us all about it in this journalistic scoop.

And talking about scoops, you probably won't find much about killer sunbeams or The Flat Earth Society anywhere else this month. The Attack of The Killer Sunbeams is a first-person account written by Dr. K.C. Tubbs, one of my star residents in the Utah Valley Family Practice Residency. If my interview with the president of The Flat Earth Society isn't enough to brighten your day, the killer sunbeam story should help you catch the sunshine.

And then there's another killer article: RU-486, a drug that kills. Joe Stanford, who has the same strong feelings we do about the tragedy of abortion, wrote this special article for us. Let me make this clear right now. To us, this drug should never have been made. Abortion is abortion, and that means killing a fetus that's very much alive. Joe feels this way, and so do all of us on the editorial board. But with the FDA opening the door for its use, we thought you should know what others may be suggesting to your patients.

On a much happier note, I hope you'll read about the extraordinary but sobering experience that Lloyd Call and his wife had in Russia as health specialist missionaries. And if you're getting anywhere near the winding down part of your professional career, call Dr. Quinton Harris at the missionary department and find out more about how you and your spouse can prepare for a great adventure.

Then for a couple of spiritual bumps be sure to read Mark Rowe's article about spiritual individuality and George Cannon's reflections on serving as President of the Salt Lake Temple.

You may want to take this issue home so you can share the killer sunbeam and flat earth stories at your family home evening this week. Then I hope you'll loan out this issue to a couple of your colleagues who don't know about Collegium but who should belong. And once you get them signed up, don't forget to get your journal back!

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Phen/Fen

and the

Serotonin Syndrome

The coming of age of the new diet drug **Phen/Fen** has been hailed in news reports as everything from the latest in the series of popular pharmacological treatments for obesity to the outrageous claim of “**wonder drug** without side effects.” Public demand for the drug is high, if statistics from one state are any indication. In Utah alone roughly one-third—**32%**—of controlled substance prescriptions filled between Sept. 1 and Dec. 31, 1996 were for phentermine and fenfluramine, the two drugs that make up Phen/Fen. It is only lately, however, that the drugs have been linked with what has come to be known as the **serotonin syndrome**.

by Bruce H. Woolley, Pharm.D.

The

serotonin syndrome occurs when brain synapses are flooded by high levels of serotonin. Although it may be exacerbated by inherited or acquired factors, it is virtually always induced by medicines, and it can progress to a coma and even be fatal.

CASE STUDY

A 37-year-old Caucasian woman traveled to California to visit her parents over a holiday weekend. The previous year she had been treated with fluoxetine for depression. She had a Body Mass Index of about 30 and had been placed on the Phen/Fen diet.

While at her parents' house she developed an upper respiratory tract infection for which her physician prescribed an antibiotic. She later developed a cough, and a pharmacist recommended a cough medicine with dextromethorphan (like Robitussin DM). She returned to her parents' house and took a single recommended dose of 10-20 mg.

Within an hour she began to feel dizzy, nauseated, and dazed, and she developed the characteristic severe frontal headache. She became quite frightened, began to cry uncontrollably, and rapidly became unresponsive. She soon started to shiver and developed involuntary jerks of her legs. Her family called the paramedics, and she was transported to the hospital.

In the ER evaluation she was minimally responsive to pain stimuli. She had severe myoclonus, rigidity, and opisthotonos. Her vital signs were reported as temperature 38°C, pulse 74, blood pressure 156/94. She had warm, flushed skin. Her pupils were minimally reactive, but with significant hyperlacrimation. She also had hyperactive bowel sounds.

The patient became comatose and was intubated. She remained comatose with severe myoclonus and hyperreflexia. Her respirations were ventilator dependent.

She was admitted to the intensive care unit with a preliminary diagnosis of toxic shock syndrome, where she remained for three days. Lorazepam was administered for her rigidity and myoclonus. Forty-two hours after admission she became conscious and was extubated. She appeared to have continuous improvement for three days when she was discharged.

Although still present, her rigidity and myoclonus were greatly reduced at the time of discharge; however, she reported significant sustained ankle clonus and deep tendon reflexes in her legs.

A CLEARER PICTURE OF THE SYNDROME

To understand serotonin syndrome better, we need to review first what serotonin is and then how it works on the seven various 5HT receptors. (The 5HT stands for 5-hydroxytryptamine, the scientific name for serotonin.) It was previously believed that the neurotransmitter serotonin was confined solely to the central nervous system; we know now that this isn't the case. A person has approximately 10 mg of serotonin in storage at any one time. Of that 10 mg, 90% is found in the platelets and gastrointestinal tract. Only 10% actually exists in the central nervous system. This neurotransmitter does not cross the blood-brain barrier, and cannot simply be administered and expected to go into the brain. That's one reason why many health food stores tried—unsuccessfully—to sell L-tryptophan (from which serotonin is synthesized) to enhance serotonin as an antidepressant.

It is now becoming clearer that instead of serotonin working on just one receptor, there are at least seven different serotonin receptors. Four of them have been cloned, isolated, and evaluated in some depth. Three of these receptors have not yet been evaluated because they have only been cloned. Researchers know they exist, but very little is known about them. The ones that have been identified are labeled 5HT₁ through 5HT₄. They occur in different areas in the anatomy and each has a unique action. 5HT₁, 2, and 4 are G-protein linked receptors. The G-protein in 5HT₁ is adenylyclase, and the G-protein in 5HT₂ is phospholipase C, so they can be differentiated. 5HT₃ is a ligand-gated ion channel very similar to the calcium channels. Each receptor corresponds to a different set of symptoms (see *Table I* and *Table II*).

Almost without exception, serotonin syndrome is an iatrogenic condition. It occurs when a patient takes two or more serotonergic drugs that cause serotonin hyperstimulation in the postsynaptic serotonergic receptors. A key point is that there must be more than one receptor stimulated by more than one drug to trigger the syndrome. Reynolds wrote, "It should be underscored that serotonin syndrome is almost always caused by an interaction between two drugs that have different serotonergic

TABLE I: RECEPTOR DESCRIPTION

5HT ₁	5HT ₂	5HT ₃	5HT ₄	5HT ₅ , 5HT ₆ , 5HT ₇
G-protein linked	G-protein linked	ligand-gate ion channel	G-protein linked	Cloning suggests existence
(A) CNS depression	(A)	(A)	CNS/heart/GI	
(B) rodents 5HT _{1D}	(B)	(B)	inc. cAMP NT rel. activation	
(C) renamed 5HT _{2C} →	(C)	(C)	Agonists invoke gastric	
(D) inhibit NT rel., migraine	vascular smooth muscle	peripheral & central neurons	prokinetic activity	
(E) cardiovascular	platelets/CNS/lung/GI	pain, emesis reflex, anxiolytic		
(F) insomnia, sexual function	potential antipsychotics			

TABLE II: MOST FREQUENT CLINICAL FEATURES AND RECEPTOR ACTION

SYMPTOM	FREQUENCY	SEROTONIN RECEPTOR ACTION
Changes in mental status (confusion/hypomania)	45%	5-HT _{1A} insufficient to explain 5-HT _{1D} agonists produce anxiety 5-HT _{1D} and ₂ precipitate acute confusional state 5-HT modulates vascular tone (peripheral/central) Cerebrovascular vasoconstriction associated with some anxiety states
Restlessness/agitation	45%	Poorly described in Serotonin Syndrome Resembles akathisia Understood as feature of anxiety or hypomania
Myoclonus	34%	5-HT regulates motor activity in two ways: • Brainstem raphe nuclei generates repetitive behaviors (e.g. chewing) • Depresses posthyperpolarization of CNS neurons (ongoing activity) 5-HT activity in Serotonin Syndrome increases discharge, duration, and frequency of these neurons Manifested as myoclonus/tremor/hyperreflexia
Hyperreflexia	29%	<i>See myoclonus</i>
Diaphoresis/fever	25%	CNS 5-HT ₂ stimulation causes hyperthermia CNS 5-HT _{1A} activation causes hypothermia May imply 5-HT ₂ predominance
Shivering/tremor (masseter)	25%	<i>See myoclonus</i>
Diarrhea, nausea, and/or abdominal pain	16%	May be due to activation of chloride pumps (regulated by gut 5-HT ₃) CNS 5-HT ₃ involved in diarrhea Peripheral 5-HT ₂ and 5-HT ₄ also prokinetic
Incoordination	13%	Incoordination reflects a deficit in cerebellar function 5-HT ₂ located in molecular and granular layers of the cerebellum and in the dentate nucleus
Dyspnea		5-HT ₂ stimulation of vascular and airway smooth muscle leads to bronchospasm Activation of medullary 5-HT _{1A} increases respiratory rate Associated anxiety may also contribute
Hypertension and EKG changes		Medullary 5-HT _{1A} stimulation decreases heart rate and blood pressure CNS 5-HT ₂ stimulation opposite effect May be that CNS 5-HT ₂ predominates in Serotonin Syndrome
Disseminated Intravascular Coagulation		Platelets have 5HT ₂ receptors Stores 5HT in dense granules 5HT ₂ stimulation causes platelet aggregation and degranulation Unbound 5HT degraded by enzymatic activity Enzymatic degradation blocked by many agents that induce Serotonin Syndrome

Adapted from Brown, Skop, Mareth: The Annals of Pharmacotherapy 1996; 30:527-533

mechanisms of action. It must be assumed that altering normal serotonin pathways at one step can be therapeutic, but interfering with two steps creates a problem.”

What are these mechanisms of action? There are generally six major mechanisms that can increase the concentration of serotonin in brain synapses:

1. By increasing the synthesis of serotonin
2. By stimulating 5HT release from the presynaptic vesicles
3. By inhibiting 5HT reuptake
4. By reducing 5HT degradation either in the synapse or after uptake into the presynaptic nerve
5. Through direct post-synaptic agonist action
6. Through nonspecific increases in the activity of serotonin

WATCHING OUT FOR ENEMY AGENTS

Table III lists commonly reported serotonin agents and their mechanisms of action. If serotonin agents affecting more than one mechanism are administered at the same time, patients have a greater risk of developing serotonin syndrome.

Two common agents that increase serotonin synthesis are L-tryptophan and alcohol. Although L-tryptophan has been withdrawn from the commercial market, it is still found in fairly significant amounts in white turkey meat. Of all the alcoholic beverages, those that seem to be most often implicated in serotonin syndrome are beer and red wine; this may be due to some of the pharmacological actions of the other compounds they contain.

The release of serotonergic drugs can be stimulated by certain kinds of phenylethylamines like amphetamines. Cocaine is a profound stimulator for the release of serotonin. The fenfluramines also stimulate 5HT release, as do rauwolfia and the common herbal product valerian root.

Melatonin is also serotonergic and has been implicated in many cases of serotonin syndrome. Angel Dust (phencyclidine), sumatripton, and valerian root are other agents that also fit into this category.

Lithium is an example of a drug that works through nonspecific increases in the activity of serotonin. Electroconvulsive therapy also achieves the same ends.

THREE CATEGORIES OF RISK FACTORS

Factors that should alert physicians to the possibility a patient may be predisposed to the serotonin syndrome fit into the three basic risk factor categories detailed in *Table IV*: inherited, acquired, and iatrogenic.

Patients with low endogenous monoamine oxidase activity or a reduced ability to secrete endothelium-derived nitric oxide (an endothelial disease susceptibility marker) display inherited risk factors that could increase their chances of falling prey to the syndrome.

Patients may acquire a susceptibility to the syndrome if they have any one of four risk factors: liver disease, sub-

If serotonin agents affecting more than one mechanism are administered at the same time, patients have a greater risk of developing serotonin syndrome. Physicians who want to reduce their patients' risks should consider applicable inherited and acquired risk factors, then choose to use serotonergic agents that are selective for specific sites or receptors.

Agents whose actions inhibit 5HT reuptake include the tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), amphetamines, cocaine, dextromethorphan, fenfluramine [dex], and meperidine.

Agents that reduce degradation after reuptake include monoamine oxidase inhibitors. Herbal products include St. John's wort and yohimbe.

One agent with direct postsynaptic agonist action is buspirone. Some physicians put patients on buspirone because they want to avoid using a tricyclic antidepressant. Sometimes they don't realize that buspirone is every bit as serotonergic as tricyclics and LSD. An agent that seems to have become the drug of choice for insomniacs or frequent travelers who want to relieve "jet lag" is melatonin.

stance abuse, long-term use of amines, or an endothelial disease susceptibility marker (such as atherosclerosis, hypertension, hypercholesterolemia, damaged vascular or pulmonary epithelium, or diabetes).

While both of the above risk factor categories can make a patient vulnerable to developing the syndrome, it takes a stimulus for 5HT release (i.e., another serotonergic agent) to actually cause it.

Physicians who want to reduce their patients' risks should consider applicable inherited and acquired risk factors, then choose to use serotonergic agents that are selective for specific sites or receptors. By doing so, they can eliminate many of the adverse effects caused by agents which are non-selective to specific serotonin receptors.

TABLE III:
SEROTONERGIC DRUGS/HERBS IMPLICATED IN SEROTONIN SYNDROME

TYPE OF AGENT	SUBSTANCES IMPLICATED
Increase synthesis	L-tryptophan, alcohol
Stimulate release	Amphetamines, cocaine, fenfluramine, rauwolfia
Inhibit reuptake	TCAs, SSRIs, amphetamines, cocaine, dextromethorphan, fenfluramine [dex], meperidine, tramadol
Reduce degradation after reuptake	MAOI, St. John's wort, yohimbe
Direct postsynaptic agonist action	Bupirone, LSD, phencyclidine (angel dust), melatonin, valerian root
Nonspecific increase in activity	Lithium
Dopamine agonists	Amantadine, bromocriptine, bupropion, levodopa, phencyclidine, selegiline

DIAGNOSIS AND TREATMENT

What are the warning symptoms of this potentially serious syndrome? The typical picture is that of an agitated delirium in combination with generalized hypertonicity, seizures, hyperpyrexia, and variable elevation of heart and respiratory rates. The condition may or may not change, but can progress to a coma. *Table II* shows the most frequent clinical features in a study of 100 cases. Note that although the condition may worsen rapidly, the syndrome is not implicated in sudden death.

Symptoms can help point out the severity of the condition. In a mild case of the syndrome symptoms will include tremor, some confusion and incoordination. A moderate case would be characterized by agitation, hyperreflexia, diaphoresis, and shivering. In a severe case the patient will exhibit fever, myoclonus, and diarrhea. Severe cases require hospitalization.

The primary treatment is to discontinue the causative agent or agents. Symptoms will generally resolve in about 24 hours for agents with a half-life of less than 10 hours. For agents with half-lives between 10 and 18 hours, symptoms generally take three to four days more to resolve. If the causative agent has a half-life of more than 18 hours, patients may take much longer to recover. If delirium is present, symptoms will take at least four days to resolve.

The first and most important supportive measure is to deal with the hyperthermia. It is imperative that body temperature first be controlled. (Surgical procedures requiring anesthesia should be postponed for this reason.) Cooling blankets can help bring down body temperature, and then other agents can be administered as supportive measures: IM chlorpromazine as an antipyretic/sedative, anticonvulsants for the seizures, clonazepam for the myoclonus, and amlodipine to counteract the hyperten-

TABLE IV:
PROPOSED PATHOPHYSIOLOGIC RISK FACTORS

<i>Inherited</i>
Low endogenous MAO activity
<i>Acquired</i>
Liver disease
*Atherosclerosis
*Hypertension
*Hypercholesterolemia
*Damaged vascular or pulmonary epithelium
Substance abuse
Long-term amine use
*Diabetes
<i>Iatrogenic</i>
Serotonergic agents
*Reduced ability to secrete endothelium-derived nitric oxide

Adapted from Sternbach H: Am J Psych 1991; 140:705-713

sion. Other symptoms can be treated systematically.

In treating serotonin syndrome, blockade of 5HT₁ receptors is crucial; 5HT₂ antagonists do not stop symptomatology. One effective agent is propranolol, which is a 5HT_{1A} receptor antagonist. Other beta-blockers only inhibit the syndrome induced by L-tryptophan/tranylcypamine.

By knowing how serotonergic agents operate on different 5HT receptors, physicians already have a plan for avoiding the potential mine fields that conflicting agents can create for their patients. The strategy is to know the patient's background (inherited and acquired risk factors) and to choose only those serotonergic agents selected for specific receptor sites.

Bruce H. Woolley, PHARM.D., is a professor of food science and nutrition at Brigham Young University. He is a nationally recognized lecturer on drug interactions.

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Mission to **RUSSIA**

While the Iron Curtain once hid the healthcare woes of the Soviet Union, LDS health specialist missionaries in today's Russia face the stark reality of under-funded medical facilities.

by Lloyd Call, M.D.

HAVING BLOOD DRAWN FROM MISSIONARIES WITH unclean, used syringes was one of the most menacing worries my wife and I encountered as health specialist missionaries for the Church in Russia.

The blood was being drawn to test for AIDS. In an attempt to limit the number of foreigners, the Russian Duma passed a bill mandating AIDS tests for all aliens. Those who tested positive were deported. In one city, Russian guards escorted our missionaries from their apartments to the hospital for the test.

Another dilemma with this edict was the inaccuracy in reading the results. They lacked the knowledge to properly interpret a positive screening test. Previous medical reports indicated several Immune Globulin tests were falsely diagnosed positive.

During 1994 and 1995, my wife and I were responsible for helping to solve problems such as these concerning missionaries in Russia. We immediately sent a letter to the Russian authorities, and were able to come to a compromise. No further tests were conducted under these demanding circumstances, and only new, unopened syringes would be used to draw the blood.

Only about 100 missionaries were tested. To our relief, all the results were negative. No missionaries reported being tested with a used syringe.

We also formed an agreement with authorities to accept foreign AIDS tests if reported on acceptable Russian forms. We obtained standard laboratory forms and sent them to the Church offices to be translated into Russian and Ukrainian. They will be used in the Provo MTC and made available for the missionary upon arrival in Russia or the Ukraine.

This situation typified our discoveries of the Russian medical system, which the Area Presidency asked us to evaluate. We reviewed 50 hospitals in 20 cities in Russia, Belarus, Ukraine and Armenia, and found all wanting. We were not prepared for the deprivation we discovered. The status of most hospitals was appalling. Public health measures were grossly inadequate. Medicinal drugs were scarce commodities, even for immunizations.

These deficiencies increased the health risk to our missionaries. So, the second part of our assignment was to establish the most efficient and effective health care for LDS missionaries serving in the area's seven missions.

Our Moscow-based apartment served as the headquarters for maintaining contact with all of the missions in our assigned area. The location was equipped with a telephone and fax system, but the services were often delayed or unreliable.

We first addressed the topic of preventative education to the missionaries. Pollution in Russia is rampant and dangerous; outdated industrial plants discharge waste directly into rivers and the atmosphere. The Church sup-

plied each missionary apartment with a water filtration system which effectively removed the pollutants.

We also began to emphasize educating missionaries about their health. We interviewed or examined all missionaries, and Sister Call and the mission president's wife gave each missionary personal dietary, kitchen and apartment instructions.

The first step in the evaluation process was finding the available health facilities in each region. We soon discovered that this was more easily said than done. Western business firms printed a very limited telephone directory, but word of mouth was the most prominent method of locating hospitals and polyclinics. We spent a great deal of time just trying to track them down.

The medical face the communists presented to the world with their few "show" hospitals was a stark contrast to the realities we uncovered. Although the Ministry of Health of the Soviet Union was dissolved with the nation itself several years ago, the problems with the former institution escalated in the absence of order. The Russian Ministry of Health faces the challenge of reforming the national health system in the midst of continuing political turmoil.

The former Soviet Union's total spending on health was only one-seventh the average of Western nations, based on the gross national product. Even with a 40% increase in health care spending from 1986 to 1990, the Soviet Union was spending less than 3% of the nation's GNP on health care.

Russian health statistics reflect this neglect. In the two years we were in Russia, we witnessed two cholera epidemics, saw reports of 45,000 diphtheria cases, and saw the incidence of tuberculosis increase. The 1993 death rate exceeded the number of births by 800,000. The neonatal mortality rate is 20 times that of Canada.

The average physician's salary also mirrors this deficit. A metro driver in Russia earns \$450 per month, while a physician is paid \$100 to \$200 per month. Armenian physicians earn \$5 per month, and those in Ukraine receive \$25 per month.

Since under Soviet rule hospitals provided primary care for the citizens, lack of funding meant lack of facilities. According to 1990 Russian statistics, 29% of hospitals lacked plumbing, 19% had no central heat, 45% lacked bathrooms and showers, 49% had no hot water and 15% had no water at all. Computers were rare commodities.

The smaller and rural hospitals had the most severe problems.

The two "show" hospitals in Moscow, the Central Clinic Republican hospitals, were among the finest institutions we saw on our expedition. The Central Clinic Hospital consists of many elaborately furnished marble

buildings. The facility housed equipment that was top-of-the-line 10 or 15 years ago, before the communists ran out of money to fund the institutions. Nevertheless, we felt comfortable sending missionaries to this hospital for appendectomies and other necessary illnesses. The base charge there is \$400 per day, a huge sum in Russia.

The above institutions were reserved for top officials in the Soviet regime, and they are still primarily for the elite. However, both hospitals are trying to maintain their equipment and operations by providing services to “select” non-Russians for fees.

The other above-average hospitals we observed were designated exclusively to care for foreign diplomats. Admittance required a passport. We were impressed with a large, prestigious military hospital in St. Petersburg. Although the facilities were not modern, the equipment

Although the numerous surgical facilities were clean, they resembled their U.S. counterparts of 20 or 30 years ago. With few exceptions, maintenance of the equipment was minimal or non-existent for years at a time. The level of disrepair was far worse than Americans would deem disastrous. Concrete floors were often bare. All of the hospitals we visited were constantly in need of disposable supplies.

Pharmaceutical needs were also prevalent. The supply of medicine was largely dependent on imports, but the brands were often unreliable. Thus, each mission home is equipped with a small pharmacy with instructions for the mission president. A replacement stock was established in the Church office in Moscow to physically carry medicine to the missions as needed.

One missionary in Samara was potentially exposed to rabies, but we could not locate any human vaccine in

Under Soviet rule, Western journals and medical texts were available in St. Petersburg or Moscow, but certain portions were blacklined and some pages were torn out. Although the material is no longer censored, it is still difficult to obtain as hospitals have limited funds. Most hospitals have few texts. Few, if any, doctors have their own subscriptions to current medical journals.

appeared to be well maintained and the physicians were among the better trained.

This institution also housed a medical library with several million volumes dating back to the 1700s, including an entire room of rare antique medical volumes. They were very grateful to receive modern English medical texts from the Church, as communism had deprived them of such literature.

Under Soviet rule, Western journals and medical texts were available in St. Petersburg or Moscow, but certain portions were blacklined and some pages were torn out. Although the material is no longer censored, it is still difficult to obtain as hospitals have limited funds. Most hospitals have few texts. Few, if any, doctors have their own subscriptions to current medical journals.

The standard level of hospitals is quite different from the “show” facilities. Each large geographic area in Russia has a referral hospital in a major city. These large institutions encompass several buildings and house 2,000 to 4,000 beds. The wards varied from six beds per room to more than 20 small cots per room. Toilet and bath facilities were often minimal and poorly maintained.

Moscow. The only Rabies vaccine available in Russia was non-standardized equine. We called the Church offices in Salt Lake City, and they located the two vaccines in New England. The contacts in New England immediately sent the vaccines to the Kennedy airport, and located a member of the Church preparing to board a plane to Moscow. They handed her the vaccines with the instructions to give these to Dr. Call in Moscow, who would meet her at the airport. The missionary was immunized within 24 hours of his exposure. Moscow’s International Clinic now stocks both rabies immune globulin (RIG) and human diploid cell vaccine (HDCV).

The ambulance program, however, was the most discouraging for us. The city government was responsible for maintaining the fleet, but often 50 percent was not operational. Most cities had no medically trained drivers. Often the vehicles served pick up and delivery operations.

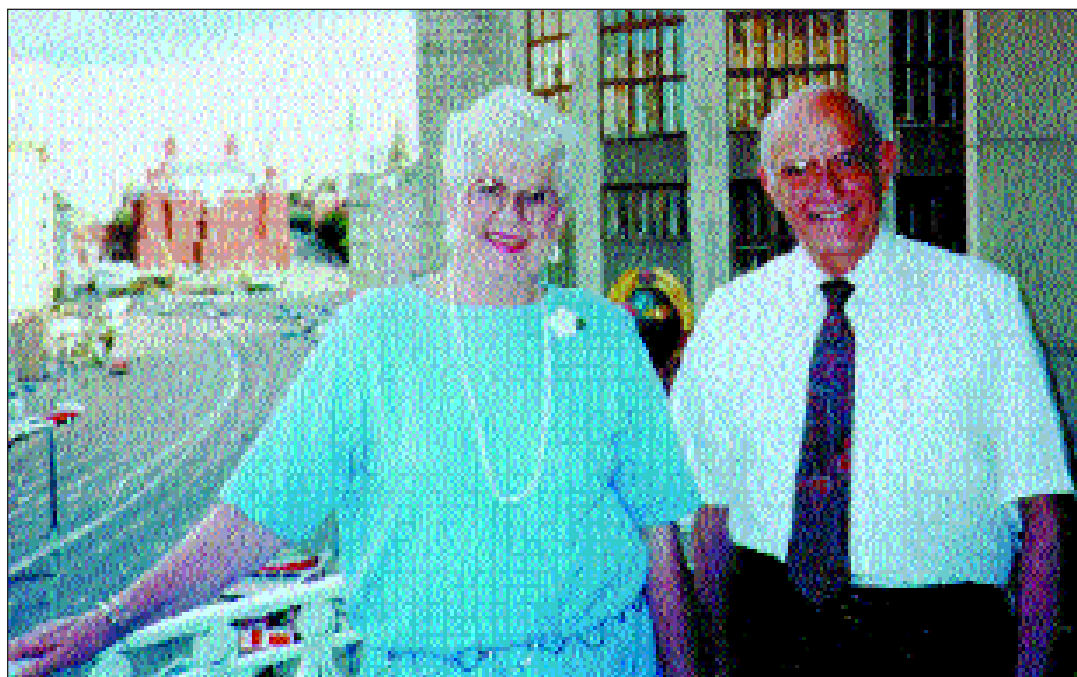
The average emergency response time to a traffic accident in Moscow was between two and four hours. We observed radio-directed ambulances in three cities, two of which were recent additions operating on a membership-only basis.

A Boston hospital had donated a well-equipped ambulance to a hospital in Yerevan, but the vehicle was mechanically old and not functioning. The chief mechanic identified the needed parts, which were donated by a U.S. company and flown in courtesy of JonHuntsman's company jet. The remainder of the fleet were the usual worn-out ambulances, but the service appeared to function moderately well.

One facility also housed an Echocardiogram, which was defective because of one part. In the United States the part is only a few hundred dollars, but that was a fortune to the Russians. Another U.S. company donated the part, and we arranged to have it flown to Yerevan.

patients. Most of those we saw had less funding than other institutions, resulting in spartan facilities. In addition to the problems faced by other hospitals, we observed welded and resharpened surgical instruments and reused IV tubing and bottles. We were in one large trauma hospital that had one portable old X-ray machine; the stationary units were also old. Another used lidocaine as its only anesthetic because it was the only agent available. The anesthesiologists had become adept in block and local anesthesia.

We visited one pediatric hospital in Minsk that had no pediatric formulas and an inadequate source of milk. This situation was compounded by the fact that most



Elder and Sister Call helped spread the gospel in Russia while helping their fellow missionaries get adequate health care.

Critical care units were sparsely equipped in many facilities; some were in a large room separated only by curtain partitions. Telementary units were of an older vintage. Reperfusion therapy for acute myocardial infarction was rarely used. The units were stocked with Bakelite volume respirators seen in America 30 years ago, but often only half of the instruments were functioning. We observed several hospitals that made their own IV solutions, while others reused needles, plastic syringes, IV lines, and even surgical gloves.

Certain hospitals were dedicated to caring for trauma

mothers did not lactate, a condition resulting from inadequate diets, severe stress and, possibly, from the nuclear fallout from the Chernobyl accident in this area. The infants were fed ground adult food and the mortality was high, so we requested powdered milk from the Church humanitarian service for this facility.

We also examined a large pediatric hospital in St. Petersburg, which was associated with a medical institute. This facility had a one-day supply of insulin, and reported great difficulty in obtaining other needed medications.

The Soviet regime emphasized the importance of the

state, and physicians were told their duty was first to the state, second to the patient. The "Oath of the Soviet Physician," as defined by the communists, included the precept, "To conduct all my actions according to the principles of the Communist morale, to always keep in mind the high calling of the Soviet physicians and the high responsibility I have to my people and the Soviet government." Thus physicians were required to defend the position of the state at the expense of patients.

The result of the above code led to the disintegration of patient's rights. There was no protection of privacy or information. Patients were often used as subjects in experiments without their knowledge or consent. Several authoritative sources told us of a population in southern Russia that was used in an experiment exposing them to high-altitude nuclear blasts, without their consent or knowledge.

Although legislation enacted in 1993 mandated the opposite approach, change is slow in coming. Russian physicians still do not communicate serious diagnoses to their patients and generally believe that obtaining consent for surgery is unnecessary and excessive.

Medical education in Russia is very different from that of the United States, but appears to be patterned after the European system. After high school, a student must pass an acceptance examination before being placed in the six-year medical school program. The student body consists of 2,000 to 4,000 students, and texts are scarce. The ratio of teachers to students was also very low. We learned that entrance requirements were not standard, and sometimes non-academic factors were used to encourage admission.

Construction on our first chapel in Russia began while we were there. The chapel site was in V-burg, 30 miles from St. Petersburg. The Church sent an American construction manager to supervise the project, but shortly after his arrival he suffered from a systematic hernia. He was unable to work, which substantially hindered the progress of the project, until the hernia was repaired.

Our role as "regular" missionaries was limited, but enjoyable. We presented a brief introduction of the Church to hospital administrators and some physicians, and gave them copies of the Book of Mormon. They received us graciously and warmly accepted the books. We asked local missionaries to follow up on these leads.

Four administrators we spoke with were familiar with the Church, using missionaries as humanitarian help during their public service time. All were impressed with the missionaries. One hospital administrator in Novosibirsk was taking missionary discussions when we left.

We set up a base for exchange between Russian and Western medical educators, but these programs require continued attention. Some negotiations are in progress, but others are still in the proposal stages.

One exchange we arranged was with the I. M. Sechnov Moscow Medical Academy, the most prestigious academy in the nation. This facility is responsible for continuing medical education in Russia, and works closely with the political powers in Moscow. We believe that working with this academy offers outstanding long-term benefits for both Russia and the Church. The Moscow Rotary Club offered to host American medical educators involved in this program.

The humanitarian services of the Church established an educational program at the medical institute in Ekaterinburg, one of the better facilities we reviewed. We were told that the program was immensely helpful.

We also identified the best hospitals in each city, requesting humanitarian aid for these facilities as well as others. We made a list of recommended facilities in each city, complete with telephone number, fax, address and the name of the contact physician. We also prepared detailed instructions of admission procedures for each hospital, and compiled these lists into a hospital directory for the mission presidents and the area office. The physicians that we met were dedicated in their desire to do the best possible for the patients, accepting their problems with a hope for the future.

But these were not our only accomplishments. We feel that we also left a base of goodwill wherever we went. I was privileged to be a guest speaker at the St. Petersburg and Moscow Rotary clubs, as well as the annual Russian Cardiology meeting with 1,000 Russian cardiologists in attendance. I also worked closely with the director of outpatient research in the Russian Cardiology Research Institute.

This mission was a magnificent opportunity to provide assistance to the Russian people, and to help the missionaries in that country as they introduce the gospel to this wonderful people.

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Mifepristone (RU-486): A Drug that Destroys Life

by Joseph B. Stanford, M.D.

“THIS CHURCH OF JESUS CHRIST OPPOSES ABORTION AND
COUNSELS ALL MEMBERS NOT TO SUBMIT TO NOR
PARTICIPATE IN ANY ABORTION, IN ANY WAY, FOR
CONVENIENCE OR TO HIDE SINS. ABORTION MUST BE CONSIDERED ONE
OF THE MOST REVOLTING AND SINFUL PRACTICES IN THIS DAY, WHEN WE
ARE WITNESSING A FRIGHTENING EVIDENCE OF PERMISSIVENESS LEADING
TO SEXUAL IMMORALITY. WE TAKE THE SOLEMN VIEW THAT ANY
TAMPERING WITH THE FOUNTAINS OF LIFE IS SERIOUS MORALLY,
MENTALLY, PSYCHOLOGICALLY, PHYSICALLY. TO INTERFERE WITH ANY OF
THE PROCESSES IN THE PROCREATION OF OFFSPRING IS TO VIOLATE ONE
OF THE MOST SACRED OF GOD’S COMMANDMENTS — TO ‘MULTIPLY, AND
REPLENISH THE EARTH’ (GEN. 1:28).”

— *President Spencer W. Kimball*
April 1975 General Conference

Mifepristone is a drug that was developed for the purpose of terminating pregnancy; hence it has received considerable press attention as the French “abortion pill” (RU-486). It is a progesterone antagonist with multiple effects on the body. Mifepristone has been conditionally approved by the FDA for use in the United States and will probably be marketed this year.¹ Because of widespread interest in this new drug and especially because there are profound ethical issues associated with its use, it seems important for physicians in the Church to be knowledgeable about this medication.

The purpose of this review is to give a succinct summary of the properties of this agent and the spectrum of its possible uses, especially those related to pregnancy, and then to explore the moral issues which are raised by its use — and which ultimately may apply to similar applications of other drugs. In so doing, I will state why I feel it is inappropriate for a faithful LDS physician to prescribe this drug for the purpose of interrupting the development of human life. I hope that my perspectives help stimulate others to develop their consciences regarding medications and procedures that intimately affect the processes which God has established for the creation of mortal human life.

MIFEPRISTONE: A BRIEF MEDICAL OVERVIEW

Mifepristone is a steroid derived from the progestin norethindrone, but, unlike norethindrone, it has no progesterone agonist effects.² The drug competitively binds to progesterone receptors, which are present predominantly in the reproductive tract. Its affinity for these receptors is five times that of progesterone. Mifepristone also affects the pituitary feedback mechanism, so that when it is administered in the follicular phase of the menstrual cycle, ovulation and endometrial development are delayed.^{3,4} When mifepristone is given in the luteal phase of the menstrual cycle, the major effect is degeneration and shedding of the endometrium, which will either prevent implantation of a conceptus or will prevent further development of an embryo that has already implanted. Mifepristone increases the levels of prostaglandins F₂alpha and E₂ in uterine tissue and thus increases uterine contractions.⁵ Mifepristone also binds to glucocorticoid receptors with three times the affinity of dexamethasone; however, clinically significant hypocortisolism only occurs with high doses over several weeks.

Orally administered mifepristone absorbs easily from the gastrointestinal tract, and the serum half-life of the drug is about 20 hours. Because of saturation characteristics of the carrier protein, similar serum levels of mifepristone occur following ingestion of doses varying from 100-800 mg.⁵

Mifepristone has been applied medically in a variety of ways:

- as an adjunctive agent for cervical ripening for second-trimester abortions;
- as a means to induce abortions early in gestation (in combination with various prostaglandins);
- as an agent for post-coital (“morning after”) contraception;
- as a monthly contraceptive medication;
- as a daily contraceptive medication;
- as an agent to induce labor at term.

Mifepristone also has potential uses unrelated to pregnancy, including its possible use in malignancies like breast cancer, prostate cancer, Cushing’s syndrome, and possibly endometriosis. For the purposes of this article, I will review only those uses related to interruption or avoidance of pregnancy.

I FEEL IT IS INAPPROPRIATE FOR A FAITHFUL LDS PHYSICIAN TO PRESCRIBE THIS DRUG FOR THE PURPOSE OF INTERRUPTING THE DEVELOPMENT OF HUMAN LIFE.

WHAT MIFEPRISTONE DOES

Mifepristone has been used to “ripen” and dilate the cervix before termination of a second-trimester pregnancy by administration of prostaglandin.⁶ It reduces the time interval from prostaglandin administration and expulsion and allows lower doses of prostaglandin to be used. The exact mechanism for this effect is unclear.

The most publicized use for mifepristone is as an “early abortion pill.” Actually, mifepristone is relatively ineffective when used alone for this purpose (only 50% to 85% complete abortions when administered in the first 49 days of amenorrhea).⁵ Used in conjunction with a prostaglandin agent, however, mifepristone is an effective abortifacient when administered early in pregnancy (within the first 49-50 days of amenorrhea).

The most common regimen is to give a single oral dose of mifepristone, followed by a prostaglandin administered 48 hours later. Prostaglandins that have been used for this purpose include sulprostone (administered IM; use now abandoned because of rare association with myocardial infarction); gemeprost (administered intravaginally); and misoprostol (administered orally or vaginally; available in

the U.S. under the trade name Cytotec for the FDA-approved indication of prevention of NSAID-induced gastric ulcers). The rate of complete abortion with 1 dose of mifepristone and 1-2 doses of misoprostol is generally 95% or more and has been reported in one study to be as high as 98.7%.⁷ “Failures” include ongoing pregnancies (0.5%), incomplete abortions (0.5%), and ectopic pregnancy (0.3%).⁷ Common side effects of the combination of mifepristone and a prostaglandin include nausea, vomiting, diarrhea, fatigue, dizziness, lower abdominal pain, and uterine cramps. Prolonged uterine bleeding can occur, and around 1% of women have excessive bleeding, requiring vacuum aspiration.

Similar results have been reported for the use of methotrexate with misoprostol, suggesting that regimens for “medical abortion” may be developed with other medications that are currently available in the United States.⁸

USE FOR POST-COITAL CONTRACEPTION

A single oral dose of mifepristone used within the first 72 hours after intercourse prevents pregnancy. The major mechanisms appear to be the delay of ovulation if the drug is given before ovulation or the prevention of implantation if given after ovulation. Mifepristone is at least as effective as an established regimen for the same purpose: two estrogen-progestin oral contraceptive tablets (of a specific dose level) followed by two more tablets 12 hours later.⁹ Somewhat fewer women experienced side effects (predominantly nausea and vomiting) with mifepristone than they did with the hormonal regimen. In addition, mifepristone has been used as post-coital contraceptive agent for up to 17 days after intercourse, although the longer the interval, the more likely it is that some “failures” (pregnancies) will occur.

INVESTIGATIONAL USE FOR MONTHLY CONTRACEPTION

Theoretically, mifepristone could be used on a monthly basis to prevent implantation (or continuation of an implanted embryo), to prevent follicular development or both. This application remains investigational, however.⁵

INVESTIGATIONAL USE FOR DAILY CONTRACEPTION

Daily administration of mifepristone has been shown, in low doses, to alter the endometrium in a way likely to prevent implantation and, at higher doses, also to stop follicular maturation and to delay ovulation (until several days after discontinuation of treatment).¹⁰ This application also remains investigational. It is interesting to note that an analogous spectrum of effect has been observed for synthetic progestin-only birth control pills and low-dose combined estrogen-progestin birth control pills: while they usually suppress ovulation at lower doses, “breakthrough” ovulation sometimes does occur¹¹ while



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the endometrium remains altered in a way that is likely to prevent implantation.¹² Similar observations have been made for the long-acting progestin contraceptives Norplant^{13, 14} and Depo-Provera.¹⁵

Besides their effects on the endometrium, synthetic progestins alter the cervical mucus, likely preventing sperm transport.^{4,12} I have been unable to find any reports of the effect of mifepristone on cervical mucus; theoretically it might enhance the production of the type of mucus which is favorable for sperm transport since progesterone is responsible for the production of the type of cervical mucus which is hostile to sperm.

ETHICAL AND MORAL QUESTIONS RAISED BY MIFEPRISTONE

The potential availability of mifepristone for the pregnancy-related applications I have briefly reviewed raises some important questions for physicians. These questions are not unique to this single medication; as noted earlier, other medications can be used in similar ways, and it is likely there will be new drugs (and new applications developed for old drugs) which raise the same issues. Nevertheless, I believe that consideration of the spectrum of potential uses for mifepristone brings two questions sharply into focus:

1. What is induced abortion?
2. When does life begin, and at what point in the reproductive process should a life or potential life be respected as sacred?

It is clear that the answers to these questions are intimately interrelated. Our knowledge of the processes of human reproduction and our capability to medically intervene in these processes require each of us to personally consider these questions and their moral implications.

Induced abortion can no longer be defined as solely a surgical procedure. In addition to surgically induced abortions, now there are medically induced abortions (The attempt to terminate pregnancy with medication is not new, but the reality of a highly effective medical regimen to do so in the first trimester is relatively new). The Lord states, "Thou shalt not...kill, nor do anything like unto it" (D&C 59:6). In accordance with this commandment, modern day prophets have constantly warned against the sin of abortion.

Because abortion can be induced by medical means, a crucial issue is the question of when human life begins. In obstetrics and gynecology, pregnancy has been medically defined as an event that begins at implantation.¹⁶ By this definition, some have rationalized that "abortion," or

I HAVE LEARNED THAT THE STANDARDS OF THE MEDICAL COMMUNITY CANNOT, OF THEMSELVES, BE A SUFFICIENT BASIS FOR OUR OWN MORAL STANDARDS. EACH OF US HAS A PERSONAL RESPONSIBILITY TO THE LORD FOR OUR CHOICES IN THE PRACTICE OF MEDICINE.

"abortifacient effects" cannot take place before implantation. Under this view, if mifepristone (or any other agent) is used in a way that prevents implantation, but does not prevent conception, "abortion" does not occur. The fact that some conceptuses spontaneously fail to implant is often cited in support of this point of view.

Is this medical definition a valid basis for a moral decision? I do not think so. Elder Russell M. Nelson, in the April 1985 General Conference, addressed this issue:

It is not a question of when "meaningful life" begins or when the spirit "quicken" the body. In the biological sciences, it is known that life begins when two germ cells unite to become one cell, bringing together twenty-three chromosomes from both the father and the mother. These chromosomes contain thousands of genes. In a marvelous process involving a combination of genetic coding by which all of the basic human characteristics of the unborn person are established, a new DNA complex is formed. A continuum of growth results in a new human being. The onset of life is not a debatable issue, but a fact of science.

I realize that at various times in the past, differing opinions have been expressed as to when the spirit enters the body.

Recently, Elder Dallin H. Oaks addressed this issue in the October 1993 General Conference:

Our attitude toward abortion is not based on revealed knowledge of when mortal life begins for legal purposes. It is fixed by our eternal knowledge that according to an eternal plan all of the spirit children of God must come to this earth for a glorious purpose, and that individual identity began long before conception and will continue for all the eternities to come. We rely on the prophets of God, who have told us that while there may be "rare" exceptions, "the practice of abortion is fundamentally contrary to the Lord's injunction, 'Thou shalt not... kill, nor do anything like unto it.'"

Finally, Elder Lynn A. Mickelsen of the Seventy stated in the October 1995 General Conference that "human life is the precious stepping stone to eternal life, and we must jealously guard it from the moment of conception."

I believe that when mifepristone (or any other medication) is used for the purpose of interrupting a developing human life, it is morally equivalent to surgically induced abortion, regardless of how early in the process it is applied. I see no moral basis for any distinction between the use of an abortifacient drug before implantation (but after fertilization) or following implantation. In practical

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terms, I see very little moral difference between using mifepristone as a post-coital contraceptive, where there is a significant probability that it will prevent the implantation of a conceptus, than using it a week or more later to destroy an embryo that has already implanted.

MY PERSONAL JOURNEY

I sought my own personal answers to these issues during medical school at the University of Minnesota. I learned of the potential post-conceptual mechanism of action of hormonal contraceptives (as well as of intrauterine devices) during a pharmacology class and discussed this with some of my classmates who were good friends and who, incidentally, were of the Baptist, Lutheran, and Catholic faiths. I was the only LDS student in my class. Several of us decided that we did not want to prescribe any agent that might have an abortifacient mechanism. Following that decision has led me to many other personal discoveries that go beyond the scope of this article. I have found that as I approach patients in a way that respects their own moral agency and explain that there are certain things that I cannot prescribe because of my own personal beliefs, they are almost universally understanding. I have had similar reactions from most of my medical colleagues. I respect their moral choices and find that most of them are willing to respect mine.

In the process, I have learned that the standards of the medical community cannot, of themselves, be a sufficient basis for our own moral standards. Each of us has a personal responsibility to the Lord for our choices in the practice of medicine. As faithful Latter-day Saints, our safety and security lie in following the revealed word of the Lord and the counsel of His prophets and in seeking the guidance of the Holy Ghost to carefully apply this counsel to our own medical practices. We should never allow patients' requests, medical practice guidelines, or prevailing medical opinion to induce us to violate our own moral standards.

In conclusion, I wish to acknowledge that many of the situations and issues that arise in medical practice are not easy. With regard to issues that deal with the sacred powers of procreation and the beginning of mortal life, I have found that some of the most heart-rending dilemmas can occur, matched perhaps only by some situations that arise at the end of mortal life. I believe that each of us has the need — and the privilege — to thoughtfully and prayerfully consider our choices in these matters and to receive inspiration from God in making our choices. I pray that each of us may seek and receive that inspiration.

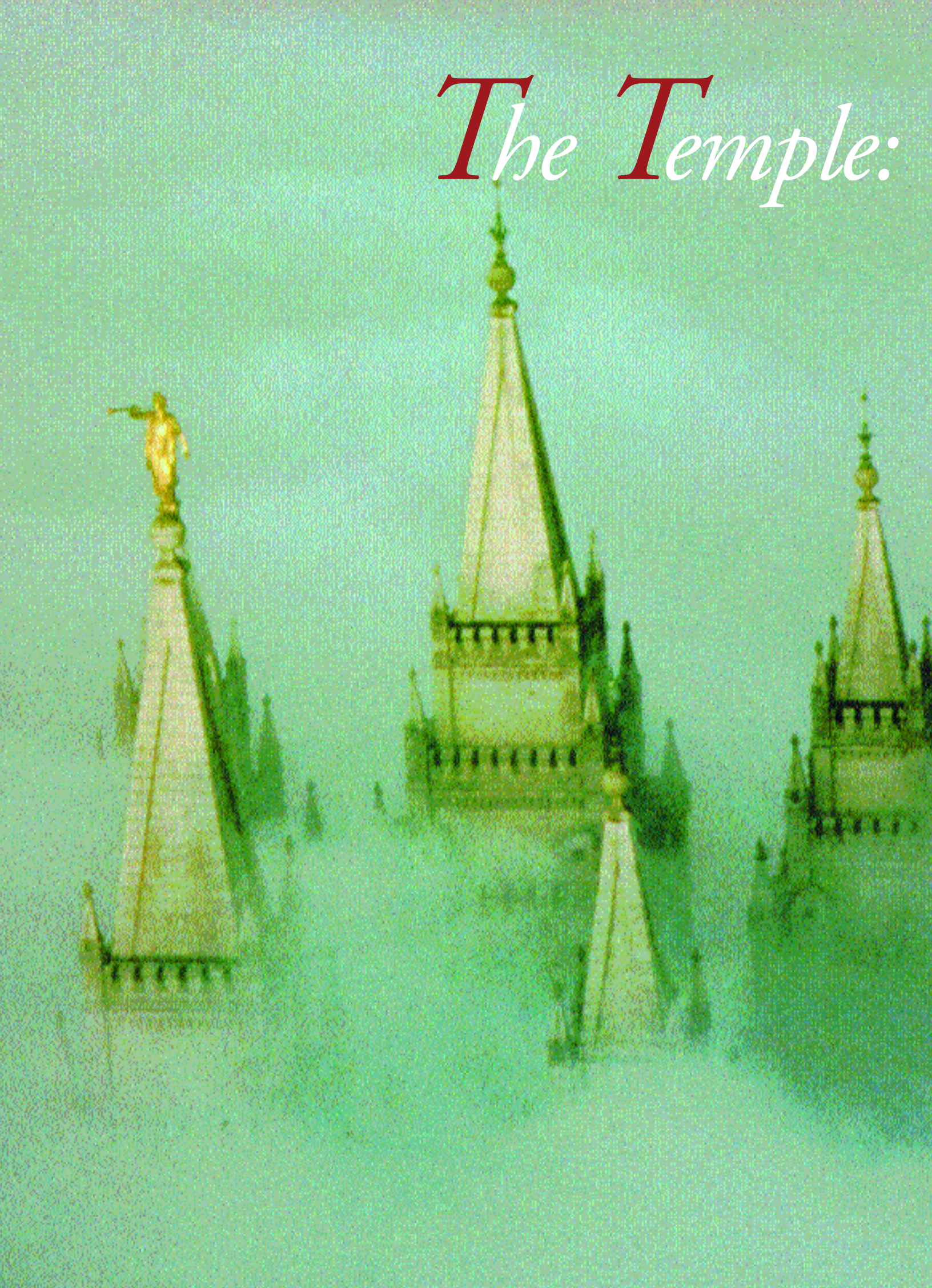
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Editor's Note: Views expressed in this manuscript are those of the author and do not necessarily represent the views of the University of Utah.

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The Temple:



A Special Place

BY GEORGE I. CANNON

Joseph Smith, the great visionary prophet of the Restoration, taught us much about the temple. Just eight months after the Church had been restored, the Savior told Joseph: “I am Jesus Christ, the Son of God; wherefore, gird up your loins and I will suddenly come to my temple. Even so. Amen.” (D&C 36:8)

I believe this is the first time the Savior talks about His temple. In the 97th Section, verses 10-16, He talks considerably about the temple — what it should be like, what things were to take place in the temple — and then concludes with these profound words: “And inasmuch as my people build a house unto me in the name of the Lord, and do not suffer any unclean thing to come into it, that it be not defiled, my glory shall rest upon it: Yea, and my presence shall be there, for I will come into it, and all the pure in heart that shall come into shall see God.”

On April 26, 1834, four years after the Church was organized, Joseph Smith prophesied, “This people will go into the rocky mountains and there they will build temples to the most high God.” How marvelous it is that the Lord would let the Prophet Joseph know, before any temples had been built, that the saints would go to the Rocky Mountains and there they would build temples.

On April 3, 1836, one week after the Kirtland Temple had been dedicated, great spiritual manifestations took place in the temple. These are recorded in Section 110 of the D&C. The Savior appeared to Joseph Smith and Oliver Cowdery, and said to the Prophet, “I have accepted this house, and my name shall be here; and I will manifest myself to my people in mercy in this house.” Following the Savior came Moses, Elias and Elijah, bestowing upon the Prophet the keys necessary to bring about the fullness of the gospel.

To Joseph Smith were revealed the sacred ordinances of the temple. A few weeks before the prophet Joseph’s death, he made the statement, “We need the temple more than anything else.” He was concerned that everyone possible receive the blessings of the temple.

Brigham Young was the one to see that the Nauvoo Temple was completed and the sacred ordinances performed. The first ordinances for the dead were baptisms, and they were initially performed in the Mississippi River. The first part of the Nauvoo Temple that was completed was the baptismal font, and baptisms for the dead were done in the temple before it was completed. Once the temple was finished, the living ordinances were performed around the clock because the saints knew that soon they would be driven from Nauvoo.

A TEMPLE TO OUR GOD

Four days after Brigham Young arrived in the Salt Lake Valley, he came to where the temple now stands, put down his cane and said, “Here we shall build a temple to our God.” Wilford Woodruff, then a member of the Quorum of Twelve Apostles, drove a stake into the ground to mark the spot.

Although Brigham Young had only 11 days of formal schooling, he played an instrumental role in the architecture, design and building of this beautiful, sacred structure. President Gordon B. Hinckley pointed out to us that the Salt Lake Temple has not only six towers, but 52 spires as well.

The building of the Salt Lake Temple, like other early temples of the saints, often resulted in great personal sacrifice by its builders. The story of one early temple laborer illustrates this.

John Rowe Moyle was born in Cornwall, England, where he grew up a stone cutter. He joined the Church and emigrated to the valley and settled in Alpine, Utah, 20 miles south of Salt Lake City. Soon after, he was called to serve a mission to help build the Salt Lake Temple. Every Monday morning, he would walk to Salt Lake and work there until Friday. On Friday, he would walk back to Alpine, work on his farm and take care of his church duties on Sunday.

On one occasion while milking his cow in Alpine, the cow kicked Brother Moyle’s leg, causing a compound fracture, so that the ends of the bone broke through the flesh. As was customary at the time, it was decided he would have to have his leg amputated at the knee. After recovering from the amputation, Brother Moyle carved a wooden leg and commenced walking to Salt Lake each Monday and walking home each Friday. John Rowe Moyle is the one who climbed the scaffolding on the east side of the temple and carved that glorious inscription, “Holiness to the Lord.”

After John Taylor came Wilford Woodruff, who was the prophet when the temple was dedicated on April 6, 1893, in the Assembly Room on the fifth floor. Thirty-one dedication sessions were held, providing opportunity for 82,000 saints to participate.

For President Woodruff, this occasion was the fulfillment of the dream he had several years earlier. President Woodruff had great spiritual gifts and spiritual experiences. He confided in his journal: “Nearly 50 years ago while in the city of Boston, I had a vision of going with the Saints to the Rocky Mountains, building a temple and

I dedicated it. Two nights in succession before John Taylor's death (1887), President Brigham Young (who had died 10 years earlier) gave me the keys of the temple, and told me to go and dedicate it, which I did."

Later President Woodruff told a congregation of saints, "The Heavenly Hosts were in attendance at the dedication ... and if the eyes of the congregation could be opened, they would have seen Joseph and Hyrum, Brigham Young, John Taylor and all the good men who had lived in this dispensation assembled with us, and also Elias, Jeremiah, and all the Holy Prophets and Apostles who prophesied of the latter-day work. They were rejoicing with us in this building which had been accepted of the Lord, and when the Hosanna shout had reached the throne of the Almighty, they too had joined in the joyous shout."

A most unusual event occurred the second day of the dedicatory services. A sister by the name of Emma Bennett had come from Provo to attend the services. She was in her last month of pregnancy. While waiting to enter the temple, Sister Amanda Cook noticed the young pregnant woman and wondered if she should have come in her condition. Emma admitted that she had been "so anxious to be at the dedication that she had taken the chance." Sister Cook, who was a midwife, assured Emma that if "she should need any help, she should call for her."

After two hours, it became evident to Emma that the baby was not going to wait. She quickly signaled Sister Cook that her time had come. The young woman was escorted from the main Assembly Hall to a side room nearby by the experienced midwife. As she lay on the floor "fast in labor," another woman entered the room and exclaimed, "What is she doing here? She can't have a baby here!" Amanda Cook replied politely, but firmly, "She can and will, because she can't be moved now." James E. Talmage noted in his diary that a sister gave birth to a son just at the close of evening services.

"A Sister Bennett from Provo was taken with labor pains and gave easy birth to a son," Elder Talmage records. "She was removed from the Assembly Room to a small apartment in the temple. Some religious sects would hold that such an event desecrated the holy place, but the Latter-day Saints will take a directly opposite view."

Eight days later, Sister Bennett returned to the temple with her husband, Benjamin, and new son for a special blessing. They went to President Joseph F. Smith, who was the second counselor in the Presidency of the Church, and asked him if he would give the baby a name and a blessing. President Smith named the boy Joseph Temple Bennett — Joseph after himself and Temple after his place of birth.

A PLACE OF REVELATION

The first president of the Salt Lake Temple was Lorenzo Snow, who was also president of the Quorum of the Twelve. For good reason, we talk very little about the many spiritual experiences people have in the temples of the Lord. They occur every day, often in the form of patrons being able to know the work they are doing is accepted on the other side. We do talk about an experience President Lorenzo Snow had in the temple because it is well publicized and because it is an important part of Church history.

After Wilford Woodruff died, President Snow was very concerned about becoming president of the Church. He went into the Holy of Holies, where he asked the Lord to guide him as to what he should do. He received no immediate answer, but as he left, the Savior appeared to him and said: "You are to become the president of the Church and it is to take place now. You are to call the same two brethren who are your counselors, to continue to serve with you in the presidency."

After that visit, he immediately gathered all the apostles together. As they commenced their meeting, Elder Francis R. Lyman, who was one of the junior apostles, stood and said, "I am probably out of line because I am a junior apostle, but I feel strongly that President Snow should be called now to be the prophet and president of the Church." President Snow then indicated he would like to hear from each member of the quorum. Each member spoke and confirmed what Brother Lyman had said. President Snow then told them of his experience with the Savior in the temple. He was ordained immediately as the prophet. Before that time, several years had elapsed from the time of the passing of the prophet and the new prophet was called. Now it is always done immediately, as we have witnessed with the passing of President Benson and President Hunter.

Joseph F. Smith, the sixth president of the Church, was also president of the Salt Lake Temple. The first apostle called during his administration was his oldest son, Hyrum Mack Smith. Hyrum Smith was sent to England to preside over the European Mission when he was 44. Shortly after his return, his appendix burst and he died. It was a tremendous loss to his father. Elder M. Russell Ballard once told me of the beautiful letters President Smith and his son had written to each other while they were separated.

On Oct. 3, 1918, President Smith had a marvelous spiritual experience, wherein he was permitted to go beyond the veil and see what took place in the spirit world when the Savior was crucified and before his resurrection. He was also permitted to see what was taking place with the members and those who were ready to receive the

gospel. This vision of is recorded as the 138th section of the D&C, the final revelation in that book. President Smith presented that vision to the Church in the October, 1918 Conference and in November, he passed away.

TAKING TEMPLE BLESSINGS AROUND THE WORLD

In 1954, President David O. McKay called Gordon B. Hinckley into his office and said, “We need to do something to make it possible for people to hear the temple ordinances in their own languages. We are building a temple in Bern, Switzerland. We need to reduce the number of ordinance workers. We can’t have it like the Salt Lake Temple.” He asked Brother Hinckley to accept that assignment, and he did. For two years, he and a group of volunteers worked on the fifth floor of the temple, preparing the first film that is now part of the temples, except for the Salt Lake and Manti temples. In a recent devotional for the Salt Lake Temple workers, President Hinckley described how they had a scrim running from the ceiling to the floor, how they built an altar and even brought trees through the windows of the fifth floor. It took two years to do the film. It was completed on schedule and President Hinckley took the film to the Swiss Temple. It was presented in all four Scandinavian languages, and also in German and French. The temple ordinances are now available in more than 60 languages. The translation and recording is done in the Salt Lake Temple by faithful members of the Church who are brought from all over the world just for that purpose. Recently, a group of members from Morocco, Lebanon and Jordan completed the translation in Arabic.

TEACHING US TO LOVE THE TEMPLE

President Harold B. Lee loved the temple, and he shared that love. Often he would take the new missionaries, who had come to the temple for their endowment, to the Assembly Room and talk to them about the temple. Sometimes a missionary would ask President Lee, “Has the Savior ever been here in the Salt Lake Temple?” President Lee’s response would be, “He has been here many times, and maybe He is here right now.”

Following President Lee there was another great prophet, President Spencer W. Kimball. Though small of stature, he accomplished a great work. We all remember that wonderful revelation that came to President Kimball in the temple, bringing the priesthood to all worthy male members of the Church. President Kimball was very desirous that the temples be taken to the people. The building of many new temples were commenced during his administration.

President Ezra Taft Benson also loved the temple, and taught us to love it by his example. Almost without fail,

he and Sister Benson went every Friday morning to the Salt Lake Temple. When it became difficult for Sister Benson to move from room to room, President Benson took his bride to the Jordan River Temple instead.

In nine short months, President Howard W. Hunter gave us such a vision of the blessings of the temple. He taught us the importance of always having a temple recommend and being a temple-worthy people.

There is no person on the face of the earth and in the history of the world that has had more to do with temples — the building, the dedication and all aspects of the work within the temple — than our present prophet, President Gordon B. Hinckley. He has been prepared in every way to lead the Church in this important work. He continually teaches us about the holy temple and the importance of the work which must be done therein.

Many years ago, President Hinckley took a group of Protestant ministers on a tour of the Mesa Temple during its public open house after extensive remodeling. While meeting with the ministers afterward, one of the ministers commented to President Hinckley that in no place could he see a cross, which to him was the symbol of Christianity. “Why is that, when you say you believe in Jesus Christ?” he asked.

President Hinckley responded, “For us, the cross is the symbol of the dying Christ, while our message is the declaration of the living Christ.” The minister asked, “If you do not use the cross, what is the symbol of your religion?”

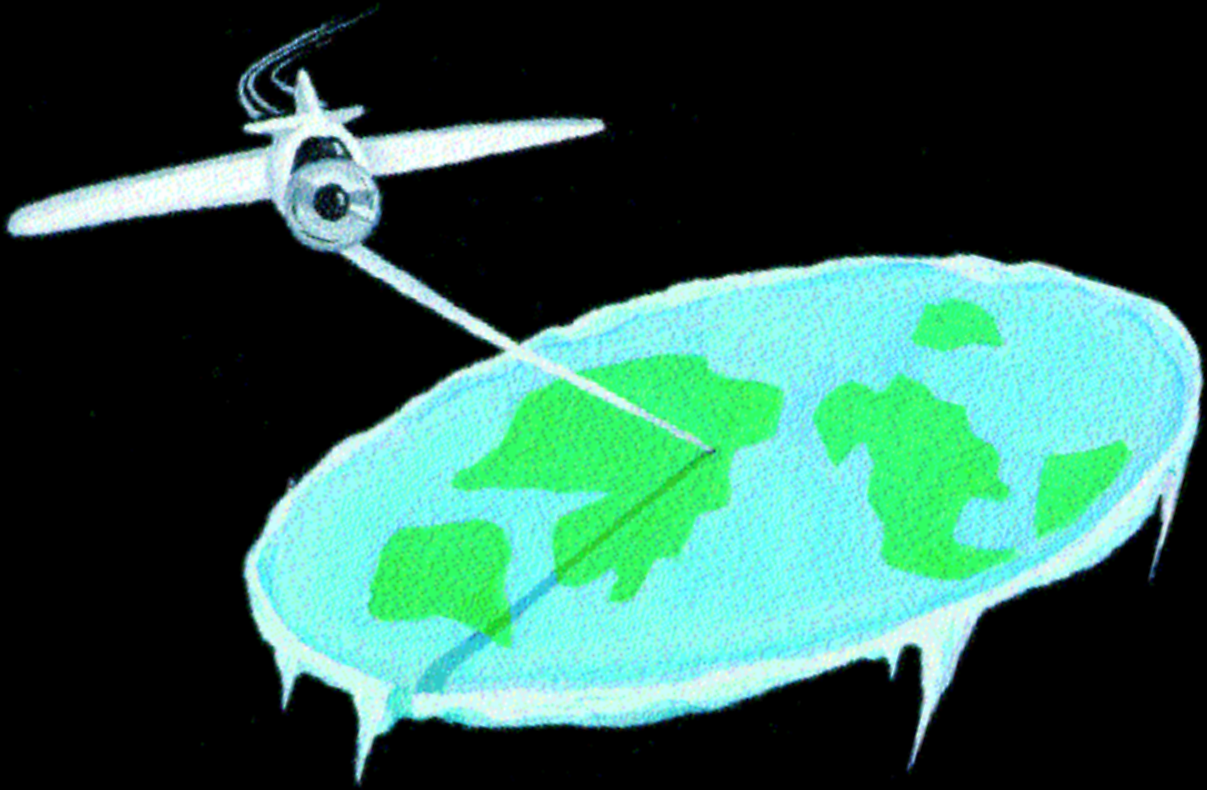
President Hinckley replied, “The lives of our people must become the only meaningful expression of our faith and, in fact, the symbol of our worship.”

Truman Madsen once observed:

The temple is not just a union of heaven and earth. It is the key to our mastery of the earth. It is the Lord’s graduate course in subduing the earth, which, as only we understand, ultimately will be heaven — this earth glorified. We need to learn more about the earth, more about ourselves, and we need to learn to comprehend more deeply. The temple is a catalyst whereby the self is revealed to the self. It is intended that we not simply learn about Christ but that we get to know Him. The Bible says “Lord, Lord did we not do this and that.” Christ will respond “I never knew you. In the Inspired version it says ‘You never knew me...’

The temple is the House of the Lord. Take the opportunity as often as possible to visit His house and perform the ordinances there that are necessary for salvation in the kingdom of God.

George I. Cannon is the former Salt Lake Temple president and a former member of the Second Quorum of Seventy.



The Earth is Flat *and other Scientific Facts*

“Do you really believe the earth is flat?” I asked the president of The Flat Earth Society.

“Absolutely,” Charles K. Johnson answered in all seriousness. “If the earth were a sphere, the people in Australia would be hanging by their feet or walking around up side down. And this isn’t so. You can call anybody over there and ask them.”

“But jets and space ships fly around the world,” I reminded him.

“Airplanes don’t fly around the world. They fly over it in a circle around a magnetic center,” the Flat Earth Society’s president explained. “Wherever you go is north. There is no other direction.”

“But if you just keep going, wouldn’t you come to an edge?” I asked.

“You can’t go past the impassable ice barrier at the outer edges where the sun stops shining!”

“What’s under the flat earth?” I asked.

“What makes you think there’s anything under it?” he countered. “No one knows if there is another side.”

by Glen C. Griffin, M.D.

ILLUSTRATIONS BY SHAUNA BIHLMAIER

“Didn’t you see the live television pictures the astronauts took from space that clearly show the world is round?” I asked.

“It’s all a trick,” Mr. Johnson answered. “You can’t get any higher than 12 miles above the earth. They film this stuff on a Hollywood set with special effects. You believe it’s real. But it isn’t.” He went on to say that Hollywood filmmakers are kept busy by the government making these movies about space stations and shuttles.

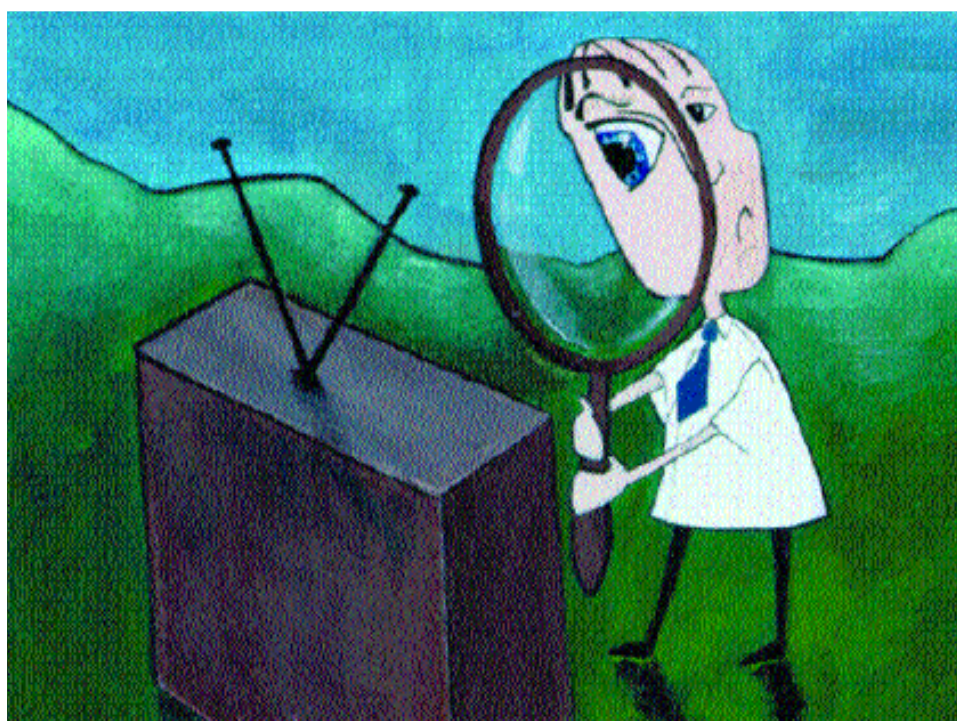
Mr. Johnson told me: “All water is flat. You can see that water in a pan is perfectly flat.” He added that if the earth were a sphere, every few miles the water level in lakes would drop several feet! This would cause a hump in the

each year. And more information is poured out 24 hours a day on the Internet and over satellites, cable, and local radio and television. Still more information comes on videos, film, CD-ROM disks, and digital video disks. Some is news, some is called entertainment, and some would be hard to describe.

Governments, universities, institutes, think tanks, businesses and others pour out a steady supply of statistics, data, and research.

Some of all this information is extremely useful. But some is totally wrong.

And then there’s the misinformation that’s mixed in with some truth. This is often the most harmful because



It’s hard for most people to know what to believe. Something may *seem* like a fact, *look* like a fact, *act* like a fact, but in fact, *not* be a fact.

middle of every lake and ocean. That there are no humps in lakes adds more proof to Mr. Johnson that the earth is not a sphere. I passed up the chance to subscribe to *The Flat Earth News* which would provide more proofs like these.

But many newsletters, books, publications, and electronic, visual and spoken communications contain information that’s just as badly flawed. The problem is that some misinformation may sound quite logical — at least compared to the nutty explanations about the earth being flat.

In many ways we are fortunate to have access to an unlimited amount of information in more than 50,000 new books, thousands of newspapers, magazines, newsletters, medical and other professional journals published

the part that’s true makes the part that isn’t true easier to believe.

Much misinformation comes from ignorance, honest mistakes, mix-ups, or errors in reporting. But some misinformation is concocted on purpose. Call it dishonesty. Call it lies. Call it disinformation.

Throughout history tyrants, dictators, and others have used disinformation to mislead people into doing things to further their vicious purposes. And in war disinformation, mixed with bits of truth, is a common strategy to confuse the enemy.

Much of what people think is fact, isn’t. My high school biology book said there are 48 chromosomes in each human cell. Years later experts decided there are only 46 chromosomes in each cell. Since then it has become

more and more obvious that experts are not always right.

Among many useful new discoveries, we are overwhelmed by flawed research. Something may seem like a fact, look like a fact, act like a fact, but in fact, not be a fact.

So when today's newspapers, TV news, or medical journals report the study of the week, it's hard for most people to know what to believe. And it's not easy for those of us who have spent a lifetime sorting out truth from honest mistakes or flagrant dishonesty.

I'm especially concerned about flawed messages that abound, like those about "safe sex", which isn't safe at all — besides being contrary to the Lord's commandments. It should be no surprise that we are overloaded with misinformation. We've been warned to avoid being carried away with our learning:

O that cunning plan of the evil one! O the vainness, and the frailties, and the foolishness of men! When they are learned they think they are wise, and they hearken not unto the counsel of God, for they set it aside, supposing they know of themselves, wherefore, their wisdom is foolishness and it profiteth them not. And they shall perish. But to be learned is good if they hearken unto the counsels of God. (2 Nephi 9:28-29)

And today, maybe more than ever, good is made to seem evil and evil to seem good. A mockery is being made of marriage. Playing around with sex is made to seem like a game played by everyone.

Misinformation and disinformation are some of the adversary's major strategies, as he misleads people into not believing in our Heavenly Father, His Son Jesus Christ, and in the Church.

Another of Satan's strategies is to convince people they are not responsible for their actions: "*The murderer couldn't help it because he had a mental illness and didn't realize what he was doing.*" "*Alcoholics can't help drinking because they have a disease called alcoholism.*" "*Gamblers can't help what they do because they have a condition called compulsive gambling.*" These *excuse conditions* are sometimes made to seem scientifically valid by claiming they are genetic.

The adversary also wants us to think there isn't such a thing as sin because if he can get people to think there is no sin, they will believe it doesn't matter what they do.

In science and medicine, sometimes it's easy for us to sort out truth from untruth. Other times it isn't: "*Is this article true or was there a hidden motive?*" "*Will this medication really help?*" "*Is this procedure the right thing to do?*" "*Is this research data accurate or flawed?*" "*Is the sheep cloning story a hoax, like the so-called 'Piltown man' story*

proved to be?" "*What is really true?*"

So how do we know what's right and what's wrong?

When I became the chief editor of a major medical journal, I organized a new editorial board of people I could depend on to give me the best advice available on every aspect of medicine. Then I set up an excellent peer review system to review and evaluate every article.

I still try to get the best advice I can get about current issues, while following a simple principle: No matter how many experts support a theory or study that conflicts with truth revealed in the scriptures or by a modern prophet, something is wrong with the information. As Elaine Cannon wisely said: "When the prophet speaks, the debate is over."

An added testimony to me is the contrast between the proclamation on the family by prophets of God compared to man-made philosophies by so-called experts about "safe sex" with condoms, "relationships" without marriage, and same-sex marriages.

Far too much of the so-called explosion of information is an explosion of misinformation. The scriptures call this misinformation the wisdom of men.

When it comes to wondering whether to believe in the wisdom of men about the origin of life or the simple account in the scriptures that makes it clear we are created in the image of God and were put on earth for a purpose—I'll take the scriptural account any day.

Unfortunately, not everything we need to know in medicine, or in life, is covered in the scriptures or in statements by prophets. But we are not left completely on our own. Even though some "studies" and some "official practice guidelines" are not right, we have more good scientific information available than ever before. And after carefully studying a problem, using our experience and all the best information we can get, we can ask the Lord if our conclusions are right. I have great faith that the Lord can and will help us.

One of our big jobs is to help ourselves, our children, and others who depend on us to avoid being swallowed up in the abundant wisdom of men.

But be careful. The cunning plan of the evil one is to mislead and confuse us with misinformation about little things as well as big ones. And many of the untruths put before us are much more serious and much less obvious than the mistaken notion that the earth is flat.

Glen C. Griffin, M.D., is the former editor-in-chief of Postgraduate Medicine and the author of many books and articles. He is a clinical professor at the University of Utah School of Medicine and the coordinator for pediatric education for the Utah Valley Family Practice Residency.

Attack *of the* Killer Sunbeams

by K.C. Tubbs, M.D.

Nothing in my four years of medical school at Georgetown prepared me for what I was to encounter six weeks into my residency in Provo.

I expected being swamped with patients in my mission to stomp out disease. I even expected to stay up all night more often than daytime people should ever do. And I was quite enthralled with living in such a clean little city with such friendly people. I soon found that my seven fellow residents were impressively dedicated to their church. In fact, all seven had served missions for The Church of Jesus Christ of Latter-Day Saints and we quickly became good friends, which helped me dismiss the stories I had grown up hearing about this strange religion.

My new mission companions, the residents, would frequently take me aside to clue me in about the LDS Church and culture. But every time I thought I was getting a handle on the dominant culture in and around Provo, someone threw me a curveball like the humbling experience that happened to me recently on a busy afternoon in the Family Practice Center.

I had been up all night, was tired, and still had a long list of patients to see. My honed diagnostic skills were dulled from sleep deprivation and my milk of human kindness had begun to curdle. “Will it ever end?” I thought to myself as I ran through the next chart.

Hmm. The chart belonged to a 34-year-old mother

named Betsy. Her presenting complaint was depression. Through my fatigue, I heard myself saying, “Not another one!” Thoughts raced through my head of an earlier patient who took almost an hour to tell me her life story — a big stretch for her scheduled ten-minute office visit.

I quickly gathered my thoughts and entered the room. I greeted Betsy and she shook my hand. She did not smile. I could tell right away she was depressed and reached in my pocket for my prescription pad, ready to bless our encounter with a prescription for Prozac.

“What’s wrong Betsy?” I asked in a reassuring tone.

“Oh Dr. Tubbs, I can’t take this anymore.” Tears began to flow down her cheeks almost immediately. “I feel like everybody is out to get me.”

“What makes you say that?” I inquired.

“I’m sure I’m making more of it than there is. I try to be a servant of God and do what is asked of me,” she sobbed, “but I just can’t take it anymore.”

“I can see you have a lot of stress in your life Betsy. Why don’t you tell me about it.”

“My husband doesn’t like me anymore. He yells at me for not keeping the house clean. The dog messes on the floor, and the sunbeams are driving me crazy!”

I stopped her in mid-sentence. “What?”

To my amazement she said it again: “The sunbeams are driving me crazy!” She was even more emphatic about it this time.



Trying not to laugh and to maintain a therapeutic empathy, I inquired, “Just what do the sunbeams do?”

“They get into everything! I just can’t control them!”

“You try to control them?” I asked.

“It’s impossible. They move so fast you know!”

“Oh, I know,” I said, trying to humor her.

“They get into everything,” she cried. “They come in and out the door and in and out the door, and they won’t stop talking.”

“Won’t stop talking?” I repeated, trying not to gasp.

“I just can’t seem to keep them quiet. I have tried everything. Even ear plugs! I love them, but sometimes I think they are possessed by the devil himself.”

What a nutcase, I thought in my semi-comatose state. Barely able to keep a straight face, I asked, “So have you told anyone about the sunbeams?”

“Oh Dr. Tubbs, that is the worst part. I tried to talk to my bishop about them, but he just thinks I’m crazy.”

“An accurate diagnosis. I couldn’t agree more,” I thought silently.

“He just told me to deal with them! He said I’m an adult and need to learn how to handle sunbeams. He doesn’t understand me at all.”

I was fascinated. I couldn’t believe no one had diagnosed her before. This was classic paranoid schizophrenia. My first case. Do we have a straitjacket? I’ve always wanted to put someone in one. Does she need to be locked up?

Wanting her to go on, I asked, “Well, Betsy, have you tried suntan oil?”

She stared at me coldly like I was patronizing her. The room was silent. Trying to backtrack, I asked, “Well, do you have a rash anywhere?”

She looked puzzled. I had confused the confused. I anxiously awaited her reply.

She tilted her head to one side and asked, “You’re not LDS are you?”

“No, I’m not.” I said.

At first she chuckled, but seconds later she burst right out laughing. “You probably think I’m crazy!”

Where I come from sunbeams had more to do with solar flares than healthy young children. My Mormon companions failed to equip me with this vital ecclesiastical information. I did, however, manage to lift her spirit to new heights and she left the office in a much better mood.

This lesson in language reinforced my feeling that, in spite of my Georgetown education, I sure didn’t know it all. John Stuart Mill once noted: “Language is the light of the mind.” I’ll bet old John never got enlightened by the sunbeams.

Dr. Tubbs is a resident in the Family Practice Residency at Utah Valley Regional Medical Center in Provo, Utah.

SECULAR AND



SACRED

Individuality

BY MARK J. ROWE, PH.D.

A friend asked me how I balance the sacred and the secular in my life. Upon reflection, I realized that I often draw parallels from both parts of my life and apply them to each other. With this in mind, I wish to address both secular and sacred aspects of our individuality. Secular aspects are from the perspective of my disciplines — nutritional science and molecular biology. Sacred aspects are from the perspective of spiritually inherited qualities. I will attempt to draw some parallels between the two regarding our vulnerability for both physical and spiritual illnesses.

In his book titled *The Quark and the Jaguar*, Nobel Laureate Murray Gell-Mann contrasts elementary particles with complex systems. He notes that elementary particles like quarks behave “exactly the same wherever [they] occur in the universe ... [and] are rigorously interchangeable with one another ... *Elementary particles have no individuality.*” He contrasts this with a personal and rare sighting of a jaguar in Belize and describes his observations of its behavior and personality. He finally notes, “My experience with this particular jaguar resonated with my thinking about the whole notion of individuality.”¹

He had discovered that *this* jaguar was altogether individual, not interchangeable with every other one. This one, this time, was curious and casual. He concludes that the more complex the organism, the more potentially individual it is and therefore less interchangeable with every other one of its kind.

I confess that my version of this discovery is pretty mundane. Having been reared on a dairy farm, I learned the hard way that each of our dairy cows was an individual. Each had its own personality, attributes, and descriptive name. Some were cantankerous and irritable. Others were docile and gentle. Some were inclined to kick the milk bucket over. Others were more inclined to slap our faces with a wet, dirty tail while we sat on the milking stool in that intimate contact with them. I also confess that during those moments my thoughts about their individuality were not as noble as the professor’s. Somehow, though, I cultivated a fascination with individuality.

Early in my scientific career I used the tools of molecular biology during their infancy. It was then that I came to realize that my intrigue with molecular biology had its roots in a fascination with understanding differences between individuals. It is somehow satisfying to detect a delicate genetic difference and establish an association between that small difference and a large, consequent biological manifestation of the difference. Think of it! We can identify the minutest differences between the DNA blueprints of two individuals and can explain the DNA’s expression in some aspect of their lives, their health, their appearance, their personality, or a myriad other elements of their mortality.

I learned how different we are. There are nearly four billion base pairs of genetic information in each human cell. Our biological individuality is partially rooted in the variability of this information. There is an average of one difference in every 2,000 of those base pairs. Therefore, in the genetic information encoded in DNA, there could be as many as two million differences between you and the person sitting next to you.

As you have just seen, we are not as easily interchangeable as quarks. We are very complex systems with many blueprint differences that give us biological individuality. Let me illustrate this type of individuality with an example from my fascination with genetic variations.

On occasion I give presentations to groups interested in health-related issues. My topic is “Fitting into our Genes,” in which I convey two important principles. One is that because of our genetic differences, we each have individual susceptibilities and vulnerabilities to diseases like heart disease and cancer. Therefore it is prudent to make our lifestyle choices “fit into” those genetic vulnerabilities — we make health choices to reduce vulnerability. The second principle is that this concept is valid with regard to genes that might influence “fitting into our jeans.” If our nutrition choices do not “fit into” our genetic makeup, we are at increased vulnerability for the many diseases that attend excess weight gain.

My research has examined differences in genes that affect metabolic rate. As a population, we exhibit a wide range of metabolic rates. All of our friends, it seems, have high metabolic rates. It seems they can eat anything they want but never gain weight, while the rest of us seemingly pass the kitchen, smell the aroma, and absorb every calorie from the food by simple proximity. We are incensed at the unfairness of this form of individuality.

When we contemplate the fairness of such genetic differences, it is better to maintain the more eternal perspective taught by Elder Boyd K. Packer in a 1993 General Conference:

*There are what President J. Reuben Clark, Jr., called ‘pranks’ of nature, which cause a variety of abnormalities, deficiencies, and deformities. However unfair they seem to man’s way of reasoning, they seem to suit the purposes of the Lord in the proving of mankind.*²

Consistent with my fascination with genetic individuality, my research has illuminated some gene alterations that “prove” us by affecting our metabolic rate. They then contribute to increased vulnerability to weight gain. By making “genetically intelligent nutrition choices,” our genetic vulnerability to excessive weight gain is reduced and the consequent illnesses are avoided.

In addition to biological and genetic individuality, we know that mankind also possesses spiritual individuality. Our agency allows it. We brought it with us from premortal life. It interacts with our biological and genetic individuality, and this interaction must be factored into any development of our total individuality. This alliance of individualities is God-given. Some portion of it may even be God-inherited if we can imagine a “deity DNA” that works in concert with our human DNA and that allows us the potential to eventually develop His attributes in perfection.

Elder Neal A. Maxwell separated the effects of biological from spiritual individuality in the October 1996 General Conference:

Our genes, circumstances, and environments matter very much, and they shape us significantly. Yet there remains an inner zone in which we are sovereign, unless we abdicate. In this zone lies the essence of our individuality and our personal accountability.³

This statement seems to identify the following: an inner individuality, separate from our genetic and environmental individuality, which contains its essence, where we have the ability to be sovereign unless we abdicate, and for which we are accountable.

How does one abdicate one’s sovereignty in this inner individuality? How is its essence contained therein? How is it distinct from the shaping influence of genes, circumstances, and environment? How do we improve this inner individuality when we can exercise sovereignty over it? How are we held personally accountable for our use and control of this individuality?

The biological concept of “fitting into our genes” perhaps has spiritual and eternal parallels which are helpful. These parallels involve “fitting into” the facets of individuality that we learned in our premortal life, just as we should “fit into” the biological individuality we have been dealt as part of our mortal “proving.” Further, the parallels extend to our genetically determined vulnerability for disease and our learning to make “genetically intelligent nutrition choices.” These may parallel our lifelong struggle to overcome spiritual vulnerabilities by learning to make what might be called “spiritually intelligent eternal choices.” These choices would be designed to reduce the susceptibilities present in our individual set of spiritual predispositions.

Each of us brought individual talents from premortal life, talents that we spent eons of time working to develop. While our Savior achieved perfection in His attributes during His premortal life and became God-like, some of ours are not yet perfected. We came into mortality both with some significant talents and God-like attributes, but

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we also came with some that are less than completed. They therefore become vulnerabilities, susceptibilities to certain spiritual illnesses, if you will. Because we know we have the potential to perfect them, these attributes may be thought of as unfinished God-like qualities within us, perhaps contained in our “inner individuality.” Here in mortality we must discover which ones are unfinished, strive to finish them, and make conscious lifestyle choices that allow us to “fit into” our spiritual vulnerability by making “spiritually intelligent eternal choices.” By such a course, we will reduce spiritual vulnerability while we go about the business of finishing these attributes.

In science we learn much about the normal from observations of the abnormal. Here is an example of such involving an extremely spiritually dysfunctional group that illustrates that unfinished qualities can be vulnerabilities leading to spiritual illness. Found in Section 129 of the Doctrine and Covenants are three grand keys for detecting the nature of visiting angels and spirits. The central question is whether it is inherent in the visitor’s nature to deceive (see *D&C 129:7-8*). Let us assume that deceit represents the significantly unfinished quality of honesty. One would think that a devilish spirit who was attempting to appear as an angel of light might be smart enough to refuse to grasp an offered hand. Apparently, his quality of honesty is so unfinished, and its opposite is so entrenched, that he reacts impulsively to try to deceive, and is thereby detected.

In contrast, our presence in mortality attests to our potential to, and allows us the opportunity to, refine and perfect our unfinished God-like attributes. Fortunately, we are well beyond the fixation of unfinished qualities experienced by the devils. With effort, we may finish them and manifest refined individuality within the righteous qualities. Therefore, by the spiritual equivalent of “genetically intelligent nutrition choices,” we may be engaged in “spiritually intelligent eternal choices” that address our own identified vulnerabilities.

Many revelations have given us scriptural lists of God-like qualities. They proclaim the completed ideal qualities and beckon us to finish these God-like qualities in our “inner individuality.” These scriptural beckonings attest both to our potential sovereignty over the development of our inner individuality and to the possibility of eventually perfecting all the righteous qualities of God. Fulfilling that potential by finishing God-like attributes seems to represent the equivalent of spiritual genes inherited from God.

My favorite list describes not only the finished qualities for which we should strive, but also acknowledges the range of related unfinished qualities we now possess. This appeals to me because defining the unfinished aspects of my qualities helps me identify my specific vulnerabilities for spiritual illness. I am then in a better position to make

the “spiritually intelligent eternal choices” necessary to reduce the vulnerability.

In 1991, students here were given the following list by Elder Maxwell, who taught:

[These] scriptural virtues are intertwined, interactive, and interdependent. We are to be:

1. *Meek and humble — not self-concerned, dismissive, proud, seeking ascendancy.*
2. *Patient — not hectic, hurried, pushy.*
3. *Full of love — not demanding, dominating, manipulative, condescending, or harsh.*
4. *Gentle — not coarse, brusque, and vindictive.*
5. *Easily entreated — not unapproachable, inaccessible, and nonlistening.*
6. *Long-suffering — not impatient, disinterested, curt, easily offended.*
7. *Submissive to God — not resistant to the Spirit, counsel, and life’s lessons.*
8. *Temperate — not egoistic, eager for attention and recognition, too talkative.*
9. *Merciful — not judgmental and unforgiving.*
10. *Gracious — not tactless, easily irritated, ungenerous.*
11. *Holy — not worldly⁴*

Each range on this list contains individual qualities near both finished and unfinished ends of a spectrum. We are free, encouraged, and even obligated to exercise, not abdicate, sovereignty over development of their finished form within our nature. We should recognize our personal accountability, understand where we personally stand, and do all in our power to move to the finished end of the spectrum and thus overcome spiritual vulnerability.

If I were at significant risk because of a genetic predisposition for excess weight or heart disease, I would change my lifestyle and my dietary habits to reduce the risk of developing the disease. Because I know that I am at significant risk for a spiritual disorder because of a less than finished God-like quality that I brought to mortality, I can cultivate that personal quality, change my spiritual habits and my lifestyle, and reduce vulnerability to the associated spiritual illness.

Two rudimentary examples will illustrate the point. They are closer to everyday reality than detecting deceit in spiritually dysfunctional devils. The first addresses the finished quality of being easily entreated, which means to be approachable and accessible, to accept good counsel, and to have a listening, attentive ear.

Thirty-three years ago, a brand-new missionary arrived in my missionary district. He brought with him his guitar. Our mission president, Bruce R. McConkie, suggested that he leave it in the mission home and pick it up in two years. I watched as he struggled briefly with taking

another simple step toward finishing the quality of being easily entreated and then watched him take that small step. Five years ago, my calling with the nineteen BYU stakes involved me in the reorganization of one of them. The former missionary with a guitar, now an experienced priesthood leader, was assigned as part of his training to accompany a member of the Twelve to the reorganization. Again I watched, and this time saw him easily and anxiously glean principle after principle taught by the member of the Twelve. I appreciated his now refined quality of being easily entreated. I wondered how crucial each of his small, earlier steps was. I also wondered what spiritual illness might have claimed him had he not learned to “fit into” that earlier unfinished quality by making “spiritually intelligent eternal choices” that reduce vulnerability.

A second simple example addresses the finished quality of being temperate, defined as being self-restrained and using self-control. At the unfinished end of this particular spectrum resides eagerness for attention and recognition as well as egoism, defined as seeking the welfare of oneself only, and talking too much about oneself.

Fifteen years ago, as a young stake president, I was associated with a priesthood leader who was talented and charismatic and could touch many lives. As time passed, however, it became clear that being temperate was not a refined quality within him. He was at the other end of that spectrum and was egoistic, eager for attention and recognition, and too talkative. As his priesthood leader, I tried to help him “fit into” patterns that would reduce his vulnerability for the associated spiritual illness. I watched him struggle at length and then finally succumb to a spiritual illness. He then lost his marriage, family, friends, testimony, and the gospel. Again, I wondered how crucial each of the early, simple but untaken steps was. I wondered where he could be now had he understood better his weakness and adjusted his choices to “fit into” them to reduce his vulnerability.

Can you see both the blessings and vulnerabilities associated with our sovereignty (or its abdication) over the qualities of our inner individuality? As you exercise sovereignty over these qualities, consider the list that should be, in the language of King Benjamin, “kept on” as you make your “spiritually intelligent eternal choices,” and those that should be “put off” because they make you vulnerable to spiritual illness (*see Mosiah 3:19*).

Now, many times we encounter barriers as we seek to “put off” the vulnerabilities of unfinished God-like attributes. First, individuality itself should not be used as an excuse for harboring unrighteous qualities. For example, graciousness may be refined and expressed in countless individual ways, and all are far superior to tolerating tactlessness or cultivating curtness within our character simply from a fierce defense of diversity and individuality.

Just as our physical individuality requires us to make “genetically intelligent nutrition choices,” we can overcome spiritual vulnerabilities by learning to make what might be called “spiritually intelligent eternal choices.”

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Second, some have an inclination to equate extreme individualism with refined individual qualities. An example I continually encounter because of my discipline intertwines both biological and spiritual principles. A caution against it was taught by President Boyd K. Packer in the April 1996 General Conference regarding the principle and promises of the Word of Wisdom:

Young people, learn to use moderation and common sense in matters of health and nutrition and particularly in medication. Avoid being extreme or fanatical or becoming a faddist. For example, the Word of Wisdom counsels us to eat meat sparingly (see D&C 89:12). Lest someone become extreme, we are told in another revelation that 'whoso forbiddeth to [eat meat] is not ordained of God' (D&C 49:18).

President Packer's footnote to the last sentence adds that the revelation was given "to correct some... erroneous doctrines. One ... was not to eat flesh-meat or fish."⁵

I realize that there may be appropriate reasons for choosing not to eat meat, and that is acceptable, if knowledgeably done. But too often the reasoning is based on an erroneous interpretation of the Word of Wisdom, and that seems to appeal to our inclination to over-express individualism and equate it with the refinement of qualities. An extreme and erroneous interpretation of the doctrine of the Church should not be an excuse for extreme individualism.

An additional barrier, at the other extreme, is hiding our individual unfinished qualities in groups rather than polishing righteous qualities as individuals. This is fraught with spiritual vulnerabilities. The Savior taught some poignant parables focusing accountability on individuals, not on groups in which one might hope that unfinished qualities go unnoticed.

The Parable of the Gospel Net has particular application to the qualities of *individuals* within the *community* of the Church (see Matt. 13:47). The harvest by the gospel net is large but not completely selective. It includes many different species, individual fish with individual qualities. Only after the fishermen return to shore are the fish submitted to a selective sorting process. Whatever an individual fish's purpose for coming into the net, being part of that community is necessary but not sufficient. The sorting process is a personal and individual scrutiny, and only those individuals who have developed the personal, finished qualities will survive the selective sorting and be saved in the vessel.

The Savior also taught the Parable of the Marriage Feast (Matt. 22:1-14) in which the King's servants gathered "both bad and good" for the wedding feast of his son. Consider Alfred Edersheim's teachings about this parable:

The 'servants' had fulfilled their commission; they had brought in as many as they found, both bad and good...and the wedding was filled with guests.... The King entered to see His guests, and among them he described one who had not on a wedding garment. As the guests had been travelers... we cannot be mistaken in supposing that such garments were supplied in the palace itself to all those who sought them.... If they were to take part in the feast, they must put on a garment suited to the occasion.⁶

It seems clear that the King will individually examine each guest. This scrutiny will involve their individual qualities and take into account their individual differences. It will determine whether the guests who had accepted the invitation were able to “overcome” the genetic clothes they had arrived in, to “put off” the vulnerabilities within unfinished qualities brought from pre-mortal life, and to “put on” the wedding garment of finished qualities.

An angel of God gave King Benjamin the way to “put off” the individual “natural man.” He admonished, in essence, “Yield to the enticings of the Holy Spirit” and become “a saint through the atonement of Christ the Lord” and become “as a child” by developing a list of God-like qualities (see *Mosiah 3:19*). Partaking of the atonement is an individual experience and involves individually finishing God-like qualities. The Savior will, as it were, take time to allow us individually to feel the imprints of the nails. But, as the angel told King Benjamin, only if the process is intertwined with individual refinement of a list of God-like qualities.

In fact, the Father is even angry with us when we fail to understand this individual nature of the atonement. It helps me to personalize Alma quoting Zenock: “Thou art angry, O Lord, with [Mark Rowe], because [he] will not understand thy mercies which thou hast bestowed upon [him] because of thy Son” (see *Alma 33: 16*). Elder Russell M. Nelson taught the importance of understanding the individual significance of the atonement as we finish God-like qualities through spiritually intelligent choices:

In a very real way, the atonement of Jesus Christ affects each of our lives and the life of every human being who ever lived. Understanding the significance of His atonement is fundamental to choices we make in all facets of our lives.⁷

If we understand the individual, personal significance of the atonement, that understanding will be pivotal in making the individual choices necessary to finish God-like qualities, and it will happen in every facet of our lives!

Examine yourselves, discover your individual spiritual vulnerabilities, and learn to avoid them. Consult your spiritual physician, take advantage of the healing of the atonement available to you. If necessary, do so through His agent.

Blessings will attend our attempts to reduce vulnerabilities to the spiritual illnesses that inhibit advancing, progressing and becoming like God in all of his character, perfections and attributes. Elder McConkie’s summary of this process is clear and comprehensive as he paraphrased Joseph Smith. It points out the assistance we receive from God as we strive to remove vulnerabilities and become like Him through obedience:

In the final and all-comprehensive sense, the sole and only way to find and know God is to keep his commandments. As a result of such a course, knowledge and revelation will come in one way or another until man knows his Maker. The more obedient a person is, the clearer his views become, the nearer he approaches his God, and the more he comes to know those holy Beings whom to know is eternal life.⁸

The clearer view, which flows from obedience, is essential to successfully finishing the personal, individual qualities that will reduce vulnerability for spiritual illness.

I pray that we may do just that, and I bear testimony of the promise of eternal life with God, and of the joy of eternal life with each other as we manifest individuality in our finished, God-like qualities.

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