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THE YEAR(S) AHEAD

After a most successful 1962 meeting in Miami, the College will move to Atlantic City for its 1963 sessions. And let us hope that, for the vast majority of the membership, this change will mean far more than twelve months and 1,000-plus miles. May it be a year of significant activity and useful service by the College—to which every Fellow will contribute his part.

Among the productive efforts of the past that deserve our continuing support are the College’s emphasis on international friendship, as projected through Operations Big and Little Bookshelf, the work of our World Relations Committee, and the stimulating Latin American reports presented at the Miami meeting; further expansion of College activities at the Section level, as illustrated by the fine work done on student recruitment and Science Fairs in certain states; and a continuation of the important studies concerning the future of the College, as initiated this year by the Board of Regents.

In addition, there are many other challenging tasks to which the College should be devoting its leadership resources, in the best interests of the general public and the profession as a whole. These include (1) serving the nation’s defense effort, (2) stepping up and revitalizing the fight for fluoridation, (3) developing more effective methods of projecting a proper public image of dentistry, and (4) contributing in every way to the advancement and support of dental education.

To these ends—as for all of its undertakings—one of the basic needs of the College is for more effective communication within and among its own membership, as well as with other agencies having similar interests and objectives. May this be one of the outcomes of 1963: better communication for greater understanding of the College and its goals in the year(s) ahead.

PHILIP E. BLACKERBY
WHAT DOES THE COLLEGE DO?

The Board of Regents met at Miami Beach October 25, 26, and 29, 1962, for 22 hours of deliberations concerning the activities of the American College of Dentists. The minutes will be published in the March 1963 Journal; the proceedings of the Convocation also will appear in that issue. Some of the many items considered, discussed, and acted on follow:

Section activities; recruitment of dental students; “Operation Bookshelf”; committee structure, appointments, and working procedures; the “Survey of Dentistry”; social characteristics of dentistry; expansion of the Central Office; the writing of a history of the College; international activities; the fellowship programs of the College—teacher training, exchange, travel, and subsistence; establishment of a memorial fund; ways and means by which the College may help in solving the problems of dental education; the promotion of fluoridation programs; the furtherance of continuing education at all levels; improvement of communications within the College; the future activities and development of the College; the budget for 1963; and plans for the 1963 Convocation. Also, committee chairmen appeared before the Board to discuss their reports and present recommendations on which the Board subsequently took action.

If you ask, or if you are asked, “What does the College do?” here is an answer.

T. F. McB.
Providing Dental Care:  
The Open Panel in California

F. GENE DIXON, D.D.S.  
C. EDWARD RUTLEDGE, D.D.S. and  
WILLIAM B. RYDER, JR., D.D.S., L.D.S. (Eng.)

Since 1955 the dental profession in California has been faced with the problem of providing dental care for an increasing number of the public, who for various reasons are not required to pay the dentist directly for services rendered. Labor management agreements provide this as a fringe benefit; employers pay for it as an extra benefit; and Public Assistance Welfare funds now provide for dental care. Three types of programs exist in California by which dental care is provided to people who no longer have control over that portion of their income which would normally be spent for this purpose.

Some groups are covered by private insurance companies who pay a portion, or all of the costs, to the patient or directly to the dentist. A portion of the total money available for dental care goes for the expenses necessary to operate the program, and finally a percentage goes for profit. This reduces the amount of money which is available to the profession, and either increases the cost to the employer or decreases the amount of care which can be provided. In other instances, patients lose the right to select a dentist of their choice; they may have to leave their present dentist to be cared for in closed panel clinics which are operated by or for the specific group of patients involved in such programs.

A third method is available through the utilization of a service corporation established by the profession and operating under its control. In 1955 such a corporation was established in California—The California Dental Association Service, a non-profit organization—to provide open panel dental care for that portion of the public whose cost for dentistry was being carried by Trust Funds, employ-
ers, or other agencies. Details of its formation and operation have been reported in several papers (1-7).

After five years of operation (July 1, 1957 to June 30, 1962) it seems pertinent to present some information as to the scope of coverage, the numbers of the public and the profession who are involved, and the financial aspects of the program. This paper presents information pertaining to the care being rendered by the profession for the population of California through its own agency. It will deal with two types of individuals: those covered by an agreement or fringe benefit, i.e., commercial programs; and those under Public Assistance Welfare programs.

It is estimated that approximately 750,000, or 1 out of 22 people in California, are now covered by a dental plan of some type. In 1950 there were approximately 1 out of 400 covered. Most of this increase has come since 1957 when the indigent welfare program began. In the past year, however, there has been a marked increase in commercial programs.

At the present time CDAS has 16 plans in operation, covering 312,000 people in California. Of these, 55,000 are covered under various commercial programs, and 257,000 under the Public Assistance Welfare program.

The greatest increase at present is occurring in the commercial groups. A growing portion of the population in California is finding that the cost of dentistry can be prepaid, and therefore are asking that it be included as part of their health benefit programs.

Under the commercial (non-government) programs in the five years ending June 30, 1962, CDAS has paid to dentists $977,604.07. Services were rendered to 17,960 patients. During the first six months of 1962, 4,507 dentists out of an available 5,518 CDAS members have participated in the programs. In areas in California where programs are in force, 92 per cent of the dentists are CDAS members.

The Public Assistance Welfare Dental Care Program has been in existence since 1957. Each county in the state initially had the option of administering its own plan or choosing CDAS. Some 34 counties chose the latter alternative. Since the beginning of this program, $18,575,000.00 has been expended by State and County government for dental services. CDAS under this program has paid to dentists $6,275,827.50 since its inception. Approximately 92 per cent of the dentists in California have treated at least one patient. Figures
also indicate that approximately 32 per cent of the dentists have rendered 74 per cent of the services.

Presently CDAS is disbursing payments to dentists under the commercial and welfare programs in excess of 3 million dollars per year. The amount paid to dentists by year and by types of programs is shown in Table 1.

**Bay Area Retail Clerks Dental Care Program**

The details of one commercial program should be of interest, that of the Bay Area Retail Clerks Dental Care Program. One of the largest complete dental care family plans in the United States began in the San Francisco Bay area on January 1, 1962. It is a choice program where the patient is given the opportunity to select his own dentist under the open panel system, or go to a closed panel. We are pleased to report that during the initial sign-up period, 94 per cent chose the open panel. While the figures presented here are by no means conclusive at this time, they do present some indication to those interested in the progress, costs, utilization, and type of services being rendered. The following is a prototype of plans being offered by CDAS in California:

*Type of Plan:* Prepaid 70/30 co-payment  
*Monthly Rate:* $8.08 per employee (includes entire family)  
*Membership:* 9,434 employees  
18,000 dependents  
*Average Cost per case* (70 per cent paid by CDAS, 30 per cent paid by patient) $125.05  
*Annual utilization rate:* 540/1000 patients

Table 2 shows the types of services rendered by category during the period January 1, 1962-June 30, 1962. The amounts shown represent the amount paid by CDAS to the dentist, which is 70 per cent of the total fee.

In California many groups are earmarking money specifically for dental care. It has been the policy of the CDAS Board of Directors to work with those who are interested in dental care plans, in an effort to have them contract through the corporation rather than through closed panel groups or instituting their own clinics as has been done in some areas.

It is the profession’s responsibility to attempt to maintain a free
### TABLE 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Public Assistance Welfare Program</th>
<th>International Longshoremen's &amp; Warehousemen's Union—Pacific Maritime Assoc.</th>
<th>Hotel Restaurant &amp; Bartenders Insurance Trust Fund*</th>
<th>Northern California &amp; Valley Retail Clerks Program**</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957 (from July 1)</td>
<td>$41,270.00</td>
<td>—</td>
<td>$41,270.00</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1958</td>
<td>626,764.25</td>
<td>563,608.75</td>
<td>$65,155.50</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1959</td>
<td>863,791.77</td>
<td>797,900.77</td>
<td>65,891.00</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1960</td>
<td>1,168,914.18</td>
<td>1,081,535.35</td>
<td>87,378.83</td>
<td>—</td>
<td>—</td>
<td>1,550.00</td>
</tr>
<tr>
<td>1961</td>
<td>2,954,084.75</td>
<td>2,729,325.88</td>
<td>87,400.87</td>
<td>135,808.00</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1962—to June 30</td>
<td>1,598,606.62</td>
<td>1,103,456.75</td>
<td>56,599.78</td>
<td>82,277.04</td>
<td>353,298.10</td>
<td>2,974.95</td>
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<tr>
<td></td>
<td>$7,253,431.57</td>
<td>$6,275,827.50</td>
<td>$401,695.98</td>
<td>$218,085.04</td>
<td>$353,298.10</td>
<td>$4,524.95</td>
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</tbody>
</table>


** Plan initiated January, 1962.
<table>
<thead>
<tr>
<th></th>
<th>Employee Number of Procedures</th>
<th>Employee Amount</th>
<th>Spouse Number of Procedures</th>
<th>Spouse Amount</th>
<th>Children Number of Procedures</th>
<th>Children Amount</th>
<th>Totals Number of Procedures</th>
<th>Totals Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Service</td>
<td>12,212</td>
<td>$32,005</td>
<td>5,760</td>
<td>$20,251</td>
<td>8,783</td>
<td>$19,711</td>
<td>26,755</td>
<td>$71,967</td>
</tr>
<tr>
<td>Operative Service</td>
<td>13,255</td>
<td>94,089</td>
<td>5,901</td>
<td>47,956</td>
<td>10,580</td>
<td>70,510</td>
<td>29,736</td>
<td>212,555</td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>4,438</td>
<td>18,505</td>
<td>2,975</td>
<td>12,551</td>
<td>1,385</td>
<td>5,527</td>
<td>8,798</td>
<td>36,583</td>
</tr>
<tr>
<td>Perio-Endodontic</td>
<td>730</td>
<td>6,458</td>
<td>449</td>
<td>5,546</td>
<td>492</td>
<td>4,537</td>
<td>1,671</td>
<td>16,541</td>
</tr>
<tr>
<td>Crown &amp; Bridgework</td>
<td>1,945</td>
<td>47,034</td>
<td>1,220</td>
<td>46,645</td>
<td>517</td>
<td>8,742</td>
<td>3,082</td>
<td>102,421</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>1,366</td>
<td>106,235</td>
<td>858</td>
<td>61,577</td>
<td>32</td>
<td>2,559</td>
<td>2,256</td>
<td>170,371</td>
</tr>
<tr>
<td>Other</td>
<td>181</td>
<td>1,478</td>
<td>485</td>
<td>1,203</td>
<td>808</td>
<td>7,994</td>
<td>1,474</td>
<td>10,675</td>
</tr>
<tr>
<td>Totals</td>
<td>33,527</td>
<td>$305,804</td>
<td>17,648</td>
<td>$195,729</td>
<td>22,597</td>
<td>$119,580</td>
<td>73,772</td>
<td>$621,113</td>
</tr>
</tbody>
</table>
choice of dentist for that portion of the public who receive dental care as a benefit of employment.

In periods of great social change, the rights of individuals frequently are lost. There seems to be no reason why a person should be forced to change dentists or utilize a clinic facility merely because of a condition of employment, or because he does not have the option of determining how funds set aside for his dental care will be used. It is our belief that the Service Corporation with its broad professional representation gives the individual the best opportunity to keep this freedom. In California this has worked and it would seem to permit the dental profession to render the best care for the people under a democratic system.

California Dental Association Service
P.O. Box 3736, Rincon Annex
San Francisco 19, Calif.

REFERENCES

This review has been prepared at the request of the Health Services Committee of the American College of Dentists. The request is a result of the committee's interest in further exploration of the Dental Health Plan for the American People proposed by the College at its meeting in Philadelphia, October 15, 1961.

For purposes of this report it was impractical to review the dental programs for indigent people that are being conducted in each of the fifty states. Therefore, at the suggestion of the Health Services Committee, the states of California, Tennessee, Texas, and West Virginia were selected. These states were chosen because each has shown an interest in the dental problems of low-income families and each is trying to do something about it. Despite their common concern with the problem, there is considerable variation in the ways these states have selected to deal with it.

**The Problem of the Dentally Indigent**

The problem of dental care for indigent people admittedly is a formidable one, the solution of which is complex and not the sole responsibility of either the dental profession, the community, the state, or the federal government. There is not universal agreement as to which of these groups has the primary responsibility for leadership in developing treatment programs for these people. Probably the most disagreement occurs over the role the federal government has in dental programs for the indigent people of our society.

**Standards of Program Operation**

Since there are no standards that can satisfactorily be applied to all communities, dental needs and resources for meeting these needs must be determined through individual studies. Determination of

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Dr. Trithart is Director, Division of Dental Health, Tennessee Department of Public Health.

This review is a part of the Report of the Health Services Committee presented to the Board of Regents, October 1962.
who will be eligible for treatment must be made in the light of local situations. The approach to the problem will also vary, depending on what segment of the population is involved, who is going to provide the treatment, and who is going to pay for it.

It was originally intended that this review would be presented in the form of a table that would enable the reader to make easy comparisons between the states; however, the information that was available from these states could not easily be shown in table form. Also there was considerable variation in the scope of these programs. Therefore, each of these programs will be considered separately and, where possible, comparisons will be made.

**California Program**

*Date Started:* the program as it is operated presently was started in October 1957.

*Administrating Agency:* California Department of Social Welfare.

*Source of Funds:* state funds appropriated by the legislature which are matched by federal funds provided by the 1956 amendments to the Social Security Act.

*Cost:* approximately $12,000,000 per year for the present program.

*Eligibility and Type of Treatment:*

1. Complete dental care is provided to 77,000 children, ages 5-12 years, who are recipients of aid to dependent children. Recently, dental service has been extended to include children from birth through 17 years of age.

2. Limited care is available to recipients of old age assistance and aid to the blind.

3. Emergency care is provided to recipients of aid to the permanently and totally disabled.

*Dentists Participating:* care is provided principally by private practitioners who are members of the two California Dental Associations. Much of the care is contracted through the California Dental Association Service by the California Department of Social Welfare.

*Other Agencies Providing Dental Care:*

1. Department of Corrections
2. Department of Mental Hygiene
3. Youth Authority
4. Local Health Departments

Each of these departments provides dental care at fixed dental
clinics in various institutions. Generally, full-time dentists are employed.

**Tennessee Program**

*Date Started:* 1937  
*Administrating Agency:* Tennessee Department of Public Health  
*Source of Funds:* state funds appropriated by legislature and earmarked for dental public health activities by the State Health Department. These funds are matched by local sources such as civic clubs, school boards, county courts, and others.  
*Cost:* approximately $120,000 per year, half of which is allocated by the Division of Dental Health of the Tennessee Department of Public Health and half from local sources.  
*Eligibility and Type of Treatment:*  
1. Children, ages 5-14, who are unable to obtain dental treatment without depriving their families of essentials, are eligible. Eligibility for treatment is determined at the local level where each community has its own criteria for eligibility.  
2. Treatment includes fillings, extractions, and prophylaxes. An incremental dental program is encouraged by the State Health Department, but local autonomy on principles of policy permit considerable latitude of program operation.  
*Dentists Participating:* approximately 240 dentists in 70 of Tennessee’s 95 counties participate each year.  
These dentists are paid $6.00 per hour, although a number work gratis when funds are exhausted.  
*Other Agencies Providing Dental Care:*  
1. Department of Institutions—limited dental care is supplied patients in mental hospitals.  
2. Vocational Rehabilitation—limited dental services are available for selected beneficiaries when dental conditions present a barrier to employment.

**Texas Program**

*Date Started:* not known  
*Administrating Agencies:*  
1. Department of Education (Vocational Rehabilitation)  
2. Department of Welfare  
3. Department of Health  
*Cost:* not known
Eligibility and Types of Treatment:
1. Department of Education (Vocational Rehabilitation)—recipients must be at least 16 years of age, eligible for employment with no upper age limits. All types of dental service are provided when indicated for vocational placement.
2. Department of Welfare—limited dental service is provided recipients of public assistance when recommended by a physician in the treatment of chronic disease.
3. Department of Health—provides financial assistance to local health departments in six cities and nine other areas of the state. Beneficiaries are selected by locally established criteria and eligibility is limited to pre-school and school age children and expectant mothers. Services include fillings, extractions, prophylaxes, and topical fluoride treatments.

Dentists Participating: Number not known

It should be pointed out that the Texas Research League has just completed a detailed study of medical and dental needs of 319,000 public assistance recipients. It was found that 46 per cent of those surveyed had dental needs, and it was estimated that 44 per cent of all funds needed to finance a care program would be devoted to dental care. The cost the first year was estimated at $1.7 million, of which $362,000 would be spent in dental care. Of this amount, $115,000 was needed for dental care for recipients of aid to dependent children.

West Virginia Program

Date Started: 1947 or earlier
Administrating Agency: Department of Health
Cost: not known

Eligibility and Types of Treatment:
1. Beneficiaries are elementary and secondary school children, selected on the recommendation of school teachers and school or public health nurses. No means test is used.
2. Treatment consists of emergency fillings and extractions.
3. Much of treatment is provided in 18 local dental programs which are financed and sponsored jointly by state and local health departments and other agencies.

Other Agencies Providing Dental Care:
1. Department of Public Welfare—limited dental care is available to recipients of public assistance payments.
2. Department of Institutions—limited dental care is provided inmates by full- and part-time dentists.

3. Department of Mental Health—dental care is provided patients of Western State Hospital by a full-time dentist and at Spenser Hospital by part-time dentists.

4. Department of Education (Vocational Rehabilitation)—dental services are provided if necessary to insure the rehabilitation of the individual.

Summary

This brief review describes how four states are attempting to care for the dental needs of their indigent citizens. The American Dental Association in a long-standing statement of principles states that dental health should be the concern first of the individual, then the family, the community, the state, and the nation, in that order.

By definition, dental indigents are those unable to secure certain dental services for the preservation of their immediate health and welfare without deprivation of essentials for their family.

If the statement of principle of the American Dental Association is accepted, the sequence of responsibility for care of these people reverts to the community, the state, and the nation, in that order.

It appears from this review of the foregoing programs that many communities and some states are not accepting their responsibilities in providing dental services for the indigent people.

The California program, which is by far the largest with an expenditure of over $1,000,000 per month, is operated almost entirely by state and matching federal funds. The Tennessee care program is operated entirely with local and state funds. The Digest of State Dental Health Programs shows that Texas supports financially dental programs in six cities and in nine other areas of the state, but no mention is made of local funds in these programs. The Digest reports West Virginia supports 18 fixed dental clinics. No reference is made of local financial support to these clinics.

It appears, from the information that was available, that state and federal agencies have assumed a much larger role in dental care for the indigent than local communities and government. Furthermore, it appears there will be a continuation of this trend unless local communities stop abrogating their responsibilities to the state government, and the state government to the federal government.

This review revealed what seemed to be a lack of coordination
between clinical programs and preventive and educational programs. Quite often the clinical programs were administered by the Welfare Department or Education Department, and preventive and educational programs by the Department of Public Health. A treatment program can always provide a springboard for an educational and preventive program. Each one complements the other and the ultimate goal of each is the same—better dental health for the people.

Lastly, the dental profession itself could provide more active leadership in the planning and operation of these programs. Only dentists and dental hygienists are qualified by training and licensed by law to provide dental services. Therefore, organized dentistry has a very real stake in any dental treatment program. It also has the opportunity and the responsibility to provide leadership in the development and operation of sound, well-thought-out programs.

Division of Dental Health
Tennessee Department of Public Health
Nashville

BIBLIOGRAPHY

Teaching Machines in Dental Education

JAMES D. HARRISON, D.D.S., M.Sc., M.A.

The swift growth of knowledge in dentistry and the supporting sciences in the past ten years has added so many courses to the already over-crowded curricula of dental colleges that educational effectiveness has been impaired or crippled. Teaching methods that once were adequate now are outdated.¹

These problems have become so widespread and acute that dental educators must take two steps: They must shift some undergraduate material to the postgraduate level, and they must devise new procedures and techniques that will enable them to teach more in less time.

Several possibilities are being investigated to help answer these problems. Included are:

1. Revise the dental curriculum to eliminate unnecessary or outmoded materials.
2. Develop more and better teachers who can teach the same materials in less time.
3. Develop improved teaching procedures.

These possibilities singly or together, may help dental education. Let us look more closely at each proposal.

Many approaches have been suggested for revision of dental curriculum.² The length of the course could be increased or, more logically, the content could be reduced.

Nedelsky has suggested a rule-of-thumb 15 per cent cut in almost every course of the dental curriculum. This cut, in his opinion, would allow students more time for reflective study and give the faculty time for thinking, reading, and research.¹ This is but one of many suggestions being put forth by educators in the dental field to design a new curriculum or improve the present one.

Merril Shepro suggests the development of better teachers by more and improved "In-Service Education of Dental Teachers."³

Noyes and Batterson surveyed in-service programs in 1956; they

¹ Dr. Harrison is Assistant Professor and Director, Department of Crown and Bridge, School of Dentistry, St. Louis University.
noted that only 22 out of 41 reporting dental schools had any organized programs, and most of these programs were not well organized. The few well organized programs indicated subjects that were mainly concerned with teaching methods rather than the science of education and educational psychology.

Shepro feels that in-service programs would help improve dental education, but states: “A dentist with an advanced professional degree or specialty certificate has already spent seven to ten or more years in his academic preparation, and is reluctant to engage in any more formal education.”

In this investigation, I concentrated on the third possibility: That of developing more effective teaching procedures. Today, most dental teachers are using audio-visual methods to improve their teaching methods. More than half of the 47 dental schools are using closed circuit television and all are using motion pictures, slides, demonstrations, tape recordings, etc. These teaching methods incorporate Dale’s “Cone of Experience” in their teaching and learning experiences.

There is a relatively new development in educational methods that is referred to as auto-instructional or self-instructional programmed material. In searching the dental literature, I did not find any reports indicating that these types of materials have as yet been used in dental undergraduate education.

Self-instructional or auto-instructional materials may or may not be used with a mechanical device called a teaching machine. Fry states the teaching machine or self-instructional material has three basic functions:

1. It presents a unit of verbal or symbolic information visually, usually in question form.
2. Provides the student with some means of responding to each unit.
3. Informs the student as to the correctness of each response.

S. L. Pressey, in 1926, originated our present type of teaching machine, when he constructed an apparatus to “give and score tests . . . and teach.” W. G. Henry has stated: “The Art (or Science) of programming at the present time is still definitely in the metamorphic stage. One can, however, detect a thread of continuity of the correctness of his responses.”

A. A. Lumsdaine notes that teaching machines are variations of
the tutorial or Socratic method of teaching. In a step-by-step procedure they can present problems to be solved and exercises to be performed. He points out three important features of programming for self-instruction that other audio-visual media do not use. They are:

First, continuous active student response is required, providing explicit practice and testing of each step of what is to be learned.

Second, a basis is provided for informing the student with minimal delay whether each response he makes is correct, leading him directly or indirectly to correction of his errors.

Third, the student proceeds on an individual basis at his own rate—faster students romping through an instructional sequence very rapidly, slower students being tutored as slowly as necessary, with indefinite patience to meet their special needs.

In essence these auto-instructional programs provide a tutor-like arrangement. An important factor in using self-instructional material is the necessity for presenting the student with a good programming; therefore, self-instructional devices are only as good as the programming. Edgar Dale pinpointed this requirement when he wrote: "Presumably the able programmer will 'instruct with delight.' Dull fellows will write dull programs." A. A. Lumsdaine also feels that "... the design of these programs is the most crucial factor in the successful utilization of automated individual-tutoring methods."

The necessity for excellent programs is borne out by the self-evident fact that machines without programs are useless. Also, to use a self-instructional printed program, one must have created a carefully constructed step-by-step learning sequence which is the heart of this method.

For effective teaching and learning experiences to be developed from any medium one must promote reflective or critical thinking in the mind of the receptor. John Dewey has said that reflective thinking ... "in distinction from other operations to which we apply the name of thought, involves, (1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity."
This writer believes there is a danger of making the auto-instructional programmed material too mechanical; therefore, a programmer should try to elicit or develop reflective thinking in his own programs. In preparing teaching materials for self-instructional programming, it would seem that besides a step-by-step breakdown one should keep the three criteria of R. W. Tyler, for organization of learning experiences in mind:

1. Continuity—requires major concepts, ideas, and ways of thinking appear again and again.
2. Sequence—these concepts, ideas, and methods reappear in proper order in deeper, broader, and more complex levels.
3. Integration—the level of complexity increases as each concept or ideal is broadened.¹

These steps, however, are merely a guide for an analysis of provoking reflective thought as they fit together as a unit. To illustrate this point, one could consider the way in which the spark plugs of an automobile fire. They fire in sequence as a unit, and the motor runs in unison without one being able to distinguish that plug number 1 or 4 just fired. Such is the way thinking occurs, as if in unison without one being able to say phase number 4 just occurred. Dewey has said “... thinking is sequential and consequential.”¹⁰

The use of self-programming materials will be slow in developing in dentistry, but it will be a factor in solving some of the critical problems in dental education. Terminology, techniques, theories, and problems could be programmed for self-instruction with this medium. A teaching machine, per se could be used to show instruments, their names and their functions. This would free the instructor so that he could devote more individual guidance to each student. Teaching machines, though not new, provide a method of presenting knowledge to students in series of small steps that often are skipped over in a lecture.

The writer believes that self-instructional programs can provide dental educators a means for better and clearer organization of selected materials to be taught. To test this hypothesis the writer developed and tested a series of programs presenting certain parts of a course in Crown and Bridge Prosthodontics that seemed adaptable to the self-instructional method.
It is not my intention to go into the techniques of programming, since there are many methods and procedures involved. Briefly, however, there are two types of program formats. They are:

1. Linear: This type program is constructed by small step-by-step procedures that gives the student problems to be solved and exercises to be completed. This is sometimes referred to as the Socratic or Tutorial method of teaching.\(^8\)

2. Branching: This type program proceeds by giving the student several routes to follow in each segment. If he chooses the wrong route, he is re-directed with additional information to help him select the correct one.\(^11\)

The techniques of programming are thoroughly discussed in a recent source book edited by A. A. Lumsdaine and Robert Glaser.\(^8\)

Following is an example in part of a teaching machine exercise on hydrocolloid impression material. The instructions tell the student how to complete the self-instructional exercise. The first 7 frames are arranged in a linear format and the responses to Frame VII are not shown because the exercise is not complete.

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**INSTRUCTIONS**

**HYDROCOLLOID IMPRESSION MATERIALS**

The first frame is at the top of page one. Study the information in each frame and write in your response(s) in the blank(s) provided. After completing Frame I, turn to the top of page two and note the correct response(s) for Frame I. Compare with your response(s) and if you are correct, continue with the second frame to the right of the page. If you do not have the correct response, write the correct one above your response to Frame I, and continue with Frame II at the top right of page two. Proceed in the same manner to the last page of the exercise, then return to page one and work through the second band of horizontal frames, and so on to the end of the exercise. Proceed to page one.
Hydrocolloid is one of several elastic impression materials used to obtain an exact duplication of cavity preparations. Elastic impression materials are classified as reversible or irreversible. Rubber base impression materials are irreversible because the material cures or polymerizes by a chemical reaction. Hydrocolloid changes from a solid to a liquid and back to a solid by a physical change; therefore, hydrocolloid is a **physical** elastic impression material.

The first step, in preparing the hydrocolloid for use is to change it from a solid gel to a liquid sol. This step is of prime importance, since all other steps depend upon correct liquefying of the hydrocolloid to produce an accurate reproduction of the cavity preparation. Hydrocolloid must be boiled (212° F) for 8 to 10 minutes to change it from a solid ___ to a liquid ___.

The syringe in material is ready to be injected into the ___________n material is ready to be injected into the _______ directly from the storage bath; however, the tube material that is used to fill the impression tray must be cooled below 145° F. This is necessary for two reasons: (1) The material does not have enough body at 145° F to stay in the perforated water cooled tray, and (2) the material is too hot in large amounts to be placed in the mouth without burning the tissues.
FRAME II
Hydrocolloid contains a base material of agar (seaweed) and is made by suspending molecules of _gel_ with other aggregates in water. Since hydrocolloid can change from a solid to a liquid and then back to a solid, it is a **_reversible_** material. This is a _change_ rather than a chemical change.

To page 1. ← 2.

FRAME IV
A hydrocolloid conditioner is used to prepare the hydrocolloid for use in taking the impression. The conditioner has three compartments as shown in Figure I on page one. The tubes of hydrocolloid and the loaded syringes are placed in the first pot on the left side of the conditioner. The lid is closed and the timer is set at 30 minutes. This setting assures ___ to ___ minutes of boiling to properly liquefy the hydrocolloid.

To page 1. ← 4.

FRAME V
Prolonged boiling will not hurt the material. When the timer reaches 0 minutes, it will cut off and bell will sound. Transfer the tubes and syringe to the middle pot set at 145° F (Figure I). The hydrocolloid can be stored in this pot for 8 hours as a liquid _sol_ and be ready for use at any time. It must be kept in this pot for a minimum of 5 minutes before use.

The syringe material is injected into the _cavity preparation_ at 145° F.

To page 1. ← 5.

FRAME VII
Cooling the tray in the third pot of hydrocolloid unit to 114° F is called “tempering.” The hydrocolloid that is injected into the cavity preparation comes from the _syringe_. The temperature of this material is ___° F. The hydrocolloid in the tray is _"tempered"_ in the third pot of the hydrocolloid unit to provide ___ to the tray material and to keep it from burning the mouth tissues. It is cooled to ___° F for these two reasons.*

(* Responses: syringe, 145, tempered, body, and 114.)
CONCLUSIONS AND SUMMARY

The results of my study on self-instructional exercises were encouraging. A total of six exercises were used in the four classes of Crown and Bridge Prosthodontics. The over-all average of correct responses in the exercises was 92.6 per cent. The retention examinations showed an average of 89.0 per cent as opposed to an average of 86.7 per cent on several examinations (used as a control) given after the use of conventional teaching methods. Therefore, these results do show that teaching machine exercises offer an effective teaching tool that can be used with other teaching methods in dental education.

It is as effective as the conventional lecture method of teaching, and therefore, does save valuable instruction time. This time can be used to present other material or for more direct teacher-student contact.

The self-instructional exercises were found to be effective for learning in Crown and Bridge Prosthodontics when properly integrated into the course content and used with other teaching methods.

The students liked this type of exercise, but did not want the lecture-slide type of presentation to be replaced entirely. Some suggested that this type of exercise be a supplement to improve their learning of the subject concerned. Others felt that this was an excellent method to replace certain lectures to release valuable class time for obtaining other knowledge. Thus, teaching machine exercises aid both the instructor and the student.

Analysis and revision of self-instructional exercises is a continuing task and is necessary if results are to be improved.

The linear format arrangement was very effective. However, investigation in the use of the branching format should be made.

For further study in the use of programmed instruction in dental education I suggest:

1. That self-instructional programs be tried in the subject matter of other courses in the dental curriculum.

2. That courses be selected for complete programming to determine how extensively this type of instruction may be used in the various areas of dental education.
3. That experts in programmed instruction techniques be consulted on developing better programmed materials.

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REFERENCES

Notes on the Life of Horace Wells

RALPH W. EDWARDS, D.D.S.

I. A LETTER OF GARDNER Q. COLTON (1814-1898)

A letter that has a bearing on the life of Horace Wells is one that recounts some of the incidents of the bitter controversy over the discovery of anesthesia. The letter from Professor Gardner Q. Colton, the chemist, to Doctor Edward Bumgardner (1865-1953), a Lawrence, Kansas, dentist, was written on September 16, 1896, two years before Colton's death. It furnishes information on the Wells-Morton-Jackson dispute by one who knew the claimants and could relate true facts pertaining to their contentions. The issues in this unhappy controversy centered on who was the discoverer of anesthesia and who was the first to use ether as an anesthetic.

It will be recalled that Gardner Q. Colton was the chemist who made a public demonstration of the effects of nitrous oxide gas on December 10, 1844, in Hartford, Connecticut. Wells was in this audience, and observed that those who had inhaled the gas and were staggering about the stage apparently suffered no pain from injuries received from colliding with benches and other objects. Wells reasoned that, if no pain was experienced from these injuries, a tooth could be removed painlessly after inhaling this gas. An arrangement was made with Colton to prepare and bring a bag of nitrous oxide gas to the office of Doctor John M. Riggs the next morning. There, on December 11, 1844, in the presence of Colton, Wells inhaled the gas to the point of insensibility, and Riggs removed the tooth. Since Colton was a witness to this historic incident, he felt well qualified to serve as an apologist for Wells.

With remarkable clarity of mind for one of 82 years, Colton wrote the following letter in defense of Wells (Fig. 1):

New York Sept 16th 1896

Edward Bumgardner M.D., D.D.S.

Dear Sir-

Your favor of Sept 16th came safely to hand.

I send you a pamphlet [sic] which wrote several years since

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First and last pages of letter sent by Gardner Q. Colton to Edward Bumgardner on September 16, 1896.

New York, Sept. 16th, 1896
Edward Bumgardner, M.D., &c.

Dear Sir,

Your favor of Sept. 16th came safely to hand. I send you a pamphlet which meets several years' delays, which was prepared with great care as to details and statistics. I send a copy to each of the Professors in the College of Physicians and Surgeons of New York, and without exception they endorsed the correctness of my statements. Prof. James A. Sayre wrote me that if this clone statement had been made many years ago, it would have led to an anesthetic.

But enough.

Yours truly,

G. Q. Colton.
which was prepared with great care as to details and statistics. I sent a copy to each of the Professors in the “College of Physicians and Surgeons” of New York, and, without exception they endorsed the correctness of my statements. Prof. Lewis A. Sayre wrote me that if this clear statement had been made many years ago, it would have prevented much angry correspondence.

Since the 4th of February 1864, when I commenced to take autograph signatures of my patients, I have given the gas to a little over 192,000; and have never had an accident from its effects. Every name is numbered on the scroll.

I do not know any of the relatives of Dr. Riggs.

With cheerfulness I send you my photograph and autograph.

Also a little pamphlet on “Cheerfulness & Health” at the close of which is “A Dam Letter.”

I am nearing my 83d year. With thanks for your courtesy—Truly yours—G. Q. Colton.

Apparently the letter had been finished at this point and for some reason not mailed immediately. In September of 1896 Mrs. Elizabeth Whitman Morton, the widow of William T. G. Morton (1819-1868), published an article in *McClure’s Magazine* under the title, “The Discovery of Anaesthesia. Dr. W. T. G. Morton and His Heroic Battle for a New Idea—How Painless Surgery Began Fifty Years Ago.” Colton apparently read a copy of this article and evidently was not in harmony with the statements contained therein and decided to write additional comments to Bumgardner. The letter continues without a new date and without a salutation.

Since writing the foregoing, I have received and read Mrs. Morton’s statement. For facts, she has drawn on her fancy or imagination. There is no proof that Dr. Morton ever thought of anaesthesia till Dr. Wells called on him in December or January 1844. If Dr. Morton had been experimenting with Ether, why, in Sept 1846, did he go to Dr. Jackson to learn how to make the nitrous oxide gas, so as to test the truth of Well’s discovery?

That experiment with Ether, at the Hospital as described by Mrs. Morton, was not on the 30th of September 1846. His first experiment with ether was the extraction of a tooth from a boy by the name [of] Eben Frost.

The distinguished Professor and Surgeon, Dr. Willard Parker, in a letter, stated that any one discovering that nitrous oxide
would destroy pain, "the substitution of Ether for the gas does not constitute an original discovery."

After the death of Wells, Dr. Morton denied that nitrous oxide was an anesthetic, and therefore he, Morton, was the discoverer of anaesthesia! This was a virtual admission of Wells' claim.

Mrs. Morton states that the first operation with Ether was on the 30th of Sept 1846. Before Wells went to Europe in 1845 [sic], Wells gave Ether for a surgical operation, the removal of a small tumor from the scalp of a gentleman. So that in the use of Ether Wells antedates Morton by nearly two years!

One important fact must be borne in mind. The proceedings in Boston and the decorations given to Morton, all took place after the death of Wells, when, for thirteen years, the world was made to believe that Ether was the first and only anaesthetic discovered.

When I revived the use of the gas in July 1863 and demonstrated its anaesthetic powers; the whole subject was opened up to the world of investigation, and today, every medical, surgical, and Dental Journal throughout the country, gives the honor of the discovery of anaesthesia to Dr. Wells, save the Boston Medical Journal alone! The Academy of Sciences in Paris gave the honor to Dr. Jackson, because Dr. Jackson suggested Ether to Morton; and so it stands to this day. This action was taken during the thirteen years that the gas was forgotten.

It is a singular fact that Dr. Wells became deranged and committed suicide; Dr. Morton became deranged and committed suicide. He threw himself head foremost into one of the ponds in our Central Park. Dr. Jackson became deranged and was put into an Asylum, and died soon after coming out!

The last years of Morton's life he spent in traveling around the country, soliciting aid from dentists, physicians and others. At length a Western Medical Journal gave him a scoring, and said he was trying to "steal" the honor of the discovery of anaesthesia from Dr. Wells. This was after the gas had been demonstrated to be an anaesthetic.

But enough.

Yours truly

G. Q. Colton
II. FRAGMENTARY LETTERS OF CRAWFORD W. LONG (1815-1878)

The Clendening collection (University of Kansas Medical Center) on the history of anesthesia was started by the purchase in 1935, from an Indianapolis bookseller, of a collection that was founded by a Boston layman soon after 1846. The collection was bequeathed to a physician friend whose widow later sold it to an Indianapolis physician. The last owner, in parting with it, stipulated that his identity was to remain unknown. To make certain that communications in the collection that probably were addressed to him would not reveal his identity he had cut such data as the city, date, name of addressee and salutation from letters received from Doctor Long’s daughters, Frances Long Taylor and Eugenia Long Harper. His anonymity was preserved!

In this collection are some incomplete letters of Crawford W. Long and a letter of Frances Long Taylor which verifies the authenticity of her father’s letters. Since Mrs. Taylor’s letter throws light on the communications of Doctor Long and his letter writing habits, her letter is given first (Fig. 2).

I am gratified at your desire to have some relic of my Father. So much that was personal has been given away or placed at the Smithsonian, and Medical Museums in Europe and America, that it is difficult to find anything suitable for your purpose. My father was in the habit when writing on the subject of anaesthesia to roughly outline his paper or letter which he preserved, sending a finished correct copy. In this way we have much of his correspondence as he also saved the replies. From the reply to the scrap I enclose I learn it was written by Dr. G. L. McCleskey who was living near Jefferson Ga. at the time of the visit of the two men from Boston and who recalls the name of the one who operated upon a Miss Adeline McClendon for strabismus Dr. Bentley. The name of the Dentist he had forgotten. They remained in the town a week. I think 1844 was the time he gives as the time of their visit. So many Doctors when writing articles for publication have had access to these papers that a few have been lost others worn out. Written more than seventy years ago some have fallen to pieces where folded.
NOTES ON THE LIFE OF HORACE WELLS

Trusting this scrap of paper will prove satisfactory
I am

Very truly yours,
Frances Long Taylor

The "scrap" enclosed by Mrs. Taylor consisted of a sheet of ruled paper with writing on both sides. The holograph item was probably a rough draft of a part of the letter that was sent to Dr. G. L.

Fig. 2. A letter from Frances Long Taylor, the daughter of Crawford W. Long.
McCleskey (*vida supra*). In it reference is made to Wells and Morton (Fig. 3).

The evidence to establish the operations performed after 1842, was obtained to show that they were continued at the time Dr. Wells claims to have used Ether as an anaesthetic [sic]. Permit me to say, here, that a Dentist and a Surgeon from Boston Mass were in Jefferson Jackson Co in 1942, 3 or 4 and remained for several weeks. The dentist practiced his profession & the surgeon operated from strabismus—I have always thought it probable, that the dentist was Morton or Wells, & that a knowledge of my use of Ether in surgical operations was obtained at that time.

I have not been able to ascertain the name of the dentist, if you know the history of Dr. Wells, you can possibly ascertain whether he travelled South at the time mentioned.

Here Long emphasized that he had used ether prior to and at the time Wells claimed to have used it. Long cannot be censured for believing that a physician and a dentist visiting in Jefferson, Georgia, after he had successfully used ether for a surgical operation, had learned of his discovery and had taken that knowledge with them and exploited it as their own.

However, there is no evidence to show that Wells, with the exception of his trip to Europe thirteen months before his death, ever left the New England states in his travels. Of Morton no knowledge is available to show that he ever visited Georgia.

On the reverse side of the holograph the comment of Long is critical of some statements of Doctor Jackson. It follows (Fig. 4):

On 3rd and 4 Pages of Dr. Jacksons communication are some inaccuracies—Dr. J. Was mistaken in saying that the documents he saw in my hands were copies, the originals having been sent to Dr. P[aul] F. Eve & lost.

Only a few of the certificates obtained were published & only then were lost, the others were returned to me—Dr. Eve considered those published sufficient it was the published copies in the Journal that were exhibited to him—

The principal error in the communicat[ion] is when he gives
to establish the operation in India. Because the evidence to establish the
surgery is performed after 1842, we are convinced that they continued at
least 1842 to 1843, closing to have
and ether as anaesthetics.

Permit me to say, hardly, that a
dentist, and surgeons from Boston
were in Jefferson Medical Co.
in 1843, 3 or 4
and general use.
The dentist introduces his profession
and the surgeon operated for
thousands, I have always
thought it probable, that the dentist
and motion of Wells, I think a
knowledge of my use of ether
in surgical operations was obtain
at that time.
I have not been able to ascertain the
name of the dentist, if you
the history of Dr. Wells, you can possibly
ascertain whether he travelled with
Dr. Crawford W. Long.

Fig. 3. Fragment of letter written by Crawford W. Long.
On 3d Page of Dr. Johnson's Communication, an error in dates occurred—Dr. G. was mistaken in saying that the documents in his hands were old, the originals having been lent to Dr. F. by me. About six letters have been lost, but others were returned to me—Mr. E. considered them published sufficient, it was the published copies in the Journal that were exhibited to him.

The principal: in the Communication is when he gave the name for my not notifying him of my discovery. By name for not publishing, article in my published account of the discovery. I might have added, that I had no

Fig. 4. Reverse side of previous letter.
Pic. 5. Another fragmentary letter of Crawford W. Long.

Part of letter written in Dr. Long's own handwriting as testified by his daughter, Mrs. Frances Long Tyler.

Notes on the Life of Horace Wells
the reason for my not notifying him of my discovery—my rea-
sons for not publishing earlier, were given in my published ac-
count of the discovery—I might have added that I had no

The last of these incomplete letters of Doctor Long is one that is
strikingly similar in content to the first two. Again he emphasized
the period of his operations under ether anesthesia and his sus-
picion that Wells or Morton was the dentist who visited Jefferson,
Georgia, in 1842 or 1843. It is likely that these fragmentary letters
of Long were preliminary drafts of the letter that finally was sent to
Doctor McCleskey. The last letter follows (Fig. 5):

on whom that operation was performed—He omits the second
operation, performed on the same person, J. M. Venable on the
6th June 1842—
Dr. Jackson styles J. M. V. a boy—probably from the fact that
at the time he was a pupil in the Jackson Co academy He was
from 21 to 25 years old as were a large number of the pupils at
that time in the academy—
3rd operation (Dr Jackson 2nd time correct—Most of the depo-
sitions & letters obtained were procured to establish these oper-
a tions—The evidence to establish the operations after 1842
was only obtained to show that the operations were continu[ed]
up to time of Dr. Wells claim to have made a discover[y].
Permit me to say here that I have had a strong belief, that Dr
Wells or Morton, were in Jefferson Jackson Co Ga in 1842 or
three, while there was much talk of my operations & obtained
the knowledge of anaesthetic properties of Ether at that time—
In one of these years, there was a Dentist & an operator for
deform[ities] & diseases of the eye, from Boston. Their names
I have been unable to obtain.

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The Role of Research in Dentistry

DAVID L. RUSSELL, D.D.S.

Progress in any field has many facets, but at its foundation lie the accumulation, dissemination, and utilization of new knowledge. Even though these factors are perhaps of equal importance, it is obvious that without first accumulating knowledge, dissemination and utilization would be impossible. The accumulation of new knowledge is dependent largely upon investigative activities, which are called research.

There are undoubtedly almost as many concepts concerning the term research as there are individuals who would attempt to define it. Research might be described as systematic experimentation designed to extend the boundaries of knowledge. Greep defines research as “simply the logical weighing of evidence and formulation of a hypothesis followed by careful experimentation, observation, and interpretation.”1 President Eisenhower defined research as “a great adventure of the human mind. It is the search beyond the present horizons of knowledge for a greater understanding of nature and for a steadily increasing illumination of truth.”2 A most appropriate and colorful definition was given by William J. Gies, an ardent advocate of dental education and research, who described research as “the mainspring in the chronometer of science.”3

Much has been written concerning research and some of its more important accomplishments. To the layman, research is a mystic force that produces miracles and wonder drugs; in fact, many laymen are under the impression that all discoveries are made in a blinding flash. Although it is true that there is an element of chance in research and that occasional solutions to age-old problems have appeared suddenly, the bulk of useful knowledge provided by research has been the result of thorough investigation by trained people. Greep has compared research to gambling: “One places a bet on an assumption, and he has to win now and then to be successful. In research as at the track, the more one knows about the horses, the

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more wisely one bets on the assumption."4 Perhaps a more succinct expression of this concept is Louis Pasteur’s famous quotation, “Fortune has more often than not favored the prepared mind.”5

Research has contributed generously to man’s well being and has increased his material possessions. It has enabled him to live a healthier and longer life, and has furnished increased opportunities for the enrichment of his social, intellectual, and spiritual life. However, research is not something that just happens. It is a process which demands almost an unlimited supply of facilities, support, and trained personnel. The high cost of research has prompted the following statement: “A research scientist is a luxury that can and must be afforded by an advanced nation such as ours, whereas in Africa, a nurse, an elementary school teacher, a technician—these are the luxuries.”6

It is estimated that since 1776 the United States has spent 39 billion dollars for research.7 It appears obvious that there is a high degree of correlation between the percentage of the national income that is spent on research and the rate of growth and development of the national economy as a whole. An active research program is necessary to the vitality and expansion of all business, industry, and professional work. The profession of dentistry has certainly benefited from the many new discoveries which were directly or indirectly the result of scientific research.

Even though there have been in the past many important discoveries through dental research, an organized dental research program is of relatively recent origin. One of the first efforts to initiate and develop a dental research program occurred during the third meeting of the American Dental Convention in 1857. The two exponents of the plan were Jonathan Taft and Alvan Blakesly. They believed that there was a definite answer to the problem of diseased teeth and that the answer was associated with the effect of foods upon the teeth. They proposed that the convention “institute a fund and employ one or more competent persons, whose time should be occupied in the analysis of various grains and vegetables in their natural state and after they were cooked.”8

The idea of initiating a research program pleased many of the attending dentists; however, there were some objections. One dentist contended that Dr. Johnson’s Chemistry of Common Life contained “all of the information desired on this subject.”9 Another
participant suggested that “the idea had come too late. Now the field had been gone over; the science of chemistry had been very fully developed with reference to every branch of art.” One advocate of the resolution stated the purpose of the program “was to open up the hidden treasures of the collateral sciences and make them tributary, more than hitherto, to the dental specialty, and to bring to full view, things that have as yet been seen only in the dim and uncertain twilight as well as to bring forth, from total obscurity, agents, processes, and principles that shall develop our young science with far greater rapidity and uncertainty than heretofore.”

Conversely, a foe remarked, “shame on the men who could vote for such a resolution. Have we come so low as to be mere mechanics, leaving the scientific part of our work to some man or other who does the thinking for us for dollars and cents.” It is to the credit of the dental profession that the resolution passed. However, no action resulted because of a lack of financial support.

Although the first attempt to initiate an organized dental research program failed, the idea spread with time. The principal reason for slow growth of dental research was the lack of monetary support. Dental health did not have the glamor associated with comparable medical health problems, and thus did not receive an appreciable amount of monetary support from the various philanthropic organizations. However, both dentistry and medicine began to realize the necessity of federal aid to increase the scope of their research programs.

At the Dental Centenary Celebration in 1940, Arthur H. Merritt, then President of the American Dental Association, made the following statement: “I now have the privilege of making one of the most important announcements that will have been made during our Centennial Celebration, indeed one of the most important that perhaps will have been made in dentistry in a hundred years.” Dr. Merritt went on to announce the introduction of a bill into the United States Senate to provide funds for a six-year program of dental research. The bill provided for an appropriation of $75,000 annually, with a $10,000 annual increase for five years. This was the beginning of the “golden era of dental research.”

In 1948, a proposal was introduced which concerned the construction of a $4,000,000 building to house the National Institute of Dental Research. The building was formally dedicated on May
It is interesting to note that the total budget for NIDR for the fiscal year of 1961 was $13,350,000. It is obvious that dental research has come of age and will continue to contribute generously to the solution of dental health problems.

Generally speaking there are two ways to cope with the problem of dental health. They are prevention and treatment. In the past, dentistry has relied heavily on the latter while largely overlooking the former. However, beginning soon after the turn of the century, preventive methods were recognized and an enthusiasm for utilizing such methods in dental practice began in the 1930's. The preventive methods at that time consisted principally of prophylaxis and home care, and the results were generally unsatisfactory. Dentistry now has a means of preventing a large percentage of dental caries through fluoridation. Other problems of dental health, such as periodontal disease, oral neoplasms, and malocclusion, still need to be solved.

Countries other than the United States have also encountered the problem of providing dental health for their constituents. New Zealand has attacked the problem by initiating a program using dental nurses in the schools. An article was written recently concerning the value of the New Zealand dental health program, but no mention was made of dental research. Here, it appears, lies the difference between the approach to the problems of dental health in New Zealand, and in the United States. New Zealand continues to concentrate upon repairing the damage, whereas the United States is endeavoring, through research, to prevent the damage. This is not to say that American dentistry has discarded the use of auxiliary personnel in the treatment of oral disease; increased manpower is essential. However, in this country, hope exists that a long-range research program will contribute materially to the prevention of dental disease, and thus decrease the necessity for large increases in the number of trained personnel.

A public which is becoming more health conscious will expect dentistry to solve the problems of dental health. Obviously, dentistry cannot cope successfully with this situation solely by training more dentists. An increase in the number of dental practitioners, an increase in the efficiency of dental practice, and a wider use of auxiliary personnel offer only partial solutions. The only real hope lies in the prevention of dental ills.

An increase in preventive methods necessitates an increase in both
basic and applied research. Wider utilization of basic scientific knowledge is necessary if dental research is to move ahead. Dentistry must broaden its base of research beyond problems bearing directly on the oral cavity. It should include investigations in such fields as genetics, embryology, epidemiology, pharmacology, growth and development, and aging.

The trend to accept research and prevention as the answer to dental health problems will not immediately eliminate oral disease; changes for the better will come slowly. In 1958, Greep stated, “Research has not yet altered the nature of dental practice to a significant extent... Research can and will revolutionize dental practice. No one can predict when the breakthrough will come nor at what point it will occur. To sense the vigor in the present explorations is to feel assured that we stand on the threshold of a great era in dentistry.” Even though almost two billion dollars are spent each year for dental services, the dental needs of the nation consistently accumulate. The number of dental practitioners has decreased from 58 to 46 per 100,000 persons, and by 1975 it is expected to fall to 43 per 100,000 persons. These factors have encouraged the emergence of prevention as the prime target for dental research.

The progress of dental research has had a decided effect on the practitioner of today as compared with the dental practitioner of a century ago. In 1958, E. L. Hoskins reported that 50 to 80 per cent of the dental supplies sold were products that were unknown five years before. With the discovery and utilization of ultra-speed equipment, the practitioner can serve more people and provide increased dental care to his community. Mechanical and material improvements have greatly enhanced the quality of restorative dentistry. The practitioner did not have these aids fifty years ago, and they are all products of basic or clinical research.

Research not directly associated with the basic sciences or the clinical aspects of dentistry also has its effect upon the dental practitioner. Various studies initiated by individuals and organizations have provided the practitioner with facts which are useful in locating a practice, in organizing his practice to operate at maximum efficiency, and in the utilization of auxiliary personnel. The many socio-economic problems encountered by a dental practitioner may affect his practice as much or more than his ability to diagnose, treat, and prevent oral disease. The importance of research to the socio-
economic growth of a dental practice is indicated by the increasing number of articles on such problems appearing in dental publications. The dental practitioner should regard such information as an attempt to help him realize the utmost success and enjoyment from his practice.

Just as research has made its impact felt on dental health and dental practice, it has also had a profound influence on dental education. Harry Lyons stated, "All that we teach in dental education is the product of investigation or research—from the early discovery that children have twenty deciduous teeth—to fluoridation—to high speed tooth cutting instruments and techniques, etc. Research has given and continues to give dental education all of its substance and its erudite complexion."25

One hundred and twenty years have elapsed since the first dental school graduated a class of dentists after a course of only four months. Many improvements have been made since that great event in the history of dentistry. The requirements for a dental degree have increased both in length and complexity. In 1840, there were no preliminary requirements for entrance into dental school. Now not less than two years, and in many instances four years, of predental undergraduate work are required for admission. Today, four years instead of four months are required to receive a dental degree.26 The complexity of dental education has increased with the development of new knowledge—knowledge which has resulted from research and which has, in turn, greatly improved the standards of dentistry.

In its infancy, dental education consisted largely of teaching students technical and mechanical procedures. As the dental profession matured in knowledge and stature, it became apparent that more emphasis should be placed upon the biological aspect of dentistry. The earliest attempt to evaluate both the technical and biological aspects of dentistry is found in C. O. Cone's Report on Practical Dentistry, written in 1848.27 However, the mechanical phase of dentistry continued to be the main objective in dental education and has continued to be so in many of our present-day schools. The results of the excellent techniques developed through applied research and the incorporation of these techniques into the dental curricula gave this country the technical leadership in the profession of dentistry which it has enjoyed to this day.

Even so, the biological aspect of dentistry was not completely ig-
nored. In 1881, Truman W. Brophy, reporting on behalf of the American Dental Association Committee on Dental Education, stated, "We believe that the cause of dental education would be greatly advanced if learning of mechanical dentistry were not made compulsory in our colleges and the time now donated to it were spent in the pursuit of medical studies." It should be pointed out that the advocates of this concept felt that mechanical dentistry should be taught during a preceptorship period and not during regular college work. It is apparent that dentistry was even then veering away from the domination of technical skills toward a greater emphasis on an understanding of the biological aspects. According to Robinson, "Dentistry has been led out of the cul-de-sac of technical over-emphasis. Dental education has realized the blind alley into which it has stumbled. The dental curriculum has been adjusted and re-adjusted in an effort to afford better training for dentists. Research has directed this development and in turn has been developed by it." Few would deny the important role which research has played in the development of dental health, practice, and education. Neither would anyone deny that much remains to be done. What specifically, then, will be the role of research in dentistry in the future? Perhaps this can best be answered by determining the goal of the profession of dentistry. Asgis stated that "The goal of the dental profession is to prevent oral disease and to promote oral health in the interest of the health and welfare of the public." Kauffmann wrote, "The supreme ideal of the dental profession should be to eliminate the necessity for its own existence." Ideally, then, the role of research should be able to enable the profession of dentistry to accomplish these goals.

Dentistry in the past has had several different goals. Initially the objective was the relief of pain, largely achieved by the extraction of the offending tooth. Next in order came emphasis on the restoration of teeth, the elimination of infection, and the control of oral disease. Research has attacked the problems individually and has provided either partial or complete solutions for each. The immediate problem of the future is the prevention of dental disease. It is to be expected that research will meet the challenge as dentistry continues the battle against dental disease in its role as one of the leading health professions.
The successes which have dotted the progress of dentistry in the past brings to mind the comment of Charles W. Eliot in 1924, then President Emeritus of Harvard University, when he said, "I want to congratulate you on the greatly improved standing of the dental profession among the professions. That is one of the most striking changes in public opinion that I have witnessed during my seventy years of observational progress. . . . I do not think I have seen during my seventy years of observation of the professions and the means of training them any change so great as that which has taken place in regard to the dental profession and to the means of training dentists." Dentistry also remembers the statement of Charles Mayo in 1913, who said, "The next great step in medical progress in the line of preventive medicine should be made by the dentists. The question is, will they do it?" Dr. Mayo answered his own question in 1935 when he said, "They have done a good job of it in the ensuing twenty-one years." Also, in 1935, Sydney R. Miller, distinguished Johns Hopkins professor stated, "Dentistry has steadily advanced into extensive fields of both knowledge and skill, of research, and of educational perfection, to a point where it now justifiably claims the right of self-determination and autonomy."

In 1958, Lyons wrote, "Upon the stimulus of dental research, dental education should orient itself toward the philosophy that disciplined intellectual power as the greatest force among men. Theories come and go; concepts change under varying influences; dated facts become outdated; but disciplined intellectual power will determine the ultimate stature of the dental profession. For this great force dental education must employ and profit by the full impact of research.""37

This, then, is the role of research in dentistry. Only time will tell whether or not the continuing challenge for the ultimate elimination or control of dental disease will be met by the dental profession.

REFERENCES

2. Ibid., p. 274.
9. Ibid., p. 117.
10. Idem.
11. Ibid., p. 118.
22. Ibid., p. 284.
28. Ibid., p. 167.
Selecting an Editor

A Guide for Dental Societies

T. F. McBRIIDE, D.D.S.
RALPH ROSEN, A.B., D.D.S., and
ISAAC SISSMAN, B.S., D.D.S.

As long ago as 1955, the Committee on Journalism of the American College of Dentists suggested that a “Guide in the Selection of a Dental Editor” be prepared, published, and made available to the officers, particularly the secretaries and executive secretaries, of dental societies and other interested groups.

The quality of a dental periodical depends to so large an extent on the capabilities of its editor, that the selection of an editor is one of the most important tasks that faces a dental organization. The Committee agreed that a brochure on the selection of an editor was appropriate and would prove helpful to dental societies.

The preparation was delayed until certain data concerning editors were available from “A Survey of Current Dental Periodicals.” Groundwork was laid in 1960 with the publication of “Selection of an Editor.” (See References.)

In 1961 the Committee delegated the writing of this brochure to a subcommittee consisting of representatives of the American College of Dentists (T. F. McBride, editor of the Journal); American Association of Dental Editors (Ralph Rosen, editor); and the Council on Journalism of the American Dental Association (Isaac Sissman, chairman). Dr. McBride served as chairman.

The publication of a dental organization—newsletter, bulletin, or journal—can be a most vital activity. As a record of accomplishment, as a forum for the declaration of policy and the projection of activities, the publication is a reflection of an organization’s vigor. The selection of the key man—the editor—who will spark and guide this activity is of prime importance.

BACKGROUND, QUALIFICATIONS, RESPONSIBILITIES

He should be a dentist who has had a professional experience—general or specialized—in which he has demonstrated competence.
SELECTING AN EDITOR

He should have shown an interest in writing and have been at least a sometime writer for dental periodicals.
He should be a constant and avid reader, and one who has read widely.
He should have shown an awareness of and interest in the broad problems of the profession.
He should be a desirable representative of his profession and have the esteem and confidence of his colleagues.
He should be able and willing to devote the necessary time to, and enjoy handling the tedious tasks of editorship.
He should have a high respect for the correct and precise usage of words.
He should be a continuing student with the urge and ability to communicate ideas.
He should be able to examine every aspect of dental mores, reach a decision, and advocate his decision regardless of its popularity or lack of popularity.
He should realize the importance of his editorials, and that it is his responsibility to be an opinion maker and to lead those less informed and less able, or reluctant, to think.
He should be able to write interesting, meaningful editorials that inform and interpret, that convince and influence his readers.
He should select all material that appears in his publication. He should edit this material so that it appears in clear, grammatical language. He should plan the physical appearance of his publication so that the material in it is attractive to the eye and easy to read.
In short, as Harold Hillenbrand pointed out in a paper read at the 1961 Conference on Dental Journalism, an editor (1) should be a good dentist; (2) must be a reasonably good administrator; (3) should have an adequate political sense; (4) must be a reader; and (5) should have the ability to write reasonable prose and the ability to judge prose.

METHOD OF SELECTION

It is suggested that an editor be appointed by a governing body of the society. This seems more equitable than leaving the appointment to either the president or the general membership.

TENURE AND STATUS

It is suggested either that (1) an editor be appointed for a period
of three or five years or (2) that he be re-appointed annually with no time limit.

Regardless of the tenure set-up, societies should consider the advisability of continuing an editor in office for a longer time if his performance and capabilities warrant it.

The Council on Journalism of the American Dental Association has recommended that the editor be a part of the administrative body of the society. Whether active, ex-officio, with vote or with no vote, would be determined by the society; but he should be a member of the official society. We concur in this.

REMUNERATION

It is suggested that an editor receive an adequate and fitting remuneration for his services to the society—call it an honorarium or, if high enough, a salary, but he should be paid.

ASSISTANCE

1. It is suggested that an editor should not attempt to function as a one-man staff. He should have adequate assistants who will enable him to carry out his duties promptly and efficiently.

2. An editor must be aware of the necessity to so train some of his editorial assistants that they could qualify as his successor at such time as it becomes necessary for him to leave his position. Too often dental societies have to start with untrained, inexperienced young editors, when an editor leaves.

3. It is suggested that a dental society provide adequate secretarial assistance for its editor, and to finance such assistance.

A FEW SELECTED REFERENCES


This is a translation of the papers and investigations by Scandinavian authors, Reidar Selmer-Olsen, Fred Walberg, Olav Slagsvold, Kalvei Koske, Arne Björk, Svend Smith, Allan Hellgren, Kaare Reitan, Karl-Axel Gränse, and the editor, Anders Lundstrom. It deals with the prenatal and postnatal development of the face and dentition, deglutition and speech, the incidence of malocclusion and its etiology, reaction of tissue to treatment, and the methods of orthodontic treatment.

The summation of growth and development, and tissue changes, covers material compiled from literature and the author’s experience, and is covered only occasionally in textbooks. The bibliography is excellent. Normal and abnormal development of the dentition is portrayed concisely.

A sound relationship between growth and maturation and treatment is given. The treatment approach shown illustrates the methods employed by the Scandinavian orthodontists and as such is more nearly eclectic in approach than much of the single system approach as used in the United States. The book thus has excellent possibilities as a source for growth and development and European appliances.

L. B. Higley in his foreword suggests its use at the undergraduate teaching level. He also emphasizes the thought, made by the authors and so often relegated to minimal importance by United States orthodontists, that it is necessary to recognize the presence or absence of a deformity, and to project growth and development in the patient so as to apply the right appliance for its correction, at the right time. More of this sort of thinking is needed in orthodontics in this country.

William S. Brandhorst, St. Louis


This is a new textbook covering broadly the orthodontic field. The author makes interesting use of history and the way in which the concept of the times influenced the development of orthodontics.

Presented are definitions, growth and development, etiology, diagnostic procedures, and appliance therapy. Considerable space is given to limited treatment—preventive, interceptive techniques, and serial extractions.

Of particular interest is an appendix of audio visual materials now available on orthodontics. Illustrative material in this text is excellent, many photographs are used, drawings are brought in where appropriate, and charts are used to develop concepts. There are diagrams of muscle pull direction and relationship to both structure and function. The approach to treatment covers many appliance systems. Attention is given to office procedures and economics.
The bibliography is excellent. Particular attention is given to habits and their control.

This text is to be recommended because of its breadth, clarity, and up to date review of present orthodontic thinking.

William S. Brandhorst, St. Louis

ROENTGENOGRAPHIC CEPHALOMETRICS. By J. A. Salzmann, D.D.S.

The editor has presented a dynamic account of the proceedings of the second research workshop conducted by the special committee of the American Association of Orthodontists. At the very outset the importance of this publication must be obvious with the impressive list of participants which sounds like a "Who's Who" in orthodontics.

As the first workshop held in 1957 was productive in organizing information in growth and development and establishing certain criteria for cephalometric evaluation, so this becomes a sequel. After a short résumé of the first workshop the objectives and reports of this one are very clearly spelled out.

The work has been divided into three parts and all of the reports, although concise, are thorough and exhaustive. The first group deals with relative merits and changes of the different components of the roentgenographic cephalometric analyses synthesized at the first workshop which also includes landmarks. In addition, it deals with the workability and applicability of "norms" and standards evolved by the various workers in this field.

The second group deals with the various methods of superimposing serial lateral and frontal cephalometric tracings in an attempt to better understand growth and developmental changes. The third group goes into the aspect of equipment and technical requirements for research as well as adapting these studies to other fields of dentistry and medicine.

To round out this book the editor has assembled some very pertinent papers in the appendix on such subjects as the hazards of dental radiography, new methods used in roentgenographic cephalometrics, and even a chapter on statistical procedures for orthodontists.

This publication is not only a must for the educator, but holds interest for every orthodontist, and should be a valuable reference book in his library.

Milton B. Hirsch, Cleveland


As stated by the authors, this is a book "designed as a truly modern guide to successful dental prosthesis for teachers, students, and clinicians." It is a primer reviewing the basic sciences, and a textbook setting forth a method of making complete dentures.

The organization of this book is excellent. It follows a logical line of reviewing basic sciences, then the diagnosis, and finally the technique of constructing the complete dentures. Just as completing the dentures is not the end of dental service to the patient, so it is not the end of the book. Chapters are devoted to adjustments, relining dentures, and immediate dentures.

To help explain and show the methods described, 309 excellent pictures and
drawings are used. The *Glossary of Prosthodontic Terms* is included at the end of the text. All of this is printed on a good quality paper and is well bound in a hard cover. It should be a useful and permanent addition to any dental library.

The second edition has a welcomed enlargement of the chapters relating to the management of posterior teeth. It is made up of three chapters and covers the methods of setting anatomic posterior teeth and cuspless posterior teeth. Many readers will find this of great value. Dental teachers will find this an excellent reference source to aid them in their teaching.

Although there may be some disagreement with various procedures or statements made, the overall impression is one of a well written book which thoroughly covers the subject. One of the things which impressed me the most was the constant reference to the anatomic structures as they affected each of the procedures in constructing dentures.

I believe anyone who reads this will have his memory "jogged" if only to remind him of things which he knows but has forgotten or did not think to apply to a given situation.

An excellent job is done providing a basic primer for students and a reference for those more advanced in the art of constructing complete dentures.

*James B. Boucher, Columbus, Ohio*


This book is a concise summary of embryology and oral histology. It will be of particular value to graduate students in dentistry who are in fields other than oral histology, and it should be of interest to the general dental practitioner. For students in areas of histology other than oral histology, and for those in related fields of medicine, the part of the book which covers the microscopic anatomy of oral tissues should be a helpful source of quick reference.

This synopsis would not lend itself to use as a textbook for beginning students in oral histology, because a sound background in embryology and oral histology is necessary before the book can be used effectively for other than reference.

The text is well written, and the various topics are so arranged under separate headings that information is easy to find, easy to understand, and easy to remember.

The book is divided into two sections: (1) oral embryology and (2) oral histology; and it includes in summary form all of the information usually covered in the study of these subjects.

The discussion of embryology includes briefly the development of the embryo and of the face and oral cavity; the development and growth of the jaws; the formation of tooth germs; the production of enamel, dentin, cementum, and pulp.

The discussion of oral histology covers the microscopic structure of enamel, dentin, pulp, cementum, periodontal ligament, bone, alveolar process, soft oral tissues, and oral glands. In the last chapters are discussions of tooth eruption and tooth shedding, and the histology of the temporomandibular joint.

The really outstanding feature of the book is the excellence of many of the illustrations. The photomicrography is unusually good, and the histologic sec-
tions from which many of the pictures were made are of a quality not often equaled. It is a little regrettable that the format of the book did not permit some of these beautiful photomicrographs to be produced in a larger size. Also, additional explanation in the captions might be helpful. The book, which the author rightly calls a synopsis, is an excellent piece of work, and the author is to be congratulated.

Dorothy Permar, Columbus, Ohio


This book was written to serve as a teaching aid and a practical guide for dental students, general practitioners, and dental teachers. This intent has been realized by the authors who demonstrate clearly their ability to discuss fully all endodontic problems, both from an academic and a clinical aspect. They are specialists in their respective fields, and they incorporate in this text the knowledge and opinions of others similarly endowed. They have successfully evaluated the merits of various techniques and teachings advocated from time to time, and to judge them in the light of tried and proven scientific criteria. Original information and statistics, collected by the authors and hitherto unpublished, have been included in this edition. In all, three new chapters have been added, not the least of which is Chapter 11, that describes and pictorializes the structural, dimensional, and physical characteristics of root canal instruments. The chapter on questions and answers is extremely informative and comprehensive. The chapter on prescriptions, formulas, and medicaments has been brought up to date to keep abreast with the newer knowledge acquired in this ever changing field.

Length of chapters conform to their importance and the presentation is logically arranged. One hundred pages have been added and their size enlarged. There are 465 figures, 61 tables, and a complete index to tireless reading. The binding is sturdy. The authors have presented the material plain enough to be understood by the beginner and comprehensive enough to appeal to the specialist. There is nothing in the text with which I can take issue, and I most emphatically recommend it for those interested in endodontics.

W. Russell Kampfer, Columbus, Ohio


This text was written as a guide for pain control in dentistry. The author has accomplished this difficult task admirably. The book is an excellent reference for both student and practitioner alike. It is a necessity for anyone who wishes to offer painless dentistry to his patients. Photographs and drawings are used to good advantage throughout the book. The reproductions are of good quality. The drawings are done in great detail and add significantly to the printed text, thus giving the reader the advantage of having the written word placed into a descriptive picture. An additional feature is the use of chemical formulas for the drugs described.
Where possible, the author has used tables and outlines to further emphasize the important features of the text. This enables one to find valuable information at once, and they will be referred to many times by the conscientious dentist.

The chapter on the trigeminal nerve will serve as a complete reference for the anatomy and neurology of this important structure. The chapter is outlined well. Thoroughness makes it an outstanding contribution to dental literature.

The chapter on the medicolegal aspects of this important part of dental practice serves as a guide to everyone who uses local anesthesia. Having an author for this chapter who is a dentist and an attorney (Neil A. Harper) makes the information more meaningful. The practical information given here can prevent unnecessary embarrassment to the dentist.

The second edition has been expanded to include the new drugs introduced for use in this field. This text is complete, concise, and well written.

William R. Wallace, Columbus, Ohio

ADHESIVE RESTORATIVE DENTAL MATERIALS. Edited by Ralph W. Phillips and Gunnar Ryge. 1962. Illustrated, 216 pp. (Publisher and price are not indicated.)

This is the paperbound "Proceedings from a workshop sponsored by the Dental Study Section, National Institutes of Health, and supported by a grant from the National Institute of Dental Research." The workshop was held at Indiana University Medical Center, Indianapolis, September 28 and 29, 1961.

Although, in general, this publication will not find immediate or direct applicability to clinical practice, it will prove of great interest to persons engaged in research—particularly on dental materials. However, persons with advanced training and special knowledge of mineral chemistry, for example, will be able to detect significant errors in one of the presentations.

Inquiries about procurement of copies of these proceedings should be directed to Professor Ralph W. Phillips, 1121 West Michigan Street, Indianapolis.

Duncan McConnell, Columbus, Ohio
Operation Bookshelf and Tax Deductions

A ruling by the Internal Revenue Service on donations made under the program Operation Bookshelf, at the request of Colonel Walter Reuter, USAF, DC, Chairman of the Committee “Operation Bookshelf,” was divided into two phases. The following will include the specific questions asked under each phase and the ruling or answers by the Internal Revenue Service. The ruling was signed by J. F. Addor, Acting Chief, Individual Income Tax Branch, Internal Revenue Service, U. S. Treasury Department, Washington 25, D. C., and dated July 10, 1962.

**PHASE I**

Dental books and periodicals donated to U. S. Book Exchange, Inc., 3335 V Street, N.E., Washington 18, D. C. at the donors' expense and from which they do not expect any returns from the USBE.

**Question 1.** Whether the value of books and periodicals donated to the USBE for distribution to libraries in friendly countries constitutes an authorized deductible item.

**Answer 1.** The Internal Revenue Service holds that contributions made to or for the use of the United States Book Exchange, Washington, D. C., are deductible by the donors in computing their taxable income in the manner and to the extent provided in section 170 of the Internal Revenue Code of 1954.

**Question 2.** The value of such donations that may be assigned:

a. Subscription price of a periodical, or the back issue cost?

b. Cost price of a book, or the cost less depreciation based on specific rates?

**Answer 2.** The value of publications donated may be deducted as contributions to the extent of their fair market value at the time of the gift. If the value of the property is more or less than its basis, the donor does not have a gain or loss, because such a transaction is not a taxable exchange.

(The cost of contributions if previously deducted for tax purposes cannot again be deducted under this program.)

**Question 3.** Whether the cost of sending publications to USBE in making such a donation constitutes an authorized deductible item.

**Answer 3.** The out of pocket expenses incurred in sending publications to the United States Book Exchange may also be deducted as contributions.

**PHASE II**

Under the second phase of this program, personal contact is established between dentists of the United States and in foreign countries to make available professional literature to foreign dentists on a personal basis.

**Question 1.** Whether the value of books and periodicals donated by dentists in the United States to dentists in friendly countries constitutes an authorized deductible item.

**Answer 1.** Publications donated by dentists in the United States to dentists in friendly countries are not deductible for Federal income tax purposes.

**Question 2.** The value that may be assigned to such donations.

**Question 3.** Whether the cost of sending publications to colleagues in friendly countries constitutes an authorized deductible item.

**Answer to 2 and 3.** As these gifts are not deductible no value would be assigned to them for Federal income tax purposes, nor would the cost of sending these publications be deductible.
“In Quotes”

“A quick glance at the activities of the College today indicates the forward thinking which constitute the work. Such matters as human relations, preventive service, socio-economics, recruitment, professional relations, and education predominate. Perhaps the need for study of these subjects in connection with professional life is far better recognized now than when the College established such studies. The importance of the College has always been closely related to a recognition of future need.” —Donald W. Gullett, former President of the College, Inaugural Address, “The Meaning of the College.” J. Am. Col. Dent. 27:67, March 1960.

The Need for Individual Excellence. Speaking on “The American Person” at the Eighth Annual Leadership Conference at Virginia Polytechnic Institute on February 21, 1962, Stuart T. Saunders, President of the Norfolk and Western Railway, suggested as “a true goal for the American people the sincere quest for individual excellence through development of leadership qualities.”

“If each person would try earnestly and persistently to extend himself through the utmost application of his talents and abilities, it would be astonishing how quickly the entire cultural level of our nation could be lifted,” he added.

Speaking of the requirements and traits of leadership, Mr. Saunders pointed out that: (1) leadership is a tough, demanding discipline. (2) Leadership is not attained by luck, but persistence and hard work. (3) Leadership requires courage . . . the courage of decision-making, the courage to take a chance. It requires the ability to adapt to change, courage of convictions, and enthusiasm. (4) Leaders have the faculty of inspiring others with the spoken and written word. (5) Leaders must be able to get along with all types of people.

“The future of our nation could well be determined within the space of your careers,” Mr. Saunders told the conference audience. “It would be foolhardly for you to assume that a free democratic nation will naturally perpetuate itself. It is equally foolish to think that your lives are going to be easy, comfortable and secure. Instead, your lifetime is more likely to be filled with tumult and competition—demanding and challenging, yet bristling with opportunity for the strong, the courageous and well-prepared.”—The Circle (of Omicron Delta Kappa, national leadership honor society) 41: Summer, 1962.
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**THE DENTAL STUDENT**

**APPROACHING GRADUATION—1962**

*By Douglas M. More*

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