SUMMER•1985

JOURNAL

AMERICAN COLLEGE OF DENTISTS

STRESS IN DENTAL STUDENTS
MODULAR VS TRADITIONAL CURRICULUM

The Objectives of the American College of Dentists

The American College of Dentists in order to promote the highest ideals in health care, advance the standards and efficiency of dentistry, develop good human relations and understanding and extend the benefits of dental health to the greatest number, declares and adopts the following principles and ideals as ways and means for the attainment of these goals.

(a) To urge the extension and improvement of measures for the control and prevention of oral disorders;

(b) To encourage qualified persons to consider a career in dentistry so that dental health services will be available to all and to urge broad preparation for such a career at all educational levels;

(c) To encourage, stimulate and promote research;

(d) Through sound public health education, to improve the public understanding and appreciation of oral health service and its importance to the optimum health of the patient;

(e) To encourage the free exchange of ideas and experiences in the interest of better service to the patient;

(f) To cooperate with other groups for the advancement of interprofessional relationships in the interest of the public; and

(g) To make visible to the professional man the extent of his responsibilities to the community as well as to the field of health service and to urge his acceptance of them;

(h) In order to give encouragement to individuals to further these objectives, and to recognize meritorious achievements and potentials for contributions in dental science, art, education, literature, human relations and other areas that contribute to the human welfare and the promotion of these objectives — by conferring Fellowship in the College on such persons properly selected to receive such honor.

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FROM THE EDITOR'S DESK

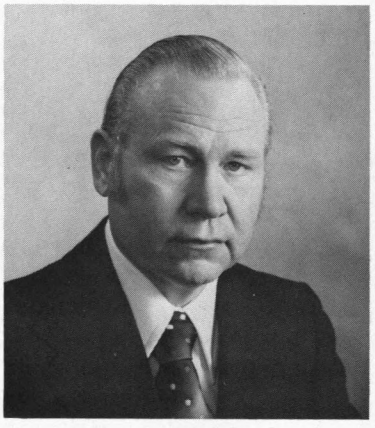
CONTROL THE LEGAL COSTS OF HEALTH CARE

We must make the public aware that legal costs also contribute greatly to the increasing costs of health care.

Costs generated by attorneys, court decisions and jury awards have much to do with the high costs of professional liability insurance, costs that must be passed on to the public. A large number of insurance carriers have quit providing malpractice insurance for health practitioners because of the costs and risks involved. There seems to be a public attitude that insurance money grows on trees, to be harvested through law suits, and that it is a never-ending source of funds for that purpose.

Up to forty percent of all medical costs in this country are unnecessary and would not be performed if physicians and hospitals were not forced to practice defensive medicine. Because of legal requirements, the practitioner has to determine not only what treatment the patient needs but also what additional treatment is needed to satisfy any legal demands afterwards in case of a possible suit.

Contingency fees, where the attorney can win up to fifty percent of the award received by his client from a judge or jury, cause the costs of medical fees and health insurance to spiral upward. The contingency fee is a pot of gold, a prize worth seeking, for many attorneys and the odds in court can be very favorable for the plaintiff. The laws allowing contingency fees



Keith P. Blair

for attorneys may be one of the major contributing factors to the great increase in the number of malpractice suits in the American courts and perhaps a main reason why our public has become so litigious.

Countries that do not have laws allowing contingency fees also do not have these kind of problems of legal fees added to health care fees. Their court calendars are not nearly as crowded, either.

Since there is a constant upgrading in the standards of health care and associated technologies, all health practitioners are expected by legal entities to provide the optimum level of care, using the latest in sophisticated, computerized equipment. The costs of defensive medicine, using such methods, can indeed be staggering.

Now, the Congress and other government bodies that are trying to contain health care costs have arrived at the premise that America can no longer afford the best health care and must, therefore, accept a lower standard of care as all that we can afford.

Dental fees have remained within the cost of living increases over the years and have not contributed as a cause of escalating health care costs. Still, the dental profession has unfairly received the blame, along with the other health professions, for spiraling costs.

Therefore, dentistry has the obligation to keep reminding the public about our fine record of holding to justifiable fees. The dental profession should also point out other factors, such as legal fees, that contribute considerably to health care costs. There seems to be no effort to contain the legal activities that are adding to the present cost of health care.

Any program to contain health care costs should also include plans to reduce unreasonably generous injury awards, to decrease the need for unnecessary defensive medical treatment charges and to lower the amounts that attorneys can win on contingency suits down to a reasonable fee for their services.

If we could contain the over-all costs of health care by eliminating unnecessary costs, it would be a great accomplishment. A substantial first step would be a reduction in the legal costs of health care.

Keith P. Blair

THE BEST DEAL AROUND

Joseph A. Devine*

As we travel the country, all of us in leadership positions are seeing an attitude permeating our membership—an attitude that's disturbing. It revolves around one principle: Everything is bad. If it isn't bad now, it's going to get bad. Once it gets bad, it's going to get worse.

I, for one, don't understand why that feeling is so prevalent among my colleagues. What about the positive aspects of our profession? In 1983, for example, the income of dentists in America kept pace with the Consumer Price Index. It didn't gain—but it didn't lose.

But we don't talk about that. We don't talk enough about the good things; rather, worries about busyness and bad feelings prevail. We're very easily threatened by anything non-traditional that comes along and we see a lot more dark at the end of the tunnel that we do light.

Feelings of disappointment and dissension can even be traced to leadership. For example, during an ADA Board of Trustees meeting one of my fellow Trustees declared: "I don't represent those guys who work for CAP programs and clinics and that sort of thing." To which I replied, "If those doctors pay their ADA dues, I represent them. If they pay their state dues, their leaders represent them and Association staff works for them."

My fellow Trustee had better realize from the start that many dentists are going to do things that he doesn't necessarily agree with. But they are his colleagues, and if they're dues-paying members, they have a right to be represented. The Association is going to have to make some adjustments on their behalf.

Any distinctions between "us" and "them" fall short in the face of one common bond: We're graduates—all of us—of accredited dental schools. We're all equal in the eyes of the dental licensing board, and we better be sure that we stay equal in the eyes of the public. We don't gain anything by ridiculing our colleagues.

Seeing these bleak dispositions forces me to remember why I chose dentistry as a profession. My case was simple. I followed the example of my father, a founder of the Wyoming Dental Association. He was a great guy; I admired him very much and I wanted to grow up to be like him. Maybe that's missing—nobody wants to grow up to be like us anymore.

Even though I grew up with the Great Depression as a natural part of my childhood, we still had plenty to eat; we lived in a comfortable house; we had a nice car; and we seemed to be able to have everything that was necessary. So I thought I could make a pretty good living being a dentist.

But what really made me want dentistry was an attitude—an attitude so unlike the feeling I'm sensing today. I noticed that my father had a great deal of community respect. I hoped to achieve that one day, so I decided to go to dental school.

When I graduated, nobody told me I was going to be rich and famous—and they were right. There were no instant riches. I went into Cheyenne where six dentists had started in my father's office, and I thought I'd be absolutely buried in referrals. But I wasn't.

It was a long, hard struggle for me and I think some of the older dentists ought to be willing to dispel that myth for some of our younger colleagues: That so-called "Golden Age" everyone keeps talking about really wasn't there. All of us had to quietly and efficiently build our own practices.

Remembering the start of my career means remembering how I got involved with organized dentistry. After graduation in 1952, I joined the dental association. That was not a conscious decision in those days—you just "joined." That's not true now. We seem to pretend that we have to sell the idea of an association. It frightens me to think that young graduates don't want to associate with us anymore.

I joined the dental association because I wanted to be with my peers, and because I wanted the respect of my peers. In those days we had peer respect. In these days we have peer review.

We have to get back to that—we want new dentists to belong to the Association and to *associate* with us. They're giving us a very significant sign: If they don't want to grow up to be like us and they don't want to associate with us, our profession is in serious trouble.

*Joseph A. Devine, D.D.S., Trustee, Fourteenth District, American Dental Association.

Can time alone be blamed for the differences in our generations' attitudes? I don't think so. For one thing, the applicant pool among today's dental students is down. When I went to dental school, 600 students applied for 10 positions off campus at Creighton University. So I think we're entitled to tell these young graduates that maybe the process was a little more selective when we went.

Furthermore, when I graduated, 93 million people weren't walking around with an insurance form that helped them pay their dental bills. *We* had to market everything. We didn't have the assistance that the young dentists do today—they have pre-payment working for them and we got that for them.

Maybe they'd rather not join because of the cost of belonging. In 1952, when I was the treasurer of my local society, dues were $36. You got nine dinners for that $36. In dental school, they charged $5 for a Class II. Because I graduated and had a license, I thought I'd charge $6. I had to fill six teeth to pay my dues.

Last year we raised those same dues to $120. I still get nine dinners, but now I only have to fix four teeth. Four Class IIs will pay my dues. If the ADA had raised your dues in proportion to the way you have raised your income, they would now be $304—instead of $200.

But I'm finished remembering my past and speculating about my profession's future. This bad attitude that prevails among my colleagues is a product of the present, so maybe we can look to recent history to find a remedy or, at best, a lesson.

Do you remember when Ronald Reagan and the flight controllers got into that big salary hassle early in his presidency? Weren't you amazed at the amount of money the controllers made? And how early they retired and all the benefits they had? Boy, they were overpaid.

Then came the airline pilots. I couldn't believe they were paid that much money to work those few hours. But all of a sudden, most of them were fired, then rehired at a lot less money, proving two things: that no one is indispensable, and that people with big incomes sometimes will settle for less money.

We don't gain anything by ridiculing our colleagues.

That's the kind of pressure we're getting. We're caught up in a natural movement that's storming this country. If I asked you if the airline pilots were overpaid, your answer would be, "Yes." Are we overpaid? "No."

But what if the airline pilots look at us. First, they probably don't care because they have dental insurance. Most of their fees are paid if they come to see us. So maybe we have a little advantage there.

But let me ask you this: When the United Auto Workers faced the same cutbacks, did you think, "That'll teach labor a lesson. Maybe they'll go back to making cars that are competitive in the world market and everything will be great, and I'm all for that"?

The dentists in Michigan didn't think that was too good of an idea because that didn't affect them "in the distant future"—that affected them the next day. Patients were taken out of their offices. They're having a terrible time back there and they're in a highly competitive situation right now.

Who's to blame? I don't know if "blame" is the right word, but I think our biggest enemy now is management. Lee Iacocca, probably one of the most credible men in America, has been complaining about health-care costs, and I think he's going to get something done about it. He says that Mitsubishi—which makes cars for Chrysler—pays $815 per year for health benefits for each employee and that the employee, from his own pocket, must contribute $374. That's 400 percent less than the health benefits Chrysler is providing its workers in America right now.

Lee Iacocca also tells you that he has to sell 70,000 cars to pay his health-care benefits. But he doesn't tell you he has to sell 40,000 cars to pay his top-level management because he doesn't want you to know that.

He also doesn't want you to know that his workers probably get the best dental and health care of

anyone in the world. I don't think he cares about quality because he doesn't get into that discussion. Health care has become a bottom line in budgets of big corporations nationwide and they're going to try to do something to lower that bottom line.

Our defense against those corporations are the workers themselves. If you ask the UAW members if they want their benefits cut or their health premiums taxed, you come up with the same response: They don't want any of these things. They're on our side. Our ADA Washington office will tell you that our coalition is now the Chamber of Commerce, the AFL-CIO and the health professions. That's a strange partnership to combat these things.

These national issues hit home for me when the telephone workers in my town held a strike. The employees came in and told me—page, chapter and verse—about how their health care benefits were going to be cut and how they didn't like that. *And how they resisted that.*

Then came the bus drivers. Their wages and health benefits were going to be cut, too. But they had the decency to argue, to object and to complain. And they stood outside and marched in the cold Wyoming winter to protest. *They had the decency to argue.*

What about my colleagues? What about the dentists of America? Insurance Dentists of America sends a very polite letter to them that asks: "Would you like to cut your benefits and cut your wages?" My colleagues couldn't wait to say yes. No argument; no objection; no complaint. Just surrender.

More than 21,000 practicing dentists couldn't wait to cut their benefits and cut their wages. And they're not all young dentists. You'd be surprised at some of the leadership who couldn't wait to send in that card.

They think they're going to get more patients. I think they're going to try to steal some patients from your office and from my office and get them into their offices. So, in effect, we'll have the same number of patients just using different systems, while dentists have consciously and voluntarily lowered their incomes by agreeing to charge a lesser fee.

When patients come into my office to have their teeth fixed, I like to make money. I don't think that's un-American; I like to make a profit. And I'm not going to voluntarily surrender to anybody any portion of that profit. I think the dentist who does is making a grave mistake.

I joined the dental association because I wanted to be with my peers, and because I wanted the respect of my peers.

Insurance Dentists ot America remains one of the great euphemisms in this country. They don't represent any dentist, they work for the insurance company. If they can get 21,000 dentists to accept a 20 percent discount, and they only need 5,000, you can figure out without much coaching what's going to happen. They're going to lower the fee schedule until they get to the point where dentists quit participating.

I like to define PPOs this way: Prepare for Poverty Overnight. I don't know about you, but I can't afford to cut my fees 20 percent; I only have a 21 percent markup now. Maybe some of you can afford such a cutback, but I don't think so. And I don't think young dentists realize the impact of such an action, especially if they envision a nebulous army of patients marching into their offices.

One PPO in particular, Colorado-based United Dental Network, followed this formula: They took you to the bank where you signed a note; they got the proceeds, that's one "P." The dentists got the payments, that's another "P." And the benefits were zero: "PPO." It cost $5,000 to join, and you bought additional insurance to protect them from your wrongful acts. At the time they had only 32,000 people in the whole state of Colorado who would come to you for a reduced fee.

To sign up with an outfit like that is not a very shrewd business decision, but in a one-on-one presentation to a young dentist who hasn't seen many patients, it may sound like his salvation. He'll join.

According to the PPOs, their final membership lure rested in the fact that they were *free*, one of the great secret words of dentistry. It didn't cost you anything to sign that card. And it said that membership was limited. If they had asked for $5, not even 5,000 dentists would have sent back that card. But it was *free*. And here was your chance to get in on the ground floor, even though it really was the bargain basement.

Before you sign that card, talk to yourself. Then talk to the private dental patient—remember, not everybody in America has dental insurance. Suppose that patient says to you, "Say, I understand you're one of those dentists who works for the Frontier Refinery. You're giving them a 20 percent discount." If you're smart, you won't say anything and the patient will continue: "Do I get that?"

What do you do? How do you selectively discount your practice? How do you explain to the patient who doesn't get the discount why he's not entitled to it?

Why doesn't the ADA do something? Because the court says we can't. We cannot battle these outfits except by polite dissemination of accurate information. We're allowed to put the facts on a piece of paper and let them stand—or fall—on content alone.

Still I ask you—why did 21,000 dentists sign? Because the psyche has become that we don't talk about anything but busyness—that same attitude echoing like a broken record, "If it isn't bad now, it's going to get bad. Once it gets

bad, it's going to get worse." We never believe that we're going to survive anything.

How do we survive? First, we have to make our peer review effective. Prove to the carriers that they get value for the money spent. We'll see to that—that's our responsibility.

Then I ask you to consider taking on an associate. Let these young men and women have a place to practice so they don't have to go to the bank and borrow a fortune. Take them in on a part-time basis.

But most of all, continue to distribute legal guidance and cautions about these programs. You are entitled to tell the truth about these programs. You're not entitled to take actions to stop them. Nor are you entitled to consciously do things to prevent their success.

All of us—regardless of what method of practice we select—are equal in the eyes of the law, and you have to respect that. We cannot be critical of the dentistry provided in various settings, and we can't stay clean by throwing mud on our colleague. We have to be very careful about doing that. Because if we aren't careful the camps will soon divide between "us" and "them," and we're going to start fracturing this great profession.

To remind you what the government and the courts have said: The Supreme Court never said we *had* to advertise. Dentists who don't want to advertise still don't have to. All the Court ever said was that you cannot sanction members who do. And the Federal Trade Commission never said that we *had* to have alternative delivery systems. All of these schemes are coming from dentists or companies who want to cut their costs, or from dentists who'd rather manage than practice.

We have met the enemy, and most of the enemy is us. Stop blaming some nebulous government agency for our problems.

Remedies are often sought, but I don't think any remedy would change the public opinion that most dentists are overpaid. If you ask average citizens, they think you can afford a loss of income—that it wouldn't be too bad for you. And, you know, I have a hunch that they're right.

If your income stayed where it is—or even went down a bit—you would still stay in the income bracket of the top four percent of the people in this country. Maybe if you weren't quite so busy, you could even be a better dentist. You could take more care, and probably do a better job of hanging onto the patients who are left.

If they don't want to grow up to be like us and they don't want to associate with us, our profession is in serious trouble.

But we don't talk about that. We don't talk about what *we* can do. I think the honorary colleges have a responsibility to become more active. They constitute the top two percent of the dentists in America. They could follow the example of the college members in New Mexico, who are going to take every new dentist in their state to dinner. They're going to welcome them and make their transition a little easier; they're going to start out on a *positive* note.

What else can we do? Each member of our Association ought to be involved in this recruitment/retention effort. The ADA is putting up about $100,000, but dentists don't join the ADA at Chicago. They join in Green Bay, in Sacramento and in Poughkeepsie. If they don't want to belong to the dental association at home, they certainly don't care about what's going on in Chicago. Membership recruitment and retention are the responsibilities of the hometown. The Bylaws say that's where they have to join, and that's where we had better get them.

Listen carefully to your dental care committee. You're going to have to have some backup plans. You need to have some IPA answers. You're going to have to promote direct reimbursement. And you're going to have to do some things to stay even.

I think we have to pay the profession back for the money, for the things, for the independence and for the opportunity it has given to us. I ask the older members to set examples. Don't say, "I'm glad to be getting out." Contribute. Pay back.

In my town, as it probably is in yours, an all-night crown and bridge dentist will cap your teeth at midnight if you have insurance and the difference. I don't think that's a major success. My idea of a major success is relieving a child's toothache. Even though his parents don't have much money, he can still be helped.

Also in our state, the elderly poor can receive assistance and be treated with dignity when they have their dental needs met. In my mind's eye, that, too, is a major success. How much you care for those patients is how much they'll remember you. If you forget to care for them, you can expect the same in return.

All of this should leave you with one feeling—not a bad attitude about busyness and division within the profession, but a *positive* sense of accomplishment about your successes. Even if it's a little less money next year, remain a doctor. It's still the best deal around. △

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NEWS OF FELLOWS

John W. Tiede of Le Center, Minnesota, a former Vice-President of the American Dental Association, was named the recipient of the 14th ADA Distinguished Service Award, the highest honor the Association can bestow on a member of the dental profession. The award was presented at the 1984 Meeting of the ADA in Atlanta. He was selected for this honor in recognition of his enthusiasm, commitment and in insightful leadership for the dental profession.

John W. Tiede

Robert L. Ewbank of Danville, Illinois recently received the Outstanding Dentist Award from the Illinois State Dental Society for his service to the community, to his church and as past president of the International Arabian Horse Association. An Oral and Maxillofacial Surgeon, Dr. Ewbank is in private practice and serves as Chief of Staff of Lakeview Medical Center.

Earl E. Shepard, left, receives an Alumni Citation from St. Louis University.

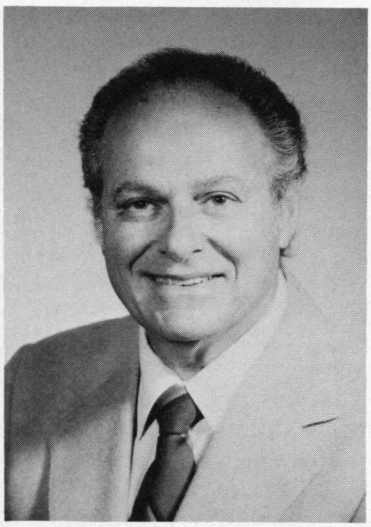
Earl E. Shepard of St. Louis received his alma mater's highest award, an Alumni Citation. The Washington University School of Dental Medicine presented the award at a recent Founder's Day celebration for his services to the University over half a century. He has been a member of the dental school faculty since his graduation in 1931 and has received many highly deserved honors through the years.

Roger L. Parrott of St. Louis received the Gold Medal Award from the Greater St. Louis Dental Society for his contributions to dentistry.

Russell V. Brown of Milwaukee, Dean at the Marquette University School of Dentistry for the past fourteen years, has retired from that post. He has been succeeded by Dr. John F. Goggins.

Philip J. Maschka of Omaha, Nebraska was elected President of the Midwestern Society of Orthodontists at its recent meeting in Minneapolis. The organization has more than 860 active members in eight states and is a constituent of the American Association of Orthodontists.

Albert Wasserman of San Mateo, California has been elected Vice President of the California State Board of Dental Examiners. He also was the 1984 recipient of the Hillenbrand Award from the Academy of Dentistry, International. Dr. Wasserman is a member of the American College of Dentists Board of Regents, representing Regency 8.



Albert Wasserman

Gunter Schmidt of St. Louis has received the Gold Medal Award from the Greater St. Louis Dental Society for his many contributions to the dental profession. Among numerous offices held, he served, for many years, as Editor for his dental society.

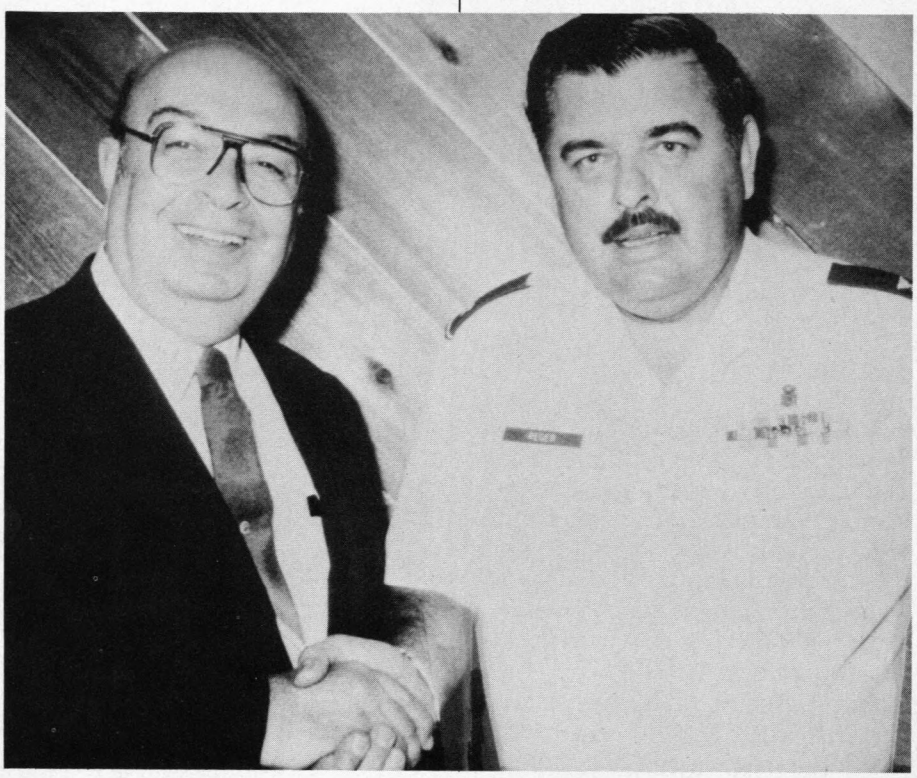
Roy H. Reger of Denver, a Colonel in the U.S. Air Force Reserve, has been elected the National Dental Surgeon by the Reserve Officers Association of the United States. The organization represents 125,000 reserve officers from the Army, Navy, Air Force, Marine Corps, Coast Guard and Public Health Service. Dr. Reger is the Past President of the Colorado Dental Association and the Past President of the American Association of Dental Editors.

Lynden M. Kennedy, Dallas, who recently completed his year as President of the American College of Dentists, has been re-elected to serve a third term as Chairman of the Board of Trustees of Baylor College of Dentistry. **Carl A. Gibbe** was re-elected Board Secretary. The school is operated as an independent, non-profit, non-sectarian corporation and is governed by a Board of 32 Trustees.

James D. Johnson of Oak Ridge, Tennessee has been appointed by Tennessee Governor Lamar Alexander to a nine year term on the Tennessee State Board of Regents. The Board is the governing body for 46 state universities, colleges, institutes of technology and area vocational schools. Dr. Johnson has served on the Tennessee Board of Dental Examiners for ten years and has served for four years on the Dental Examiners National Testing Service.

William S. Frank

William S. Frank of Los Angeles is the recent recipient of the Academy of General Dentistry's Humanitarian Award, in recognition of his exceptional services given within and outside the dental profession. He has contributed much time and energy to civic and community activities and has been highly honored for his contributions to dentistry. Currently, Dr. Frank is the President of the Academy of Dentistry International.



Roy H. Reger, right, is congratulated by ADA President John L. Bomba on Dr. Reger's election as the National Dental Surgeon by the Reserve Officers Association.

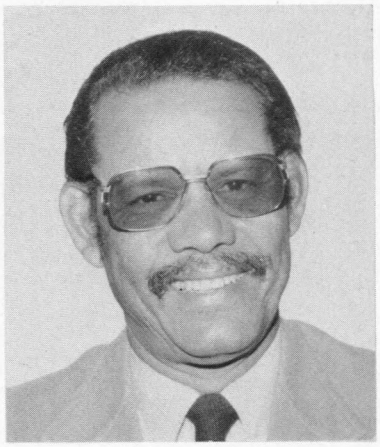
John F. Prichard

Gerald M. Bowers of Baltimore was named the 1984 winner of the Gies Periodontology Award. He was cited for 20 years of research contribution. Dr. Bowers specialty is bone regeneration in periodontal disease and he has presented numerous research projects on bone grafting. He is professor and director of the postdoctoral program in periodontics at the University of Maryland School of Dentistry.

William R. Harkins of Osceola Mills, Pennsylvania was honored by the Commonwealth of Pennsylvania for his humanitarian contributions to the fields of prosthodontics, orthodontics and his work with cleft palate patients. Together with his father, Dr. Lloyd Harkins, he founded the renowned Cleft Palate Clinic at Philipsburgh (PA). Dr. Harkins was also recently elected to the executive council of the American Prosthodontic Society.

John F. Prichard, a Fort Worth periodontist was inducted into the Baylor College of Dentistry Hall of Fame. The recognition was for his outstanding services and devotion to the art and science of dentistry at Baylor. Dr. Prichard has been president of the American Society of Periodontists and is the author of two texts on the treatment of periodontal disease.

Nelson W. Rupp of Chevy Chase, Maryland was the 1984 recipient of the Callahan Memorial Award presented by the Ohio Dental Association. This is an international award given to dentists who make outstanding contributions to the dental profession. Dr. Rupp is a graduate of Ohio State College of Dentistry and is currently with the ADA Health Foundation National Bureau of Standards.



Theodore T. Fortier

Theodore T. Fortier, of Los Angeles, Calif. was recently appointed by the police chief of Los Angeles to the Executive Committee of the Crime Prevention Advisory Council. Dr. Fortier is currently president of Los Angeles Dental Society and in the private practice of general dentistry.

William R. Harkins, center, receives a citation from the Commonwealth of Pennsylvania presented by Representative Camille George, right, while Representative Lynn Herman, left, looks on.

STRESS IN DENTAL STUDENTS

Camille Lloyd*
Leigh Anne Musser**

In recent years there has been an increasing awareness of the stressfulness of pursuing an education in the health professions. Much has been written, for example, about the many stressors associated with being a medical student.[1-3] Unfortunately, the stress associated with dental school has been less extensively examined. Nevertheless, in the last five years, dental school stress has also begun to receive some attention. Early reports have indicated that dental school is also characterized by high levels of student stress.

In 1979, Goldstein[4] conducted a survey of stress and interpersonal support among 63 dental students (a 60% response rate) at Case Western Reserve University. He examined 17 possible sources of stress and concluded that, as a group, dental students felt most stressed by study demands on their time, the large volume of material to be learned, and inconsistent feedback from faculty. Students also reported moderate levels of stress due to peer competition for grades and fears of falling behind in the work required and being unable to catch up. In 1980, Garbee, Zucker and Selby[5] reported a second study of dental school stress. About 35% of their student body responded to a 25 item stress questionnaire. Results indicated that the most stressful characteristic of dental education was the "atmosphere created by clinical professors." "Examinations and grades" and "amount of classwork" received second and third place rankings. Other items for which students reported high levels of stress included patient care responsibilities, administrative responses to student needs, difficulty of classwork, difficulty in learning precision manual skills and in learning clinical procedures, peer competition, and financial responsibilities.

The two major investigations of dental school stress thus reached the conclusion that most important among the factors producing stress in dental students are those involved in the educational process—the large volume of material to be learned, examinations, and the interaction with faculty. In addition, the heavy academic demands create severe time pressures resulting in a lack of time for interacting with family and friends, and in a lack of time for recreation.

In a third study, Bjorksten and his colleagues[6] at the Medical University of South Carolina compared the perceived sources of stress of dental students with those of other allied health students (students in medicine, nursing, pharmacy, etc.) Results of this study pointed to time pressures as the major source of stress. Other sources of stress included powerlessness in the system, finances, motivation to study, competition, grades and faculty relationships.

Results of these surveys seem to provide an adequate basis for beginning to understand the nature of stress experienced by dental students. Nevertheless, some areas seem neglected. For example, little is known about the relationship of the year in dental school to the sources of stress. Goldstein's[4] survey was administered only to freshman students. Garbee *et al*[5] did not include all four classes of students in their survey and reported some differences in the relative rankings of events between classes, although these differences were not subjected to statistical analyses. Students in the junior year appeared to experience more stress than any other class

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due to patient care responsibilities; this coincided with a curriculum where the junior year brought increased clinical responsibilities. Sophomore students ranked difficulty of learning clinical procedures higher than the other three classes, reflecting the introduction of clinical education into the curriculum during the second year. Freshmen were less stressed by learning clinical procedures and by learning precision manual skills, presumably because of their limited exposure to these requirements. Senior students were more stressed by concerns about the dental laboratory being prompt in returning work. The authors also found some indication that the total perceived stress was slightly higher in the junior and senior classes. Given that Garbee *et al's*[5] study represents the results of only one school, was troubled by a somewhat low response rate (35%), and did not subject class differences to statistical analysis, it would seem that further examination of the relationship of stress to year in school is warranted.

Bjorsten *et al*[6] are the only other investigators to present preliminary information regarding stress and year in school. His group observed that first and second year students were more stressed by time demands than were third year (senior) students. He also noted that second year students expressed the most concern about their feeling of powerlessness in the system.

In addition to needing more information on the relationship between year in school and student stress, the literature review also reveals a need for more information about how the sex of the student may be related to experienced stress. Goldstein[4] found significant sex differences in his sample, with women reporting more stress associated with fear of failure, fear of falling behind, the standard scoring system, and a lack of positive feedback. Women also tended to experience peer competition as more stressful than their male peers. Garbee[5] *et al* did not examine sex differences, indicating that their small numbers of women precluded such an analysis. Bjorsten[6] *et al* found gender differences on only two of their stress items—concern for personal safety and discrimination based on sex. In sum, sex differences appear to have been only minimally subjected to examination in stress surveys. Other reports, however, have addressed the unique problems that women may have in dental school, and these indicate that women are more likely to experience conflict between professional and personal roles, may experience more discrimination, particularly at the hands of their male peers, and are more likely to feel isolated or excluded from the social system within the dental school.[7-9] Findings of these studies, in addition to those emerging from Goldstein's[4] stress survey, suggest that obtaining a dental education may be more stressful for women than for men and that further research into the different school experiences of men and women is needed.

As a final area of research interest, it can be noted that none of the major dental school stress surveys to date has addressed the issue of possible differences in the nature of stress experienced by minority students. The lack of attention given to this issue may be a serious error since a recent article by Waldman[10] indicates that the general attrition rate for minority students may be two to three times as high as that for non-minority students. It would thus seem particularly useful to examine possible differences in the perceived stresses reported by minority and non-minority students. It might also be noted that a recent study[11] conducted with medical students focused on differences in perceived stress and social supports of black and white medical students. Results indicated that black medical students perceived more stresses than white medical students in the same school, although the two groups did not differ significantly from one another in their general perception of social support. In regards to specific stressors, blacks perceived more stress due to: (1) inadequate academic preparation for medical school, (2) uncertainty about what material is important to learn, (3) competitive nature of classmates, (4) faculty making students feel unimportant, (5) classmates making students feel unimportant, (6) lack of understanding role models, and (7) insensitivity of school environment to individual's cultural background. Results of this study with medical students along with the known high attrition rate of minority dental students indicate that research aimed at identifying differences in the stress of minority students in dental school might also be warranted.

In sum, survey studies have identified the major stress areas of dental school as: (1) academic demands such as the large amount of material to be learned, examinations and grades, and peer competition, (2) relationships with faculty and administrators, and (3) the severe lack of time for spending with family or friends or for recreation which is a result of the heavy academic and clinical demands. To a lesser extent, dental students also report stress due to the difficulty of learning manual skills and clinical procedures, patient care responsibilities, and financial concerns. Despite this understanding of the nature of dental school stress, little attention has been given to careful analysis of how the year in school (class) of the student, the sex of the student, or the minority status of the student may affect perceived stress.

The present investigation, was undertaken to provide further information about the nature of stress in dental school, with a particular emphasis on class, sex, and minority status differences. In addition to focusing on these neglected topics, the study reported here analyzes stresses reported by students enrolled in a dental school

characterized by a non-traditional approach to dental education. The University of Texas Dental Branch at Houston has a non-traditional curriculum whereby the student is exposed to a modular system consisting of eight topic areas. The student reviews basic science materials himself/herself and, within limits, is allowed to proceed at his/her own pace through the prepared material and to take examinations as the material is mastered. Thus, much of the academic work is self-directed. The students generally receive some exposure to clinical work in their freshman year, and by the sophomore year are already spending considerable time in the clinics and labs as well as in mastering academic topics. The study of this non-traditional school thus provided the added benefit of assessing not only class, sex, or racial differences in perceived stress among dental students, but also in assessing the similarities/dissimilarities of stress experienced in a self-directed curriculum with those previously reported in more traditional educational settings.

Methods

Subjects

Of 484 students enrolled at the Dental Branch of the University of Texas Health Science Center at Houston, 298 chose to participate in the study. This represented a response rate of 62% of the student body. Of the respondents 218 were men and 66 were women, with 14 participants failing to indicate their gender. The median age of the sample was 25–29 years of age, with 37% of the sample younger and 11% older than this age. Approximately equal numbers of students were married (47%) and never married (45%), and the remaining students (about 9%) were either separated, divorced, or widowed. Eighty-six percent of the sample were White, 7% were Hispanic, 4% were Black, and 3% were "other". Compared to enrollment figures, respondents in the study were demographically representative of the entire student body.

Procedures

Near the end of the 1981–82 academic year, each dental student was asked to participate in a study of stress and distress sponsored by the Student Counseling Service and the Office of Academic Affairs. Each student was provided with a cover letter explaining the nature of the study and with a research questionnaire. All students choosing to participate were asked to return the questionnaire anonymously to a box located in the office of Student Affairs at the Dental Branch.

Measuring Instruments

Each student was given a five-page questionnaire as part of a large study on stress and distress among health science center students. The first page of the questionnaire asked the student to rate the amount of stress experienced during the previous academic year as a result of 32 possible sources of stress; this rating consisted of a 5-point Likert-type scale with 1 being "little or no stress" and 5 being "a great deal of stress". This assessment of perceived stress listed sources of stress used in previous questionnaires examining stress in medical or dental school, and also sources of stress suggested by the experience of personnel at the Student Counseling Service. Students were also allowed to list two additional stressors that they experienced that were not contained in the 32 item list. The questionnaire also contained a Hopkins Symptom Checklist[12], a well-established 58-item inventory of psychiatric symptoms of distress. The remaining portion of the questionnaire inquired about the sources of social support available to students in coping with dental school stress, the type of support services desired by the students, and basic demographic information. Results of the survey addressing the issues of social support and of psychiatric symptomatology will be presented in subsequent reports.

Results

Ratings for each of the 32 potential sources of stress are listed in Table 1. For the total sample, the single most stressful aspect of dental school was the amount of material to be learned. Stress due to examinations and grades was listed as the second most stressful aspect of dental school. Following these items were five other stressors that received very similar ratings. In order of their perceived stressfulness these were: atmosphere created by clinical professors, financial pressures, difficulty of material to be learned, lack of time for family and friends, and lack of the time for recreation. These were followed by the lack of timely feedback about performance and the difficulty of learning clinical procedures which tied for eighth and ninth place. Completing the list of the top stressors were the lack of administrator responsiveness to student needs and the difficulty in finding supportive faculty role models. Thus, among the eleven stressors receiving the highest ratings, five related directly to academic pressures, three to relationships with faculty and administrators, two to time pressures, and one to financial pressures.

Following these major stressors and showing moderate levels of stress were such factors as peer competition, difficulty of patient care responsibilities, amount of patient care responsibilities, and feelings of inadequacy.

Falling within the lower half of the rankings were sources of stress reflecting personal concerns such as difficulties in love relationships, doubts about career choice, inadequate housing, loneliness, fear of contagion, and personal health problems, as well as the atmosphere created by interns or residents and research related stressors such as learning technical research procedures and designing

and implementing research projects. Toward the bottom of the rankings were sources of stress related to difficulty in coping with illnesses and deaths of patients, talking to patients about their personal problems, sex-related problems, concern about the use of alcohol, difficulties in relationships with parents, concern about the use of cigarettes, pressures of child-care responsibilities, and concern about the use of drugs.

The Relationship of Year in School to Perceived Stress

Table 1 also presents the mean stress scores for each of the four classes of dental students. As can be seen from this table, sophomore students reported the highest levels of total stress, followed by the freshman students; total stress scores were lowest in the junior and senior classes. Nevertheless, differences between the classes did not attain statistical significance, thus the year in school of the student was not significantly related to the perceived level of total stress.

To assess changes in specific sources of dental school stress, class differences were also examined for each of the 32 stressors. Given the large number of comparisons involved, the more conservative $p < .01$ level of significance was used to avoid the problem of excessive alpha slippage. Class differences revealed significant differences on seven stressor items. Three of the stressors showed a pattern of decreasing stress from the freshman class through the senior class; these were: (1) amount of material to be learned, (2) difficulty of material to be learned, and (3) examinations and grades. Two stressors demonstrated an increasing level of stress from the freshman to sophomore class followed by a decreasing level of stress among the junior and senior students; these were: (1) difficulty of learning clinical procedures and (2) fear of contagion and worry about becoming ill. One stressor showed an increase in stress level from the freshman class to all three subsequent classes; this was the atmosphere created by clinical professors. A final stressor, doubts about career choice, seemed to increase over the four years from the freshman class through the senior class of dental school.

In addition to these significant differences, there was a general trend ($p < .05$) toward the lessening of stress due to time pressures among the four classes of dental students. Furthermore, there was a trend for the stress related to the lack of timely feedback to vary with the year in school; this stressor seemed most prominent in the freshman students. And finally, the stress associated with the difficulty of patient care responsibilities was highest in the sophomore class and then again began to decrease in the junior and senior classes.

Sex Differences in Stress Ratings

The first comparison of interest was that made between women and men on their total stress score. As can be seen in Table 2, women reported a significantly higher total stress score than did men ($t=2.03$, $df=282$, $p < .05$, two-tailed test). The mean score for women was 75.0 with a standard deviation of 16.2, while the mean score for men was 70.6 with a standard deviation of 15.2. This represented an average stress score per item of 2.34 for women and 2.21 for men.

In order to assess possible sex differences in stress at a more specific level, mean scores for men and women on each of the 32 items were also compared. As this again resulted in the calculation of 32 *t* tests, a $p < .01$ level of significance was adopted. Four of the items revealed a significant sex difference; women received higher ratings on three of the four stress items and men received a higher rating on the remaining item. Women reported a higher level of stress due to: (1) the amount of material to be learned, (2) examinations and grades, and (3) feelings of inadequacy. Men experienced a significantly higher level of stress due to concern over alcohol use, although this item generally received low ratings of stressfulness for both sexes. Although not considered significant in the present study, future researchers might note that three additional items revealed a trend ($p < .05$) for women to experience a higher level of stress due to: (1) peer competition, (2) difficulty of learning clinical procedures, and (3) loneliness.

Minority Group Differences in Perceived Stress

Table 3 compares the mean stress ratings for both white students and minority students. Results of the analysis of the level of total stress indicate that minority group status was unrelated to the level of total stress.

In a detailed analysis of individual stressors, three items reflected a significant ($p < .01$) relationship to minority group membership. Minority students reported a higher level of stress due to the lack of timely feedback about performance and to the difficulty of material to be learned. White students, on the other hand, reported significantly more stress due to difficulties in love relationships. Results also demonstrated a trend toward significance ($p < .05$) for the minority students to experience more stress due to exams and grades, but less stress due to doubts about career choice or to child-care responsibilities.

Discussion

In reviewing findings, it became apparent that students in a self-directed dental curriculum reported sources of stress quite similar to those reported by students in more traditional programs. The single most stressful aspect of dental school in this study was the large volume of material to be learned. This result was similar to previous survey results, with Garbee *et al*[5] reporting

Table 1. Mean stress ratings for individual aspects of dental education by class rank

Sources of Stress	All Students (N=298)	Freshmen (N=80)	Soph. (N=103)	Juniors (N=79)	Seniors (N=36)	F-value
1. Amount of material to be learned	3.6	3.9	3.7	3.2	2.9	8.95**
2. Difficulty of material to be learned	3.0	3.2	3.1	2.8	2.8	3.66**
3. Examinations and/or grades	3.4	3.7	3.5	3.0	2.9	7.21**
4. Lack of timely feedback about performance	2.8	3.0	2.8	2.5	2.8	2.62*
5. Peer competition	2.6	2.6	2.8	2.4	2.7	2.27
6. Difficulty of learning clinical procedures	2.8	2.6	3.2	2.7	2.5	5.89**
7. Difficulty of patient care responsibilities	2.6	2.4	2.8	2.6	2.5	2.53*
8. Amount of patient care responsibilities	2.5	2.3	2.6	2.6	2.6	1.43
9. Difficulty in coping with illness of patients	1.7	1.8	1.7	1.6	1.6	0.45
10. Talking to patients about their personal problems	1.7	1.7	1.7	1.5	1.7	0.79
11. Fear of contagion and worry about becoming ill	1.8	1.6	2.1	1.7	1.5	5.72**
12. Actual personal health problems	1.8	1.7	1.9	1.8	1.4	1.69
13. Atmosphere created by interns and residents	1.8	1.6	1.8	2.0	1.9	1.08
14. Atmosphere created by clinical professors	3.0	2.6	3.2	3.2	3.1	5.75**
15. Lack of administrator responsiveness	2.8	2.5	3.0	2.7	2.7	1.53
16. Difficulty in finding faculty role models	2.7	2.6	2.8	2.7	2.5	0.63
17. Doubts about career choice	1.9	1.6	2.0	1.9	2.3	5.51**
18. Difficulty learning technical research procedures	1.8	1.9	1.8	1.6	2.1	2.01
19. Difficulty designing/implementing research projects	1.6	1.8	1.5	1.5	1.7	2.13
20. Financial pressures	3.0	3.0	3.1	3.0	2.9	0.66
21. Inadequacy of housing arrangements	1.9	2.0	2.0	2.0	1.7	0.74
22. Loneliness	1.9	1.9	1.9	1.9	1.7	1.99
23. Difficulties in relationships with parents	1.5	1.5	1.5	1.5	1.6	0.31
24. Difficulties in love relationships	2.1	1.9	2.2	2.2	1.8	2.24
25. Sex-related problems	1.7	1.6	1.8	1.8	1.6	0.56
26. Lack of time for family and friends	3.0	3.3	3.0	2.8	2.7	2.90*
27. Lack of time for recreation	3.0	3.3	2.9	2.7	2.9	2.97*
28. Concern about use of alcohol	1.6	1.4	1.6	1.7	1.6	1.44
29. Concern about use of cigarettes	1.4	1.5	1.3	1.3	1.4	0.76
30. Concern about use of drugs	1.3	1.2	1.4	1.3	1.4	0.51
31. Feelings of inadequacy	2.2	2.0	2.5	2.2	2.3	1.89
32. Pressure of child-care responsibilities	1.5	1.3	1.4	1.5	1.6	0.63
TOTAL STRESS	72.0	71.9	74.1	69.6	69.4	1.50

*$p < .05$
**$p < .01$

Table 2. Mean stress ratings for individual aspects of dental education by sex

Sources of Stress	Male (N=218)	Female (N=66)	t Value
1. Amount of material to be learned	3.4	3.9	−3.28**
2. Difficulty of material to be learned	3.0	3.0	−0.13
3. Examinations and/or grades	3.3	3.7	−3.01**
4. Lack of timely feedback about performance	2.8	2.9	−0.53
5. Peer competition	2.6	2.9	−2.12*
6. Difficulty of learning clinical procedures	2.7	3.1	−2.38*
7. Difficulty of patient care responsibilities	2.6	2.7	−1.21
8. Amount of patient care responsibilities	2.5	2.7	−1.38
9. Difficulty in coping with illness of patients	1.7	1.8	−0.76
10. Talking to patients about their personal problems	1.7	1.7	0.12
11. Fear of contagion and worry about becoming ill	1.8	1.7	0.62
12. Actual personal health problems	1.7	1.9	−1.14
13. Atmosphere created by interns and residents	1.8	1.8	0.23
14. Atmosphere created by clinical professors	3.1	3.0	0.47
15. Lack of administrator responsiveness	2.7	3.0	−1.41
16. Difficulty in finding faculty role models	2.6	2.9	−1.31
17. Doubts about career choice	1.9	1.8	0.78
18. Difficulty learning technical research procedures	1.8	1.8	−0.32
19. Difficulty designing/implementing research projects	1.5	1.8	−1.59
20. Financial pressures	3.1	2.9	1.08
21. Inadequacy of housing arrangements	1.9	1.9	0.10
22. Loneliness	1.8	2.2	−2.23*
23. Difficulties in relationships with parents	1.5	1.6	−0.68
24. Difficulties in love relationships	2.0	2.2	−1.01
25. Sex-related problems	1.7	1.8	−0.43
26. Lack of time for family and friends	2.9	3.2	−1.86
27. Lack of time for recreation	2.9	3.1	−1.37
28. Concern about use of alcohol	1.6	1.3	2.52**
29. Concern about use of cigarettes	1.4	1.4	0.02
30. Concern about use of drugs	1.3	1.2	1.29
31. Feelings of inadequacy	2.1	2.7	−3.43**
32. Pressure of child-care responsibilities	1.5	1.3	1.58
TOTAL STRESS	70.6	75.0	−2.03*

*$p < .05$
**$p < .01$

Table 3. Mean stress ratings for individual aspects of dental education by minority status

Sources of Stress	White (N=251)	Non-White (N=45)	t Value
1. Amount of material to be learned	3.5	3.7	−1.09
2. Difficulty of material to be learned	3.0	3.4	−2.59**
3. Examinations and/or grades	3.3	3.7	−2.11*
4. Lack of timely feedback about performance	2.7	3.2	−2.73**
5. Peer competition	2.7	2.6	0.11
6. Difficulty of learning clinical procedures	2.9	2.7	1.00
7. Difficulty of patient care responsibilities	2.6	2.6	0.16
8. Amount of patient care responsibilities	2.5	2.5	0.19
9. Difficulty in coping with illness of patients	1.7	1.8	−0.56
10. Talking to patients about their personal problems	1.7	1.5	1.47
11. Fear of contagion and worry about becoming ill	1.8	1.9	−0.49
12. Actual personal health problems	1.7	1.9	−0.93
13. Atmosphere created by interns and residents	1.8	1.9	−0.37
14. Atmosphere created by clinical professors	3.1	2.8	1.26
15. Lack of administrator responsiveness	2.7	2.8	−0.42
16. Difficulty in finding faculty role models	2.7	2.7	−0.39
17. Doubts about career choice	2.0	1.6	2.03*
18. Difficulty learning technical research procedures	1.8	1.9	−0.29
19. Difficulty designing/implementing research projects	1.6	1.7	−1.03
20. Financial pressures	3.0	3.0	0.06
21. Inadequacy of housing arrangements	1.9	1.9	0.18
22. Loneliness	1.9	1.7	1.14
23. Difficulties in relationships with parents	1.5	1.3	1.44
24. Difficulties in love relationships	2.2	1.5	3.09**
25. Sex-related problems	1.8	1.5	1.80
26. Lack of time for family and friends	3.0	2.9	0.65
27. Lack of time for recreation	3.0	2.9	0.63
28. Concern about use of alcohol	1.6	1.4	1.64
29. Concern about use of cigarettes	1.4	1.2	1.32
30. Concern about use of drugs	1.3	1.2	1.54
31. Feelings of inadequacy	2.3	2.1	0.59
32. Pressure of child-care responsibilities	1.5	1.2	1.93*
TOTAL STRESS	73.2	72.1	0.44

*$p < .05$
**$p < .01$

"amount of classwork" as the third highest stressor in their survey and Goldstein[4] reporting that mastering the large volume of material was one of the most prominent stressors among their student sample. Other academic concerns, such as worry over examinations and grades were also given high stress ratings in both this study and in the previous surveys.[4-6] A third major stressor identified in the current survey, "atmosphere created by clinical professors", was also identified as a major stressor in the previous surveys of both Garbee *et al* and Goldstein; in fact, this received the highest rating of all possible stressors in Garbee *et al's* survey. Goldstein's survey included freshman students only, perhaps explaining why time pressures and the large volume of material were rated higher than interactions with faculty in their survey. Time pressures also received high ratings (sixth and seventh) in the current study, although these do not seem to be as severe as those suggested in both the Garbee *et al*[5] study and Bjorksten[6] study where time pressures appeared to be the most prominent stressors of all. It thus seems reasonable to conclude that students in both traditional and self-directed dental education programs are chiefly troubled by academic concerns regarding the large volume of material and their ability to master it, by their interactions and evaluations by clinical faculty, and by the lack of time for meeting personal and social needs. Falling within a second level of stressfulness are such factors as peer competition, the difficulty of the material to be learned, difficulty of learning clinical procedures, etc. Personal problems seem generally to receive lower ratings of stressfulness. The only exception to this is financial pressures, which seem to receive higher stress ratings than other personal problems. All in all, stressfulness ratings in this sample are similar to those previously reported, with the exception that time pressures may be somewhat relieved in the self-directed program despite remaining as one of the major areas of stress.

A few interesting findings also emerged in looking at how the year in school of the student affected perceived stressors. While there were no class differences in the total stress experienced, individual stressors did vary significantly by year. As the freshman through senior classes were compared, there was a decrease in the stress associated with the amount of material to be learned, with the difficulty of material to be learned, and with exams and grades. This may suggest that as the student masters academic information and clinical skills, stress decreases. Current results also showed that sophomore dental students experienced a high degree of stress as they began to learn clinical procedures; the beginning of intense work with patients also gave rise to a fear of contagion. These stressors also received lower ratings in the subsequent classes, thus suggesting that these stresses decrease after continued exposure permits mastery of clinical procedures and diminishing of contagion fears. Two sources of stress, however, seem to increase over time. Students in the sophomore, junior and senior classes reported greater stress due to faculty interactions than did freshman students, thus suggesting that students experience concern over their interactions with faculty throughout their school experience. This may occur because their exposure to clinical faculty increases over the four years of school as the time spent on academic work decreases and the time spent in clinical work increases. It is also possible that students tire of being in the evaluative setting, and experience a decreased tolerance for the constant evaluation by their faculty and an increasing wish for autonomy. Given that interactions with faculty and administrators are rated high in stressfulness and appear to increase over time, it is important to give further attention to this subject in future studies. While a certain amount of tension is inherent in the faculty-student exchange, an excess amount might suggest the need for identifying methods of reducing unnecessary tension. An increasing use of positive reinforcement, for example, might lead to more satisfying relationships.

Results of the current survey also indicated that students' doubts about their career choice may mount over time. This is of concern since one would hope that students would become more positive about their career choice as they finish their education. Further research should be undertaken to examine the reasons behind this increasing sense of career doubt. It may reflect the giving up of an idealized view of this health profession, the doubts engendered by uncertainty of job prospects after graduation, or many other factors. It would seem important to identify these as explicitly as possible.

In reviewing sex differences, it appears that dental training may be more stressful for women than men since women received significantly higher total stress scores. Nevertheless, this difference in the total stress score was not large, and significant sex differences seemed limited to a few specific items on the stress questionnaire. In looking at sex differences in individual stress factors, women reported a higher level of stress due to the amount of material to be learned and to examinations and grades. They thus seem to experience more stress due to academic factors than do men despite the face that the academic demands are presumably equal for women and men. These findings are congruent with those of Goldstein[4] who also found that women reported greater stress due to academic factors than did their male peers. In the current study, women also reported significantly more stress due to feelings of inadequacy than did men. In fact, this source of stress revealed the largest sex dif-

ference of all. It appears, therefore, that it may be more difficult for women than for men in dental school to develop an adequate self-esteem. It may be of interest to note that researchers studying medical students have come to a similar conclusion.[3,13] The tendency of women to feel inadequate may also reflect their minority status, since it may be difficult to have a positive self-concept when one feels different and lacks appropriate role models to identify with. Furthermore, if women are more prone to internalize criticism while men are more likely to become angry when criticized, then inadequacy feelings would be heightened in women. In any case, the tendency of women to feel inadequate certainly merits further study. While not reaching significance in the present study, there was also a trend for women to report more stress due to peer competition, to learning clinical procedures, and to loneliness. An increased sense of loneliness has also been reported among female medical students.[23] The only area in which men reported more stress than women was in their concern about the use of alcohol. This finding is not surprising since it has been established in the literature that men are more likely to experience alcohol problems than are women.[14]

Examination of possible differences between white students and minority students revealed no significant differences in the level of total perceived stress and only a few significant differences on specific stressors. The minority students were more stressed than white students by the difficulty of material to be learned and by the lack of timely feedback about their performance. They also tended to experience exams and grades as more stressful. However, they experienced less stress due to difficulties in love relationships and tended to experience less stress due to child-care responsibilities and to doubts about their career choice. It thus appears that both women and minority students are prone to experience the academic demands of dental school as more stressful than men or non-minority students, but women carry a greater burden due to feelings of inadequacy and possibly of loneliness also. Minority students may even experience less stress with respect to some areas of personal concern.

In conclusion, as knowledge about dental school stress begins to accumulate, dental educators ought to give careful consideration to the implications that this body of knowledge may have for educational policy and programs. While much of the stress associated with dental education may be an inherent and necessary part of mastering a vast amount of information and learning complex clinical skills, part of this stress may be ancillary to this process and attributable to a faulty educational process. It seems possible that some of the identified sources of stress could be modified to reduce student distress. For example, the stress associated with a lack of timely feedback about performance might be attenuated by instituting more frequent or timely feedback mechanisms. The stress associated with student/faculty relationships might be addressed by developing interpersonal skills of the faculty, including, for example, instruction in the use of positive feedback. Results also suggest the need for educators to better understand and address those factors contributing to the increased stressfulness of dental education for women, including the need to better understand factors contributing to their lowered self-esteem. And finally, results suggest that educators need to address the academic strains felt by minority students and to address the apparently increased stress they experience as a result of the lack of timely performance feedback.

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MODULAR VS. TRADITIONAL CURRICULUM

A Comparison of Student Dissatisfactions

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Janet A. Harrison**

There appears to be a certain level of dissatisfaction with the dental education process existing among many dental students.[1] Tidball has noted the same problem with medical students as has Baird with medical, law and graduate students.[2,3] While Bjorksten, et. al. noted that dental students problems leading to dissatisfaction cover the spectrum of perceived problems as other health professions students, dental students problems are, nevertheless, unique in many respects as shown in the ranking of dental students problems.[4] Garbee's observations that dental students are concerned about grades, the competitive atmosphere of their environment, their relations with their faculty and their feeling of being powerless in the system were all confirmed in the Bjorksten study.[4,5] It is apparent from these studies that dental students primary problems revolve around their interactions with their faculty, other students and their institution.

The literature related to student dissatisfaction with higher education reinforces this observation. For example Kuh has noted that the quality of an institution and the student's satisfaction with both their academic and non-academic education have been related to the various personal relationships or interactions which students experience.[6] These relationships include student-student, student-institutional, (or educational and curricular) and student-faculty interactions. The degree of effort that students expend toward these relationships is a definite measure of their involvement with each category. An increase in a student's involvement in these various relationships should lead to increased satisfaction (with the concomitant decrease in "problems") and increased student performance or achievement.[6] "Involvement indices make up one of the most important and perhaps accurate ways of assessing quality."[6] Winteler found that faculty-student relationships and faculty interest in students and teaching have a strong effect on student satisfaction and student achievement.[7] Lawrence and Green have stated that an assessment of the quality of an institution should include an assessment of student satisfaction with the educational experience.[8]

From the foregoing statements it is apparent that there exists a directly proportional relationship between student satisfaction and student achievement which would reflect upon or be an integral part of an institution's quality. Consequently, it behooves an institution to determine sources of student problems or dissatisfactions for possible intervention and corrective tactics. This would be especially true if those sources interfere or otherwise affect student

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achievement. Sources of problems or dissatisfaction with the educational experience would most likely be related to perceived shortcomings in the various interactions in which students take part, i.e. student-student, student-institutional and faculty-student interactions. Bjorksten,[4] Brown[9] and Garbee[5] among others, have all found these interactions to be of particular concern as problem areas for dental students. Lloyd and Gartrell noted essentially identical problems in medical school students.[10] All of these studies, to the authors' knowledge, have dealt with a traditional, lecture-based curriculum.

The University of Texas Dental Branch at Houston implemented an integrated modular program for all students in 1975.[11] Of necessity this change led to increased student involvement in the educational process. Some of the purported advantages of this type of system include: 1) an increased curricular flexibility where peer teaching is encouraged; 2) better budgeting of study time, i.e. individuals would need less time to cover material in which they have strong back-grounds, and vice-versa; 3) the self-pacing aspect allows students to proceed without the usual stress of being confined to other individuals' rates of learning; 4) additional time for teachers to aid those students having difficulty in a specific area of study; and 5) increased faculty-student contact on an individual basis.[12] These "advantages" are related to many of the factors involved in dental students' reported problems in a traditional educational setting, i.e. feelings of being powerless in the system, competitive environment, faculty relations and time management.[4,5] Some expected alleviation of student dissatisfaction with their education should occur in this particular program, since students have more control of their time and learning rate and should have better relations with faculty due to more individual contacts. A questionnaire was devised to measure the quality of student-student, student-institutional and student-faculty interactions to determine if in fact, the expected alleviation of student problems did occur in this program.

Methodology

The survey consisted of statements about the relationships between students and faculty, students and other students, and statements concerning the modular curriculum to which they have been exposed. The categories for the statements were taken from various authors such as Epstein and McPartland, Kuh, Bjorksten and Garbee.[4,5,6,13] The content of the statements were patterned after numerous examples available in the literature dealing with quality of school life and measurement of faculty-student interactions, student-student interactions, how students perceive their school environment and the quality of their educations. The statements were, however, modified to fit the situation at the University of Texas Dental Branch.

The survey, consisting of 104 statements, was given to the 124 senior students of the 1983 class at the University of Texas Dental Branch at Houston just prior to their graduation. This class began the modular curriculum in 1979 and, thus, had four years exposure to the modular concept. The statements asked for responses on a 5 point Likert scale ranging from strongly agree to strongly disagree with a no opinion option. The statements from the categories were mixed within the survey; anonymity was assured and students were unsupervised, with one week given to return the questionnaire. The frequency distributions for each statement was tabulated. Since the primary objective was to see if the problems of dental students in the modular system were similar or dissimilar to problems of dental students in traditional lecture based curricula, only descriptive statistics were used.

Results

In Table 1 some representative statements students were asked to respond to are listed. Statements from each of the major categories are presented along with the percentage of students who gave an agree or strongly agree response; the variance and the average of the responses are also presented.

Student-student interactions were on the whole very good and while a slight majority of students agreed that they were competitive about grades, a vast majority also thought that students were cooperative about grades, and had trusting relationships among themselves.

Responses to statements concerning student-institutional interactions were mixed. While the vast majority preferred the modular curriculum to a traditional lecture-based one in terms of educational opportunities and efficiency of time utilization, there was nevertheless a certain feeling of powerlessness related, most likely, to their inability to perceive input into the system.

Finally, the results of questions concerning student-faculty relations were mixed but exhibited a trend to the negative end of the spectrum. Students did not believe that faculty cared about them as individuals or that faculty were good role models. Fewer still felt that faculty would go out of their

TABLE 1

Interaction/Statement Student-Student	% Of Students Agreeing With The Statement	Variance	Average Of Responses
1. Students are competitive about grades	55%	1.59	2.8
2. Students cooperate with each other	91%	.8	2.1
3. Students encourage other students	91%	.72	1.9
4. Peer teaching is beneficial	79%	1.69	2.1
Interaction/Statement Student-Institutional			
1. Students quickly adapt to the modular curriculum	92%	.68	1.9
2. This program provides many educational opportunities	71%	1.28	2.6
3. Students have no input into the curriculum	59%	1.6	3.1
4. The modular curriculum allows for more efficient use of time as opposed to a traditional lecture-based curriculum	76%	1.21	2.1
5. The modular curriculum is more desirable than a traditional lecture based curriculum	72%	1.17	2.1
Interaction/Statement Student-Faculty			
1. Most faculty are interested in me as an individual.	46%	1.73	3.1
2. Most dental students are perceived as respected health professionals by the faculty.	17%	1.25	3.5
3. Most faculty serve as excellent role models.	36%	1.32	3.2
4. Most faculty go out of their way to help me.	22%	.64	3.1

way to help them or that faculty members respected them on a professional basis. Yet, other statements elicited a more positive response when the statement dealt with student-faculty relationships of a less individual nature. For example the majority of students believed they were treated in a professional manner by faculty and that most faculty were committed to helping students improve themselves.

Discussion

Only face and content validity exists for this questionnaire and reliability measurements were not established. While these methodological factors may interfere somewhat with the generalizability of the findings, the results were deemed to be useful for present purposes. The results are a composite of student's perceptions. Research indicates that student perceptions are important as Pace claims that students act on the basis of their perceptions of various interactions and relationships.[14] Common sense also dictates that we all react based on how we perceive our environment. Therefore, any perceived short comings in the educational environment should be rectified as much as possible because of the probable link between students satisfaction and the quality of an institution.[15]

Gregg reports that students will feel stressed when competition occurs; and in a traditional dental curriculum students rate concern about grades and the competitive atmosphere of their learning environment in the top eleven ranked problems.[4,16] Bjorksten and Goldstein found that some of the same high-rated stresses reported by Gregg, i.e. interstudent rivalry, were a function of particular institutional characteristics and policies.[4,17] Therefore a system which allows for independent scheduling on an individual basis should reduce the competitive stress factor among students. This particular curriculum in an effort to individualize instruction, allows students to spend more time on subject matter foreign to them and less time on familiar subjects. Students self-schedule examinations when the *student* feels he or she is prepared to take them. In practice this contributes to a peer support system as well as to peer teaching which is evident and considered beneficial. In fact, peer teaching is considered an important part of the school's curriculum.[11] Goldstein states that peer teaching can counteract the pressures of dental school which may also account for reduced rivalry among students.[17] Certainly, cooperation, encouragement and peer teaching among students apparently was perceived as more dominant than competition for grades in this modular program. Results of this survey tend to show that competitiveness is not a major source of stress or dissatisfaction to students however, competition between peer groups is still observed, agreeing with William's statement that peer competition still exists in a self-instructional environment.[18] Thus, student-student interactions as problem areas for dental students involved in traditional programs are apparently decreased in a modular curriculum.

In the student-institutional category there were several assumptions made by the authors; based on the literature, these assumptions certainly have, at least, a face validity. These assumptions were: 1) that students attend a "traditional" curriculum in their undergraduate studies as a basis for comparison with this self-directed curriculum; 2) that there is an omnipresent finding in *all* professional schools of a feeling by students that there is too much material to learn and too little time to learn it;[10] 3) that the material to be learned is "difficult"; 4) that *all* professional schools are more demanding of a student's time than undergraduate studies;[10] 5) that a student's personal problems have a definite impact on his performance in school;[9] 6) that the student-institutional interaction is a broad category that includes the total school environment.[4,9,17] Since all students have these common concerns, the design of the survey did not ask for specific information about them thus avoiding a more lengthy instrument.

Overall the students expressed variable results in our survey which indicated that probably this broad category (student-institutional) was not of particular concern to students. Some problems that they did express however involved feelings of powerlessness in the system since, for example, fifty-nine percent thought they had no input into curriculum. Also, students are asked to evaluate the modules[19] upon completion of the exam over that modules, and only twenty-one percent believed the modules were revised or updated. This, too, would indicate that most feel that they have no input into the system. The authors contend however, that much of the student's input is never seen by the students, i.e. this years' class does not see the curricular input or revisions done for next years' class.

Time management has been reported as an area of major stress in a traditional curriculum by Bjorksten, Garbee, Lloyd, and Goldstein.[4,5,10,17] While students in a modular curriculum, like those in a traditional program are pressed for time, seventy-six percent believed the modular program allowed for more efficient use of their time. This should decrease feelings of being powerless in the system because students have a higher degree of control over their time as it relates to their educational needs. The improvement in time control may also lead to an increase in student approval of their education overall as more time may be allotted for extracurricular and quality of life types of activities, (i.e., family, work, pleasure). This was reflected by the fact that seventy-two percent believed the modular curriculum was more desirable than a traditional lecture based curriculum.

Also a vast majority of the students stated that they would attend this school again as their first choice and would recommend it to aspiring dentists. Given this information it was determined that overall the dental students had many good feelings about this institution and its curriculum.

Part of the supportive and caring environment which is necessary for learning to take place is the removal of impediments affecting high quality student relationships with the institution, other students, and faculty.[20] Possibly most important among these relationships is that student-faculty interactions. Endo and Harpel found that faculty do make a difference, both positively and negatively on student outcomes,[21] while Gaff and Gaff noted that students' satisfaction with their education is importantly related to their relationships with faculty.[22] Virtually all of the authors previously cited, agree with this statement. Faculty-student relations are very important, if not *the* most important relationship in which students take part. This is the common thread throughout the literature. While the other student interactions addressed in this study showed an apparent improvement through the modular program, the area of student-faculty relations still remains a problem. Some positive features were noted in response to statements concerning relationships that were more professional than individual. Faculty were perceived by a large majority of students as being thorough in explanations and open to questions on educational information. They also were viewed as having a positive attitude towards dentistry and setting high standards of achievement. These findings indicate that faculty do attempt to educate on a professional, albeit impersonal, basis as many students felt that faculty were not interested in them as individuals and would not go out of their way to help them. A modular program should lead to increased student-faculty contact on an individual basis and, therefore, an increased quality of this relationship, something apparently lacking in this system. This is an important aspect of student satisfaction according to Pascarella who found that student-faculty informal interaction has a direct influence on academic achievement.[23] The quality of these relationships may not have been improved by the modular curriculum. Also faculty were perceived as "playing favorites" and giving "breaks" to some students and not to others, thus causing a breakdown in both formal and informal relationships. This is unfortunate in light of the fact that students' satisfaction with their education and student achievement is obviously importantly related to good relationships with faculty.[22,24] Few of the students in this modular program felt respected as health professionals. A similar problem was noted by Bjorksten in traditional programs.[4] Finally, faculty members who should be role models, i.e. sources of motivation, critics, judges and catalysts to students were not perceived as such. Dr. W.R. Biddington said that "... admiration and emulation play an important role in the shaping the professional"[25] and faculty should know that they do make a difference in the quality of a student's education and do have an impact on the future professional. The role of a dental professional begins with his/her first class in dental school. It is important therefore that the students as neophyte dentists feel that the faculty is interested in them as individuals and that they are accepted members of the dental health community.

Conclusion

These results show a need for further investigations and evaluations that should be conducted in a modular curriculum. In this study of student concerns and dissatisfactions, comparison was made of those found in a self-directed versus a traditional dental curriculum. The modular program appeared to have resolved somewhat, problems of interstudent

rivalry, feelings of powerlessness, and time management. However a major area of concern for students remains unresolved in the form of faculty relations. This conclusion mirrors the findings of virtually every study on the subject of student's satisfaction and/or stress within an educational environment. Faculty should be made aware of this through faculty development seminars—that they, the faculty, can potentially be the biggest source of dissatisfaction (and presumably satisfaction) that students encounter and that this is directly related to student achievement.

Apparently a change in educational programs and policies from a traditional to a modular curriculum alleviates many student concerns and dissatisfactions; but, perhaps the best mitigation of sources of dissatisfaction is the development of a professional faculty who serve as positive role models and exhibit genuine interest in students and a student's development into an accepted, confident, competent, and caring health professional regardless of the type of curriculum in which the student is a participant.

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A TREASURY OF DENTISTRY

WHAT ABOUT DENTISTRY AND LITERATURE?

Gardner P.H. Foley

The fact that the medical profession has recently begun to demonstrate a strong recognition of the values to be found in the lay literature in regard to the practice and the history of medicine should be of challenging interest to members of the dental profession. I shall cite a few of the medicine–literature books that have given prominence to a new and developing field of anthological research: Noah Fabricant and Heinz Werner, *The World's Best Doctor Stories* (1951); W. H. Davenport, *The Good Physician: A Treasury of Medicine* (1962); J. Ceccio, *Medicine in Literature* (1978); E.R. Peschel, *Medicine and Literature* (1980); Norman Cousins, *The Physician in Literature* (1982). Cousins' book has 477 pages and excerpts from 53 authors. Joanne Trautman and Carol Pollard's *Literature and Medicine* (1982) is an annotated bibliography with 1400 entries. In 1982 the first volume of *Literature and Medicine,* a yearly journal, was printed. It is edited by Joanne and Carol Pollard, and is published by the University of Pittsburgh Press. It is obvious, then, that the medical profession is giving to the subject of medicine and literature the interest and support it merits.

What about dentistry and literature? As a pioneer in that field of the profession's reading experience, I regret that I can offer only an account of my own contributions to creating a base for the future publishing of excerpts concerning the dentist and dentistry. From 1961–1969 I wrote a column titled "Quarterly Post" for the *Journal of Dental Education.* With the generous hospitality given by the editor, Dr. Marion W. McCrea, I found a publishing haven for literature material that I had been collecting for several years. In 1968, I commenced to write for the Journal of the American Dental Association a series called "Foley's Footnotes." Over many years scores of the "Footnotes" were published with the enthusiastic encouragement of two editors and an amazing number of readers. In 1972 there was published by Washington Square East *Foley's Footnotes: A Treasury of Dentistry,* a gathering that included not only previously published "Footnotes" but also a large number of new excerpts. The volume contains selections from about 150 books, plus many from miscellaneous sources. The book (2,500 copies) received excellent reviews and precipitated a large correspondence both nationally and internationally. I had succeeded in my long nourished intention of responding to a question voiced by a large number of dentists: "Why is it that authors do not mention dentists or dentistry in their writing?" Now that I have collected enough material for another book similar to the first "treasury", where do I turn in search of a publisher? Why does not dentistry demonstrate an effective interest in dentistry-literature that at least would constitute a praiseworthy measure of that shown by medicine in its medicine-literature production? There is ample testimony that such a book can form a welcome addition to the reading facilities of the waiting room, where it is permanently available.

The selections in my collection include passages and several items from all the fields of literature: poetry, novels and short stories, diaries and journals, plays, general non-fiction, autobiographies, essays, travel and exploration. Also from miscellaneous sources like almanacs, etiquette books, and those excellent providers of information about the exciting sphere of *geographical dentistry*—the writings of medical missionaries.

In support of the earnest assertions I have made, I present a few brief quotations—

From Frieda Arkin's novel *The Dorp:* "Dr. Pritchard Dennison, known affectionately to his patients as Doctor Dee, and easily the best dentist in the county (New York state). The radius of his excellence extended far beyond the workmanship of his inlays and the ingenuity of his gold-foil backings of the fillings in incisors."

From Sara Lockwood's novel *A Fistful of Stars* (Wisconsin in the 1880's): "He laughed when he thought of some of the trades he had to make. One old woman took her false teeth right out of her mouth to trade them for a copy of Browning's poems. He thought he was stuck that time, but darned if he didn't sell 'em in the next town for twice what the Browning cost."

From Lawrence Block's novel *The Burglar in the Closet:* Spoken by Dr. Craig Sheldrake, self-described as the World's Greatest Dentist: "I fell in love with my work. One thing I recognized right off the bat is that dentistry is about solving problems."

From Silvia Tennenbaum's novel *Rachel the Rabbi's Wife:* "Golda Garfinkle had wanted to marry a rabbi but had settled for an Orthodox dentist with clumsy hands and flat feet."

From Richard Brautigan's novel *A Confederate General from Big Sur:* "It is important before I go any further in this military narrative to talk about the teeth of Lee Mellon. They need talking about. During these five years that I have known Lee Mellon, he has probably had 175 teeth in his mouth. This is due to a truly gifted faculty of getting his teeth knocked out. It almost approaches genius. But the amazing thing about Lee Mellon's teeth is their strange and constantly moving placement in the many and varied dentures those poor teeth briefly get to call home."

From Joel Lieber's novel *The Chair:* (The narrator is a small-town dentist, Sidney Reuben Pfeiffer, D.D.S.) "My income in this town would be five to ten thousand higher if she (his wife) hadn't been involved in her projects. What I mean is that she has probably offended away five to ten thousand dollars worth of business."

From Judith Guest's novel *Second Heaven:* "He rose and pressed a hand to his cheek. The toothache was worse, demanding all his attention now. He worried that he would not be able to make it to five o'clock, when he had an appointment with the dentist. The pain had moved to a point high in his head." . . . (aftermath) "Now there was a profession for you. Useful and respectable. You would find no clients in here who did not believe in dentists."

From Gerald Kersh's novel *Prelude to a Certain Midnight:* "Consider Soskin, the dentist. What kind of a man became a dentist? Dentists worked backwards, in reverse. Dentists approached things in a mirror—like actors. Of all the men that held absolute power for their brief moments, dentists were supreme.—How was it possible for a man deliberately to choose to be a dentist?"

From E. M. Forster's first novel *Where Angels Fear to Tread:* "Even in England a dentist is a troublesome creature, whom careful people find difficult to class. He hovers between the professions and the trades; he may be even a little lower than the doctors, or he may be down among the chemists (pharmacists), or even beneath them." (Author's comment, 1905)

William Dean Howells' novel *The Undiscovered Country* (1880): "He (Dr. Boynton at a Shaker Community) had drawn all the teeth in the head of a young sister much tormented with toothache, and long emulous of the immunity enjoyed by most of the other sisters through their full sets of artificial teeth."

From J. G. Ballard's novel *Empire of the Sun* (of the occupation of Shanghai by Japanese troops): "Two renegade merchant seamen, who make a living selling the gold teeth they knock from the mouths of the endless stream of corpses carried out to sea on the Yangtse's tide."

From "Help! I am Dr. Morris Goldpepper" a science fiction short story by Avram Davidson: "At last I stand silent upon the peak in Darien; my great dream is about to be realized. Before long, I shall be back to tell you about it, but just exactly when, I am not able to say. History is being made! Long live Science! Sincerely yours, Morris Goldpepper, D.D.S."—"Dentists and Prosthetic-ians! Beware of men with blue mouths and horny, edentulous ridges! Do not be deceived by flattery and false promises! Remember the fate of that most miserable of men, Morris Goldpepper, D.D.S., and, in his horrible predicament, help, oh, help him!"

From Robert C. Benchley's humorous essay "The Tooth, the Whole Tooth, and Nothing but the Tooth": "Some well-known saying (it doesn't make much difference what) is proved by the fact that everyone likes to talk about his experiences at the dentist's. For years and years little articles like this have been written on the subject, little jokes like some that I shall presently make have been made, and people in general have been telling other people just what emotions they experience when they crawl into the old red plush guillotine."

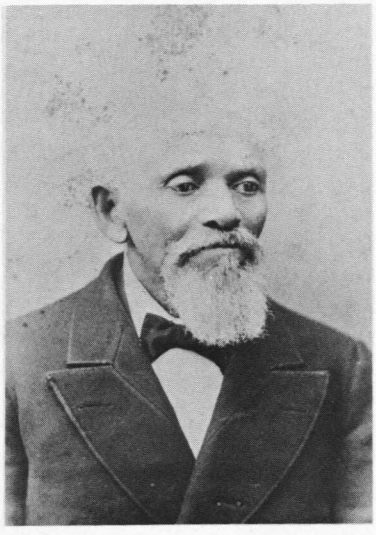
From V.S. Pritchett's short story "The Oedipus Complex": "He [Mr. Pollfax] was the best dentist I ever had. He got you into the chair, turned on the light, tapped around a bit with a thing like a spoon and then, dropping his white-coated arm to his side, told you a story. Several more stories followed in his flat Somerset voice when he had your mouth jacked up. And then removing the towel and with a final 'Rinse that lot out,' he finished with the strangest story of all and let you go. A month or so later the bill came in. Mr. Pollfax presents his compliments and across the bottom of it, in his hand: 'Be good.' I have never known a dentist like Mr. Pollfax."

Unexpected Historical Peregrinations*

Clifton O. Dummett**

During the latter half of the nineteenth century two young Afro-Americans lived in the mid-west, grew up and made significant contributions to this nation in the twin areas of personal health services and social welfare. Many of these contributions have been chronicled and have served as sources of inspiration for countless Americans who desired to emulate their examples of service to mankind.

It is interesting to note the circumstances which led to the acceptance of these two men by colleagues in their respective professions at a time when such acceptances were avidly discouraged. These American trail blazers were Daniel Hale Williams, M.D., and Charles Edwin Bentley, D.D.S., and their benefactor was Charles Henry Anderson, a well-respected barber, also AfroAmerican, who lived in Janesville, Wisconsin during those early years. (Fig. 1) The proprietor of a 6 chair establishment which he called his "Tonsorial Parlor and Bathing Rooms," Charles Anderson had resided in Janesville, Wisconsin for many years, and fared well in building his business to a stage where it became the biggest and best provider of such services in the city. Blessed with a pleasant personality, high intelligence and a driving ambition to better his circumstances, Anderson worked hard to achieve his goals and provide for his family which consisted of a son from a former marriage, and four children from his second wife, Ellen.



Charles Henry Anderson (1832–1922) of Janesville, Wisconsin, friend of Dan Williams, father-in-law of Charles Bentley and patron of both.

Even though he was not the type of unfulfilled tonsorial artisan who hankered after performing the surgical procedures of medicine and dentistry, Anderson was nevertheless a primary force in encouraging Williams and Bentley in their desires to become representative members of their professions. And Anderson did not stop there, since in subsequent years, he again encouraged and subsidized the dental and medical careers of his two sons, George who graduated from the Chicago College of Dental Surgery, and Daniel Herbert who graduated from Northwestern University Medical School.

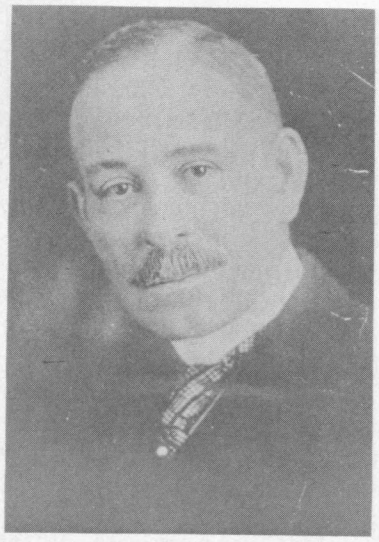
What was most endearing about Charles Anderson was his willingness to help young AfroAmericans who sought his advice and who demonstrated a willingness to work hard and strive for a better life. These evidently were the qualities in both Williams and Bentley which first attracted Anderson's notice.

Daniel Hale Williams

Daniel Williams was the first of the two to come under Anderson's care and influence. The fifth child of Daniel Williams Jr. and Sarah Price Williams, Daniel was born on January 18, 1856 in Hollidaysburg, Pennsylvania. His parents were free black Americans and the family was well-respected. The death of his father when Dan was just 11 years old was a circumstance which placed him on his own at an early age. He was first apprenticed to a shoemaker in Baltimore. Subsequently he learned the basics of barbering, and at 17 he moved to Edgewater, Wisconsin and opened his own barber shop. Dan later migrated to Janesville, Wisconsin just a few miles away and was hired by Charles Anderson as one of his assistant barbers. Anderson was thus able to observe Dan's inherent qualities which presaged success in higher education. Anderson invited Dan to live in the former's home as a member of the family. He encouraged him to follow his aspirations when Dan eventually decided to study medicine at the Chicago Medical College. It was Anderson who supplied the financial and moral support thereby enabling Dan Willaims to graduate with the M.D. degree in March 1883, and begin what turned out to be one of the most satisfying and illustrious careers in American medical history. (Fig. 2)

*From a presentation to the American Academy of the History of Dentistry, Oct. 19, 1984, Atlanta Georgia.

**Clifton O. Dummett, D.D.S., Professor of Dentistry, University of Southern California, Los Angeles, California.



Daniel Hale Williams, M.D., (1856–1931) internationally renowned Chicago surgeon, the first to operate successfully on the human heart, and founder of Chicago's Provident Hospital.

Foremost among his efforts was the founding of Chicago's Provident Hospital in 1891. This was the nation's first interracial hospital and Dr. Williams initiated training programs for interns and nurses. His appointments to the Illinois State Board of Health and to the staffs of the Chicago Medical College and St. Luke's Hospital were highly significant accomplishments at the time they occurred.

Additionally, there have been accounts of several spectacular surgical operations, recognitions of his preeminence as an incomparable clinician, and Dr. Williams' designations as one of the charter members and first Fellows of the American College of Surgeons.

His pioneering work as the first surgeon to operate successfully on the human heart brought him national and international recognition and is frequently recounted. It tends to overshadow many of Dr. Williams' other outstanding contributions to medicine and surgery, as well as to AfroAmerican social progress.

His appointment as surgeon in chief of Washington's Freedmen's Hospital was another significant event in his life. The trials and tribulations of his sojourn in the nation's capital have been widely documented. They centered around his reforms of Freedmen's hospital protocol and his efforts at maintaining high standards at the institution. Improved standards were sorely needed and Dr. Williams promptly instituted them despite the indifference accorded many of his policies, the rampant political intrigue, and the lack of support on the part of some colleagues.

Dr. Williams' success in founding the first AfroAmerican medical organization, the Medico-Chirurgical Society of the District of Columbia in 1895 was another noteworthy event. He was instrumental in initiating the National Medical Association, also in the same year.

Charles Edwin Bentley

The other young man fortunate enough to come under Charles Anderson's influence was Charles Edwin Bentley. He was born on February 21, 1859 in Cincinnati, Ohio, the son of Charles E. and Sarah Watson Bentley, both free born, literate, black Americans. Young Charles was able to acquire the fundamentals of a musical education, an acquisition which later allowed him to take advantage of financial opportunities to perform as a vocalist. He attended Gaines High School in Cincinnati, and in the 1870's, he moved to Janesville, Wisconsin. It was here that he too met the affable Charles Anderson and came under his influence. At the Anderson home he became acquainted with Dan Williams, an occurrence which led to a close personal lifelong friendship.

As an energetic, hard-working and ambitious youngster, Bentley became a regular visitor to the Anderson home. He fell in love with Anderson's eldest daughter, Traviata, and eventually they were married.

Following the death of Anderson's wife, Ellen, the family moved to Chicago where Dan Williams was then completing his medical studies. Williams' success together with Anderson's promises of financial support stimulated Bentley to decide upon a health career for himself, and he chose dentistry. Accordingly in 1885 he entered the Chicago College of Dental Surgery from which he graduated in 1887. (Fig. 3)

Charles Edwin Bentley, D.D.S., (1859–1929) famed Chicago dentist, founder of the Odontographic Society, father of the Oral Hygiene Movement in the United States, noted civic leader and one of the founders of both the Niagara Movement and the National Association for the Advancement of Colored People (NAACP).

One of his most notable contributions to dentistry was the founding of the Odontographic Society of Chicago, an event which took place during his senior year as a dental student. He was the first president of this society which was the forerunner of the present Chicago Dental Society.

Immediately after graduation, Dr. Bentley became associated with the Rush Medical Dispensary as a staff clinician. He opened his office for general dental practice in Chicago's Loop District, and because he was an astute and caring clinician who rendered the highest

quality of services to his patients, Bentley became one of the city's most prominent dentists. He counted among his patients, many of Chicago's most illustrious citizens. He was reputed to have had one of the largest and most selective practices in Chicago.

At the same time, he established a blueprint for rendering comprehensive oral health services for the nation's indigent communities. His indefatigable, successful efforts in this arena gained for him the approbation and plaudits of his professional colleagues, as well as the gratitude of the Chicago public, and the well-deserved recognition as the Father of the Oral Hygiene Movement in the United States.

Philosophical Similarities and Differences

The professional careers of these two exceptional personalities were as intertwined as their personal lives. When Dr. Williams was in the process of planning Provident Hospital, it was to Charles Bentley that he turned for counsel and support, especially when Chicago's militant black leaders were at first against what they thought would be the establishment of a segregated hospital. Bentley supported Williams because the plan called for an interracial institution. Following its construction, he became a valued founding member of its Board of Directors. Williams also appointed Bentley chairman of the Training School Committee, secretary of the Board, and hospital oral surgeon.

Some twenty-one years later after the hospital experienced internal dissensions, modified basic philosophies, and espoused separatist practices, Daniel Williams resigned from the institution he had founded. It was Bentley who defended Williams and protested against the transitions which had forced Williams to act. Shortly thereafter, Bentley himself resigned from Provident's Board of Directors.

Bentley's was an outgoing personality with a mature sense of community involvement. Following graduation he worked with several organizations in efforts to improve interracial relations. In 1905, he was one of the founding members of the Niagara Movement, predecessor of the National Association for the Advancement of Colored People. He was a member of the Board of Directors of the latter when it was established. Bentley was not successful in influencing Williams to join either the Niagara Movement or the NAACP, especially since both of these organizations were opposed by the great Afro-American educator, Booker T. Washington. Dr. Washington was unsympathetic with their militant attitudes and uncompromising approaches toward racial separations. The leader of the Niagara Movement was the equally renowned sociologist, Dr. W.E.B. DuBois, a close friend and mentor of Bentley's. Dr. Williams allied himself with Dr. Washington to whom he turned for help with his own health and medical programs.

One other important philosophical difference between Bentley and Williams was their attitudes towards minority organizations. Since AfroAmerican physicians were excluded from postgraduate clinics, Williams founded the first medical organization dedicated to the educational advancement of black physicians.

Throughout his life Bentley never associated himself with health professional organizations specifically for minorities because he felt that such organizations tended to foster the continuation and expansion of segregation to which he was unalterably opposed.

One other significant item exemplifies the continuity of the two men's personal relationships even up to the time of their deaths. Bentley died on October 13, 1929 in Chicago preceding Dan Williams by a little less than two years. Dr. Williams died on August 4, 1931, and in his will, he bequeathed the sum of $8000.00 to the NAACP, the same organization he resisted joining during his lifetime, despite Bentley's constant entreaties. And so in death he joined his good friend in the support of the interracial organization.

Ernest Everett Just

The life of one other eminent figure intertwines with the lives of Williams and Bentley and deserves inclusion in these historical peregrinations. He was much younger than both Williams and Bentley, was a friend of the former, and a kinsman of the latter. Ernest Everett Just was the name of the scientist and his story and contributions have been published in Kenneth Manning's new book, "Black Apollo of Science."

He was born on August 14, 1883 in Charleston, South Carolina, the fourth child of Charles Fraser and Mary Matthews Just. He attended the Colored Normal, Industrial, Agricultural and Mechanical College of South Carolina and in 1899, received his license to teach in the black public schools of South Carolina. His driving ambition and desire for higher education spurred his migration to Kimball Union Academy in Meriden, New Hampshire, where he took a classical course and finished the rigorous 4 year course in three years.

He was admitted to Dartmouth, specializing in biology, and was awarded the title of Rufus Choate Scholar, the highest academic

award for a Dartmouth undergraduate. He received top honors at graduation earning Phi Beta Kappa and magna cum laude. In 1916 he received the Ph.D. from the University of Chicago. (Fig. 4)

Ernest Everett Just, Ph.D., (1883–1941) internationally known biologist, dedicated teacher and researcher, author of "Biology of the Cell Surface," and first winner of the Spingarn Medal.

His untiring efforts in building the biology and physiology departments at the Howard University Medical and Dental colleges have been widely acknowledged. There were also disappointments regarding the lack of support and understanding on the part of those at Howard to whom he was responsible.

His basic researches established him as one of the nation's pioneering scientists, and his more than 80 publications in top scientific journals of the world are his legacy to his country. These publications are on mechanisms of fertilization reactions, initiation of development in the egg, studies of cell division, and hydration and dehydration of the cell. His book, "Biology of the Cell Surface" (Blakiston, 1939) is considered a classic.

It was when he first went to Chicago to study for his doctorate that he was thrown into closer contact with his kinsfolk, the Bentleys with whom he boarded. In "Black Apollo" Kenneth Manning described how impressed and inspired Just was with the prosperity of Chicago's black Americans.

The large number of highly respected competent Afro American surgeons, dentists and lawyers was a revelation. Because the Bentleys were in the vanguard of social and professional life, Just was able to meet and know celebrities like Dan Williams, and many of Chicago's black and white elite, several of whom like the Rosenwalds, were able to help in funding some of Just's research efforts.

Just found sympathy and support from both Bentley and Williams when he demanded recognition as a talented scientist rather than a talented "Negro" scientist. Like Bentley and Williams, he objected to anything that smacked of a paternalistic attitude by well-meaning Caucasian scientists. Manning wrote that Just's career was deliberately sabotaged by well-established scientists whose works Dr. Just had dared to criticize. Just's mentor, Frank Lillie, eventually confessed that he recognized racism as the operating factor which deprived Just of the preeminence he deserved, and Lillie insisted that Just's failures to achieve his full potential were losses to science and society, as well as to Just himself.

Ernest Just was the first winner of the now famous Spingarn medal which was inaugurated by the NAACP. In addition to his allegiance to research investigations, Dr. Just was a dedicated teacher, passionately devoted to the welfare and advancement of students.

His works are undoubtedly responsible for the steady progress made by many minority and other investigators who became inspired by Just's accomplishments and the spirit of scientific integrity which he espoused.

Conclusion

The interrelationships in the lives of the four persons presented—a barber, a physician, a dentist, and a scientist—exemplify some of the interesting contributions which history has made to the health professions. As emancipators in the health professions and biological sciences, these pioneers persevered and performed with such excellence against tremendous odds that their accomplishments are regarded with amazement and admiration. They deserve the honors and recognition which have been accorded them.

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SECTION REPRESENTATIVES MEETING

Section representatives will hold a meeting during the Annual Meeting of the College in San Francisco on Friday, November 1st, 1985. The Committee that is charged with the responsibility for this meeting includes the following: Dr. Ralph Lopez, Dr. Leslie Bell, Dr. Robert Elliott, Dr. Gordon Rovelstad (ex-officio), and Dr. Harold Pressman, Chairman.

Dr. Pressman has initiated action with the Committee so as to complete the program plans at an early date. All Section Officers should take steps to see that their Section is represented at this next meeting.

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