Zion and Technology:
A Not-So-Distant View

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President Kimball in an address delivered at a Regional Representatives Seminar on April 3, 1975, said:

I believe that the telephone and telegraph and other such conveniences were permitted by the Lord to be developed for the express purpose of building the kingdom. Others may use them for business, professional or other purposes, but basically they are to build the kingdom. [Typescript Copy, BYU Archives, p. 20]

The explosion of communications technology since 1975 has far exceeded President Kimball's reference to telephones and telegraphs. We now have computers, laser discs, CD-ROMs, and, most recently, the Internet. If we are to "build the kingdom" into a Zion society, surely these and "other such conveniences" will be an integral part of that effort. The dual thrust of President Bateman's inaugural speech—(1) to build a Zion university and (2) to make fuller use of technology to fulfill our mission—has persuaded me to "liken it unto myself" and to share my personal views of the promise of this strange marriage as it bears on my own experiences in the classroom and in the computer lab, my two favorite places to be outside home and temple.

Zion Among Us

The scriptures consistently define Zion in terms of three conditions: *unity* ("they were of one heart and one mind," Moses 7:18); *equality* ("they had all things common," 4 Nephi 1:3); and *prosperity* ("there were no poor among them," JST Genesis 7:23; see also Moses 7:18). While no large entity, either in or out of the Church, yet qualifies completely in all three areas, Zion does already exist in miniature in many places: in individual families where righteous parents draw their children to them in love and trust and joy; and in smaller enclaves throughout our society where employees or friends or relatives share common goals in good faith. I feel a distinctly "Zion spirit" when I am among my dear colleagues of the humanities faculty, some of whom I have taught next to for more than twenty years. We are "family" in the truest sense of the word.

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But how might we apply these three conditions to the university community as a whole? How can we be "of one heart and one mind" when universities were originally designed to celebrate intellectual diversity and to pursue new knowledge by means of disputations? We've had some tough times together the past couple of years. There are dissident forces pushing against administrative decisions that divide us and weaken the fabric of our common faith. This wouldn't happen if we could catch the vision of Zion the Lord has offered us in the scriptures. The main reason these earlier Zions were "of one heart and one mind" was because they all chose God first, before selves or society. I firmly believe that nothing should take precedence over our faithfully following the counsel of the Lord's anointed. I know it's difficult to obey in matters where we may feel we have the authority of our disciplines behind us, but that's what the Lord expects of those who have freely chosen to teach at this special university. To the degree that we allow ourselves the luxury of following the traditional university pattern of disputation, we're in trouble, for that is not how the kingdom is built. Nor is it possible to build Zion on that shaky foundation. It is said of Zion "that there was no contention in the land, because of the love of God which did dwell in the hearts of the people" (4 Nephi 1:15).

How does the Lord's counsel to the early Twelve apply to our situation? "Seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you" (Matthew 6:33). The primary mission of this university, as I understand it, is to provide a first-rate undergraduate education for all our students. I believe that if we would unitedly put our individual efforts to work in achieving this priority, our personal professional dreams and goals would surely come in time. But if we put our personal agendas first and seek to foster our own careers at the expense of our best teaching and mentoring, we will have failed our common dream even while we may have individually succeeded in gaining stature in the world.

As a professor at BYU, I wear two robes: my black academic gown at graduation and my white robe when I go to the temple. As one drives into the valley from the freeway along the diagonal, the two most prominent landmarks are the temple on the left and the Kimball Tower on the right. They represent the two central citadels of our common culture: a temple of sacred learning and a temple of secular learning. And while they are both vital to our eternal progression, they are clearly not equal in importance; it is appropriate that the temple spire stands at a higher elevation than the Kimball Tower. It is also appropriate that the university began to be built on what was earlier known as Temple Hill, where the Maeser Building now stands. Elder Hafen's statement defines the relationship between the two perfectly: "Our professional credentials may have earned us passports to Athens, but our citizenship must always remain in Jerusalem" (Bruce C. Hafen, "All Those Books, and the Spirit, Too!" Annual University Conference Address [Brigham Young University, 1991], p. 2).

We are obviously not yet living the law of consecration, but are there ways in which we can "have all things common"? I believe there is. For example, one of the implied goals of general education is to make certain knowledge and skills accessible to all students so that they can carry away with them some common body of a shared cultural heritage. This is not easy to do. C. P. Snow popularized the distance separating the "two cultures" by lamenting the fact that humanists know nothing of the second law of thermodynamics and scientists are unfamiliar with Shakespeare (see C. P. Snow, *The Two Cultures: and a Second Look* [Cambridge: University Press, 1964], pp. 14–15).

But a more elemental core of commonality that we share, both as teachers and as students, is our devotion to the gospel of Jesus Christ. The opportunity some of us have of teaching a religion class each semester is a rare perk this university offers to its faculty. And this, more than any other single thing, has given me a vision of what Zion could and should be here. For Zion cannot exist without each individual's heart being right with the Lord, and all the faculty at this university are under Brother Brigham's mandate to Karl G. Maeser not to teach even the multiplication tables without the Spirit of the Lord. It wasn't until I began teaching religion classes here that I realized what that really meant, because one simply cannot teach religious truth without the Spirit. After teaching religion, I more consciously bring my humanistic learning to bear on religious issues, which enriches my religion classes; and the Spirit I bring to bear on my humanities teaching acts like a subtle catalyst, igniting interest and trust in my students, directing my thoughts and focusing my energies on the most pertinent things. I wouldn't think of entering a class without a preparatory prayer. In addition, the Spirit sometimes prompts connections between religion and art that are almost breathtaking. As we were discussing Michelangelo's Sistine chapel ceiling one day, I shared some insights about some relationships between the finger of God in *The Creation of Adam* and the logo for Steven Spielberg's *E.T.*—suddenly, the connection to the priesthood hit me. I asked: "What do these images have to do with the way we dispense power and authority in the priesthood?" A pregnant silence followed. Where else in the whole world could this shared insight have even been mentioned without legal problems?

It's one thing for a teacher to bring a class to a "unity of the faith." It's quite another to marshal the spiritual forces of a whole society into a unified whole. As I look at the scriptural precedents of Zion, two conditions always seem to be present: a persuasively spiritual and selfless leader and a critical mass of willing believers that provide the leaven to raise the whole.

One personal experience with a critical mass of believers under inspired leadership working toward a common spiritual goal has come to me while singing in the Tabernacle Choir. In fact, this experience has convinced me that Zion could really come in a big way to this university. It's difficult to express adequately in words the elevation of spirit that has accompanied my five years in the choir. When people ask me how I like it, I usually say: "I feel like I've died and gone to heaven." Lately I've been trying to put my finger on why I feel this way, aside from the obvious pleasure we all get from singing beautiful music together.

A month or so ago our new associate director, Craig Jessop, was trying to get us to sing in tune by having the sopranos and tenors sing an F# and the altos and basses sing an E, creating a mild dissonance that forced us to sing in tune. He said that if we were absolutely in tune, the overtones would "kick in" and would greatly magnify our sound and our resonance, like having a whole other ghost choir singing in the air above us. There is a spiritual type in this: As we keep ourselves absolutely in "tune" with his Spirit, the "overtones" of his mercy kick in when we most need them, when we are painfully aware of our own limitations to measure up to the task at hand. The daunting task of building Zion is one of those overwhelming challenges that can be overcome by simply doing our best and trusting in his grace to make up the difference. If we do less than our best, he can't make up the difference without tampering with our agency, which he will never do.

The prosperity implied by "there were no poor among them" requires some minor modification to make it fit our situation. I occasionally ask my classes: "What is the equivalent of

'no poor among them'?" It doesn't take them long to figure out my drift: "There were no *failures* among them." Ah, there's the rub. Have you ever taught a class of premed students, all of whom are desperate for an A? It's no fun. But I throw out a possibility to them. What if, instead of hoarding your knowledge to guarantee that you come out on top, you share it with those who are struggling? And what if I promise to give you all A's if you all qualify? What would happen? For one thing, each successful student would nail down his understanding of the material even better by tutoring his less-fortunate peers, and those who were struggling would be raised to a higher level of understanding.

Nevertheless, it's one thing to have our cultural treasures "on deposit" in the library, or in our minds, but it's quite another to embed it in the minds and hearts of our students so that they can carry it out into the world intact. In his talk entitled "A Zion University," President Bateman described in "a flash of inspiration" his vision of a small army of 6,000 young graduates spreading out from this university into the whole world to establish footholds of goodness everywhere (see Merrill J. Bateman, "A Zion University," *Brigham Young Magazine* 50, no. 1 [March 1996], p. 33; also, this volume, p. 123). How much of what we gave them will they still have when they finally reach their destinations in North and South America, Europe, Asia, and Africa? My realization that my students will have lost enormous amounts of knowledge precipitated a personal professional crisis about fifteen years ago.

My Crisis

After having given the final exam to a spring-term class of Humanities 101, I was sitting in my old office in the JKHB wondering what my students would remember from the class I had just taught. The more I thought, the more distressed I became because I realized that I had remembered virtually nothing from

the classes I had taken at the university. I began seriously to question this whole endeavor: spending enormous sums of money and expending years of toil in pursuit of an impossible dream. For if we retain virtually nothing of what we learn here, then why bother? No savvy businessman would ever risk investing in a venture that produced no tangible lasting results. Sure, we have grades printed on transcripts available at the Records Office, but what does my A- in organic chemistry from Dixie College mean if all I can now remember is the formula for water (H_2O) and the formula for sulfuric acid (H_2SO_4)? Nevertheless, I gradually realized that I did remember something about my early schooling. What was striking, however, was not what I remembered, but why I remembered it.

- I remember the religion course I took from Dean B. West Belnap called "Your Religious Problems" because the students had to present their personal religious problems, and then each student had to provide a written response the next class period to the presenter. I don't remember what the other students' problems were, but I remember mine, because I had to write it down and present it in class.

- I also remember Chauncey Riddle's beginning philosophy class because he used a modified Socratic method: probing for our answers to philosophical issues rather than loading us with information that we would likely soon forget. The final paper required us to formulate our own philosophy: our own ethics, epistemology, logic, aesthetics, and metaphysics. It was a revelation to me that philosophy involved me in a deeply personal way, that I even had a personal philosophy.

These remembered moments from my education are convincing evidence that what I retained over the years were the indelible experiences I was directly involved with, whereas the information I read or was told in class

evaporated into the wind like disappearing ink. These realities form the basis for my new agenda as a teacher: to find ways to involve my students more directly in interactive learning experiences with the aid of new computer technology, and to help them develop applicable perceptual skills they can use for the rest of their lives and not promptly forget once the class is over. And, in a larger sense, technology can help us create the singular unity that has characterized Zion in every age by helping to break down barriers between us and our students, between the students who get in and those who don't, and between our unique educational values and the world as a whole.

The Power of the Media to Unify Us

The most obvious media influence on the growth of the kingdom lies in the greatly expanded range of the prophet's voice made possible by radio, television, videos, and satellite downlinks. At no previous time in the history of the world has the church of God been this large, nor have so many faithful Saints been moved to tears at the same moment by the same speaker, where virtually millions are "of one heart and one mind" throughout the world. And yet, one of the Church's major challenges is to find a way to "export" the BYU experience to those who can't come here because of the enrollment cap. Some form of distance learning is a possible partial answer to this dilemma. Within the past couple of months I have had the opportunity to experiment with distance learning on a small scale, teaching some simple architectural modules to grade-school children around the country. I have discovered how difficult it is to teach to the single eye of a TV camera—and yet how exhilarating it is to hear the excited responses from the various schools on satellite hookup. We have much to learn, but the necessary machinery is already in place to beam up our best. Nevertheless, the more pervasive

technology becomes in education, the greater the danger of losing the human ties.

Media in the Classroom

I teach large classes of more than 300 students. Anonymity is a real barrier in this teaching situation. So about ten years ago I began using a camcorder to record my students' names and hometowns. Each hour before class I would review my tape so that by midsemester I had most of their names learned. It made a difference to me and to them: I could address them by name in class. The increased rapport was palpable.

Another problem with large classes of lower division undergraduates is the tendency to reduce the complexity of the material to lists of easily testable facts, which can kill the life of the discipline, the very thing that drew us into the study in the first place: a passionate attachment to our field. I don't think the sequence of this description of Zion is accidental: "of one *heart* and one mind." For learning to be engaging on the front end and lasting on the back end, it must be passionate. It must be experienced. To guarantee that my students would never have to question my own passion for the humanities, nor wonder whether it was worth their effort to understand, I begin each semester with a first-day "Sneak Preview." I simply line up my favorite video clips of painting, architecture, ballet, opera, music, drama, and film and "blow them away" with stunning moments of high intensity. Wouldn't you think twice about your dislike of opera if you could experience Luciano Pavarotti belt out a high B-natural in Puccini's aria "Nessun Dorma"? Another simple but effective way I have found to bring the heart into contact with the mind in the study of a great artist is to link music familiar to them with visuals unfamiliar to them. At the end of the semester, when I ask my students to recall some of their most memorable moments in the class, they invariably say something like: "That day you talked about

van Gogh!" And then I know what they mean. I used to pull slides that related to the lyrics of Don McLean's popular song "Vincent" and project them on the screen while the music was playing. But at the beginning of fall semester last year I took a Quickstart seminar offered by the Instructional Technology Center to learn how to work with a software presentation program called Adobe Premiere. After three or four days of training, I transferred my clunky slide/sound presentation onto videotape with smooth dissolves between the visuals. This four-minute presentation gives them a holistic sense of van Gogh's appeal as an artist and as a human being. Then, at the end of the semester, I repeat my "Sneak Preview" with a "Final Review" of what they've learned. They are always deeply moved by the Thanksgiving 1994 performance by the combined choruses and orchestra of the traditional folk hymn "Come, Thou Fount of Every Blessing." Spencer Jackson, one of my last semester's 101 students, wrote of his reactions:

I went into the first day of class looking forward . . . to the end of April. You could have labeled me an unwilling, unlearned student who was taking this humanities class to simply fulfill his GE requirements. This ignorance quickly left my mind as I walked out of class that day. . . . What struck me was not only the beautifully sung melody, but especially how the choir reacted. Tears flowed from their faces, and they manifested unto me that they gave 110% into their beliefs—my beliefs. Their performance went beyond a simple concert . . . for their emotions became mine. I shall never forget that experience.

In each of these three class periods throughout the semester, the shared emotion is electric and gives us all a compelling reason for being together in the same room.

Perhaps the most deadly aspect of a large GE class is the direct result of pure logistics: the teacher must rely almost solely on the lecture mode. We seem to assume that students don't have books to read; otherwise, why do we resort to a verbal barrage of pure information better acquired by careful reading? A woodcut illustration of a lecture given at a German university in the fourteenth century shows the professor seated on an elevated lectern reading from his notes to four rows of students, some of whom are attending to the lecture or taking notes while others are in the act of daydreaming or talking to each other. One is asleep. (See Charles Homer Haskins, *The Rise of Universities* [Ithaca and London: Cornell University Press, 1957], cover.) If we could compare this to a photograph of a contemporary college classroom, what would be different? Virtually nothing but the attire and the presence of a chalkboard. In fact, we've "morphed" two identical BYU classrooms—one at the turn of the century, the other in the present. As you can see, we haven't come very far in ninety years. In spite of the explosion of communications technology in the last half of this century, most students still learn as their preprint ancestors did: by listening to lectures, taking notes, and passing tests.

If a picture is worth a thousand words—I just demonstrated that a woodcut is worth several sentences of commentary—how much is a moving picture worth? How much is a moving picture supplemented by a carefully crafted interactive computer format worth? In terms of dollars, here is a telling example of the teaching power of the media. In 1990, approximately 38 million Americans watched Ken Burns' superb PBS special *The Civil War,* eleven hours of photos, music, letters, conversation, and narration. It cost $3 million, which works out to less than one cent an hour per viewer-learner. One writer has said:

Had Burns wanted to convey the same subject matter to the same number of people through the hoary technology of the college lecture hall, the project would have cost something over $6 billion and

would have required the full-time classroom efforts of all the history professors in America. [Lewis J. Perelman, *School's Out* (New York: Avon Books, 1993), p. 102]

Media Outside the Classroom

But what can be achieved inside the traditional classroom by availing ourselves of this new technology is dwarfed by what is already happening outside the classroom. The large size of most of our classes makes it virtually impossible to prepare the students adequately for the kinds of skills learning that characterizes the sounder education we envision. I can greatly expand my tutoring capacities by multiplying myself through an interactive computer tutorial. With the willing and able support of our Humanities Research Center staff in the JKHB, I have developed computer tutorials for all the major fine arts. Students go to the lab to learn how to recognize ballet steps, film techniques, the elements of music, and the styles of painting and architecture. The computer does a much better job than I could do even if I were available, for we have only recently discovered the remarkable patience of a machine to tutor the ignorant: for slow students, a computer can repeat a sequence interminably or wait for an answer until the cows come home; for fast students, a computer enables them to proceed at sometimes breakneck speed without breaking their necks. No more waiting for the lowest common denominator to catch up, a condition that makes many classes deadly boring for the bright students. In a way, we can reverse the traditional student-teacher ratio: instead of having one authority teaching 300 students, we can now have 300 authorities waiting in the wings to teach one student.

There are serious flaws in our testing and grading procedures on all levels of education that computer technology can help to rectify. "The primary aim of grades in this [norm-referenced] system is not to gauge learning but to sort students," says Richard J. Stiggins,

director of the Assessment Training Institute in Portland, Oregon (quoted in Betty Wallace and William Graves, *Poisoned Apple* [New York: St. Martin's Press, 1995], p. 40). And while student achievement has remained static over the last decade, grade averages continue to climb. Since teachers are reluctant to relegate their students to failure, they lower their standards. However, I have never been concerned with grade inflation, because my goal is to help all of my students get A's. This has never happened, but that is my goal. And now that I can allow them not only to practice their perceptual skills until they're perfect (much like learning how to play a piano), the personnel in our Humanities Research Center have helped me put my multimedia tests on the computer, where the students have the option of taking an exam more than once. We are also collaborating with a local software company to develop a battery of different kinds of testing procedures that will allow a student to take an exam until a certain mastery level is reached, say 80 percent, at which point the student can proceed to the next level of learning.

One of the most promising recent developments in education is the pursuit of a wider definition of intelligence than standardized testing allows. Virtually all school systems, including our own, have bought into the belief that intelligence is a single entity identified as IQ that can be measured by a single paper-and-pencil instrument, when in reality, according to Howard Gardner, there are at least seven different intelligences that he claims "have equal claim to priority" (Howard Gardner, *Multiple Intelligences: The Theory in Practice* [New York: BasicBooks, 1993], p. 8). In addition to the traditional measures of intelligence such as verbal! linguistic and logical/mathematical, he identifies other intelligences such as musical! rhythmic, bodily/kinesthetic, visual! spatial, interpersonal, and intrapersonal. In this view, intelligence is not a function of mere mental recall, but "the ability to solve problems, or to

fashion products, that are valued in one or more cultural or community settings" (Gardner, p. 7). Thus, a critical ingredient in retaining what we learn is developing perceptual skills that can be used repeatedly in different contexts for the rest of one's life, rather than relying on what Gardner refers to as the "decontextualized facility" of standardized testing procedures.

In my own field of arts education, one of the most exciting and promising avenues of skill development available through CDROM technology lies in what I would call "creative manipulation." Once students learn the vocabulary of a medium and can recognize techniques and procedures, they can begin to explore the creative dimension of an art by choreographing a dance sequence, designing a building, or editing a film sequence on the screen. With generous financial support from the University Film Committee, the ITC and I have developed a pilot tutorial on film techniques that includes a series of clips that can be edited together in any order. This pilot disc so impressed a national publisher that we are presently negotiating a contract to create two discs on the visual arts.

The Proof Is in the Pudding

For years we have been told by media moguls that by introducing computers into the schools we can empower students with a control of the learning process unimaginable even a decade ago. George Gilder has written:

These technologies will give to every person at a workstation the creative power of a factory tycoon of the industrial era [and] *the communications power of a broadcast tycoon of the television age.* [George Gilder, "Scoping Out the Data Highway: George Gilder on the Impact of Emerging Technologies," *MicroTimes,* no. 125 (25 July 1994): 300]

Notwithstanding the hype and hope for electronic education, however, we are still far from the promised land. The proof simply has not kept pace with the promise, as anyone knows who walks around campus and sticks his head into any classroom. It's all still business as usual. Richard White, technology administrator for Chicago's schools, said it best: "Teachers will have to get as comfortable with computers as blackboards, or it all will be a waste of money" (quoted in David A. Kaplan and Adam Rogers, "The Silicon Classroom," *Newsweek* [22 April 1996]: 60).

Conclusion

In conclusion, I return to my favorite Zion metaphor, the Mormon Tabernacle Choir. I've sung in the choir long enough to realize that none of us singers are that good—there are few true soloists in the choir, and I also realize that we are, for the most part, garden variety Latter-day Saints: we're good people, but we all have our personal flaws. So I asked myself, whence comes the incredible spiritual influence that radiates from this organization, the "wall of sound and spirit" that washes over audiences and reduces them to tears? Again, I believe that it's the magnified energies of the critical mass that makes the difference. A telling analogy from the animal kingdom can be found in the remarkable mounds built by the compass termites in northern Australia, which have a north-south orientation to keep the temperature and humidity of its brooding chambers constant. Thus, the flat side of the mound faces the rising sun to cope with the early morning chill, whereas the steep roof deflects the heat when the sun is overhead. But what is most remarkable, according to Michael Talbot in his book *Beyond the Quantum,*

is that no single termite could ever accomplish such a miracle of engineering. . . . Even three or four termites gathered together are equally helpless. But keep adding termites one by one and sooner or later

a sort of critical mass is reached, and as if the truth has suddenly dawned upon them, they gather into work crews and begin cementing grains of sand together with their saliva, building arches and connecting columns until the expertly designed fortress that will ultimately become their home grows like some strange flower around them. [See Michael Talbot, *Beyond the Quantum* (New York: Bantam Books, 1988), p. 117]

This is a fascinating biological phenomenon that has some relation to human society, and more especially to the "brotherhood of the Saints." I think Zion could be seen as a critical mass of good individuals who work together to accomplish much more than any individual could ever achieve alone. Elder Maxwell, in his inspiring little booklet *Of One Heart,* dramatizes a fictional visit to the city of Enoch. He writes:

The subtle and wondrous efficiency of righteous unity is found in the manner in which it moves each man to do more than he ever imagined, or even wanted, to do himself. Seeing others pass a supposed breaking point without breaking, going a second mile with a burden they are only required to carry one mile, witnessing those falsely accused persist in sweet patience—there is a clear contagion in such things. . . . One is simply inspired to do more, and his performance is sanctified for the welfare of his soul. [Neal A. Maxwell, *Of One Heart: Look Back at Sodom* (Salt Lake City, Utah: Deseret Book Company, 1990), p. 28]

Babylon has preempted the media for its satanic purposes long enough. It is time we took back our birthright by learning to use the media to preserve and perpetuate our cultural and religious heritage. It's not easy talking about Zion, because it's still only a theoretical possibility. But I'm convinced it's closer than we think—it could come sooner than we think, if, individually, we are willing to take the leap of faith. While our research projects are diverse and species specific to our own interests and strengths, it is teaching our students truth through the Spirit that poses the clearest and most urgent cause behind which we can marshal our best collective energies in building a Zion society at this university.

I applaud President Bateman's efforts to verify our spiritual allegiances, to insure that we as professors have as solid an ecclesiastical endorsement as the students we teach. They deserve to be taught by teachers whose testimonies are as fervent as their love of their disciplines. President Hinckley's words at April 1995 general conference should give us pause and hope: "Try a little harder to be a little better" (Gordon B. Hinckley, "We Have a Work to Do," *Ensign* [May 1995], p. 88). That is my prayer and urgent plea to us all, in the name of Jesus Christ. Amen.