

PUTTING SPICE INTO COLLEGE TEACHING

By Lester E. Harris, Jr.

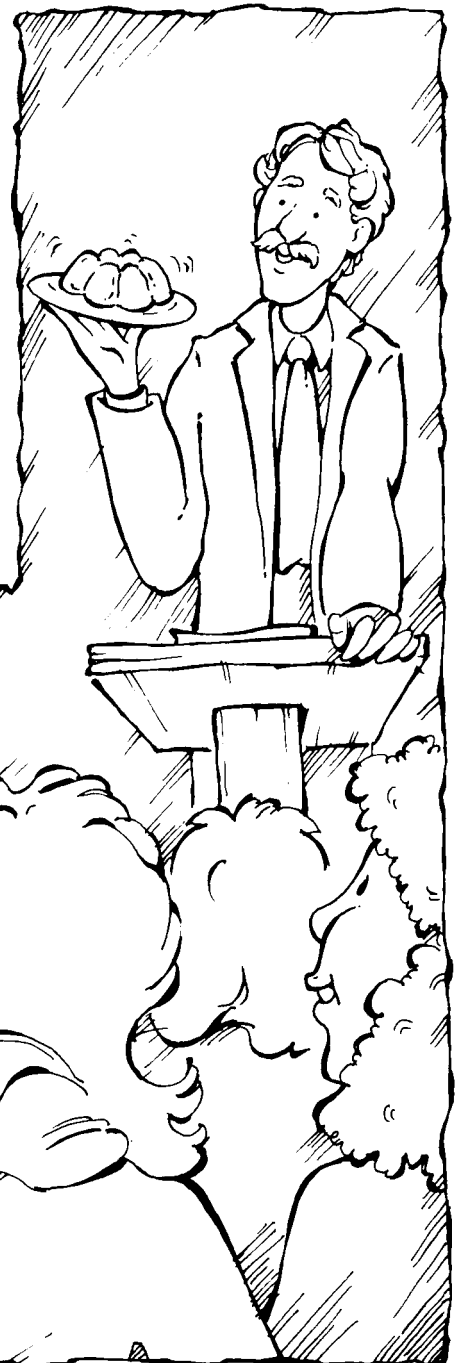
After 41 years of teaching mostly biology, but also chemistry, physics, and woodworking on every level from preschool (for genius kids of wealthy families in a non-SDA private school) through SDA elementary, academy, college, graduate school, and seminary with stop-offs in public high school (where only 5 percent of the 50 per-

Lester E. Harris, Jr. has "almost" retired from active teaching after more than four decades in the classroom. He was honored as "Teacher of the Year" twice at Columbia Union College, and was given an honorary Doctor of Pedagogy degree. He has also received recognition by both faculty and students at Loma Linda University, where he continues to teach his favorite herpetology class in the biology department on the La Sierra Campus. He writes from Riverside, California.

cent black population could read a textbook) and a prestigious public university, I have developed some ideas about making college classes a lively learning experience.

Space limitations prevent my discussing team teaching, laboratory demonstration techniques, or countless other innovative ideas. Since lecture is probably the most common (and potentially the most deadly) teaching technique in college classes, I will confine my suggestions to ideas for making lectures a lively learning experience for students.

First a generalization or two. No teacher can meet the needs of all of his or her students all the time. Personality and temperament dif-



ferences between students and teacher ensure that a few students will react negatively to even the best of teachers. In fact, if you do please all of your students, perhaps you are too ingratiating and are not teaching all of the material you ought to be covering in sufficient depth.

Surveys of teacher-student relationships have repeatedly shown that one student's favorite teacher is another student's least favorite.

Any subject can be made a lively learning experience.

of his specialty displays not his learning, but his failure to understand his students. Teachers who use such methods slow down the learning process of 90 percent of

College students always manage to ask the kinds of questions that will rapidly uncover your stupidity if you come to class unprepared.

In today's era of specialization the classical areas of knowledge have been subdivided so that we no longer have an English teacher but a Shakespearean, a Chaucerian, or a linguist. Instead of biologists we have hymenopteran cardiac physiologists (who study bees' hearts) and immunologists—neither of whom can answer the simple question, "What plant is this?" or "Is this bug a termite?"

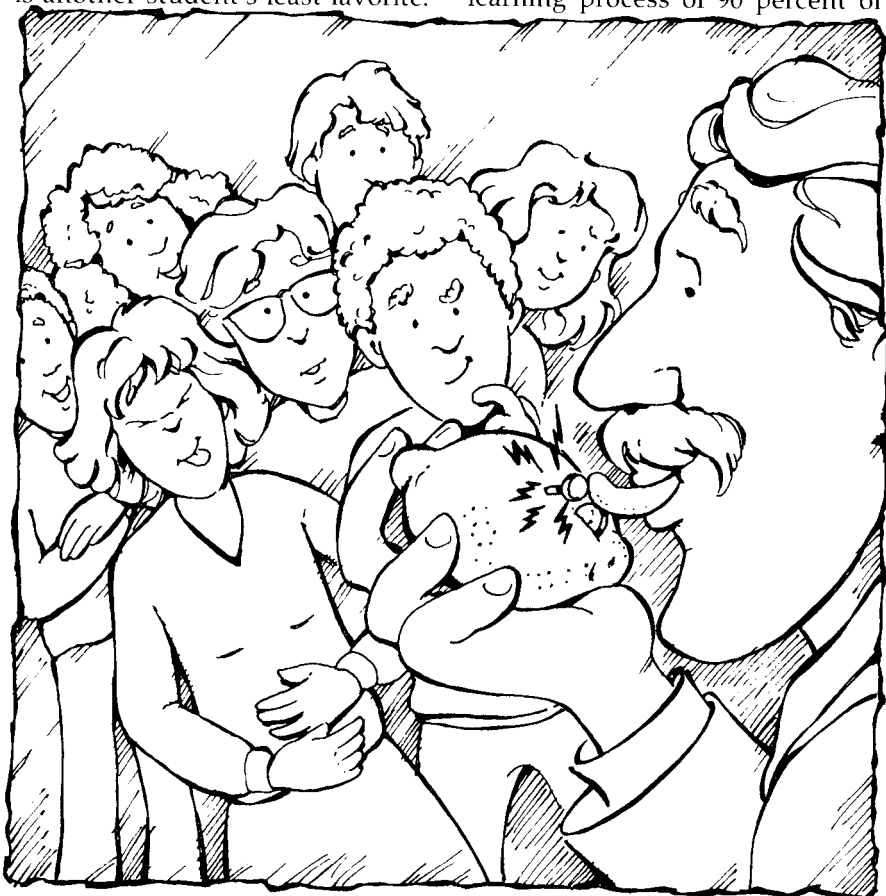
These are important questions that come to biology departments all the time. A student's little sister may have swallowed the seeds of some weed. Identification of the plant could help guarantee the child's welfare.

Detailed knowledge of a specialty in any of the classical fields is, of course, worthwhile. However, the broad knowledge of a generalist is still essential to class discussions in the arts and sciences. Teachers pursuing advanced education should combine majors and minors so that they will be knowledgeable about as many areas in their field as possible.

Mastering one's subject does not end with the obtaining of degrees. It is a lifetime effort.

Only yesterday, I learned that screech owls in Texas catch delicate little worm snakes at night and release them in their tree-hole nests to feed on the larvae of the various owl parasites living there. As many as 17 worm snakes have been found in the bottom layer of debris of a single owl's nest! A direct correlation exists between the the health and survival of young owls and the presence of worm snakes in the nest.

Think of the teaching possibilities of this one anecdote! Is the screech owl's behavior innate or learned? If learned, how did it come about? If innate, how does a screech owl recognize a worm snake? More important, how does the owl know that of all the species of small snakes crawling around at night in the owl's environment, the worm snake is the only one that feeds almost entirely on subterranean insect larvae? How does the



However, a good job of pedagogy will invariably take care of teacher-student personality differences. Under a good teacher, even the poorest or most turned-off students will have learned something—probably a lot more than they realized at the time!

Another educational axiom is that the best teacher is the one with integrity and a strong character. Every student knows what the teacher stands for. A teacher with integrity inspires trust.

A third truth is that a teacher must never "talk down" to his or her students. Young people always recognize this characteristic, and invariably resent it. The teacher who insists on talking in the jargon

their students and bore their brightest students to tears.

Any subject can be made a lively learning experience. Though I am a scientist, the best remembered and most exciting teacher I ever had was my high school English teacher. Although she was excruciatingly tough and demanding, I have reaped the benefits of that discipline many times over. I can read literature with pleasure and write with correct English usage.

Know Your Subject

The first and most important step in making any college class a delight to the student is to know your subject. You cannot fake it. You either know it or you don't.

bird handle the snake in order to transport it to its nest unharmed?

A reservoir of such anecdotes may be acquired through broad and continuous reading throughout the teacher's lifetime. Such illustrations, drawn both from the teacher's major field and from other disciplines, will help students understand difficult concepts more clearly.

Live Your Subject

Another way teachers can make college classes lively for students is to have "lived" the subject. An American literature teacher must have stood on the banks of Walden Pond, and visited the homes of Longfellow, Lowell, Emerson, and other literary greats. He or she must have seen the original works of Poe, Holmes, and other famous American writers.

Likewise, the teacher of English literature must have visited Stratford-on-Avon and Baker Street, London. No American history teacher could consider his education complete unless he has spent time in Washington, D.C., Mount Vernon, Philadelphia, Williamsburg, Valley Forge, and Bunker Hill. A California history teacher should have visited the old Spanish missions and presidios.

The biology teacher must have visited Woods Hole or Scripps's Institute of Oceanography, the Missouri Botanical Garden at St. Louis, the Smithsonian National Museum of Natural History, the American Museum of Natural History in New York City, or Walla Walla College's superb field station on Puget Sound. The laboratory-oriented biology teacher must have been to the National Institutes of Health, the Salk Institute, or one of the large university research centers.

Another way to live your subject is to attend lectures by the living greats in your field. Take your copy of the lecturer's classic text to the meeting to be autographed either before or after the address. This will allow you to at least shake hands and say hello to this famous person.

When I was stationed at Fort Dix, New Jersey, during World War II, I recalled that Albert Einstein lived at Princeton, not far away. I took

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the train to Princeton, looked up his street address, and walked to his home. Knocking on the door, I was greeted by the great man's wife, who graciously ushered me into the presence of Dr. Einstein. He looked up quizzically from reading his newspaper. I hurriedly explained that I simply had to meet him while I had the opportunity.

I was quite overwhelmed by my own audacity and his impressive presence. However, he instantly put me at ease and we chatted for a

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few minutes. I left walking at least four feet off the ground. The exhilaration of that visit has livened many class discussions of relativity.

Of course, such illustrations must be used strictly in the framework of illuminating the accomplishments of famous persons. Students quickly recognize name-dropping for what it is—a sign of personal pride.

Personal anecdotes from the lives of past greats can make history come alive in the classroom. A teacher with acting ability may even dress up and play-act skills from famous persons' lives. Visual images of the person responsible for a concept make that idea unforgettable. Students studying microbes will long remember the picture of Paul Ehrlich sitting with a wealthy old German dowager listening to his every word after everyone else at the banquet table

had fled or fainted when he spoke the word *sypphilis*.

Reading the good biographies and autobiographies in one's field enhances the teacher's appreciation of how his or her field achieved its present state of sophistication, and provides many interesting moments in the classroom.

Use of Anecdotes

The third way to make classes exciting is really a derivation of the first two—the use of anecdotes to increase student interest in the subject. Anecdotes must never be used as an end in themselves. They must always support, emphasize, or better reveal the topic at hand.

Several weeks ago a number of former students held a surprise retirement party for me. Leonard Cooper, a student I remembered well but hadn't seen for 31 years, walked up to me and said, "Upupa epops." Those words were part of an anecdote I told many years ago in our discussion of the Linnaean classification of plants and animals. In attempting to emphasize the genus and species categories, I used the Latin term for a small South American bird, *Upupa epops*, which was so named because it bounces or pops up and down like a sandpiper.

Over the years, many of my illustrative anecdotes have come back to me surprisingly intact through the mouths of ministers, strangers, and sons and daughters of former students. Through anecdotes a lecture takes on meaning and permanence—it lives. Jesus constantly used anecdotes in His teaching. We have been using His illustrations ever since He first told them. The lecture without anecdotes is dry stuff indeed.

Gimmicks and Sparkle

A fourth component of the lively lecture is the use of gimmicks, that is, "show and tell" objects that help get a point across.

I once went to the Smithsonian
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BOOK REVIEWS

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horses, one can truly appreciate the commitment and dedication of those early ministers of the gospel.

The question of bearing arms and the "split" that has received attention in recent years are not ignored. V. A. Shelkov and his followers come under the spotlight. Even though church doctrine played little or no role in the schism, the wound was pronounced. Only after regular visits by the author (beginning in 1969), and by other church leaders, did healing begin to take place.

Adventists in Russia is neatly packaged, but the addition of some photographs would have enhanced its appeal. Unfortunately, the book is marred by some technical errors. Along with some misspellings, the introduction of a new word, *isprafnik*, on page 59, without giving a definition left this reviewer searching for a Russian dictionary, which was not readily available.

All 159 pages of the book make interesting reading. The author's sense of humor and use of anecdotes enliven that interest. However, this first published work on the subject, while enlightening and educational, merely stirs the appetite for a more encompassing tome. When one realizes the number of ethnic and religious groups, especially non-Christian, and those of atheistic bent that populate this vast region of the world, the gospel challenge becomes even more imperative. If the *glasnost* atmosphere continues, perhaps a more definitive work will be forthcoming.—Charles B. Hirsch.

Dr. Charles B. Hirsch taught history on the college level, and served as world director of education for the Seventh-day Adventist Church. At the time of his retirement, he was a General Conference Vice-President. He writes from Loma Linda, California.

**Mary Paxton Burks, RE-
QUIREMENTS FOR
CERTIFICATION. Chicago:
The University of Chicago
Press, 1987, 237 pages,
\$29.95.**

"Can you tell me the credential

requirements for Virginia?" Jane asked.

That call came the day I received *Requirements for Certification* to review. Such timing enables one to appear to be "with it."

If you want to be knowledgeable about certification requirements, this is an excellent reference. Unfortunately, it's like "Cliffs Notes" compared with ENGL 342—Shakespeare.

For a quick overview, the book does well. It outlines each state's requirements for school personnel, e.g. and articles.

Getting back to Jane, I told her that she *should* be able to get a Virginia teaching credential. "Should?" The requirements seem clear *after* the first one listed. It says, "... satisfy the requirements of Virginia's Beginning Teacher Assistance Program (BTAP), which is a program requiring the demonstration of levels of acceptable performance in certain teaching competencies." Sounds interesting, but what are they? No, not the NTE nor traditional education courses—they're also required.

The book does provide an appendix with the addresses of each state department of education so one can write and get the details. However, the "now" generation might have been better served if the appendix had also provided the telephone numbers, elementary teachers, secondary teachers with specific majors, administrators, media specialists, school psychologists, et cetera. It doesn't provide *bon mots* to enliven a conversation, and it lacks a plot. However, it is true to its title, which can't always be said of some books members.

The book's binding and paper do not guarantee a long shelf life, but that's no problem because to keep "with it" one would have to get an updated edition every year. This might bother the treasurer, but it is the way to go.

This book should grace any reference shelf where questions are likely to be raised about state credential requirements. I did find it helpful.—Melvin Wolford. □

Dr. Melvin Wolford is Chairman of the Department of Education at Columbia Union College, Takoma Park, Maryland.

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National Museum of Natural History to hear a lecture by Nobel Laureate Dr. George Beadle. His topic was the structure of DNA, which at that time few people knew anything about. Dr. Beadle met each attendee at the door. He handed each of us a pencil, a small pad of paper, and a package of Life Savers, warning us *not to eat the candy* until he told us to do so.

The auditorium buzzed with excitement and curiosity. We waited through the lengthy introductions, and finally the lecture began. All of us fidgeted with our Life Savers through Dr. Beadle's introductory remarks. Finally, he told us to put the pencil through the holes in the centers of the packet of candies. Three thousand of us obediently did so.

Dr. Beadle then said, "The pencil is the coiled strands of DNA within a coat of proteins represented by the Life Savers." How beautifully simple and clearly illustrated!

"Now," he added, "you can eat the candies." He went on to prove and amplify the concept during the rest of his lecture.

I am certain that not one of those present ever forgot that meeting. Dr. Beadle's masterful use of a gimmick made the point of the lecture, and we all had fun.

Gimmicks are always simple. I believe that it is best to use only one per lecture. I have used corks, strap hinges, tire pumps, pieces of rope, zippers, snap clothespins, mouse traps, and numerous other items to make a point. The best gimmicks are items that are familiar to every student.

The Massachusetts Institute of Technology, noted for the high caliber of its graduates, has an optional physics course that utilizes no textbooks. The course requires students to learn sophisticated concepts through the use of simple gimmicks. Students come to either a wet lab or a dry lab (liquids are used in one, but not in the

other) to do simple experiments under the guidance of an instructor.

One student pulled another student up and down the hall in a child's wagon, alternately speeding up and slowing down. The riding students used a six-inch plastic ruler to measure the linear displacement of an air bubble in a piece of transparent tubing filled with corn oil and stapled to a curved scrap of wood. A stopwatch measured time. With these simple tools the students were able to determine the laws of acceleration so successfully that they could sit on the floor of a Boston subway car with their corn oil tube and predict with a high degree of accuracy the arrival time at the next station.

Complex concepts can be taught with simple instrumentation. Useful gimmicks include objects the student would probably never get to see in ordinary life. A pacemaker for a human heart is an example. I always show one operating on an oscilloscope during a lecture on the anatomy and physiology of the human heart. Students find the sophisticated heartbeat mechanism unforgettable when they see a tiny package of technology that once kept someone alive.

Twenty-five years ago I gave a chapel talk at Columbia Union College on the marvelous mechanisms within a cell. I called my talk "What Makes Jello Jiggle?" As a prop, I used a large molded mass of red Jello on a dinner plate. I held the plate in my outstretched hand as I talked. Every eye was riveted on that plate for the entire 30 minutes as the Jello jiggled both voluntarily and involuntarily. More people—from the president on down—have reminded me of that lecture than any other I've ever given.

I once stuck a penny and a nail in two slots cut in a lemon to illustrate how a battery works for a high school physics class. Touching my tongue to the two electrodes produced a mild electrical shock. I passed around a bag of lemons with some pennies and nails. All of the students successfully tried the experiment.

"Now," I told them, "if I have any mild to strong acid or base condition and two dissimilar

metals I could make a battery." Since the school was in a rural area I suggested that even a manure pile would make a good battery. The students guffawed loudly and challenged me to prove it.

The principal heard about my remark. Being a somewhat skeptical person and wanting to see whether I knew what I was talking about, he offered to let the whole class go to his nearby farm where he had plenty of manure.

A teacher must never "talk down" to his or her students.

I gathered my gimmicks: some hookup wire, a four-square-foot piece of lead, an old copper kettle, a small transistor radio, and a multimeter. When we arrived at the farm I was delighted to find a calf stall with a two-foot layer of manure thoroughly packed down and highly odiferous.

We buried the two electrodes at opposite sides of the stall and checked the wires for proper polarity with the meter. Then we hooked up the wires to the radio and turned it on. Eureka! It worked—loud and strong. The class broke into cheers, and the principal remarked humorously that maybe he could make some money from his "musical manure." However, the electronic principles my students learned from that manure pile will remain with them throughout their lives.

Teachers in other disciplines may be thinking that while science lends itself well to the use of gimmicks, their field lacks such convenient props. This is not true. Small historical artifacts or their replicas can be used in the teaching of history. Items associated with a prominent writer, the time when he lived or the characters in his works, or facsimiles of a writer's original manuscripts can be used as gimmicks by the literature teacher. There is really no limit to what one's imagination and a little ingenuity can achieve.

Giving Necessary Information

In order for a student to really

enjoy a class and have a rich learning experience, he or she must feel at ease. From the first class period the students need to know exactly what the teacher expects. How will the textbook be used? Will exams cover information in each chapter or just the teacher's lecture? Must the student know the details of the anecdotes and illustrations used by the instructor?

Whatever the methods used, the student must understand them.

The teacher must not deviate from these instructions without forewarning the students. Dr. Ayala, a famous chemistry professor at Princeton University who was noted for his teaching techniques, used to sit on a stool when he related an illustrative anecdote the students were not required to know. He stood up when delivering material the students were required to learn. When he sat on the stool his students knew they could relax and lay down their pencils. When he stood up they knew he meant business.

This point is important in today's arena when students are experiencing severe tensions in their academic and personal lives. Students deserve a settled experience in the classroom.

The teacher should spell out clearly in a typed handout on the first day of class exactly how the mechanics of the class will be handled. Test dates and times when papers are due should be clearly specified. The more uncommitted the teacher is about the structure of the class, the more unsettled the students will feel, and the less chance they will learn or enjoy the class.

Love Your Students

My last point is to love your students. Even if you enjoy the intellectual challenge of your field, your teaching efforts will still fall flat if you do not have genuine empathy with your students.

One of the most intellectually

competent persons I know is a miserable failure as a teacher because he cannot relate to people. He does not want to bother to learn who his students are or where they come from, either literally or figuratively. To him the subject is the only important thing. Consequently students dislike him and learn little from his classes.

Teachers who genuinely love and respect their students irrespective of color, race, background, sex, intelligence, or any other factor will find that they are always remembered as a good teacher. If, in addition, a teacher makes successful use of the other points listed above, he or she will find, as I have, that parents will send their children to his classroom even to the third generation! □

CONTRACTING—A WAY TO INCREASE STUDENT LEARNING

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help they need. When I am busy with others they know they should look at their picture contracts and find something that they can do on

their own such as work a puzzle, color a picture, look at a book, or feed the class pets. Using the contract system, first graders become quite independent by Christmas break.

When students finish their contracts for the day they have four choices. They may begin the next day's contract (You would be surprised at how many want to do that!), listen to a story tape, read, or work in one of the dozen or so learning centers.

As a rule primary students work best on a daily contract system while students in grades four and above handle a weekly contract without difficulty.

Weekly Work Contracts

As a rule primary students work best on a daily contract system while students in grades four and above handle a weekly contract without difficulty. Some junior high students can handle monthly

contracts. However, I have found that even older students find it simpler to start with a daily contract and work up to longer time periods.

History of Contracting

Contracting as a technique for individualizing was conceived by Helen Parkhurst based on ideas she gleaned from Edgar Swift, Frederic Burk, and Dr. Montessori. Her ideas were first tried in Dalton, Massachusetts in 1919. Known as the Dalton Plan, contracting soon found a place in thousands of schools around the world.

Popular during the 1920s, contracting went out of style, not to reemerge until the 1970s. Although contracts are used at the elementary level, most educational research in the 1980s has taken place at the secondary or college level.

Advantage of Contracting

Contracting has many advantages for both teacher and student:

For the Teacher . . .

Contracts do:

1. Free the teacher for more individualized time with students.
2. Allow the preparation of up-front presentations.
3. Transfer the responsibility for learning to the student.
4. Make it easier to individualize assignments.
5. Expedite reporting procedures.

Contracts do not:

1. Demand specialized training.
2. Require expensive equipment.

For the Student . . .

Contracts:

1. Help students take responsibility for their own education.
2. Enable students to regulate their work pace.
3. Give students more choices with timing and order of work.
4. Allow students to work independently.
5. Challenge students to seek answers in a variety of ways.
6. Teach students to work closely with the teacher in meeting their objectives.
7. Help students set reachable, yet challenging goals.

EDITORIAL *Continued from page 3*

the substantive culture that once gave us great art, great warriors, great statesmen, great religious leaders, and great educators. It does imply that both home and school need to cooperate to arrest the intellectual and spiritual malaise that pervades our society. Parents and educators need to inspire our youth to deeply regard the values we treasure, the life patterns that lead to significant living, and the vision that sees beyond personal or immediate gratification to the realizing of long-term and eternal objectives.

Bloom's work highlights the seriousness with which we need to take the Christian teacher's mission in education, its tremendous potential to shape the future for the better. To fail to see a well-defined system of values as important and necessary to the sacred work we share is to admit our own impoverishment, our urgent need to be renewed in mind and spirit.

While it may be futile to try to recover the past, we can affirm in our modern context those eternal principles that speak to deep-seated human need. We can captivate the imagination and passion of our youth and inspire them to be honest, noble, responsible, and courageous. We can work to overcome the abuse and exploitation of our neighbors by identifying and strengthening those principles and practices worthy of defending against accommodation or superficiality.—V.S.G.