

JCO INTERVIEWS

Dr. Eugene L. Gottlieb on 40 Years of JCO

DR. KEIM Gene, over the last 40 years, JCO has gone from a small, relatively obscure publication to one of the most widely circulated orthodontic journals in the world today. You must be very gratified at that.

DR. GOTTLIEB Very much so. I could not have imagined 40 years ago that I would be sitting here now, reminiscing about the changes there have been in orthodontic practice and the part that JCO has been privileged to play in the growth and development of orthodontics during that time.

DR. KEIM What prompted you to start the journal?

DR. GOTTLIEB The idea for JCO started sometime in 1965, when I had a conversation with two orthodontist friends of mine, Leo Taft and Jerry Blafer. One of us—I don't remember which one—said in the course of the conversation, "You know, there ought to be a journal by orthodontists about

the everyday goings-on in orthodontic offices." And we all agreed that was a good idea. The nearest analogy that comes to mind is a group of kids throwing snowballs at passing cars. Alone, we never would have dreamed of doing it, but with the gang it was great fun. We couldn't let go of the idea, and we invited a number of orthodontist friends to join us as a Contributing Editors' Board. When they accepted, the die was cast. I was to be the editor, Jerry the office manager, and Leo the advertising manager. Before we knew it, we had solicited subscribers and advertisers, and there were enough of them who thought it was an idea whose time had come.

DR. KEIM What kind of prior editorial experience did you have?

DR. GOTTLIEB I had been an editor of almost everything in junior high school, high school, college, and my local dental society. Upon graduating from college, it was my intention to be a sports writer. I actually started working as a stringer for the *New York Herald Tribune*, a wonderful newspaper. I had been the sports editor of the daily newspaper at Columbia College, and that was kind of an entree to a job with the New York newspaper. So I really intended to be a journalist.

DR. KEIM You didn't major in journalism, though, did you?

DR. GOTTLIEB I actually majored in science: biology, chemistry, and physics. But my four years of extracurricular activity with the college daily newspaper made for an unparalleled journalistic education. Columbia's *Daily Spectator* was modeled on the *New York Times*, which was considered to be the finest newspaper in the world at that time. I was a reporter, feature writer, and sports



Dr. Gottlieb



Dr. Keim

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writer and editor. I was also required in my last two years to act as night editor once every two weeks, responsible for turning out the next day's edition; and woe betide the night editor if there was so much as a single typo.

DR. KEIM How did you happen to become a dentist?

DR. GOTTLIEB I became a dentist in a convoluted kind of a way. While covering college crew races for the Trib, I became friendly with the sports editor of the *New York Times*. The press followed the racers upriver in a motor launch, and he enjoyed going along for the ride. Toward the end of the season, he remarked to me that I ought to have a profession and not try to have a career as a sports writer. I had an uncle who was very influential, and he said, "You know, if you're going to choose a profession, dentistry is really it. You're your own boss, and it earns you a good living and a good life." He decided that path for his son, my first cousin, and he convinced me that I should go that way.

I changed my mind in time to be accepted into the fall class of the Columbia Dental School. When World War II began, our course was accelerated, and we were permitted to finish our schooling and enter the Army as dentists. I spent three and a half years here and overseas.

DR. KEIM You were then a general dentist for a while?

DR. GOTTLIEB When I came back from the war in Europe, I was very anxious to get into practice, and I opened a general dental practice in Rockville Centre, New York—a wonderful small town. It soon occurred to me that the children in my practice all had irregular teeth and could benefit from orthodontics, about which I knew nothing. Under the GI Bill, I applied to Columbia's orthodontic program and was accepted. For two years, I commuted to school during the day and practiced general dentistry on weekdays at night, until about 11:00, and on Saturdays. At the end of the two-year course, about the first month of 1949, I graduated and started a career in orthodontics. So in September

1967, when the journal began publication, I had been in orthodontics for more than 18 years (Fig. 1).

DR. KEIM This seems to be a theme: full-time student and full-time general dentist, and then you became a full-time practicing orthodontist and a full-time editor.

DR. GOTTLIEB I had a thriving orthodontic practice in Rockville Centre, and I enjoyed it very much. I looked forward to going to the office every day. It may have been the reason they called it the Golden Age of Orthodontics, because it was a time of individual discovery. Every day in the office, you had challenges to face and no printed solution on how to cope with them. Which is really what the idea of JCO was all about—sharing what you were doing and what creativity was happening in your office. The mission statement in the

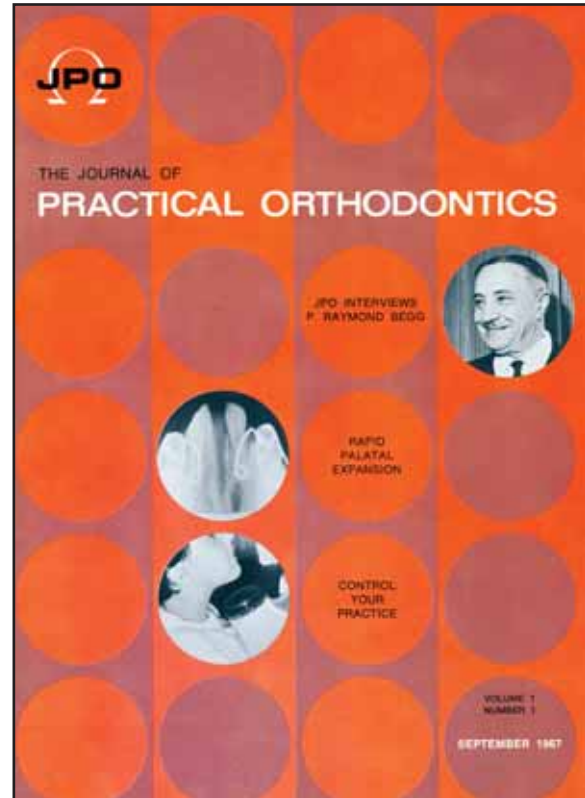


Fig. 1 First JPO cover, September 1967.

very first Editor's Corner that I wrote was that the journal was to be a window on the orthodontic world, a place where orthodontists could share their experiences and the knowledge that they had gained in treating patients in their offices.

DR. KEIM Pretty soon, you were faced with going it alone.

DR. GOTTLIEB Leo Taft left after just a few months to pursue other interests. He later became president of the New York State Dental Society and a clinical professor of orthodontics at NYU. Jerry Blafer stayed on a little longer—he left in 1971 and moved to Florida. So I was left with a growing journal with a commitment to a substantial group of orthodontists to whom we had sold subscriptions to deliver the journal monthly for a year's time.

DR. KEIM How did you find time for both jobs?

DR. GOTTLIEB It was a trade-off. I had been active in the ADA, serving many years on the House of Delegates, and I had been president of my district society and served on several committees. I had continued my journalistic bent with the editorship of the *Tenth District Dental Society Bulletin*. I was also active in the AAO. I served on one AAO committee, and I participated regularly in the AAO annual meetings with table clinics and breakfast roundtables. I was proud to have my Board cases shown at the 1960 meeting. I was also active in civic associations and other local activities. My wife and I chaired the high school's scholarship fund. So I was plenty busy with all of that. I decided that I would trade some of that time for the time that I needed to spend with this new journal, which I felt was important, as evidenced by the subscriptions of so many orthodontists right off the bat. I must say that I give Jackie, my wife, a lot of credit for permitting this to go on. She's an amazing woman.

DR. KEIM How did you come up with a name for the journal?

DR. GOTTLIEB We had made a list of five names, including the *Journal of Clinical Orthodontics*, but we chose the *Journal of*

Practical Orthodontics to be sure that orthodontists would know this was something different, not a usual orthodontic journal or in any way attempting to compete with the *American Journal of Orthodontics*. After a couple of years, Jerry and I decided we wanted to change the name to one that was more professional-sounding and more suitable for the stature that the journal was attaining. At precisely that moment, I received a letter signed by Jim Ackerman and Bill Proffit. I think I had been one of Bill's first postgraduate students when he took over the department in Kentucky, and I knew Jim very well. He was chairman of the department at Pennsylvania. In this letter, they said they thought the journal had moved to a point where the *Journal of Practical Orthodontics* was no longer an appropriate name, and we ought to call it the *Journal of Clinical Orthodontics*. So it

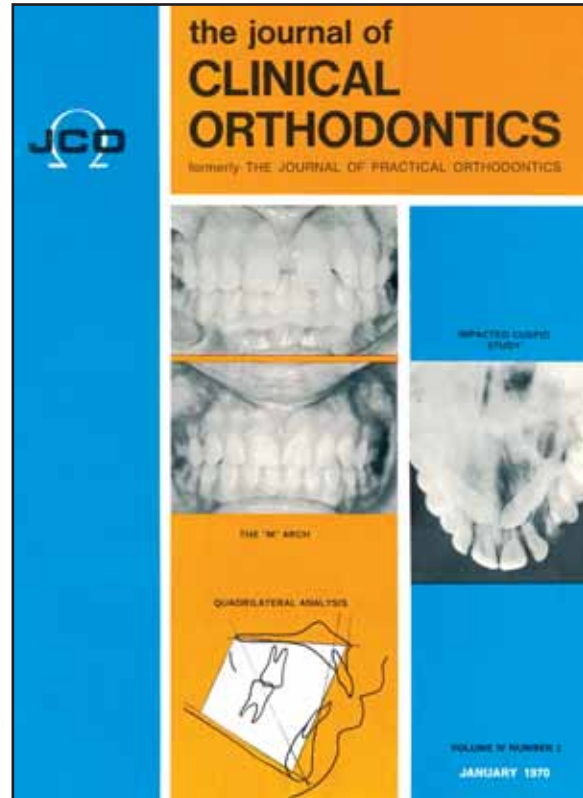


Fig. 2 First JCO cover, January 1970.

was a meeting of the minds, and we changed the name in 1970 (Fig. 2). It's been the *Journal of Clinical Orthodontics* ever since, and it's been located in Boulder, Colorado, since 1974 in the same building that I bought when I moved there in 1974—1828 Pearl St.

DR. KEIM Why the move to Boulder?

DR. GOTTLIEB In 1974, I had practiced orthodontics for 25 years. As I say, I loved it, but something had to give. I tried to compress my practice time to two and a half days a week by becoming more efficient and adding one employee. I increased my fees with the idea of reducing my acceptance rate, but that didn't work. I tried being more selective in the cases I accepted to treat. That did work. I refused to treat any child who showed the slightest disinterest in orthodontic treatment or disinclination to cooperate. The easiest and happiest years in my practice ensued, with all my patients working hard to achieve our goals. Even so, with the journal continuing to grow, it became clear that I could not do justice to both the practice and the journal. So I decided that I would retire from orthodontic practice and move to Colorado.

DR. KEIM Why Colorado?

DR. GOTTLIEB We had been skiing in Colorado and Utah and loved that part of the country. We really searched for a place to live in a systematic way. We went to the northernmost city in Colorado, Fort Collins, and went from town to town, all the way to Santa Fe, New Mexico, and looked the territory over. Then we went back to Boulder and settled there.

The move turned out to be a wonderful decision, not only from the point of view of the atmosphere, but because Boulder, the home of the University of Colorado, was crowded with loads of superintelligent people.

DR. KEIM How did that work out from a hiring standpoint?

DR. GOTTLIEB Actually, the first person I hired in Boulder was a brilliant young lady named Jayne Barela, who was a one-woman factotum. Jayne was

responsible for converting the journal from a primitive manual method of production to a computerized method. The second good thing that happened was that my daughter married a man named David Vogels, who happened to be a graduate of the University of Missouri School of Journalism. Ironically enough, he was looking for a job as a sports writer, but I was able to convince him that he ought to come on board with JCO as the managing editor. Like the managing editor of any publication, he is actually the key person in producing and editing the articles in what we call the JCO style, which is a concise presentation in a clear, direct, well-illustrated fashion. In addition, he has taken over the management of JCO, Inc. The fact that David was able to acquire a solid working knowledge of orthodontics from reading and then editing the articles submitted to JCO is a credit to both his competence and the quality of the material we've received. Of course, the selection of the material to be accepted for publication has always been in the hands of orthodontists—the editors and other reviewers of the submitted articles.

David has also assembled a first-rate office staff, two of whom have been with JCO for more than 20 years. Recently, the staff has established an active JCO Online website and included in it the entire archive of JCO issues, which may be unique among professional publications. The entire 40 years of JCO are available online and added to with each succeeding issue.

DR. KEIM How did you find your material in the beginning?

DR. GOTTLIEB The first edition featured an interview with Dr. Raymond Begg, whose technique was widely used at that time. I knew Dr. Begg and had taken his course in 1960, but the interview was the work of Dr. Sidney Brandt, who was a strong believer in the concept of the journal and found a niche as our Interviews Editor. In the succeeding three issues, Sid did an interview with Dr. Charles Tweed that was a landmark for our fledgling publication. I also knew Dr. Tweed and had taken his course in 1956. It was a fortunate start for the journal that Drs. Tweed and

Begg supported our concept and participated early on. We gained a good deal of credibility in the profession. At the start, the rest of the material came right out of the offices of the Contributing Editors and myself. Before long, unsolicited manuscripts began to arrive as the concept of the journal caught on.

DR. KEIM Tell us a little about the development of the editorial board.

DR. GOTTLIEB Over the years, we have continually recruited some of the highest-caliber orthodontists worldwide as Contributing and Associate Editors. In 1988, I decided to step down or up, depending on how you look at it, and I became Senior Editor of JCO. As such, I still do some writing, some editing, some proofreading, and stay involved in the fulfillment of JCO's mission. I was fortunate to have a good friend in Larry White, whom I admired and still admire immensely. He agreed to take on the editorship, and he served a distinguished term of about 13 years before you assumed that chair in 2002.

DR. KEIM What was orthodontics like when you and your friends decided to start this journal?

DR. GOTTLIEB We were flying by the seat of our pants and isolated in our offices. JCO brought us together.

DR. KEIM Now, at that time, were you banding all of the teeth?

DR. GOTTLIEB Yes. Some orthodontists waited for the eruption of the second molars to include them in the strap-up. Since I generally started in the mixed dentition, I picked up the second molars, if needed, when they erupted.

DR. KEIM What technique did you practice?

DR. GOTTLIEB In the Columbia course, we were taught labiolingual, Johnson twin-wire, and a limited amount of edgewise. I recall Joe Johnson telling us that his technique was foolproof, except in the hands of too big a fool.

After graduation, I became an inveterate course taker. The Tweed course was basic. I took the Begg course alongside a terrific orthodontist named Bob Strang. Bob was known as "Tweed East", and he had written the definitive book on edgewise technique. We looked at each other and said, "We'll give this a try. Let's get together and see what we think about it after a while." We each started 10 cases. For those who don't know the Begg technique, it involved one-point contact of the bracket and wire and a vertical slot. It was marvelous for opening the bite in a hurry and for retracting anterior teeth. Begg technique was essentially an extraction technique at that time. It retracted those anterior teeth quickly, but unfortunately it tipped them way back, and you had to torque them back out, which was the third stage and a very onerous task. When Bob Strang and I got together again, we had decided that we would not do a pure Begg technique. Bob went back to his Tweed ways, and I went to a combination Begg-edgewise, because a man named Chun Hoon had turned out an edgewise bracket with a vertical slot. In my Class II cases, usually begun in the mixed dentition, I would correct the molar relationship with headgear and then go into a Begg-edgewise to level and align, establish the archform, and retract the anteriors. The Begg technique remained popular for quite a number of years, although the last time we surveyed it had lost favor almost completely in the United States.

DR. KEIM Do you regard the Tweed course as a kind of defining moment in your own orthodontic philosophy?

DR. GOTTLIEB Actually, Dr. Tweed was the single most influential teacher in my orthodontic career. He had very high ideals of orthodontics and definite ways of how to get there. He had an abiding interest in anchorage. I really credit Tweed, not only for his integrity and his great ability—he had the best hands in the business—but for giving orthodontists a sense of the need to control tooth movement and a method of doing it.

When I applied to the Tweed course, one of the questions he asked was, “What do you expect to get out of this?” And I told him one word, “control”. Mind you, I never practiced a pure Tweed technique. I did not extract as much as he did, and I didn’t use heavy forces.

DR. KEIM Using JCO as your lens, what do you see as the major steps in the progress of orthodontics over the past 40 years?

DR. GOTTLIEB I think I’d have to preface that by saying that more is known about what has gone on in the United States because JCO has spent a great deal of time and money doing surveys of orthodontic practices. Every other year, beginning in 1981, we have studied the economics and practice administration of orthodontists in the United States (Fig. 3). Every six years, beginning in 1990, we have surveyed diagnosis and treatment procedures. The promise was—and is—that if you respond to the lengthy questionnaires, we will publish the main information in the journal. I think the combination has provided an in-depth knowledge of what is going on in orthodontics—but only in the United States.

If Dr. Philippe, who wrote a history of orthodontics a few years ago, is correct, the 20th century was dominated by developments in American orthodontics. With reference to orthodontic practice outside the United States, within the limits of local laws and customs, some inferences can be drawn that an increasing number of orthodontists are following the American lead, possibly due to the number of foreign students trained in the U.S. who have returned to their native lands to practice and teach what they have learned here. There has also been a significant increase in the number of foreign subscribers to JCO, which may help account for echoes of change abroad. We also see this in the large number of papers being submitted to JCO from all around the world.

DR. KEIM It seems that Korea has taken the lead in the 21st century in the development of skeletal anchorage devices. If Philippe is correct about the dominance of American orthodontics in the 20th cen-

ture, do you see that shifting in the 21st century?

DR. GOTTLIEB I don’t think there is any question that we are witnessing an international explosion of orthodontics. Not only are the orthodontic departments in the United States far better than they were 40 years ago, but that search for excellence within the departments is also being seen abroad. There are certainly many individuals one could think of who are among the most prominent and progressive in the advancement of orthodontics in various countries around the world. I think the United States still has a technological advantage, though, in having an industry that deserves credit for a good deal of the progress in orthodontic appliances. They have been willing to invest in orthodontists’ ideas of how to do it better, although some similar companies have opened abroad.

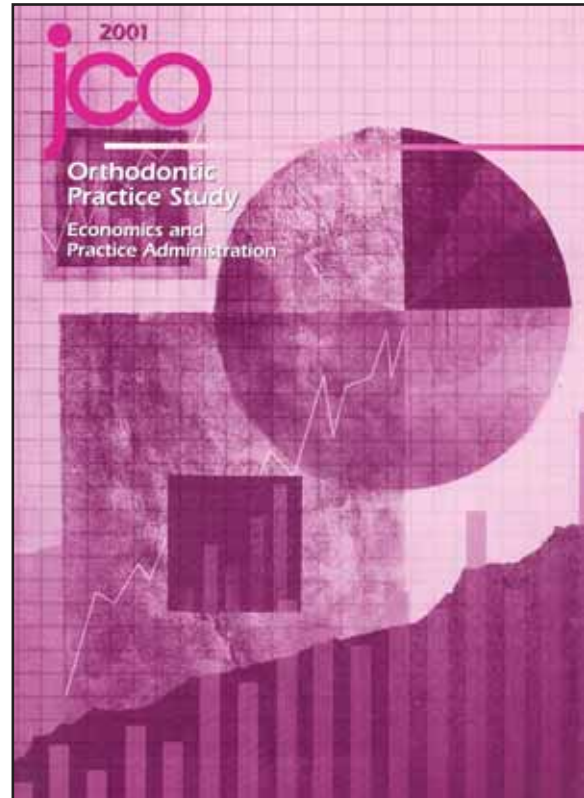


Fig. 3 JCO’s biennial Orthodontic Practice Study.

DR. KEIM It's quite interesting that skeletal anchorage as we know it has been developed abroad.

DR. GOTTLIEB Yes, but you could say that it began in the office of Tom Creekmore, who was not only a member of our editorial board, but in my mind one of the most brilliant orthodontists in the world. His recent death was a great loss. Of course, the use of bone screws is far from new. Orthopedists have been using them for a long time in reassembling broken bones and reattaching torn muscles. The idea of using bone screws in orthodontics for skeletal anchorage appeared in the literature briefly after World War II, but attracted little or no attention. It was reintroduced in Tom Creekmore's 1983 article in JCO (Fig. 4). I just happened to be in Tom's office, and he showed me this case as a curiosity, not as something that he wanted to publish. I convinced him that he would be throwing down the gauntlet to the profession in the area of anchorage, which I considered to be one of the most important parts of orthodontic treatment. He finally agreed that he would publish it to suggest the future possibilities of skeletal anchorage.

Still, it was almost 20 years later that we



Fig. 4 Surgical vitallium bone screw inserted just below anterior nasal spine for anchorage during elevation and torque of maxillary incisors, from Creekmore, T.D. and Eklund, M.K.: The possibility of skeletal anchorage (JCO, April 1983).

began to receive and publish articles from Korea showing the treatment of a variety of malocclusions using skeletal anchorage, achieving excellent results that could not have been obtained using tooth-borne anchorage. American orthodontists have been rightfully cautious in adopting the use of miniscrews until they are comfortable with screw placement, especially in small interdental spaces. This may be overcome by the development and publication of numerous clever devices to make screw placement more precise.

Another advantage of skeletal anchorage is that it virtually eliminates the need for patient cooperation. I say "virtually", because there has been no appliance yet devised that cannot be destroyed or damaged by a willful or careless patient.

DR. KEIM Do you think skeletal anchorage will become a routine procedure?

DR. GOTTLIEB I hope so. Back in 1967, head-gear was a prime tool for anchorage. It was very prominent in my practice, because I wanted to avoid Class II mechanics as long as I could. My practice was almost entirely devoted to children started in the late mixed dentition, and in most of my Class II cases, I wanted to either tip or move the upper molars distally or, more likely, hold them back as the lower dentition developed. So I was facilitating growth and development, and that's the way I wanted the Class II correction to evolve. Prolonged or heavy Class II mechanics often had undesirable side effects, and some Class II mechanics were used to jump the bite, but I did not do that. I felt that it was likely to create a dual bite or result in relapse, and that physiological tooth movement was not something that could be hurried. As a matter of fact, using my philosophy, I never experienced relapse of a Class II correction.

DR. KEIM What were the major unresolved issues in orthodontics 40 years ago, and how do you see them today?

DR. GOTTLIEB Forty years ago, the main questions in the orthodontist's mind were extraction vs. nonextraction, early treatment vs. later treatment,

and stability of results. Now, 40 years later, nonextraction has probably gone in the other direction and been overdone, and the question of early vs. later treatment has been, in a way, reinterpreted. Before, it was a question of waiting on certain cases to treat them after the eruption of the full dentition, including second molars, so you could treat in one step. Today, more orthodontists are less rigid in that regard. Instability of results is still with us, now managed with permanent fixed retention.

DR. KEIM What about the chances of fracturing protrusive upper incisors?

DR. GOTTLIEB There have been studies showing that teeth that protruded a good deal weren't fractured any more frequently than teeth that were not. But I think they were missing an important point—consideration of the child's psyche. Orthodontists should never lose sight of the fact that a disfiguring malocclusion has a psychological effect. I've just been reading the book by Doris Kearns Goodwin about the Roosevelts. I had a dream the other night that I wrote Eleanor a letter and told her that her quality of life would be enhanced and improved if she had her teeth straightened. I'm certain from reading about her that her malocclusion had a remarkable effect on her life, until she was older and able to overcome what she felt was a disfiguring dentition. Of course, one of the main reasons orthodontics is performed at all is a cosmetic one. One of my greatest satisfactions in rendering orthodontic treatment was converting shy and worrisome children into beautiful creatures—one of whom became Miss Suffolk County. I think she led an entirely different life due to orthodontics. That's true of a large percentage of the patients orthodontists treat.

DR. KEIM Does that explain the shift toward more treatment of older patients?

DR. GOTTLIEB Yes. I think they missed out as children, and they now want to improve their appearance. As you know, the idea of the total makeover has taken hold among adults in the United States—the combination of dentistry and orthodontics and plastic surgery.

DR. KEIM What are the most important technological advances you have seen?

DR. GOTTLIEB I think the most important technological advance was the bonding of brackets, tubes, retainers, and other attachments. Incidentally, I think it was in the mid-'50s that I heard that a Dr. Buonocore had an adhesive that he was using for a filling material, and I wrote to him to say, "There may be an orthodontic application for your material; could you send me a sample to try?" He never responded. I might have been the first orthodontist to bond a bracket. Preformed bands had made life easier for the orthodontist, but bonding made life easier for both the orthodontist and the patient. And it had the additional benefit of eliminating the disruption of arch length caused by band thickness. I once made a pile of 14 pieces of band material, and their total thickness was scary. Not only did they add to the arch length, but space control upon debanding could be somewhat imprecise. This increase in arch length may also have contributed to bicuspid extractions in a certain percentage of borderline cases. Bonded retainers, frequently worn on a permanent basis, have now accelerated the decline in tooth extractions and, in many cases, a return to expansion for tooth alignment. It remains to be seen what the limits of these two procedures will be. If experience is a guide, there are limits to the stability of expanded arches, and we have yet to learn the dependability of permanent retention, especially as the average age of the population of the U.S. and many other countries lengthens.

DR. KEIM What other trends have you seen in the control of tooth movement?

DR. GOTTLIEB It has been greatly enhanced by developments in bracket design and wire metallurgy. Andrews's Straight-Wire Appliance transferred control of tooth movement from bends in the archwires to angulations built into the brackets, although Andrews readily admitted that some wire bending was at times necessary. Along with the development of nickel titanium wires, preadjusted bracket systems not only decreased the need for wire bending, but also decreased the use of heavy

forces. Ceramic brackets and coated wires eliminated the “metal mouth” plague of orthodontics. So-called self-ligating brackets eliminated the need for bracket ties. More recently, there has been the virtual elimination of brackets and wires with the development of Essix appliances and Invisalign. A positive side effect of all these developments has been a lengthening of the time between patient visits to the office and a reduction in the number of visits.

And we should certainly not overlook the “non-compliance” appliances, which I would say have more or less taken over orthodontics in the United States and, perhaps to a lesser extent, abroad. Before the development of these appliances, it was routine for orthodontists to advise new patients that orthodontics was a team effort in which success depended on the patient’s effort in cooperating with the proper use of the appliances. It was not unusual to have the patient sign a promissory note that they would do their part, but collecting on such notes was too often frustrating. Headgear was and still is one of the best appliances ever devised, but as Hayes Nance is reputed to have said when asked if he used headgear, “I do, but my patients don’t”. It took decades for orthodontics to proceed from that point to the development and use of non-compliance appliances, which, while effective, need close attention to anchorage considerations, because indiscriminate use of Class II mechanics invites an amount of anchorage loss that may be unworkable and unacceptable.

DR. KEIM Did the social and economic changes of the ’60s and ’70s have a significant effect on patient behavior?

DR. GOTTLIEB Yes. In orthodontics we have seen a marked decline in patient cooperation, and it may also be implicated in a diminution of the orthodontist’s role as the authority in treatment planning. Not only did the patients become participants in the choice of treatment plans, but they could also elect to have a more limited treatment than the orthodontist was advocating. This is not entirely a new development. Patients have been refusing surgery, tooth extractions, visible braces,

and headgear for more than 40 years. The difference appears to be that orthodontists seem more pressured to comply with patients’ desires and less confident as authority figures. My position is to comply when the request is reasonable and does not violate one’s professional integrity.

DR. KEIM What are your thoughts on Invisalign?

DR. GOTTLIEB Nothing succeeds like success. Of course, orthodontists had been doing something like this all along—making successive positioner-type appliances—but Invisalign added computerization of successive appliances and “invisibility”, which is attractive to patients and invites full-time wear.

DR. KEIM Did you use the positioner appliance?

DR. GOTTLIEB Oh, yes. The positioner, which was devised by Dr. Harold Kesling, was a finishing appliance that was most effective in “socking in” the occlusion of a well-treated case. While patient cooperation was required, I found this to be much less of a problem after I introduced airholes to permit mouth-breathers to breathe while wearing the appliance. More people than we may think breathe through their mouths while sleeping. I used positioners almost routinely and with great success for finishing and retention.

DR. KEIM What do you see that we haven’t accomplished in the past 40 years?

DR. GOTTLIEB With all the gains that these 40 years have produced, we still use two-dimensional cephalometric analysis; brackets, tubes, wires, and elastics of various kinds; and functional appliances that are still subject to debate. It still takes approximately two years to treat a full case, and I am not, so far, an advocate of interfering with Mother Nature chemically or surgically merely to speed up tooth movement.

DR. KEIM You mentioned cephalometric analysis; what have been some of the major developments in diagnostic procedures over the past 40 years?

DR. GOTTLIEB I was very concerned when the concept of a one-appointment consultation was introduced. As I understand it, the orthodontist examined the patient, made a decision, took diagnostic records, and more or less started the case with the idea that if the records showed something different from what was seen clinically, the orthodontist would notify the patient that there was a change in plans. I was very skeptical in the beginning that enough diagnosis was being put into that first visit. Now what I think I'm seeing is that with all of our technological innovations, the orthodontist is able to have more diagnostic information available at that first meeting and more often able to make a proper diagnosis and treatment plan. But I am still concerned that there be a complete and thorough diagnosis. That is the most professional thing an orthodontist does.

DR. KEIM Do you foresee a big change in our diagnosis and treatment procedures as a result of this technology?

DR. GOTTLIEB I hope that will happen. Let's face it. Two-dimensional lateral cephalometrics has some value, but is limited to a one-time antero-posterior view, with deficiencies of locating and tracing anatomical points. Computerized three-dimensional cephalometrics may allow an analysis of the dentition that is more in tune with the individual's head. We may be able to stop considering patients in groups and treat them as individuals. In the future, given such extensive data-analysis capabilities, we should be able to study growth and treatment interactions in much more detail. If we are lucky, we may unlock the secret of stability.

DR. KEIM JCO has also been known since the beginning for its articles on practice management. How did you get interested in that?

DR. GOTTLIEB Orthodontists weren't increasing their fees, and there really was a need to keep track of that as expenses increased. Early on I became convinced that there was an important need for orthodontists to conduct their practices in a businesslike way. So I started to study business.

I read Schumpeter and Leavitt from Harvard and Peter Drucker from Claremont College, and I took a seminar at the Wharton School in Philadelphia. With that background, I started to write about management and marketing. As you know, we eventually set up a separate Management and Marketing section in JCO.

DR. KEIM What innovations have you seen in marketing from 1967 to 2007?

DR. GOTTLIEB When the Supreme Court in the Bates decision permitted lawyers to advertise, it applied to all the professions. Contrary to what I thought was in the best interest of the profession, dentists and orthodontists began to advertise. So the marketing of dentistry has changed.

DR. KEIM What changes have you seen in running the practice?

DR. GOTTLIEB The most important change in orthodontic practice management, at least in the United States, has been produced by changes in state dental practice acts that resulted in almost unlimited delegation of operatory tasks, and such administrative tasks as case presentation and fee presentation, by trained auxiliaries. The trend has grown year by year, and in some practices approaches 100% delegation. What we are seeing is a change in the role of the orthodontist from wire bender to manager. This is odd because, in the past, when orthodontists were asked what they liked least about orthodontic practice, they said "management". Yet they have proven to be excellent managers.

DR. KEIM As you see the shift from wire bender to manager, do you see a difference in terms of quality of patient care?

DR. GOTTLIEB I don't think so. I think orthodontists are still on top of their practices, but delegation has made it possible to train auxiliaries to perform the mechanical tasks very adequately. As long as the orthodontist has made a proper diagnosis and supervises what is being done in the operatory, then there are just more hands to treat

more people. I must say that most orthodontists still want to control the bending of the wires and making of adjustments to them and to retainers. We see in our Practice Study data a continuing increase in the amount of delegation, but it is a matter of degree. Delegation depends somewhat on the personality and attitude of the individual orthodontist. But with the change from wire bender to manager, orthodontics has gone from a cottage industry to a high-tech business.

DR. KEIM The 40 years of JCO can also be described as the age of technology.

DR. GOTTLIEB Absolutely, and technology has changed almost every aspect of orthodontic practice. In office management, the most important technological advance has been the introduction and expanded use of the computer. We have gone from there being no computers in orthodontic offices (in 1981, just 3% of orthodontic offices in the U.S. had a computer) to a near-universal presence, from 100% paper records to the paperless office at the extreme end. The computer's unique capacity to store, analyze, and retrieve data has made it indispensable to orthodontic practice management. In addition, orthodontic office websites are commonplace on the Internet and used for a variety of purposes.

Another consequence of this change is that orthodontists are able to treat more patients, which is fortuitous because it has come at a time when the aging U.S. orthodontist population is at or near zero growth, while the population of the United States has grown from about 200 million in 1967 to about 300 million in 2007. It seems likely that in the rest of the world, there has been a similar increase in population, but also a large increase in the number of orthodontists.

DR. KEIM How has the entry of more women into the specialty affected the situation?

DR. GOTTLIEB At this point, half of the students in U.S. graduate orthodontic programs are female, and the number is likely to grow. This trend occurred much earlier in other parts of the world.

For example, when I visited the Soviet Union in 1965, 100% of the general dentists and orthodontists I met were female. I don't know that I should be surprised, but I am impressed at how well women have not only taken to orthodontics, but to management.

DR. KEIM Do you agree with the prediction that there will be an acute shortage of U.S. orthodontists in the near future?

DR. GOTTLIEB In the near future, I'm sure there won't be a shortage. As the population continues to grow and as the Hispanic and other minority populations achieve a better economic position, there is going to be a greater demand for orthodontic treatment. I think what you're going to see is an exaggeration of what you see even today: a departmentalizing of specialist technicians. At least for a period anyway, that should be adequate for the demand. The cost of orthodontics is still a limiting factor for some people, and no government, as Germany found out, can afford to have an open-ended orthodontic treatment program.

When you think about it, though, we're not really turning out very many orthodontists a year in the United States. If a third of the students are foreign, and most go back to their countries, then you only have maybe 250 to 300 orthodontic graduates a year. That number could certainly be improved upon. We might see an insourcing of some foreign orthodontists, attracted by fee levels in the United States.

DR. KEIM How do you think permanent retention will affect patient load?

DR. GOTTLIEB I am concerned about permanent retention. Is there a tendency to violate previous strictures on how far you can expand or how far you can lean the incisors forward and count on retaining them with a permanent retainer? I am concerned that if you move teeth into positions that they would not normally occupy and hold them there, what will be the ultimate condition if the person lives to be 90 or 100 years old? For that matter, who is going to maintain these appliances in the patients after their orthodontists retire or die? There may

even be an opportunity—I don't know if you would call it a profession, but a separate occupation—in maintaining permanent retention, if that's what people want. Some feel you can lay it on the general dentist to maintain permanent retention, but that's not necessarily true.

Incidentally, this matter of an aging population raises an even more important question—whether people including orthodontists are prepared with retirement plans that will carry them and their spouses through to age 100. I've called orthodontists' attention to this before, but I think it bears repeating. Orthodontists are actually in a most fortunate position. They have an income that, if managed properly, will permit them to maintain their lifestyle indefinitely if they set up and manage their retirement plan properly, accumulate a large enough retirement fund, and see that nobody takes it away from them.

DR. KEIM Would you have liked to see the journal turn out any differently?

DR. GOTTLIEB The journal has constantly done something different. We have installed various departments for Management and Marketing, Overviews, Pearls and Technique Clinics, and what we call “The Cutting Edge”, with the absolute hot-off-the-wire developments in orthodontics. The articles we receive have become more sophisticated over the years, and the volume has always permitted us to be selective. Not only has the volume of submitted papers increased, but the authors have spread around the world.

DR. KEIM From what you have seen through JCO contributions, has the practice of orthodontics improved?

DR. GOTTLIEB I think orthodontists have performed extremely well. I would tip my hat to the graduate orthodontic departments. I think they have improved tremendously since I attended one. I think they are turning out a much better product. I think the students they are turning out are much better trained, more sophisticated, and more capable of treating larger numbers of patients. And not just in the United States, but in

universities around the world.

DR. KEIM Do you have any disappointments about the state of clinical orthodontics today?

DR. GOTTLIEB I have been disappointed at the failure of lingual orthodontics to catch on, at least in the United States. However, it may be experiencing something of a revival. We'll find out more about that next year when we conduct the next JCO Diagnosis and Treatment Study. I have also been disappointed that so few orthodontists take frontal x-rays and include the third dimension in their diagnoses.

DR. KEIM Any final thoughts for our readers?

DR. GOTTLIEB In making this trip down memory lane, I have read the titles of all the articles that have appeared in JCO, and I am impressed with both the scope of the material and the timely fashion in which it has mirrored the developments and improvements in the treatment of patients and the management of practices around the world. I have been extremely gratified to have received, over the years, communications from so many of our readers telling me about the importance that JCO has had in their success in the treatment of their patients and the management of their practices.

This would not have been possible without the willingness of thousands of orthodontists to publish in JCO procedures and ideas that they used in their offices, and to share them with their colleagues. That, after all, was the mission to which JCO was dedicated. I am eternally grateful to them and to those who have served as Editors, Associate Editors, and Contributing Editors over the years. I must also credit the numerous non-editors who have joined them in reviewing articles, and I must thank our loyal subscribers and advertisers who have sustained JCO for these 40 years.

Finally, I must say that in 40 years of publication we have remained true to our mission, and I do not regret a single writing of my own or the selection of articles we have published. I am proud of the contribution that JCO has made to our specialty and confident that it will continue to do so. □