FIGHTING CHANCE

John 8: 31-32 *Proverbs 22: 3*

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CHRISTIAN CHILDREN

MUST HAVE MORE THAN A FIGHTING CHANCE

Ten years ago Laurelee and I decided to educate our children in a home school rather than a public school or a private school. The burden of this decision fell most heavily upon Laurelee who took responsibility for the substantial work that we expected this home school to require.

Of special concern to us were the following facts:

1. The social and religious environment in most schools in America has deteriorated to a level of evil such that it is a threat to the spiritual, moral, and mental health of each child who is forced to participate in it.

2. The level of political and secular humanist indoctrination in American public schools has risen so high that it is very difficult for any child attending public school to emerge with an understanding of historical and religious truth.

3. Irrationalism has become the norm throughout American schools. It is therefore very difficult for children who attend those schools to learn how to think - rather than to simply believe whatever propaganda is being disseminated at the moment.

4. The academic quality of most schools has deteriorated to the point that American students are literally the world's largest group of dunces. In test after test of academic abilities, American students score last in comparison with students from the other twenty or so advanced countries.

It is, of course, possible for a child to emerge from an American public school with good academic training and a good spiritual and moral outlook. With increasingly rare exceptions, however, students who achieve this do so in spite of the school rather than because of the school. The over all performance of American children who attend public schools is very poor.

Even when American public schools of the past are used as a standard, current schools are an embarrassment. Scholastic Aptitude Test (SAT) scores have deteriorated so much during recent decades that the tests themselves are now on the verge of being changed. The American educational establishment is determined to change these tests, so that continued comparisons with past performance will not be possible.

Even the SAT tests themselves are being used as tools for social engineering. "Politically Correct" questions are being asked about "socially responsible" reading passages. In some cases the

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student must give an answer that he knows to be false or misguided in order to please the social engineers who designed the tests.

As a result of these facts, hundreds of thousands of American families have chosen to educate their children at home. Home schooling is rapidly becoming a major force in American society and has become a significant embarrassment to the public school establishment.

Moreover, families who have chosen this path are clearly achieving some of their objectives. In particular, they are succeeding in partially isolating their children from the social and religious decay that is pervasive in American public schools. They are also strengthening their families by keeping children and parents together rather than allowing them to be physically and mentally separated by the State.

There is a growing possibility that, if the home schooling movement continues to expand, it may become the most important single force that Christians can employ to take America back from the anti-Christian forces that currently control American public life.

In order for this to occur, however, there are some current weaknesses in the home school movement that need to be corrected. Aside from the obvious legal problems and other difficulties that have developed as the public school establishment attempts to protect its decaying monopoly, these include:

1. Home schooling is very difficult for parents whose circumstances prevent at least one dedicated parent from giving a very large percentage of his or her time to the home school. While it is fine to argue that a family should always include one full-time parent in the home with time to teach the children, many families find themselves in circumstances which do not permit this.

2. Many parents themselves lack the education that they so earnestly want for their children. As a consequence, home schooled children have a difficult time rising above the level of academic achievement of their parents.

This is true of many homes in which both parents are college trained and may even have advanced degrees. A large fraction of college graduates, for example, are not trained to do simple calculus - a level of academic achievement easily possible for most properly educated sixteen-year-old children. Even parents holding doctoral degrees in mathematics and science are often poorly educated in literature, history, and the foundations of our civilization.

3. Home schooled children cannot attend college and graduate school without exposure to the same evils in American colleges and universities that were a primary reason for taking the children out of the public schools in the first place. There are very few institutions of higher learning where these evils are not pervasive and even fewer which offer high quality educations in such fields as science and engineering.

4. The average level of academic achievement in Christian home schools at present looks good only when compared with the disastrously poor results currently the norm in public schools. While it is true that SAT scores are a little higher for home schools than for public schools, the average public school child comes from a generally poorer home environment and a school environment that is not conducive to learning.

Some Christians react to these difficulties with various forms of resignation. They hope that more families will find a way to rearrange their lives for home schooling. In their home schools, they emphasize subjects such as spelling and grammar and generally neglect more difficult subjects such as mathematics and science. They hope that by the age of 18 the children will be strong enough to resist the evils that they encounter at the universities, or else they deny the children a higher education and direct them into occupations where that education is not required.

They are comforted by the fact that they have achieved slightly higher educational performance than the public schools while, at the same time, sparing their children the depravities of the secular

world for at least part of their formative years. These Christians are dedicated people and are doing their best for their children. I believe, however, that they should be thinking beyond the current home school situation.

In order to take our country back from the secular humanists - back from those who have abandoned the Christian values and disciplines that made America great - back from the evil that is destroying our society, we must do more in our home school movement than we are doing now.

Our children must be not a little better educated when compared with those in the public schools - they must be so much better educated that they are entirely beyond such comparisons.

Our children must be able to think - and to think so much more effectively than their opponents that they are able, in one generation, to become such a superior force in science and engineering and in industry and government that they dominate American society.

Our children must be such shining examples for the home school movement, that the majority of American families demand the same quality for their children - a quality that can only be obtained by becoming Christian families who take responsibility for themselves.

Our children must be such superior performers in America's colleges and universities, that they not only resist the corruption in those institutions - that they destroy, by their example, the corruption itself.

Interesting rhetoric, you may say, but how can this be done?

I respond, it MUST be done, and, for the remainder of this article, I describe an experiment that indicates the beginnings of a way in which it may possibly be done.

Like most successful experiments, this one reveals only part of the truth and suggests further experiments that may be worthwhile. Also, like a great many experiments that point in a different direction, this one was done by accident. If it ultimately proves to have been worthwhile, then the credit belongs to the Lord - not to the participants.

As our children reached school age, Laurelee undertook their instruction. A highly educated scientist herself, she understood what they needed to learn, but she had no experience in teaching children. Moreover, she worked virtually full time with me in our civil defense work and our research work; she was still bearing new children and caring for infants; and she was carrying out a significant amount of farm work in addition to the usual household chores.

As an aid to her growing home school (all of our children have been entirely home schooled), Laurelee purchased educational materials and curricula from a wide variety of sources. These she melded into a curriculum along with a large amount of Christian materials that she purchased. (She purchased so many Sunday school materials, that the people at the local Christian bookstore thought that we were operating a church.)

Not knowing whether or not these materials would be available to us in the future, she created an entire twelve grade curriculum for each of the six children and obtained all of the necessary materials for that curriculum. These she organized meticulously in the order that they would be used. That curriculum occupies the equivalent of about five large filing cabinets and is in perfect order.

This effort, in degrees that vary according to the resources, education, abilities, and motivations of the parents, is one that is being undertaken today in tens of thousands of home schools across America. It is being made increasingly effective by the growth of many excellent businesses that supply materials and curricula to home schools.

Laurelee's effort was truly outstanding. It allowed for every academic eventuality and it utilized the very best materials available. It even included life insurance on me, so that she would be able

to continue the home school in the event of my death. Her plan had only one flaw - a flaw that neither she nor I ever considered. The plan assumed that she would be alive to teach.

When she died suddenly after an illness that lasted less than 24 hours (four and a half years ago) her class contained Zachary, Noah, Arynne, Joshua, Bethany, and Matthew - ages 12, 10, 9, 7, 7, and 17 months - a class without a teacher.

As I assumed her work including cooking, laundry, and other household tasks, and continued the farm and professional work without her by my side, there was no possibility that I could even read the curriculum that she had so carefully created - much less have the time to teach it to the children. Friends tried to help, but the problem seemed to be intractable.

What happened then, with the Lord's help, was remarkable. Gradually, over the next two years and building upon the environment that their mother and I had already created for them and some rules of study that I provided, the children solved the problem themselves. Not only did they solve it themselves, they created a home school that, in many ways, points toward answers to some of the difficulties enumerated above.

Gradually, with occasional coaching and help from me, they created a home school that actually needs no teacher and is extraordinary in its effectiveness.

In judging its effectiveness, I have some experience for comparison.

I, myself, was fortunate to attend one of the finest public schools in Texas, Lamar in Houston, during the late 1950's when public schools in America still retained reasonable standards. I performed well and was admitted to every college to which I applied - including Harvard, MIT, Rice, and Caltech. After graduating from Caltech, I obtained a PhD in chemistry from the University of California at San Diego and was immediately appointed to a faculty position at that University. There I taught introductory chemistry to 300 students each year and supervised a group of graduate students.

I can honestly say that the six Robinson children in our home school are, on average, at least two years ahead of my own abilities at their ages and have a far higher potential for the future than did I. Moreover, by the age of about 15, they are surpassing at least 98% of the college freshmen that I taught at the University of California at San Diego.

The oldest, Zachary, who is 16, is already completing a math and science curriculum that uses the actual freshman and sophomore texts from the best science universities in America. Last October he took the Scholastic Aptitude Tests for the first time (the PSAT). His scores of 750 in math and 730 in verbal for a sum of 1480 (and a NMSQT score of 221) were above the 99.9 percentile among the 1,600,000 students worldwide who took the test. The other children are, for their ages, performing at least as well.

During the past four years, I have spent less than 15 minutes per day (on average) engaged in working as the children's teacher. They are teaching themselves.

Moreover, each one of them has spontaneously, without suggestion or demand from me, taken over an essential aspect of our farm and personal lives. They do all work with the cattle and sheep, they do all laundry, cooking, and housework, and they are working beside me as Laurelee used to do in the scientific research and civil defense work that is our ministry and our professional life. One by one, my tasks just disappeared as the children assumed them.

In general, they prefer to work independently. They tend not to share tasks and have not divided them as one might expect. For example, 11 year old Joshua is the cook - and already a better cook than I. Zachary does all work with the cattle (about 30) and the chickens; Arynne cares for the sheep (about 100); Noah is in charge of all farm and laboratory repairs; and Bethany does the washing and teaches Matthew. Some tasks are shared such as house cleaning, sheep shearing, and watching over Matthew.

This sort of extracurricular work is especially valuable as reinforcement for the home school. While self confidence can be built somewhat in sports or other "activities", the self confidence that comes to a child from the knowledge that he is independently carrying on an activity that is essential to the survival of the family is valuable indeed.

It is important, however, not to take advantage of this situation. The development of a young mind takes place in a few short years. A parent must always make certain that the children have more than enough time for their academic studies and for essential recreation. When children show an aptitude for productive work helpful to the parent, there can be a tendency for the parent to let them do too much. This can deprive the children of mental development necessary to their own futures.

I generally consider each child's time to be more valuable than my own. If I provide them the time for optimum development and direct them to the necessary tools, then each of them should be able to surpass my own abilities and accomplishments. If they do, then my goals for their academic work will have been fulfilled. Remarkably, they have spontaneously responded with efforts that provide me also with more time for productive work.

Our home is not as neat and clean as some, our spelling (including mine) is not all that could be desired, and our traditions have become somewhat unusual (they leave the Christmas tree and nativity scene up for six months each year - from December through June), but these children know how to work and they know how to think. Their home school is a success.

This school is entirely self taught by each student working alone. It depends upon a set of rules that can be adopted within any home in America. As their parent, my sole essential contribution has been to set the rules under which they live and study.

For the remainder of this article I will list those rules and procedures and, for some rules, give a short rationale that may or may not be correct. For those who consider adoption of these procedures, I offer the opinion that they will work in any home and with any children, regardless of ability. Obviously children differ in innate ability. I believe, however, that these rules will achieve remarkable results with any child when compared with other alternatives.

These are not, however, "suggestions." They are rigorous requirements. I know what has happened here. I do not know what would happen in different experiments under different conditions. If, therefore, these suggestions are all followed in the same way, I expect the same result. There are probably better ways; there are undoubtedly worse ways. I discourage, however, the notion that compromise is always permissible. Below, for example, I state that the home should have no TV and no sugar. I then advocate a self-teaching program that has mathematics and free reading as its basis. It is entirely possible that this self-teaching program would fail in a home that still contains a TV and children who are still in a sugar-influenced mental state.

1. There is no television in our home. We do have a VCR that was donated to the civil defense project. As a family we watch a video tape approximately once every six months. Television wastes time, promotes passive, vicarious brain development rather than active thought, and is a source of pernicious social contamination.

2. The children do not eat sugar or honey or foods made with these materials and have never done so at any time in their lives. Though Laurelee and I (both sugar addicts) established this rule, it is now out of my control. Two years ago, when some visitors whom we greatly wished to please came for dinner, they brought sweet rolls and donuts. I suggested to the children that they should eat just one so as not to offend. They all refused.

Sugar is not just a threat to the teeth. It has subtle and undesirable effects upon mental attitude and performance. When I occasionally buy cookies for myself, I rarely am able to finish them. The

children know all my hiding places and feed them to the chickens. They say that sugar makes me irritable and isn't good for me.

The children also do not eat artificial sweeteners such as Aspartame (Nutrasweet). The mental effects of these substances are unknown. Aspartame may be linked to deleterious mental effects. Why take a chance?

3. Formal school work occupies about five hours each day - six days per week - twelve months per year. Sometimes one of them skips his studies for the day as a result of some special activity, and we take an occasional automobile trip. With these diversions, their actual annual school time occupies about ten full months of six day weeks.

4. Those five hours each day are the most productive hours - the morning and early afternoon. As soon as they wake - and with time out only for breakfast and milking the cows - they study. Each has a large desk in the school room. My desk is also in that room. I try to do my own desk work during the same time, since my presence keeps the school room quiet and avoids arguments about noise.

5. The five older children were taught to read by Laurelee with the phonetic system - learning the individual sounds of our language. Matthew (five years old) is currently learning to read by phonics. The children are teaching him.

6. The teacher-presented materials that Laurelee obtained are not used, but the books that we accumulated, which include a good selection of classics, are essential to the curriculum.

7. Each day, before beginning any other work, each child (except Matthew) works an entire lesson in the Saxon series of mathematics books. This usually involves working about 30 problems. If the 30 problems seem to be taking much less than two hours each day, we sometimes increase the assignment to two lessons or about 60 problems per day. If the lessons seem to be taking much more than two hours, then we reduce to one-half lesson or about 15 problems per day. This is an excellent series of texts. The children work their way through the entire series at a rate that finishes calculus, the last text in the series, when they are 15 years of age.

They grade their own problems and rework any missed problems. They must tell me if they miss a problem and show the correctly worked solution to me. The younger children tend to make one or two errors each day. As they get older, the error rate drops. The older children make about one error each week. On very rare occasions, perhaps once each month, an older child will actually need help with a problem he or she feels unable to solve.

This emphasis on math with the help of the excellent Saxon series teaches them to think, builds confidence and ability to the point of almost error-free performance, and establishes a basis of knowledge that is essential to later progress in science and engineering.

It is also absolutely essential preparation for the non-quantitative subjects that do not require mathematics. The ability to distinguish the quantitative from the non-quantitative - the truth from error - fact from fiction - is an absolutely essential requirement for effective thinking. Otherwise one will tend to confuse independent, truthful thought with opinions based upon falsehoods and propaganda.

Our society is filled to the brim with public school graduates who imagine that they are independent thinkers when they actually are programmed to believe anything they perceive as fashionable. This cult-like behavior is not limited to graduates in "soft subjects" rather than the sciences. Many people supposedly educated in the sciences and engineering also practice this ritual of non-thought.

I believe that much of this difficulty stems from poor early education in mathematics and logical thought. It is essential to understand that physical truths are absolute and can be rigorously

determined. This must be learned by actually determining absolutes. Mathematical problem solving is an excellent mechanism for doing this. Grim examples of failures in this area are everywhere.

Earlier today, for example, a local bureaucrat telephoned in an effort to get my help in fashioning a community compromise on environmental issues between the solid citizens of this Valley and some pseudoenvironmentalist political agitators who have been disrupting the community recently. During the discussion I mentioned that the agitators had filed a document with the federal government that contained a graph condemning the local lumber industry for destroying local game fish. Actually there was no correlation between fish population and timber harvest. The agitators had created a correlation by leaving out about half of the data for the last forty years - the half which proves that their premise is false.

"Oh well," the bureaucrat replied, "we all do that sort of thing."

The horrible fact is that this bureaucrat is not far from the truth. As our population is increasingly made up of people who do not think logically and honestly about facts, our whole society enters a never-never land of irrationality where paganism is equated with Christianity; where lies are equated with truth; and where moral absolutes are equated with moral relativism.

Human affairs are very difficult to understand, since most subjects that concern humans are so complex that they cannot be rigorously understood or expressed with mathematical precision. In order to compensate for this, we combine the truths we do know for certain with good intuitive extrapolations into the areas we seek to understand. The chance that this sort of process will go awry in a well prepared mind is high enough. For a mind that is unprepared to distinguish between logical truths and illogical falsehoods, this process is entirely impossible.

8. After completing the mathematics work, each child writes a one page essay and gives it to me. The remainder of the five hours is spent in reading history and science texts. Some of the children enjoy writing these essays more than others. At present, some of them write a page every day and some write less frequently.

9. Zachary (16 years old) has a more rigorous curriculum, since he finished calculus about a year ago. He is working his way through freshman and sophomore college physics and chemistry texts in the same way that he previously worked his way through Saxon math. After those years of self-taught math, he has simply gone on to self-taught science - and in the toughest college level texts that I was able to obtain.

His mind has become used to the fact that there is nothing in the well-known sciences that he cannot understand and learn and no problem that, with a proper book, he cannot work correctly. His error rate is negligible.

10. No child is allowed to use a computer until after he or she has completed mathematics all the way through calculus. (At one point Saxon calls for a little use of the hand-held calculator. I permit this, but only on a very few occasions.)

It is important to realize that one cannot insert a calculator or computer into one's brain. Quantitative thought requires mental mathematics. Introduction of machines before the brain has learned to do this work by itself weakens the development of the ability to think.

I recall years ago explaining to the children some ways in which they could recognize a real scientist in contrast to the many imitations they are likely to meet. One thing I mentioned was love of quantitative thought. Real scientists often revel in inventing small problems and calculating solutions mentally with whatever facts are at hand. These things continually dribble into their conversations with occasional efforts to impress each other with the relative vigor of their imaginations or the speed of their mental arithmetic.

The kids listened to all of this with toleration and dutifully participated in my games to see who could mentally calculate our auto gas mileage at each fuel stop to four significant figures in the shortest time.

Then one day Professor Martin Kamen, then 77 years old, visited our home for dinner. Professor Kamen was the discoverer of Carbon 14, the originator of much of the radioactive tracer methodology upon which biochemistry is based, and a major figure in the understanding of photosynthesis. He talks twice as fast as a normal human; yet it is still obvious that his mouth cannot keep up with his brain.

All evening he continued as he has whenever I have seen him over the last 30 years. During the evening he posed and solved numerous small problems involving mental arithmetic. When he had gone off to bed, the children looked at me in awe. "That's exactly the way you told us scientists behaved," they said.

People who can think do so with their brains. Surely their thoughts often lead to problems that require experimental test, and often computers are essential equipment in those experiments. The thinking, however, is done with the brain. The arithmetic ability involved in that thinking must also be in the brain during the thought process.

For almost 30 years I have used advanced computer systems in my research work. Laurelee was, herself, a superb computer systems programmer. When we were involved in university research work, our labs were known as among the most highly developed in the world in terms of their computer technology. We used computers as word processors a decade before the general public had access to them.

Nevertheless, we were in total agreement that none of our children would ever use a calculator or computer of any kind until their brains were fully developed in ability for quantitative thought. Laurelee did not live long enough to see that point come in any of the children. We both thought it would probably not come until college - at the age of 18.

As a result of the Saxon math and self-teaching work, Zachary finished all of his math through calculus before he was 16. Therefore, at age 16 I gave him his mother's computer - an older 386 model. Although he has done quite well with it and is, therefore, a substantial help to me in our research work, I still worry that I gave it to him too soon. There is a very dangerous temptation to substitute computer manipulations for real thought.

Some people will say that computers are becoming such a pervasive influence in our world that children need to learn how to use them at an early age. Besides the mental development issue, there is a simpler response to this idea. Computer technology is advancing so fast that, long before a child reaches the point in life where he or she really needs to use a computer, the machines will be so different that early practice will have been irrelevant.

Recently Zachary and Noah have been helping a colleague of ours who is a talented electrical engineer. They are repairing the electronic circuitry of some computer equipment that Laurelee and I used here 10 years ago. We need the equipment for a special project. This educational entertainment looks, however, more like archaeology than technology. This equipment is quite valuable in teaching the boys about computer engineering, since the digital logic in older machines is provided by discreet components that are more easily studied than are the components of current machines. These machines are, however, of little use in learning about the programming and utilization of modern computers.

11. Since they have no television, the children are prone to spend a substantial part of their non-school hours reading. They read whatever interests them from our library - which Laurelee purged of all books that she thought it best for them to avoid. By recreational reading, the children pick up most of their vocabulary and grammar and most of their knowledge about the world. Re-

garding current events, they do not listen to the radio, but it has become increasingly difficult to maintain control of my copy of the Wall Street Journal.

12. Each child is asked to write one page each day about any subject that interests him. I read these pages and mark misspelled words and grammatical errors that the child must then correct. Sometimes I fall many weeks behind with these corrections, but the children just keep writing.

There is an unusual bonus in these short essays. Sometimes the student will write things that he or she would not (and sometimes should not) say to the parent otherwise. These essays have educational value, and they also open a new line of communication with the children.

13. The Bible is not a required part of our formal curriculum. We have a family Bible reading before bed each evening, and we discuss elements of Christianity as they happen to arise in our everyday lives.

Like Isaac Newton, no one in our family ever questions the truth of the Lord's Word as provided to us in the Old and New Testaments of the King James Bible. We only seek to understand these truths by repeated reading. That reading is rarely accompanied by interpretive comment. Each of us must understand these things for himself and build his own relationship with God.

14. This curriculum is important for what it contains and also for what it does not contain. It contains about two hours of math or science problem solving followed by about two hours of directed reading and a short essay each day - all self taught by the student. What it does not contain is also very important.

Although the children take piano lessons and engage in a rich variety of extracurricular activities oriented around our farm and laboratory, their formal curriculum consists of "reading, writing, and arithmetic" and nothing more. It also essentially has no teacher - a fact that I have come to realize can be an advantage.

The brain is never asleep. It continues to work and think 24 hours per day. If a brain gets used to the fact that it will actively work math problems for two hours at the same time each day and that it can understand and work those problems without error, it will also allot a significant part of its time during the other 22 hours to thinking subconsciously about mathematics. In this way understanding and performance are reinforced.

Each additional subject that is added to the curriculum creates a demand upon the brain's 24 hours of time. If an unnecessary subject is added, it wastes not only the curricular school time, but also a fraction of the extracurricular time. It is therefore important to be very careful not to add unnecessary subjects.

Our public schools and also many of our home schools have so many subjects in their curricula that the children's brains do not have time to give adequate attention to the fundamentally important subjects.

In the formative years, it is absolutely essential that children learn how to think and how to learn independently. They have a lifetime to accumulate facts and will do so more effectively if they acquire a correct foundation - not of facts, but of ability to read, think, and evaluate for themselves.

The ability to think is the most important. A very large percentage of our public school graduates lack the ability to think. Most of them can, however, articulate acceptably. When we give the brain a small number of the most important tools to learn and use, we give it an opportunity to learn to think.

Always remember that when you add a subject or activity to a child's schedule, you are subtracting from the time for something else. Is it really more important, for example, for the child to learn a foreign language than it is to learn error-free applied mathematics?

We have not yet had experience with the higher education problem. Like many home school parents, I dread the thought of sending the children into the social nightmare that now exists on American college campuses.

At present, we are thinking about the possibility of renting a small house near the campus of a large university where all of the children would eventually enroll. They would live together during the years that their college educations overlap.

More generally, it seems to me that groups of Christian, home school families should establish living facilities near college campuses in which the social and study environment provides an island of sanity for their children. Out of such islands would surely emerge the highest achieving students of the university.

In summary, in this experiment, I have watched a group of children educate themselves in a far superior manner than I could have done for them if I had spent every waking hour teaching them in the usual manner. I am convinced that, had I done so, their progress would have been far less.

Although I have occasionally helped them with specific questions, that help has been so infrequent that they would have advanced almost as far if I had not helped. Moreover, the level of academic accomplishment that they have achieved is truly extraordinary.

This is not to say that they are not typical kids. If I had not set the rules and provided the curriculum, they would not have done this work. If I did not keep order and provide a reasonable environment in which they can work, they would cease to advance. When I ask them to do something, they do it - always. It is just not thinkable that it should be otherwise.

If I say quiet down, they do - for a while. Then I may need to say it again more forcefully. If I say spend five hours at their desks, they do - but I need to keep an eye out, or over a period of weeks the time may slide to four hours or whatever level they think credible. They are normal.

Nevertheless, open defiance by refusing to do whatever is asked by the parent is just not tolerable in any home. Perhaps we were lucky. I cannot remember any differences between Laurelee and me concerning discipline. In families where such differences exist, they should never be resolved in front of the child. Parental orders must always be followed - without exception (and without argument or complaint).

Children learn by example and by doing. They do not learn effectively by being lectured to or by vicarious involvement as in television viewing. Our educational method works, and it involves almost no parental time once the school room and curriculum have been provided and the rules have been established.

If I could make one further advance, it would be to provide a reading curriculum that is structured like the Saxon mathematics curriculum. There is an order in which literature should be read just as there is an order in which mathematics should be learned. With the children's help, we are now working on the development of such a literature curriculum. I would like to have it available, while there is still time to help these children with it.

Although this approach to education is unusual today, it is much closer to that utilized by many influential Americans of the past. Many of America's greatest citizens were largely self taught.

The public schools have not always been with us. Only recently have we had the resources to subject our children to the miracles of modern educational procedures. The principal miracle of the modern American educational system is that it can turn out citizens who are more poorly educated than they would have been if they had worked individually with no school whatever.

I urge every parent to:

a) Remove your child or children from their group school - public or private.

b) Set aside a room in your home with a large desk for each child.

c) Remove all television sets from your home.

d) Remove all sugar and honey from the children's diet. At all meals, provide them with an unlimited amount of the most nutritious food that you can prepare. Avoid, if possible, the boxed and canned substitutes for good nutrition that are widely available. Since many of these substitutes contain sugar, they will not be on your list anyway.

e) Purchase a complete set of the Saxon math series of texts and answers.

f) Obtain the best library you can of literature, history, and introductory science books.

g) Give the children a large breakfast (We eat only two meals each day.), and then consign them to five hours of work as described above - six days per week at least ten months per year.

h) If possible, do your own work in or near the room in which the children are working. Don't talk to them. Just set an example by working hard yourself. This is probably especially important if there are only one or two children in the home. With six children, our school room has internal peer examples of studying that surround each student.

i) After their five hours is complete (no breaks except for the bathroom), go on about your personal lives.

j) When the oldest child is 15, obtain a set of SAT exams at your local bookstore and have the child take one of these tests every three or four months. This introduces test taking. (You may have noticed that our curriculum includes no examinations or tests.)

k) When each child finishes calculus, continue on with a college level physics text and a college level chemistry text on the same schedule as with the Saxon math. Be sure that these texts include lots of problems and an answer book for self-grading.

l) Children who have not yet learned to read require a brief period of special instruction. They must be taught to read by means of phonics. There are several good phonics programs. These consist of various procedures for teaching the sounds of letters and letter combinations and for gradually combining these into words and sentences.

It is absolutely essential that reading be taught by phonics and not by the so-called "look-say" methods currently in vogue in the public schools. If the child is not taught to read correctly, then the entire school program which follows will be so difficult that the child will have a very great disadvantage.

This phonics instruction does require interaction with an instructor for a few weeks. The instructor can be a parent, an older brother or sister, or a hired teacher. After the child can read, then he or she should be encouraged to read several hours each day in books of gradually increasing difficulty in order to build reading skills and confidence. With no TV in the home, this reading will probably be spontaneous as it is in our home.

Without good reading skills, self-instruction is not possible. Moreover, progress in any educational pursuits will be very difficult.

Some questions that may be asked about this self-education procedure are:

1. Why not just regulate TV? After all, there are some good programs on TV, and it serves as a convenient babysitter for the toddlers. Moreover, the parents like to watch the evening news and occasional "specials."

a) Children learn by example. If you watch TV, then they will watch TV.

b) Children easily learn well reasoned and truthful absolutes. If TV is mentally harmful, then it is harmful and should be avoided always. How can it be harmful sometimes and not others? Why is it not good for the older children but all right for the younger children?

Children also easily understand that they are different from adults. While sugar and television are not good for adults, moderate amounts of these vices can be considerably less harmful to adults than to children in their formative years.

During a period of rapid brain development and general metabolic development and during a period when the brain is learning fundamental abilities, the diminution of its capabilities through TV and sugar is especially damaging.

c) TV is a passive medium that promotes a vicarious, non-interactive mental attitude. Nothing could be more destructive to the mental process that is required for academic achievement in a home school. The mind is awake and working 24 hours per day. Why spend part of the day teaching the brain good habits and then part of the day teaching it bad habits?

In a home with no TV, the effects of TV are especially easy to observe. Yesterday, for example, our family was visited by a large home school family that lives nearby and also has no TV. A previous visitor had given the children a Laurel and Hardy comedy video tape that they had not yet watched. (As I mentioned, our civil defense project was given a VCR and an old viewing screen with which we watch a video tape once every few months.)

All afternoon and into the evening our home was vibrating with dozens of games, piano playing, competitions, and conversations. The children were excitedly engaged in virtually everything including preparing dinner and doing the evening farm chores. Their brains were receiving exactly the sort of active recreation necessary to reinforce their academic studies.

Then Matthew, our five-year-old, remembered the video tape. He lobbied with everyone for viewing the tape. Finally, enough people succumbed that we turned on the tape. The party, of course, immediately died. No more active interaction - only passive laughing at the screen. Moreover, as Laurel and Hardy went through one of their routines, there was a short segment of can-can dancers that, while ridiculously prudish by 1990's standards, obviously made the mother of the visitors nervous and definitely should not have been shown to the kids.

Most American children are addicted to TV. Their brains spend four hours or more each day learning bad, passive habits from the TV and another few hours (if they are fortunate to have good activities,too) unlearning the bad habits. Then, if there are any hours left, they can make positive progress.

Moreover, when TV is used as a tranquilizer, it can mask other problems that should be solved early in life. Children need to work out the ways in which they interact with other people. Even though their behavior while doing so may be more distracting than their behavior when pacified by a television set, the TV may be retarding this aspect of development which is then undesirably transferred to the classroom instead.

A developing mind deserves the very best possible environment that can be provided to it. Since TV is a negative influence on that environment, no home with children under the age of 18 should have a television set.

d) If there is no TV in the home, it will not be missed and a discipline problem will not arise over its use.

2. Cutting out sugar is almost impossible. Why can't we regulate that, too?

a) Sugar, especially when consumed by children with developing minds and bodies, has several deleterious effects - the least of which is tooth decay.

Sugar alters the metabolism in such a way as to increase the probability of diabetes, hypoglycemia and hyperglycemia, and immune deficiencies that can lead to cancer and other fatal illnesses at a later age. Most importantly to a home school, sugar diminishes mental function and increases irritability and mental instability. Most children are able to learn regardless of these effects, but why burden them with this disadvantage?

These points about sugar have been expanded upon in several texts that may be available in your library. I recommend the books: Sweet and Dangerous by John Yudkin, Peter D. Wyden, Inc., 750 Third Ave, New York, NY 10017 (1972); Sugar Blues by William Dufty, Chilton Book Company, Radnor, PA (1975); and Food, Teens & Behavior by Barbara Reed, Natural Press, PO Box 2107, Manitowoc, WI (1983). These books contain a substantial number of appropriate references to the scientific literature.

b) Moreover, how are you going to teach the child that sugar is bad for him on some occasions and not on others? This argument may sound good to a parent who wants to rationalize his or her own sugar addiction or who cannot face the possibility that past gifts of sugar to children may not have been wise, but it is unlikely to fool the kids.

c) Remember that we are not talking about naturally occurring amounts of sugar such as those present in fruits, vegetables, and virtually all foods. In fact, if the children do not eat sugar, their taste receptors will adapt until they find the natural sweetness of food to be just as pleasurable as do the jaded taste receptors of a sugar addict when eating candy or honey.

Joshua (our 11 year old cook) makes his whole wheat bread from flour that he grinds from whole wheat kernels. He makes it entirely without sugar or other sweeteners. He does occasionally add some raisins. Even if, however, he adds no raisins or other fruits, his bread tastes sweet to us.

The problem with sugar is not that it is "refined" or in some other way an unnatural product. The problem is that modern technology has made it inexpensively available in enormous amounts. The average American child gets about 20% of his or her calories from sugar - a feat that was almost impossible until the advent of modern technology. Honey and molasses are just as harmful as refined sugar, since they are just alternate ways of eating much larger amounts of sugar than human metabolisms and minds were designed to encounter.

Sugar is entirely a natural product. When it is consumed only in the process of eating whole foods in their natural state, it is difficult to overdose. When it is concentrated by refining or when certain whole foods that contain huge amounts are eaten (such as honey or large amounts of concentrated orange juice or grape juice), it is possible to overdose.

3. I don't want my children to be embarrassed by appearing "different" to other children who do eat candy and watch television.

a) On the contrary, we want our children not only to "appear" different but also to "be" different. The TV and cookie rules are a good place to reinforce this.

When you go out to a restaurant to eat, do you offer a prayer before that meal? Although Jesus clearly warned against prayer in public places for the purpose of pious appearance and approbation, we certainly should not avoid prayer because others are present. Moreover, a discreet prayer followed by a family dinner including quiet and well-behaved children (more likely if they are sugar-free) is a Christian testimony in public. In this event, the children do appear "different."

We want our children to be different. We want them to be different spiritually, academically, socially, mentally and physically from the norms that are currently established in the secular world. We want them to know that their way is superior to the current way of the world.

The ban on sugar and TV is not only good for the children, it is also a good way of teaching them the virtues of their "differences."

This past Friday, 16-year-old Zachary took a practice SAT test here at home. His score was 800 (a perfect score) in math and 775 in verbal. While he is unlikely to do that well under the pressures of an actual exam in a room full of public school kids, I complemented him greatly - precisely because this was the most "different" score that he has achieved.

Should I have rather said, "Zachary you will need to miss a few more problems, so that you will not appear different." Or should I let him watch a little selective TV and munch a couple of candy bars before his next exam to make sure that his score is more "normal?"

4. I want to interact with the children in their studies. Perhaps they could learn alone if their parent could not spare time for them, but I am sure they will be better off with my help. Moreover this is "quality" time that we spend together.

It is hard to imagine a Christian home, with children present 24 hours per day and no time sinks such as television, where there is not as much or more quality child-adult interaction than the family members want or need. This interaction is an important part of learning. Books are certainly not the sole source of knowledge.

However, just as you cannot insert a calculator into a child's brain so that he or she can think quantitatively, you cannot insert yourself into the child's brain as a life-long crutch. That brain must learn by itself, function by itself, have confidence in itself alone, and achieve by itself. You will not always be there to help with the academic answers. Also, if the child learns to depend upon you as a social and spiritual protective peer group, whom will he choose for that purpose when he enters the secular world? The possibilities in today's world are chilling indeed.

If a child receives too much individual attention, he can develop a dependency upon his teacher that is difficult to break. In this case, it is necessary to just let the child spend many unhappy hours alone at his desk. In time he will gradually start to work effectively on his own.

This may seem harsh and unfeeling to say, but you may well be harming a child when you go out of your way to help him with his studies, reward him with candy and TV, and build his self-esteem by not punishing him for misbehavior.

5. My child is not likely to go into science or engineering, so he will not require a lot of mathematics. He does not enjoy math and science.

Our society is now entirely based upon the products of science and engineering. An individual who lacks an understanding of these disciplines is dependent upon those who do. Moreover, at the precollege level, these disciplines are the best way to learn logic and honest thought. An individual who cannot appreciate truth and logical deduction on the basis of first-hand experience is likely to become a drone who can do little else than parrot the statements of those around him. If math and science are learned correctly, they are enjoyable to most people. If they are not learned or are learned incorrectly, then they are not enjoyable.

6. This all sounds utopian, but what about my child who is already partly through the public schools and needs remedial help? He cannot work on his own and is unwilling to learn in a rigorous environment. I must give him a simplified math program and things that "interest" him to do.

I have never forgotten an experience that I had at the University of California at San Diego, UCSD, concerning the teaching of so-called "disadvantaged" minority students. At the time I was teaching introductory chemistry to a class of 300 first year students. I had selected the best text I

could find - one which, if mastered by the student, gave an excellent and complete knowledge of all aspects of this subject. While there had been some complaints that the text was too difficult, the senior faculty had encouraged me to proceed without watering down the course.

One evening I was eating dinner with some graduate students at a restaurant in La Jolla when the door opened and a tough-looking character in a black leather jacket sauntered in and looked critically about the room. Much to my astonishment this fellow walked straight to our table and pulled up a chair. He knew the graduate students. He was a faculty member in the new college for minority students that had recently been formed at UCSD.

This unlikely successor to the traditions of Booker T. Washington then proceeded to treat us to a non-stop "black power" and "third world" extravaganza of rhetoric that left even the students a little restive in their chairs. As you might imagine, I was very quiet.

Finally, however, the discussion turned to academics and I ventured a comment. I stated that I made no distinctions between students in my chemistry course on any basis. I believed that every student must master the same material, so that he would be properly prepared in the subject. If the student, for any reason, was unable to master the material, the student should know that he had failed to do so. The course was always there for a second try.

At this point our new arrival (who was so different from me in every way) turned to me and said, "That's right! I am tutoring two students who are taking your course. It's a tough course, but you are right. Our worst enemies are these white liberal professors that teach watered down courses to our people and turn them into permanent second class citizens."

I doubt that any professor holding to my attitude (or perhaps even to his) would survive long in the academic world of today. In our home schools, however, this must be the way. We must never become our children's worst enemy by catering to their problems.

A public school student, who encounters a high quality, self-teaching home school curriculum for the first time, may sit for weeks staring at material that he or she is convinced is impossible or unreasonable. Let the student sit there. Eventually he will respond. If he does not, then at least you showed him the way to excellence - rather than showing him the way to mediocrity while dishonestly fooling him into thinking otherwise for the transient benefits of false hope and domestic tranquility.

5. I want my child to learn social skills. The kids at the public school have problems, but in mixing with them my child will learn to articulate his views and to interact with people.

a) I rarely meet an adult who cannot articulate and relate to others. Yet a great many adults will not or cannot think. There are many people with whom the child will learn to relate, and these skills can, if necessary, be learned at a later time in life after the child has learned to think.

When I attended Caltech, 30 years ago, they accepted about 180 freshman students each year. As a result of the exceptional academic standards that these young men (there were no girls admitted then) were required to meet, each class contained a large proportion of students who were quiet, studious, and relatively inexperienced in so-called "social skills."

I do not recall any member of my class who managed to emerge as a senior student, four years later, without social skills. These were just picked up as they were needed. On the other hand, had the students not had high academic skills when they arrived at Caltech, they would not have graduated at all. At 18 years of age, they were quite well able to pick up social skills. It was far too late at that age, however, for them to start to learn to think.

b) Modern "social skills" in children are often almost the opposite. When the children and I occasionally eat at a public restaurant during our automobile trips, sometimes one or two of the other customers (often older people) will pass by our table as they leave and stop to compliment the children on their behavior. This has happened on numerous occasions.

I rarely give instructions to them concerning behavior in public places and, without a mother in our home, their formal table manners in terms of utensil use, posture, and spilling leave quite a lot to be desired. The reason that they are frequently complimented is that they happen to lack some of the "social skills" of their public school counterparts. They don't understand that it is their duty, as well adjusted kids, to tear the restaurant apart. These other customers are so relieved to see a group of six kids quietly eating their dinner that they are moved to say something.

The children are always quiet around people they don't know - for a little while. Then they begin to act like kids - kids who, however, are not skilled in some of the techniques taught at our public schools.

On one of our trips this past year, the children were fortunate to have an opportunity to spend two days visiting the home of a famous scientist and his wife. He is a Nobel Prize winner whose accomplishments in his field of chemistry are unsurpassed. He and his wife raised a large family similar to ours.

It happened that, in an odd event that occurred, another individual who observed the children on that occasion criticized them as too quiet in their demeanor. The scientist told me about this later. He said, "I kept telling him that children learn by example, but he just didn't believe me."

Two generations ago children were taught to be "seen and not heard." Our civilization has not suffered as a result. What I have learned from these children is that, without the peer group example in our public schools, this sort of behavior actually comes naturally.

c) The goal of our home schools should be to teach our children to think - and to think faster and better than we, ourselves do. We should want our children to surpass us in every way.

Often parents think about this in terms of a "better life" for their children - more wealth, more leisure, a larger house, and more "happiness." A truly better life, however, depends more importantly upon a better understanding of the world and a better comprehension of the worldly and spiritual matters taught to us in the Bible.

In order to gain that understanding and that comprehension, our children need above all else to develop their ability to <u>think</u>.

In this article I have related some of the positive experiences that we have had in our home school. It is a home school that has had an unusual history. These experiences lead me to suggest a particular sort of program for home schooling. This program has, I believe, some special advantages over other methods. If you follow this general program, you will, I believe, be astonished by the academic results and also enjoy the enormous benefits of keeping your family together during your best hours each day.

As the children and I have traveled this path, they have demonstrated to me many positive benefits of directed self-education.

In evaluating our experiences, we find that our single greatest unfilled need is for a directed, self-teaching literature curriculum that is designed to meet the criteria that we have found most useful. That curriculum is not now available.

Therefore, the children and I have decided, as a continuing exercise that is a part of their school itself, to start to create one. We want this curriculum for our own use as well as for other home schools. We have started with a curriculum for one series of books. A description of these materials is available from the Oregon Institute of Science and Medicine, P.O. Box 1279, Cave Junction, OR 97523.