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Historical Insights in the Progression and Development of Gingivectomy

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During the last three centuries since the identification of periodontal disease, various non-surgical and surgical forms of periodontal therapy have been described and documented in the dental literature. The main objective of periodontal treatment has been initially the removal of “diseased gingiva,” either through the implementation of various surgical techniques, or through the application of caustic drugs or pressing patches. Although the differences in the suggested techniques created significant controversies between some of the greatest clinicians and researchers in dentistry, their main goals remained the rehabilitation of the oral cavity and the therapeutic management of the problems sustained from periodontal disease.

This article discusses the history of the gingivectomy technique, from the first appearance of the procedure in the periodontal literature in the late 18th century, to the various modifications proposed by accomplished clinicians, to finally the worldwide acceptance and implementation of this technique as a therapeutic intervention.

Introduction

The first reference to periodontal surgery appears in the early 18th century. Such surgeries were mainly related to the removal of “diseased gingiva” or “pyorrhea sockets,” and to address specific problems, such as periodontal abscesses. In France, Germany and England, several clinicians in their books published at the time tried initially to describe periodontal diseases and then to determine the best and most effective way to eliminate them, given the existing risk of tooth loss. These clinicians recommend surgical techniques for removal of “diseased gums,” and could therefore be regarded as supporters of gingivectomy.

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The gingivectomy procedure was initially proposed in France in the 18th century. Fauchard (1768), who first pointed out the need to remove the “diseased gingiva” (as noted by Leonard (1940)), could be considered one of its supporters. In Chapter 22 of his book, Fauchard stated that the application of surgical techniques in diseased teeth, gingiva and bone is the only effective treatment method, and described a technique similar to the gingivectomy. This 494-page book was published three times in French (1728, 1746, 1786), and was later translated into German (1733).

Several years later, also in France, Bourdet (1757) believed that the severity of periodontal disease “guides” the treatment options, which may be restricted only to the removal of calculus, or extended to the “sacrifice” of gingiva, with cauterization or excision. He specified an art of gingiva excision, describing a triangular incision made in each tooth separately and to all pocket walls. In his two-volume study released in French, German and Italian and translated into Russian (1790), he developed views opposed to those supported by Fauchard regarding the etiology of periodontal disease. He believed that bone destruction is caused by pyorrhea, which occurs as a consequence of induced stasis of tissue humors into the pockets, and held that this was not identical with scurvy.

A few years later, the Parisian dentist Botot (1770) proposed the surgical removal of “diseased gingiva,” especially for those cases where there is also hyperplasia and/or tissue necrosis. He also indicated that complete removal of calculus, as well as irrigation of the pockets with camphor oil, should precede the excision of the gingiva, and that the patient should use mouthwash regularly. Different views regarding the etiology of periodontal disease and the loss of affected teeth are cited in England in both the first and the second dental book issued by Berdmore (1768) and Ruspini (1768) respectively, although without any treatment proposal.

Kunstman could also be considered another supporter of gingivectomy, as he was the first to describe a surgical technique on the gingiva in his book, published in Berlin (1772). Many years later, Merritt (1930, 1939) noted that Kunstman failed to refer in his description to the shrinkage of the gingiva and the destruction of the pericementum following the excision of the gingiva.

In London, Lintott (1841) accepted two types of periodontal disease (local origin, constitutional nature) and estimated that in both cases calculus can be detected in the gingival attachment area. He also considered calculus removal as necessary, to be done after gingiva removal in those cases where gingival irritation is extensive or longstanding.

Many years later, Andrieu (1885) supported the view that alveolar-dental periostitis derives from an inflammation of the fibrous membrane followed by an engorgement of the gingival blood vessels, which triggers bone absorption or necrosis, manifesting the appearance of pyorrhea. As therapeutic method, he supported gingival removal, either by cauterization with zinc chloride and iodine, or by electrosurgery.

“Paternity” of Gingivectomy

The “paternity” of gingivectomy must be attributed to Solomon Robicsek (Fig. 1) according to Zentler (1918). In his publication, Zentler clearly stated that Robicsek (1884) was the first to suggest gingivectomy as a surgical treatment to periodontoclasia, a technique Robicsek also presented and defended ten years later at the 23rd Annual Report of the Austrian Dental Association (1894).

Ballasko (1920) recognized a similar “paternity” of gingivectomy, indicating that Robicsek first introduced the description of this technique ten years earlier at a scientific Stomatology
meeting in Vienna. The year cited (1894) is probably incorrect; the meeting held in Vienna that year was in fact the 66th meeting of the German Scientists and Physicians. Robicsek did participate in this meeting, but his presentation bore the title, “Demonstration of crown and bridgework.” However, one can still confirm, browsing through the proceedings of the 23rd Annual Report of the Austrian Dental Association, that during the second half of the period 1883-1884 Robicsek had indeed presented his views and experience on the nature, etiology and treatment of alveolar pyorrhea. His son Karl Robicsek, while analyzing the personality and the scientific work of his father in an article published along with Stern and Everett (1965), dates his father’s presentation of gingivectomy two years later (1896 instead of 1894).

Prinz’s book (1928) also supported Robicsek as the father of gingivectomy. This book additionally presents Robicsek’s proposed method of application, with instruments he designed himself for the removal of gingiva. Merritt (1939) concurred.

Indications and Contraindications of Gingivectomy Technique

Over the years, various indications and contraindications for performing the gingivectomy procedure were discussed and thoroughly explained according to the concepts and opinions of different authors.

Most commonly mentioned are the following indications for the implementation of the gingivectomy technique (Goldman 1951, Glickman 1956, Levine 1967):

- Elimination of supra-alveolar pockets and pseudopockets; removal of diseased pocket wall
- Removal of fibrous or edematous enlargement of the gingiva (Dilantin hyperplasia etc.)
- Chronic Vincent’s Disease
- Necrotizing ulcerative gingivitis
- Creation of physiologic gingival morphology, conducive to adequate maintenance
- Creation of more aesthetic form in cases of delayed passive eruption
- Correction of gingival craters, gingival clefts/festoons
- To expose additional clinical crown to gain added retention for restorative purposes, to provide access to subgingival caries, or to permit a clamp to be seated in endodontic treatment
- Periodontal abscess, periodontal pericoronitis
- Bi-/Trifurcation involvement
- Osseous configurations of palate, bone morphology alteration
- As a compromise when other procedures are ordinarily indicated, but not feasible

The following contraindications for the gingivectomy procedure are mentioned (Goldman 1946, Ramfjord 1952, Schluger 1952, Glickman 1956, 1961):

- Infrabony pockets; need for bone surgery; bone craters; exposed furcation area
- The bottom of the pocket is located apical to the mucogingival junction
- Aesthetic limitations (anterior region)
- Tissue inflammation
- Compromised general health of the patient; a particular condition; certain diseases
- Poor oral hygiene and patient cooperation
- Patient complaints of tooth sensitivity before surgery
- Presence of thick oral/vestibular alveolar ledges, interdental craters, or bizarre crestal bone form
- If excision of gingiva would leave an inadequate zone of attached gingiva
Surgical Protocol and Modifications of Gingivectomy Technique

In his book published in London (1912), Pickerill used for the first time the term “gingivectomy” for the surgical removal of gingiva, and describes the procedure in detail. Three years later in Chicago, Greene Vardiman Black (1915) stated that in many cases, the partial or total removal of the periodontal pockets can be achieved by excision of gingival tissue, the periodontal membrane of which has been ruined by the disease. The incision, according to his opinion, must be extended from the gingival margin to the alveolar ridge, since the elevation of the periodontal membrane from the cementum extends to the alveolar bone, which is destroyed due to periodontal disease (Fig. 2). Both Pickerill and Black believed that gingivectomy should be applied primarily in cases where it is necessary to remove the fibrous pocket walls, without a simultaneous modification of the underlying alveolar bone.

A defining moment in the development of the gingivectomy technique was the modification proposed by Zentler (1918), which included an initial scalloped incision, as opposed to the straight incision initially proposed by Robicsek, in order to restore a physiologic gingival morphology (Figs. 2 and 3).

This approach was strongly supported by Ziezel (1921), who described the gingivectomy technique in detail and suggested the use of special instruments. A similar gingivectomy technique was being described at the same time in Europe by Nodine (1921), based on the suggestions of Black. Analyzing this technique, Nodine proposed the removal of gingiva by means of an angled cut oblique to the longitudinal axis of the tooth; while the removal of granulation tissue and bone planning should be attempted with chisels, files and scalers, in order to avoid soft tissue injury.

Two years later in San Francisco, Ward (1923) considered the removal of the infected surface layer of the alveolar bone as the most important part of gingivectomy. He therefore suggested renaming gingivectomy “the obliteration method,” and in a later publication (1928) strongly supported its effectiveness in the treatment of periodontal disease.

In the years that followed, gingivectomy prevailed as the surgical technique of choice, and several distinguished clinicians supported its effectiveness. In the publications of that period by Crane and Kaplan (1931), as well as by Kirkland (1942), gingivectomy is considered the most appropriate surgical technique for the elimination of gingival pockets. Various opinions, studies and concluding observations were published during this time, including those of Withycombe (1932), Schier (1933), Kaiser (1933a, 1933b), Mann et al (1934) and Ray (1934).

Withycombe, while comparing the gingivectomy technique with the technique of periodontal dressings, suggested that gingivectomy provides better access for the removal of calculus,
despite the fact that it creates exposed root surfaces. Kaiser believed that in many cases, merely the *excision* and not the *removal* of gingiva can be equally effective, provided that it is performed half an hour after the microbial flora reduction process (1933a, the “vastine method”, which includes bone and cementum scraping, formation of the alveolar bone crest and universal removal of soft tissue) and provided that the necessary preoperative treatment has been already performed, regardless of the excision method (1933b).

Based on the results of their histological study, Mann et al (1934) supported that the removal of diseased gingiva can be performed without damaging healthy tissue. Ray (1934) agreed with the assessment of Schier (1933) on the failure of achieving reattachment of the periodontal membrane and alveolar bone regeneration after application of any surgical technique, and on this basis he supported the excision of gingiva as the lone therapeutic method.

Crane and Kaplan (1934) suggested a decisive innovation in the application of gingivectomy on periodontal pockets with depth extending to the middle third of the root. Under their proposal, bleeding points are to be initially produced on the outer surface of the soft tissue with pocket-marking forceps, describing the depth of the pockets in the area scheduled for treatment. These points are then used as a guideline for the initial horizontal scalloped line (*Fig. 4*). The incision is followed by the removal of the detached gingiva; meticulous scaling of the exposed alveolar bone with special instruments in order to achieve physiological bone morphology in the interdental region; scaling and planning of the exposed root surfaces; and finally covering the wound surface with periodontal dressing. No suturing must be performed.

Two years later, Fortier (1936) described the gingivectomy technique in detail, pointing out the need for creating bleeding points buccally and lingually with the use of a gum-nicking plier. He too considered necessary the removal of interdental tissue with the help of angularly shaped knives, scaling and planning of the alveolar bone, and the placement of periodontal dressing for 10 days to ensure a better healing process and postoperative care.

Willman (1938) advanced gingivectomy as the appropriate method for dealing with individual pockets, hypertrophic gingivitis, etc. He also supported the oblique use of four double-edged knives to ensure the correct bevel of the initial incision at the level of epithelial attachment, allowing total removal of the gingival tissue and the reencountering of the soft tissue. For the first time, Willman encouraged the use of electrosurgery or escharotic drugs immediately after the completion of the gingivectomy procedure in order to prevent recurrence.
Historical Insights in the Progression and Development of Gingivectomy

**Selection of Gingivectomy Over Other Surgical Techniques**

The histological study by Kronfeld (1935) played an important role in shaping perceptions of the most appropriate surgical technique for pocket elimination. This study demonstrated the absence of “necrotic and infected bone” on the ground of periodontal pockets, and thus the removal of the alveolar crest was unjustified. The study also showed that in the presence of periodontal disease, the destruction of the alveolar bone is caused by inflammatory processes within the soft tissue. Ellis (1935) embraced the opinion of Kronfeld and argued that pyorrhea is not a disease *per se* but a result of localized gingivitis, while pocket formation results from the proliferation of the epithelium. Indeed, he pointed out that there is no necrosis of the alveolar bone in the environment of a periodontal pocket, but rather that the absorption located on the edge of the alveolar ridge, and the pocket depth increase, are due to gradual changes, and only in advanced cases due to moderate osteitis.

Based on these data, many clinicians who formerly considered necessary what Znamensky (1902) called the “removal of infected or necrotic bone,” now refocused exclusively on soft tissues, estimating that the treatment of the pockets should be conservative and without the use of radical surgical techniques. Clinicians including Buck (1935), Hardwick (1935), Sanders (1935), Thibault (1937) and Willman (1938) supported the choice of “conservative” surgical techniques such as gingival excision or gingivectomy.

In Buck’s comparative study, gingivectomy seemed to prevail other treatment procedures such as subgingival curettage, electrosurgery and any other drug or solution treatment (ultraviolet therapy), provided that it is designed correctly and that the morphology of the gingiva is seriously taken into account. Hardwick pointed out that gingivectomy can be effective in most cases, and especially in those where the initial incision is made with the required accuracy. He considered gingivectomy the most appropriate method for pocket elimination, as well as for exposure of the roots in order to ensure the removal of all deposits—in contrast to subgingival curettage, which often did not allow this possibility. Sanders embraced these views, while also noting that this technique can be rather simple, even for the general dentist, when applied in groups of teeth rather than the whole oral cavity. Thibault also belonged also to the gingivectomy supporters, as he considered ineffective other treatment methods such as the application of caustics or varnishes, or the use of sclerosing injections. Willman as well adopted justified modifications of the initial gingivectomy procedure.

Following publication of the classic article by Kronfeld (1935), the question began to reappear: which is the most effective method of pocket elimination, gingivectomy or flap surgery? Brenes-Espinsch (1938) made the first attempt to answer this question through a very interesting comparative study evaluating the effectiveness of flap surgery versus gingivectomy, as proposed by Kirkland and Black, respectively. Based on the results, significant differences were observed regarding pocket elimination, postoperative pain reported by the patient, observed gingival recessions, and the depth of the gingival crevice. Neither of the two methods resulted in the formation of new attachment, and healing process revealed no significant differences 22 days after the surgical flap and 12-13 days after gingivectomy.

All these data contributed to the formation of two different factions: the supporters of gingivectomy and the supporters of flap surgery. Balint Orban (1939) attempted to answer the question of which method was more effective at eliminating pockets; his evaluation of the two surgical techniques was very influential. Orban concluded that gingivectomy, as a technique chosen for the elimination of pockets of specific morphology, can be extremely useful in order to remove the pocket walls and allow the removal of deposits and root surface planing.

He corroborated these views in two subsequent publications (1941), determining that gingivectomy is “a technique applied to eliminate pockets and restore the morphology of gingiva.” In these publications, he analyzed the selection of cases and described the steps of the gingivectomy
procedure, while emphasizing the necessity of postoperative care and establishment of conditions for adequate oral hygiene. Finally, he pointed out that all these can be achieved without the excessive sacrifice of gingiva, and therefore their removal should not extend beyond the height of the alveolar ridge, which corresponds with the bottom of the pockets.

Regarding the fundamental question of which surgical method is more effective in pocket elimination, gingivectomy or flap surgery, another question was added: which of these two techniques can lead to a dentogingival crevice of zero depth? Since only then, as Lundquist (1940) assessed, can food impaction and possible gingival injury be avoided.

The results of the first comparative study conducted by Bradley (1941) demonstrated that gingivectomy achieves pocket elimination and a dentogingival crevice of zero depth (zero crevice), and therefore has an advantage over flap surgery. The findings of another comparative study by Grosby (1941) supported the previous results, determining that gingivectomy is indeed the most effective method, not only for pocket elimination, but also in establishing a dentogingival crevice of zero depth.

Kirkland’s comprehensive 1942 analysis regarding the advantages of this type of surgical procedure described in detail the three methods of periodontal treatment: the conservative treatment, a term used to describe the subgingival curettage; the mini flap; and the gingivectomy procedure. The author supported the choice of each method depending on the correct diagnosis; however, he did not comparatively evaluate their effectiveness. He believed that gingivectomy is a painless technique (because it is done under local anesthesia), capable of providing the necessary visual field, quick and less painful postoperatively, since the surgical area is protected with periodontal dressing.

Based on the results of a histological study of the healing process after gingivectomy, Orban and Archer (1945) confirmed Kirkland’s assessment. According to their observations, healing occurs in a manner similar to other regions of the body, even when no postoperative medication is administered. Appropriate postoperative care in conjunction with adequate oral hygiene is considered necessary in order to avoid a recurrence of pocket formation due to the presence of chronic inflammatory granulation tissue, the removal of which is not absolute in order to avoid the “sacrifice” of tissues. The results of a histological study by Bernier and Kaplan (1947) confirmed these findings and supported the necessity of the presence of periodontal dressing for at least 10 days to ensure the epithelialization of the wound. Further histological studies showed that postoperative tissue healing after the implementation of the gingivectomy technique initially included the epithelialization of the wound surface, usually complete within 7-14 days after surgery (Stahl et al, 1968), followed by the reformation of the dentogingival junction. This phase includes the proliferation of fibroblasts and the formation of new connective tissue (Waerhaug, 1955). The wound healing is completed with the formation of a free gingival unit by coronal tissue regrowth from the incision line, with all the characteristics of physiologic free gingiva (Hamp et al, 1975) and the maturation of the layer of keratinization. The results of a histological study by Ramfjord et al (1966) showed that soft tissue healing is complete 4-5 weeks following surgery, whereas during this time minor remodeling of the underlying alveolar bone crest may occur.

At the same time, a number of distinguished clinicians proposed various conservative methods for pocket elimination, such as the application of sodium sulphate by Beube (1939) and Bjorndahl (1940); or a combination of conservative and surgical method, using a solution of sequential composition (25 % phenol and 75% camphor initially and 50% phenol and 50% camphor later), placed with the help of small pellets before and after gingival removal, as described by Barkann (1939). Also proposed, as by Pucci (1939) and then by Box (1940), are the use of packing procedures to facilitate atrophy of the gingival margin; or the use of chemicals rather than a knife to remove the gingival tissue as described by Orban (1942); or the electrosurgery as described by Ogus (1941, 1942) and Saghirian (1942).
Clinical Implementation of Gingivectomy Technique: A Selected Case (Figures 5-11)

Figure 5. Pocket marking. The tip of the scalpel is used to mark the bottom of the deepened pocket on the outer aspect of the gingiva.

Figure 6. The scalloped primary incision.

Figure 7. Removal of the detached gingiva.

Figure 8. Gingival recontouring.

Figure 9. Covering of the area with silver foil.

Figure 10. Application of periodontal dressing.

Figure 11. Healing 2 weeks postoperatively.
Gingivectomy Versus Gingivoplasty

After the publications of Orban, Bradley, Kirkland and Grosby, as well as those of other clinicians, the perception prevailed that gingivectomy was the most appropriate surgical method to eliminate pockets and achieve zero crevice. Specific indications and suggestions were thoroughly discussed regarding the removal of “diseased gingiva” and the reshaping of the soft tissues.

The gingivectomy technique was presented in the first and second Periodontology textbook published by Henry Goldman (Fig. 12). In the first version of this book (1942), the gingivectomy technique, sufficiently documented and justified, is recommended as the most appropriate surgical technique for the treatment of hypertrophic gingivitis and Vincent’s disease. According to Goldman, this method initially requires washing of the mouth (Castile soap and antiseptic solution), and subsequently the precise marking of points with a pencil or scalpel corresponding to the bottom of the pockets in the buccal and lingual surfaces. These bleeding points are used as a guideline for the initial incision, followed by the removal of gingival tissue using small knives or scissors, homeostasis (sodium zinc chloride) and placement of periodontal dressing (zinc oxide-eugenol pack) to be changed every 3-4 days. The placement of the dressing is deemed necessary because of the nature of the wound, followed by the application of periodontal varnish or paraffin wax (Dunlop’s). Removal of alveolar bone during this surgical procedure is only indicated in order to achieve physiologic alveolar bone architecture, or to recontour bone walls of craters or bone lesions whose bottom extends apically of the alveolar bone crest.

In the second edition of his textbook, Goldman (1949) introduced a series of innovations and changes, as well as the use of new instruments. In this edition, it is clearly defined that the gingivectomy technique refers to total gingival removal, leaving but a thin layer of connective tissue on the alveolar surface. The use of the Crane-Kaplan forceps and the Sanders’ knife are considered absolutely necessary for the marking of the bottom of the pockets on the surface of the gingiva and the interdental incisions, respectively. The author points out the importance of the bevel, in order to accomplish a normal architecture of the gingival tissue morphology and avoid the risk of tissue necrosis (Fig. 13). For homeostasis, Goldman suggested the use of cotton soaked with epinephrine, and described how to prepare the periodontal dressing; alternatively, the resected area can be covered with foil. Finally, he recommended irrigation of the oral cavity with warm water or oxygenated solution to remove any soft deposits, as well as removal of existing calculus.

It must be mentioned that Goldman (1950) was the first not only to describe clearly the technique of gingivoplasty, but also to distinguish it from gingivectomy. He defined gingivoplasty as a technique applied for the development of gingival physiologic contours, as he correlated them with...
gingival health. He suggested the use of the Kirkland knife or electrosurgery, indicating as necessary in both cases a beveled incision in order to maintain the scalloped morphology of the gingiva. A year later, Goldman (1951) completely separated the technique of gingivoplasty from gingivectomy. He described the gingivectomy procedure in detail, considering necessary the creation of bleeding points buccally using the Crane-Kaplan forceps (pocket marking) or a simple periodontal probe. He noted that these instruments must be placed parallel to the longitudinal axis of the tooth, while ensuring their placement up to the bottom of the pocket. The initial incision should be beveled, beginning apically of the bleeding points. This incision can be performed in various ways, depending on the interproximal pocket depths or presence of non-dysplastic gingival clefts.

Frank Beube and Irving Glickman published their books around the same time (1953), in which gingivectomy is thoroughly described and clearly distinguished from gingival excision or gingivoplasty.

Beube defined gingivectomy as the removal of gingiva from suprabony pockets in order to eliminate them from all tooth surfaces. He indicated that the incision should be beveled at 45° and placed 3 mm apically of the bottom of the pockets in order to ensure more efficient pocket elimination. It is suggested that gingivectomy not be selected as a method of surgical elimination for pockets ≥8 mm depth; otherwise there is a high probability of denuded roots remaining. Gingivectomy is also considered the method of choice for the elimination of isolated suprabony pockets buccally or lingually at 4 or 5 mm depth. Gingivoplasty is the technique for reshaping the gingival tissues that have lost their original morphology and architecture. For gingivectomy, as well as for gingivoplasty, Beube believed that it is necessary to use a range of different instruments, such as knives, scalers and files (Towner No19 or No20, Kirkland No8, No9, No15 or No16, Buck No00, McCall curettes 2L-2R, 4L-4R, 13-14) or additional instruments which are effective for preparing the initial elliptical incision at second and third molars (Merrifield scalpels No3 or No4) or removal of granulation tissue (Kirkland curettes No2 or No3) (Fig. 14).

In the same book, two other techniques are presented: the modified gingivectomy and the interdental resection technique. The technique of the modified gingivectomy is indicated as the most appropriate for eliminating pockets of 7 or 8 mm depth mainly located in the retromolar area of the upper or lower jaw. The necessity of bleeding points is again emphasized, to be done with the periodontal probe points as guideline for the basic incision planning. A straight incision on the distal surface of the last molar using the Merrifield scalpel (No3 or No4) is proposed in order to separate the two gingival “wings,” and then to remove first the lingual and then the buccal and beyond the buccal tissue “wing.”

The interdental resection technique includes the removal of the interdental papillae, as well as part of the underlying tissue, and can be applied for the elimination of suprabony pockets ≤5 or 6 mm depth. The initial incision is performed with Towner scalpels (No19 or No20), followed by soft tissue elevation and removal of granulation tissue with Kirkland curettes (No8 or No9), while using the Buck file (No00) to remove the interdental papilla tissue. Calculus can be removed with McCall curettes (2L-2R, 4L-4R, 13-14), while Kirkland knives (No15 or No16) can be used to achieve an appropriate gingival bevel.

On the other hand, Irving Glickman (Fig. 15) observed that implementation of subgingival...
curettage and root debridement prior to the gingivectomy procedure could cause extensive injury of the tooth surface, resulting in pronounced sensitivity, and should therefore be avoided. Furthermore, the author believed that in cases of failure, both clinician and patient may become discouraged, leading to premature extraction of teeth. He concluded that no significant difference could be detected in the duration of the healing period or pocket depth reduction, when presurgical subgingival curettage and root debridement have been applied (Glickman et al 1956, Glickman 1961). These results were supported by Ambrose & Detamore (1960).

Gottsegen (1961)—a great supporter of pre-surgical subgingival curettage and root debridement—believed that implementation of these techniques prior to the gingivectomy procedure could reduce both bleeding during surgery and the formation of granulation tissue post-surgically. Furthermore, if the clinician can promote the patient’s oral hygiene during pre-surgical subgingival curettage and root debridement, it may eliminate the need for surgical intervention in some cases. The author believed that the implementation of subgingival curettage and root debridement could be important in the presence of soft friable gingival tissue, as this can be especially hard to dissect; whereas the results of his studies show that gingival inflammation can be associated with further attachment loss post-surgically. Unlike Glickman, Gottsegen supported pre-surgical subgingival curettage and root debridement, associating them with faster healing and significantly lower incidence of postoperative bacteremia. However, other researchers could not verify these results.

Glickman considered gingivectomy as a two-phase technique, consisting of the removal of “diseased gingiva,” forming the pocket wall, followed by subgingival curettage.

Steps indicated include the marking of bleeding points on the buccal gingiva with the Crane-Kaplan forceps, the removal of supragingival calculus with specific scalers (Ivory CI, No2 or No3), and finally the resection of the “diseased gingiva” with a pair of thin scalene-shaped periodontal knives (Kirkland, No15 or No16) or with Bard-Parker scalpel (blades No11 or No12) used as auxiliary instruments (Fig. 16). Moreover, it is noted that the incision should be performed slightly apically of the bleeding points, and beveled externally to the shoulder of the teeth at about 45° to the longitudinal axis of the tooth; while the distal incision connects the buccal and the palatal incision (Kirkland No15 or No16). The use of special knives (Kirkland No12, No13 or No14) is appropriate for the removal of the gingival margin and the interdental papillae, whereas the removal of granulation tissue, calculus and “necrotic” cementum is performed with specific scalers (Julian Smith No5 or No6, Ivory CI, No2 or No3 and Younger-Good No7 or No8). Finally, the author proposed the placement of the Kirkland-Kaiser periodontal dressing, due to its easy handling.

In his book, Balint Orban (1958) set forth new findings on the gingivectomy technique. These
included an extensive list of suggested instruments and materials: gingivectomy knives especially designed for distal or specific areas; chisels; files; curettes; periodontal probes; hemostatic and tissue forceps; various scissors; gauzes; cotton pellets; suction covering material; periodontal dressing mixing and placing instruments; and finally zinc-eugenol periodontal dressing. In contrast to other clinicians, Goldman believed that the gingivectomy technique can be applied per quadrant, per jaw, or on the whole arch. Furthermore, he suggested that the initial incision should be made precisely at the height of the bottom of the pockets, in combination with a bevel, in order to achieve a normal gingival morphology postoperatively. Hemostasis can be accomplished by placing epinephrine-soaked gauzes or cotton pellets in the interproximal areas. Covering the wound area with periodontal dressing completes the surgery. It is worth mentioning that Orban's book emphasizes the importance of full patient cooperation, and includes the first postoperative instructions to the patient for daily home care. The less invasive gingivoplasty technique is also presented in this book, as a means to remove hyperplastic tissue and restore the normal morphology of the gingiva, usually in combination with soft- or hard-tissue surgery. Recommended instruments are the scalpel, various rotary instruments, and the electric knife. The use of rotary instruments is encouraged, as it offers a better solution to particularly challenging cases, such as the removal of an extensive and voluminous mass of hyperplastic gingival tissue from the palatal surfaces of the upper molars, and in other areas where the tissue is very hard. The author also believed that extreme precaution is required during the movement of the diamond lingually and/or buccally of the lower teeth: always in the direction from the tooth toward the gingiva, in order to prevent the recession of the free gingiva. Finally, Orban urged that caution should be taken in the use of the radiosurgical scalpel after the initial incision, the application of which cannot lead to a perfect recontouring of highly inflamed gingival areas.

**Concluding Comments**

The gingivectomy technique evolved from one of the oldest principles of surgery: that infected tissue should be removed in order to achieve a cure. During Roman times, Celsus removed the diseased gingiva around loose teeth through cautery. Gingivectomy was one of the first surgical procedures developed for pocket elimination and removal of "diseased gingiva" during the 19th century, and was considered for many years the simplest and most direct method of pocket elimination. Furthermore, clinicians saw this careful resection of the unsupported gingiva as an easy operation to perform with wide application in periodontal therapy.

The instruments used in gingivectomy were simply designed, few in number, and easily sharpened. The Crane-Kaplan pocket marker was developed to record the depth of the pocket in the gingiva, and was considered a very important part of the surgical instrumentarium. Particular emphasis was given also to the angulated knife, as without the angulation, the necessary bevel of the gingival tissue cannot be achieved. On the other hand, some individuals considered the choice of instruments as of minor importance compared to a clinician's experience and skill.

Beginning from its simplest form, the so-called Black operation, gingivectomy underwent several refinements, as the aesthetic expectations of the patients became more pronounced. Although the gingivectomy technique with all its refinements remains a very useful procedure, it is in many cases not the definitive procedure in achieving a permanent pocket elimination. Infrabony pockets, irregular underlying bone morphology, and the presence of thick alveolar ledges are only a few situations considered contraindications for gingivectomy. An irregular and unphysiologic remaining bone architecture can result in a more or less abnormal sulcus depth. Therefore, it has become obvious that defects of the underlying bone morphology cannot be resolved solely with treatment of the soft tissue.

Excellent oral hygiene, pre- and postoperative home care, and regular follow-up are
considered prerequisites for this (and, in fact, any) type of procedure performed in the oral cavity. These limitations, as well as the constant evolution of new surgical procedures with a broader field of application, have led to less frequent implementation of the gingivectomy technique. However, the failure rate of the gingivectomy technique is not greater than that of any other surgical procedure, provided that the case is properly elected and the technique is implemented *lege artis*.

Documenting the steps or tracing the historic path of the gingivectomy technique, specific events can be considered key landmarks:

- From the late 19th century, the need for surgical periodontal therapy to eliminate pockets is clear, and for this reason the technique of gingivectomy is initially proposed.

- The widespread application of the gingivectomy technique was limited when it appeared that the removal of “necrotic or infected” underlying alveolar bone is necessary, and for this reason flap surgery is considered more effective.

- Histological evidence supporting the health of the underlying alveolar bone leads once again to the prevalence of the gingivectomy technique as the most appropriate method for pocket elimination.

- The need to redefine the purpose of gingivectomy requires a clear distinction from gingivoplasty, and the setting of boundaries between them. New instruments are designed and proposed for both techniques.

- The indications and contraindications of gingivectomy expand, and its efficacy well documented compared to other surgical techniques.

**Aknowledgements:**

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<td>Fig. 3</td>
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<td>Glickman I. Prevention, diagnosis and treatment of periodontal disease in the practice of general dentistry. <em>Fig. 43-6</em> (p. 641). In: <em>Clinical Periodontology.</em> Saunders: Philadelphia. 1972. Copyright © Elsevier.</td>
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<td>Fig. 15</td>
<td>Carranza F, Shklar G. <em>History of Periodontology.</em> <em>Fig. 69</em> (p. 164). Quintessence Publishing Co, Inc 2003. (Collection of Fermin Carranza, Jr.).</td>
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Historical Insights in the Progression and Development of Gingivectomy

Bibliography


16. Box HK. Twelve periodontal studies. University of Toronto Press, 1940.


Historical Insights in the Progression and Development of Gingivectomy


A Short History of the Royal Odonto Chirurgical Society of Scotland

Dr. Paul R. Geissler
Honorary Curator
Dental Museum of the Royal College of Surgeons of Edinburgh

In the mid-19th Century, the practice of dentistry in Britain was unregulated and chaotic. Organised training was non-existent, and the public was unable to be assured of satisfactory, ethical treatment. A group of Scottish practitioners, led by John Smith, an Edinburgh surgeon, established the Odonto Chirurgical Society of Scotland in 1867 as an ethical dental society promoting education and regulation of the emerging profession. The Society has prospered over the years. It was granted the title “Royal” on the occasion of its centenary in 1967, and approaches its 150th year with confidence.

The Odonto Chirurgical Society of Scotland, founded in 1867, is today the oldest dental society in the United Kingdom, if not in the world, still actively functioning under its original title (the title “Royal” was granted in November 1966, in time for the Centenary) and upholding its original objectives. Its roots are traceable to January 1865, when John Smith (Fig. 1) invited a few surgeons to meet in the Edinburgh Dental Dispensary, with the purpose of founding a society of persons practicing ethical dentistry.

John Smith was a man with foresight and concern for the welfare of his fellows. Born in 1825, the son of a surgeon who practiced dentistry, he qualified in surgery in 1847. On the death of his father in 1851, he carried on his father’s dental practice at 12 Dundas Street, Edinburgh.

In the 1840s and 1850s the dental state of the population of the city was very poor. Concerned about this, John Smith instituted a course of clinical instruction in dentistry at the Royal College of Surgeons of Edinburgh in 1865; Smith was the first person in Scotland to do so. In 1860, along with his friends Francis B. Imlach, Peter Orphoot and Robert Nasmyth, John Smith founded the Edinburgh Dental Dispensary, later to become the Edinburgh Dental Hospital and School, which provided clinical instruction for student dentists and dental care for the poorer citizens of Edinburgh.

At the meeting in Edinburgh in January 1865, those present were David Hepburn, Robert Nasmyth, Peter Orphoot, Andrew Swanson, Matthew Watt and John Wright. John Smith suggested the title “Odonto Chirurgical Society of Scotland” and submitted a code of rules that he had drafted. However, there were differences of opinion about whether or not membership should be restricted to those with a surgical qualification. This could not be resolved, and after two meetings the idea was abandoned. David Hepburn, however, was convinced of the ultimate success of the proposal.

To understand the problems in founding such a society, one has to understand the state of dentistry in the mid-1800s. As a profession, dentistry
appealed to very few individuals, as it was considered as unscientific and crude; training, therefore, was at best achieved through an apprenticeship. The majority of those who practiced dentistry were charlatans, and many were illiterate.

The struggle for financial survival for some Surgeon-Dentists was extremely difficult at that time. Some were forced to be slightly elastic with their ethics. It was this elasticity of ethics that enabled the charlatans to gain some elementary instruction in dentistry. However, these “skills” were developed by trial and error. The claims that these pseudo-dentists made to the public, and the fees for their operations, were often outrageous. They concentrated almost exclusively on the extraction of every tooth (sound or unsound) and the insertion of dentures, crude in appearance and function. These services were expensive, unhygienic and largely unsatisfactory. Sadly, for the common man in the street in the 1860s, there was no way to distinguish the ethical from the unethical dentist or even the charlatan. A revolution in the education and training of dentists and in the regulation of dentistry was needed.

An initial breakthrough had occurred in England in 1860. The Royal College of Surgeons of England introduced the Licentiate in Dental Surgery diploma (LDS), and the first graduation occurred the 13th March of that year. However, the first Dentists Act was not to be enacted until 1878, and the British Dental Association was not incorporated until 1880. Therefore, it required some notable person or persons to give the impetus for the proper education of dentists and provide ethical regulation of their practices. John Smith had been one such person, and David Hepburn another.

Dentists in 1860s still adhered to a policy of total isolation. It was almost the exception for a practitioner to know a fellow practitioner. If he did, he was careful never to divulge anything connected with his own practice. All such knowledge was guarded as trade secrets in a way that cannot be appreciated today.

The practice of the Surgeon-Dentists having a dinner on the March 13th (the anniversary of the introduction of the LDS diploma in 1860) had lapsed in London by 1867, but was continued in Scotland.

Elected to the Society 1881.
In 1856 he gave first lectures on clinical dentistry in Scotland in the Royal College of Surgeons of Edinburgh. With Robert Nasmyth, Robert Orphoot and Frances Imlach he founded the Edinburgh Dental Dispensary in 1860, which later became the Edinburgh Dental Hospital and School, and was the principal moving force in the founding of the Royal Hospital for Sick Children in Edinburgh.

In 1871 he was appointed Queen Victoria’s Honorary Dentist in Scotland.
He was one of 5 Scots appointed to the Representative Board for the British Dental Association, and one of the Committee of 11 responsible for the founding of the British Dental Journal.

- President of the British Dental Association 1884 in Edinburgh
- President of the Royal College of Surgeons of Edinburgh 1883–1885
- Member of the Board of Examiners for LDS of the RCS Edinburgh
David Hepburn used the occasion to invite the Surgeon-Dentists practising in Scotland to meet on that anniversary date, prior to the dinner of Licentiates in Dental Surgery in the Douglas Hotel, St Andrew Square. On his suggestion, the Odonto Chirurgical Society of Scotland was founded, based on the laws and constitution (with some alterations) which John Smith had drafted two years earlier (Fig. 2, see pages 28-36). These were identical in principle to those of the Odontological Society of Great Britain.

Law 111 of the Odonto Chirurgical Society adopted at that meeting represented an enormous advance in for the status of dental ethics. It stated:

No member shall: be permitted to advertise in the public journals his profession, his mode of practice, or his charges. They shall not be permitted to expose specimens of their work for public inspection, nor to carry on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way, which the Society may consider derogatory to the profession, so long as they continue Members of the society.

Expulsion was the penalty for infringement of this law.

The founding of the Odonto Chirurgical Society proved a great stimulus to the ethical and scientific progress of the profession in Scotland, which up to then had been in chaos. This was particularly so at a time when there was no dental society nearer than London, which for the dentists to attend meetings entailed expensive and long journeys.

Robert Nasmyth was elected first President, David Hepburn the first Treasurer, and John Cunningham the first Secretary. Interestingly, John Smith did not become a member until somewhat later. He was President from 1881–1883 and was later to be President of the Royal College of Surgeons of Edinburgh from 1883–85, and in 1884 the fourth President of the British Dental Association.

Membership of the emerging Odonto Chirurgical society stood for some years at 13. However, in 1879, with the introduction of the LDS diplomas from both the Edinburgh and Glasgow Surgical Colleges, there was an increase in

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**Regulation of Dentistry in the UK**

By the second half of the 19th Century the unregulated and chaotic situation of dentistry was recognized as requiring urgent attention, and in 1878 the Dentists Act was passed to regulate dentistry. This established for the first time a Register of qualified dentists. Under the regulations, only those who had a recognized diploma could be placed on the Register, and only those on the Dentists Register could call themselves Dentists or Dental Surgeons. However, the Act was flawed in that it did not prevent persons from practicing dentistry using such titles as Operator of the Teeth or Tooth Specialist. It was not until the Dentists Act of 1921 that the situation was finally resolved. Under the latter Act, only those trained in a recognized institute and on the Register could practice dentistry. This Act finally regulated dentistry, which became an ethical and scientifically-based profession.

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**Problems of Organizing and Establishing National Societies in the Mid-19th Century**

When the committee forming of the Odonto Chirurgical Society of Scotland were meeting several members came from outside Edinburgh. This required great commitment on their part. Travelling to Edinburgh for these meetings was a considerable undertaking involving long rail journeys. Dr F. Thompson and J. Bell travelled from Glasgow, William Williamson from Aberdeen. For Walter Campbell, travelling from Dundee involved three trains and two ferries as the rail bridges over the Tay and Forth had not at that time been built.
applications for membership, as these persons with their officially-approved training were considered to be ethical dentists, and therefore eligible to join this august body.

Originally meetings were held quarterly, alternately in Edinburgh and Glasgow; later restricted to three, two in Edinburgh and one in Glasgow. Since 1887 all the ordinary meetings have taken place in Edinburgh on the second Thursdays of November, December, January and February with the Annual General Meeting in March, and the Annual Dinner on the Friday nearest 13th March.

Where did the Society meet in Edinburgh? From 1867 to 1869 it was in the home of the Secretary, David Hepburn, at 5 Abercromby Place. From 1870 to 1879, the meetings were held in the rooms of the Obstetrical Society at 5 St Andrew Square. Thereafter it met in the Dental Hospital & School, first at 30 Chambers St., and then 5 Lauriston Lane; and from 1894, 31 Chambers St. It was only in 1949 that the Society met in the Royal College of Surgeons.

The titles of some of the early papers delivered to the Society are worthy of mention. In March 1868, William Williamson of Aberdeen delivered the first paper to the Society, entitled “Some of the Causes of Failure of Stoppings” “which created a very animated discussion in which all the gentlemen present took part.” It should be understood that at that time, tooth preparation could only be accomplished with hand-rotated instruments, chisels or excavators, as the foot drill did not appear on the market until 1871. Silicate cement and amalgam were used but the latter was very unstable.

Charles Fox of London read a paper on “Nitrous oxide, its preparation and use.” Among some of the subjects covered in the early years were “Filling teeth with Gold,” “Amalgam fillings,” “Judicious and Injudicious Extractions,” and “Alveolar Haemorrhage.” William Bowman MacLeod reported on “Tooth wear in Bagpipe Players,” which induced a great deal of discussion. Then, there was an intriguing paper, “Oesophagotomy and Gastronomy for recovery of a Denture impacted in the Oesophagus,” but no subsequent report on the outcome for the patient.

From the beginning, the Society’s founders strove to set the highest standards of ethics and patient care. The Society has survived and prospered over the years. It has seen the developments of dentistry through greatly enhanced educational and scientific developments, and the coming of the National Health Service, each of which have benefited patients. Moreover, it has survived two world conflicts (although suspending its proceedings). These achievements were recognized by the granting of a Royal Charter in 1967, it becoming the Royal Odonto Chirurgical Society of Scotland.

References

3. Campbell JM. Dentistry Then and Now. Glasgow, 1981; 128-144
Figure 2. Reproduction of the Society’s original constitution and bylaws.

The Secretary then read the letter calling the meeting.

Passed by Dr. Heford and seconded by Dr. Hogge that Dr. Thompson of Glasgow should take the Chair, which was carried unanimously.

Dr. Heford then explained the object of the meeting, stating that the name of the Society and the laws proposed for their acceptance were the same with some alterations, as those proposed by Dr. Smith of Edinburgh, for the formation of a Society in January 1866, and as now altered, are identical in principle with those of the Odontological Society of Great Britain.

The Chairman called upon the Secretary to read the copy of the laws upon which it was proposed to found the Society.

The laws having been read over, one by one, after some discussion, were approved of in the following amended form:

Constitution and Laws of the Odontological Society.
A Short History of the Royal Odonto Chirurgical Society of Scotland

1. Name and Objects.

The Society shall be named the Odonto Chirurgical Society, and shall have for its objects the Promotion and Diffusion of Knowledge in Matters Connected with Dental Surgery, the Furtherance of Communication on such Subjects by Members of the Society, and otherwise to advance the Interests of Dental Surgery as a Branch of Medicine.

11. Ordinary and Honorary Members.

The Society shall consist of Ordinary, Honorary, and Corresponding Members.

The Ordinary Members shall consist of Gentlemen practising as Dentists in Great Britain, and of Medical or Surgical Practitioners interested in Dental Surgery.

The Honorary and Corresponding Members shall consist of Gentleman Practising Dentistry in Great Britain, in the Colonies, or in Foreign Countries, and of Retired Dental Practitioners in Britain, as well as such Medical or generally Scientific Men as may have distinguished themselves in connection with Dental Surgery.
The Ordinary Members shall have vested in them the Government of the Society, and all cases not otherwise specified shall be decided by them, by a majority of votes, by ballot, if required.

III. Obligations of Members.

No Member shall be permitted to advertise in the public journals his profession, his modes of practice, or his charges. They shall not be permitted to expose specimens of their work for public inspection, nor to callely on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way which the Society may consider derogatory to the Profession to long as they continue Members of the Society.

IV. Admission of New Members.

The Admission of Ordinary Members shall take place at any of the Ordinary Meetings, and on paying his Entrance Money such Member shall sign the following Obligation:

"I hereby promise to the utmost of my power to promote the interests of the Atlanta Chirurgical Society, and to observe all its Laws, to long as I continue a
Withdrawal and Expulsion of Members.

Any Member may withdraw from the Society on paying all due by him at the time, and signifying, in writing, his intention to the Secretary.

Any Member who has been irregularly elected, or who infringes the laws of the Society, may be suspended from attending attendance at its Meetings till his case has been considered; when, if three-fourths of the Society, eight Members at least being present, vote for it, he may be expelled from the Society.

Any Member three months in arrears to the Society shall have an intimation sent to him to that effect, and unless payment be made within three months afterwards, he shall be considered as having withdrawn from the Society.

VI. Application for Membership.

Candidates for admission as Members of the Society shall be recommended by an Ordinary Member, and the recommendation seconded by another. After being approved by the Council, such recommendation shall be read to the Society.
at an Ordinary Meeting, and shall be put till the next,
when the Candidate shall be balloted for, two thirds
of the Members present being required to be in his
favour, in order to admission of a new Member.

VII. Laws to be signed within a stated period.

New Members must sign the Laws before the second
Meeting after their election, unless further time be
granted by the Society, a majority of votes being
sufficient for doing so.

VIII. Honorary Members.

Honorary Members shall be elected in the same
manner as Ordinary Members. They shall not
hold any office, or take any part in the manage-
ment of the Society’s affairs, and they shall not
be required to pay any Contribution to the Society.

IX. Contributions

Every Member elected, except Honorary Members,
shall pay an Entrance Fee of One Guinea, and Ten
Shillings and a Halfpence of an Annual Subscription.
A Short History of the Royal Odonto Chirurgical Society of Scotland

in advance, all annual subscriptions to commence and date from the month of January of, or following the Candidates admission.

x. Office Bearers.
The Office Bearers of the Society shall be elected at the Annual Meeting in each year, and shall all be eligible for re-election. Those having a majority of votes shall be elected, and in the event of the ballot being even, the President shall have a casting vote. The Office Bearers shall consist of a President, two Vice Presidents, a Treasurer, and a Secretary.

xi. The President.
The President shall regulate all the proceedings of the Society at all its Meetings, and in the event of his absence any Vice President, retired President present, or the next senior Member or the last present, most being an Office Bearer, shall take his place.

xii. Treasurer.
The Treasurer shall receive all money due to, and
shall pay all debts due by the Society, and shall contest all matters connected with the income and expenditure of the Society, and keep a particular account thereof, to be reported at the Meeting in each year following that of January.

XIII. Secretary.

The Secretary shall attend all the Meetings of the Society, keep its Minutes, and conduct its General Correspondence.

XIV. Committee of Management and Business of Society.

The President, Vice-President, Treasurer, Secretary, and four Ordinary Members chosen by the Members annually at the Meeting in March, shall form a Committee of Management for conducting the General Business of the Society, and shall at a quarter of an hour previous to the commencement of Public Business at the Ordinary Meetings, the General Meetings for Private Business shall be held at the conclusion of Public Business, on the withdrawal of Strangers, of whom one may be introduced by each Member at the Ordinary
Meetings. The Ordinary Meetings to take place at such regular intervals as may be determined at each Annual Meeting by a majority of the Society.

The following Gentlemen were then unanimously elected into Office viz:

Honorary President
R. Raynham F.R.C.S. Inos.

Vice Presidents
D. T. Broad F.R.C.S. Inos.
D. Reid F.R.C.S. Inos.

Treasurer
D. Hopkinson F.R.C.S. Inos.

Secretary
J. T. Cunningham F.D.S.

Committee
J. K. Chisholm F.D.S. Inos.
D. Smith F.R.C.S.
W. Williamson F.D.S.
D. MacLaren Inos.
D. O. Neale
Dr. John I. Ingle is a pioneer, educator, mentor and international leader in the dental specialty of Endodontics. He was born in 1919 in Colville, WA and received his DDS degree from Northwestern University School of Dentistry in 1942, and MSD from the University of Michigan School of Dentistry. He served as a dentist for 4 years in the US Army Air Force during World War II, after which he joined the faculty at the University of Washington in Seattle for 16 years, where he was Professor and Chairman of both Periodontics and Endodontics. In 1964 he was appointed Dean of the School of Dentistry at the University of Southern California, where he served as a professor and dean for 8 years. Subsequently he was appointed to the Institute of Medicine at the National Academy of Sciences in Washington, DC.

Dr. Ingle has played a significant role in the advancement of endodontics as a specialty and is widely known as the author of his authoritative textbook *Endodontics*, first published in 1965. Furthermore, he has published over 75 articles and has lectured extensively worldwide. He is a Diplomate and Founding Member of the American Board of Endodontics and a Diplomate of the American Board of Periodontology as well. He served as President of the American Association of Endodontists from 1966-67, in 1999 received the AAE’s highest honor, the Edgar D. Coolidge Award. In 2001 he was inducted into the USD School of Dentistry’s Hall of Fame.

In this video, just released, Dr. John Ingle provides us with detailed, vivid first-hand memories of the evolution of the specialty of endodontics. However, preceding those details he introduces us to his dentally-oriented lineage to set the stage for his lively presentation, giving us some of the most interesting tidbits of the last 60 years. Already in his 90s, John’s recollections are sharp as he relates the events and unique insights that he has encountered along life’s path; challenges and experiences that have made great impact upon the evolution of the specialty of endodontics.

Especially valuable are the reflections on the initial formation of the American Association of Endodontists in the 1940s, and the comparisons of facts and figures to contemporary data. Photos of many of the giants in dentistry during the 1940s, 50s, and 60s are shared, along with the agonizing attempts to obtain specialty recognition during the 50s and 60s.

This personal history of endodontics has a very special ending: Dr. Ingle relates the story of meeting Walt Disney on an airplane, where the two began to discuss dentistry. Walt recalled that his first film dealt with dentistry and a little boy named Tommy Tucker... from there the story gets very interesting, and is better left to those who want to see Disney’s film for themselves. Fortunately, Dr. Ingle has included it in his presentation, which serves as the icing on the cake. I highly recommend this early film, “Tommy Tucker’s Tooth,” for the true historian, dental or otherwise. It is a classic in filmmaking and represents the spring board for the amazing career of Walt Disney. We are truly indebted to Dr. Ingle for providing access to this work of art.

Running time: 99 minutes

**Ordering Information:**
This DVD can be obtained directly from Dr. Ingle at johningle@sprintmail.com
The removal of the infectious process caused by an abscess in the periapical tissues was a challenge to dentists in the early part of the 20th century. While they recognized the need to debride the periapical tissues, the process was slow, tedious, and often fraught with failure that resulted in tooth extraction. However, with some creative ingenuity, an irrigation-suction apparatus was developed in the 1930s that enabled rapid and thorough debridement. This appliance went through multiple developmental permutations and was successful in achieving the desired goal. Interestingly, while the purpose of this device was a controlled periapical debridement through the root canal, and not necessarily a focus on a cleaning of the intricacies of the root canal system, the basic concept purported was similar to contemporary approaches used in root canal debridement today.

One of the biggest challenges during contemporary root canal procedures is to completely remove soft tissue debris, dentin chips and bacterial substances from the root canal system. To meet this challenge, recently an apical negative-pressure apparatus and technique were developed and marketed to be used within the root canal system to both irrigate the canal and remove debris coronally (EndoVac® Irrigation System, SybronEndo, Orange, CA, USA).1-4 Claims have been made that this was the first apical negative-pressure technique developed to meet the needs of the clinician in root canal irrigation and debridement, and in particular in the management of vapor lock that may occur in

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the apical third with other irrigation techniques. Multiple studies have been published that extol the virtues and accomplishments of using this system, such as debris removal; smear layer removal; and cleaning of the fins, webs, cul de sacs, anastomoses and isthmi, while at the same time minimizing or negating any postoperative pain or potential adverse sequelae by preventing the movement of root canal irrigants, namely sodium hypochlorite, beyond the confines of the root canal. However, this concept and technique of using apical negative pressure during irrigation are not new and, in fact an apparatus and technique to accomplish this same goal was first introduced in the early 1930s. As will be addressed in the following historical perspective, the primary goal of the combined irrigation-suction devices was a controlled periapical debridement through the root canal, and not necessarily a focus on a cleaning of the intricacies of the root canal system. Nevertheless, as will be shown, the basic concept purported was similar to contemporary approaches used for root canal debridement.

Initially, the concept of suctioning pus, blood and debris from the root canal system was addressed by Doz. Dr. Victor Frey from Vienna, which he presented and demonstrated in 1933 at a meeting of the Austrian Dental Society and published in 1934. The device used by Frey is seen in Figures 1 & 2. He described his creative device as follows:

```
The rubber balloon of the suction glass was somewhat brittle; [therefore] I decided to cut a piece of metal tube and put it in a rubber hose, then attached it to the suction glass. This improvised device was attached to the saliva ejector hose and started its activity. [translated from original German]
```

Frey proceeded to describe his observations:

```
The suction force generated by this device is surprisingly large. From the sinus tract, some pus was released at first, then plenty of blood and finally hydrogen peroxide, which had been pumped into the root canal, in the form of foaming bubbles. The suction glass was placed for about 2 minutes. During the following days, this was performed twice. The sinus tract healed smoothly [translated from original German].
```

A long time ago I had to deal with a lower left #1 with a chin sinus tract present. The root canal was enlarged and patency was achieved. I tried to irrigate the sinus tract from inside the tooth with Noffke’s melt-bougies and with hydrogen peroxide, but did not accomplish anything. Trying to establish a pathway with force was ruled out because of the risk of emphysema. However, the use of the Bierschen Suction bell on the chin let to success...

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Figure 1. 1–Suction glass; 2–connection hose; 3–metal tube; 4–the saliva ejector hose with a rubber sleeve. The rubber balloon of the suction glass was somewhat brittle; so a piece of metal tube was cut and put it in a rubber hose, then attached it to the suction glass. This improvised device was attached to the saliva ejector hose and started its activity. (Reproduced from Frey V. Zwei Verwendungsmöglichkeiten der Bierschen Saugbehandlung in der Zahnheilkunde. ZschrStomatol 1934; 32:42-46).
Dr. Frey proceeded to describe the use of this type of apparatus for application in the medical environment and indicated that if this apparatus were proven successful, its application in the realm of odontogenic infections outside the tooth would be favorable.

In the Viennese clinical magazine from November 3, 1933, Dr. Arpad Skutta recommends (Debreczen) an apparatus given by himself for surgical cases, with which he also irrigates phlegmonous processes on the principle of Bierschen’s stasis (suction of secretions), simultaneously using negative pressure and through air flushing, to treat in a careful and cleanly manner. The apparatus is also powered by a water pump. Should this apparatus be proven (the author announces further notices) it would be justified for treatment of odontogenic infections (floor of the mouth, skull, and neck cellulitis), and the purely surgical procedure according to this principle, would be completely supported.

[translated from original German]\(^{23}\)

Prerequisite for the success of this process, is the patency of the canal all the way to the root tip. This is essential before using the apparatus. Since I have been working with the apparatus, I have been able to control the pain in over 60 cases that occurred after an acute periodontitis. It took 10 to 15 minutes of suctioning and rinsing. The teeth were usually provided with a drain during the first treatment, provisionally sealed and no pain was [subsequently] present. After several appointments, most teeth were fully completed. It often happened that on gangrenous roots, periodontal pain occurred after the first session, due to needles that transported infected material into the periapical tissues. I have not seen a periodontitis since I have been using this apparatus, having managed to gain patency through the canal previously, plus the combination of irrigation and

In 1934 Dr. Siegfred Seidner presented before the Dental Society in Vienna about the draining of abscesses and the rinsing of root canals. Furthermore, he published multiple papers in 1935 that dealt with the development of his apparatus and its applications,\(^{24,25}\) and again in December 1946 in the first volume of the *Journal of Endodontia*.\(^{26}\) By this time, Dr. Seidner had left Austria and moved to Tel Aviv, Palestine. This device was known as the Seidner drainage and flushing apparatus, and by its very design it could be used to both irrigate the canal using negative apical pressure and assist in the drainage of the root canal and periapical tissues in cases of excessive seropurulent or purulent drainage that are often found with an acute infectious process.

“It seems to me, that rinsing and suctioning are particularly important in acute apical periodontitis [translated from original German].”\(^{24}\)

The original device is shown in Fig. 3 with a more streamlined device appearing in Fig. 4.

Dr. Seidner proceeded to describe his initial experience with this device.

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**Figure 2.** The Bunsen diagram of the water-air pump. 1–Suction glass; 2–connection hose; 3–glass T-tube; 4–rubber hose; 5–clamp, squeeze-faucet; 6–the saliva ejector hose with rubber sleeve. Saliva ejector is based on the well-known principle of the Bunsen water-air pump. (Abb. 3) With the connected water tube A, water gushes into the other container B, to drain away from C. Here are some water droplets and air present, which is cut out; and to their replacement, air constantly flows from the tube D, which leads into the pumping-out container.

(Citation and picture from Guttmann’s Sketch of Physics) (Reproduced from Frey V. *Zwei Verwendungsmöglichkeiten der Bierschen Saugbehandlung in der Zahnheilkunde*. Zschr Stomatol 1934; 32:42-46).
suctioning have prophylactically prevented an acute periodontitis. To rinse, I use 3% hydrogen peroxide. The time of the session depends on the condition of the root canal. The average duration is about 15 minutes. Suctioning out the gases and exudate in the presence of a periodontitis appears to reduce the tension in the tissue and thereby provide relief. In chronic cases, temporary closure for months, even years had not been tolerated, but now I often seal the tooth in the first session without painful symptoms [translated from original German].

The keys to achievement with the Seidner Apparatus were the creation of a negative pressure, which required a seal in the system and the continuous flow of fluid in the canals.

By suctioning, a negative pressure is created, and the flowing liquid goes into the thin tube. The suction effect leads the liquid back and there is a continuous flow. Through the course of ten minutes I can irrigate with about 100 cm³ of liquid through the root canal. The most important prerequisite for the function of the apparatus is the seal, which was the cause of my troubles at the beginning. This seal can be achieved in several ways: it succeeds best with permanently soft rubber, but one could also seal with plastiline,* or with other rubbery materials… For difficult cavity access you can do a wax impression and then create a cured seal. The procedure is as follows: in the impression, a brass pin is inserted according to the width of the tube in the principal attachment. Then pouring of the material is done, then packed with soft rubber and cured… At suctioning, I usually lets about 20 cm³ go through, then I lock the supply of liquid, let the negative pressure come back again, so that the entire liquid is completely suctioned, and then let some liquid back in and then again negative pressure after a short time. All this is accomplished with a 3-way valve [translated from the original German].

In Seidner’s improved version of the suction apparatus (Fig. 4), he described the activity in the root canal during the suctioning and rinsing.

* Plastilina is a generic term for oil-based modeling clay. This clay was developed in Germany in the 1880s by Franz Kolb. Plastilina was originally a trade name, like aspirin and nylon, the name eventually lost its trademark status when it came into general use.

Figure 3. Apparatus consists of a primary attachment (a), a suction pump and container for the liquid medication (b) and the "from the feed and discharge rubber hose" in the (c and d). (Reproduced from Seidner S. Das Aussaugen und Ausspülen von Wurzelkanälen bei der Wurzelbehandlung. Z Stomat 1935; 33(2):104-108).

Figure 4. The appliance (Abb. 1) consists of the primary attachment (a), from the suction pump, to supply and discharge hose b, c and from container d, which contains the liquid pharmacotherapy. The primary attachment (Abb. 2), that is inserted into the hollow tooth consists of two concentrically arranged tubules, of which the one is narrow (Abb. 2a), and the other one is wider. The thin tube projects 1mm out of the wider tube, b. This measure is perfect. The thin tube leads the liquid, the wide tube suctions the liquid again. The thickened olives (e) are removable and remain fixed, so that the primary attachment is easily replaceable. It is easily dismantled and sterilized. In order to be able to use the apparatus, a cavity must be opened, so that piece (d) can be guided into the tooth. (Reproduced from Seidner S. Ein neuer Behelf zur Gangränbehandlung. Z Stomat 1935; 33(11): 681-682).
The negative pressure we work with, is approximately 40 cm Hg. The liquid penetrates to the apex, as we have seen on animal experiments and also on glass models. As a pump, you can use the suction pump of the saliva ejector or other water-jet pump. The apparatus has provided me with valuable services in the treatment of gangrenous roots. We use 3% H₂O₂ to rinse or other solutions like Pregljod (Iodine)...The filling of the roots can be done in a relatively shorter time afterwards. — The duration of the session is 5 to 10 minutes. — Periodontal pain subsides after suctioning. — Swellings subside in a few sessions. — Even in clean cases, we irrigate the root canal after pulp extirpation, without suctioning. — We use physiological saline solutions or 3% H₂O₂ [translated from the original German].

Multiple testimonials were provided regarding Dr. Seidner’s Suction Apparatus, including Frans Schönwald, Balint Orban and Bernhard Gottlieb.

Franz Schönwald: I allow myself to report two cases of gangrene, in which the usual method of root canal treatment was not successful. With the help of the apparatus, progress was noticed. After rinsing out with the apparatus, the teeth were pain free and drain was tolerated [translated from the original German].

B. Orban: I have been using the Seidner’s apparatus for a few weeks with good success. In acute periostitis, pain is fading away, pus and blood is being suctioned by this appliance, and the patients feel relief. I rinse each gangrene treatment with this apparatus instead of the syringe, since the apparatus is very easy to use. The difficulty of sealing is eliminated by Seidner’s recommended soft rubber stoppers, that can be combined in a given cases with rubber dam pieces or plastic compositions [translated from the original German].

B. Gottlieb: We have been using the Seidnerschen suction and rinsing unit for some time and can effectively only say the best about his statements. We acknowledge this innovation to be the very best, and we feel obliged to express the best thanks to Mr Seidner for the great service he has offered to dentistry by the introduction of this system. The construction of the apparatus is thought through to the smallest detail, and therefore it also works perfectly and is harmless [translated from the original German].

Prof. Dr. Bernhard Gottlieb encouraged the use of this apparatus, detailing the technique in 1938 in his monograph Dentistry in Individual Phases: I. Treatment of Root Canals, published in 1938; and again in his textbook, Endodontia, published in 1950 along with his clinical coworkers, Dr. Seth Barron and Hobson Crook from Dallas, Texas.

The power for suction is supplied by a water suction pump... There are electric suction pumps... that are recommended for this purpose, and there are also foot driven pumps for those colleagues who must economize. Years ago I constructed a special suction arrangement attached to the dental chair. The attachment is made to the main water pipe and serves for the Seidner suction apparatus as well as for suction tubes, used during surgical operations. Should the suction power prove insufficient at any time, make sure that the tiny openings of the apparatus are not clogged. [Author’s Note: This latter concern is also found with the present-day negative-pressure irrigation system].

Gottlieb was adamant that this type of irrigation system be used during all root canal procedures because of the limitations of mere instrument removal of debris from the canal. Furthermore, he indicated that the action of instruments within the canal would result in additional debris being formed, especially due to the opening of small irregularities in the canal morphology that harbored pulp tissue.

Drainage after pulp extraction has proved quite beneficial for the reason that after widening of the canals, tissue shreds still remained therein of in niches, which are gathered up and removed. Therefore drainage by suction after pulp extraction should not be neglected.

From a historical perspective, Gottlieb’s thought process regarding the true cleaning of the root canal system was both visionary and vastly superior to most clinicians and researchers of that day. Sadly, however, his concepts were not readily espoused and carried into the 21st century until approximately 2007/2008, and even evaluative research into the effectiveness of the negative pressure-irrigation process in the root canal—
which did not take into account Frey’s, Seidner’s or Gottlieb’s contributions, or for that matter Dr. Florian Prader’s contribution, which will be discussed immediately below—has occurred only recently.¹¹

As with all professions, improvements are made routinely and innovations are a part of the practice of clinical dentistry. Such was the case for the evolution of the irrigation/suction apparatus. In 1949, Dr. Med. Dent. Florian Prader published a textbook entitled, “Diagnose und Therapie des Infizierten Wurzelkanales” in which he discussed the use of this technology for the irrigation, in particular using heated solutions, of the root canal system (Fig. 5).³⁰

Up to now, we have mechanically cleaned and shaped the infected root canal and used intracanal medicaments. The removal of infected tissue or material, a key demand of root canal treatment was rarely technically possible. The exposed root canal was at most rinsed with warm water. The desired cleaning effect in the narrow canal is very questionable and the risk of salivary secondary infection is very high if the irrigation is not supplemented by aseptic measures. Years ago, I made the observation, that during irrigation of the root canals, with the use of hot irrigants, the patient would not complain or feel any periodontal pain. I was able to heat the solution to the boiling point, and thus be able to irrigate painless for a few minutes. If the temperature of the solution between 70-80⁰ [Celsius], then you can irrigate any root canal pain free, as long as desired. However, a prerequisite is the suction of the irrigants backflow. The hot solution must not get in contact with the gums, tongue or the lips at any moment. By the introduction of Aseptors...my method of hot irrigation, was able to be developed further [translated from the original German].³⁰

The Aseptor was similar to the Seidner Apparatus (compare Figs. 4 & 5). Two years previously, Prader brought the Junior-Air pressure-Aspirator to the market. It was also suitable for suction of fluids from inside the root canal (Fig. 6). The upgraded version was labeled as the Junior II (Fig. 7).

Prader indicated that it was imperative to instrument the root canal prior to the application of the hot irrigant.

After instrumenting the canals, they will be rinsed with a hot irrigant and the excess will be suctioned from the pulp cavity by the assistant, using the “Junior” or aseptor. Only the proper suctioning of the irrigant with the vacuum has allowed the use of hot irrigation technique for the practitioner. The great importance of the hot irrigant is the easy removal of the putrid and decayed pulpal tissue. In addition, the high degree of powerful antiseptic action is remarkably increased by the irrigants temperature range of 60°-70° [translated from the original German].³⁰
Prader also indicated that he had evaluated a number of irrigants and that hydrogen peroxide was unsatisfactory, despite Seidner’s advocacy, due to its penchant to promote bleeding. Therefore, alternative solutions were identified for use, each with their own unique attributes.

At the beginning of the root canal treatment, especially in teeth with gangrene, we use 1-2% Desogenlösungen (Desogen solution) [A commercial name for a quaternary ammonium compound]. Besides the good disinfecting action, it plays an important role in the fat and lipid solubility, as well as in the complete network asset. If the canal is sufficiently cleaned and shaped and irrigated by hot Desogen solutions before filling, then the question of infected dentin is the only one to consider. But, rinsing with Merfen has been proven to be useful. The Merfen is a Hg-phenyl-borate, known as one of the most modern and effective disinfectants [Author’s Note: Today’s Merfen contains one of four components depending upon the country where it is registered: benzoxonium chloride, benzalkonium chloride, chlorhexidine digluconate, or dihydrochloride]. The extraordinary bacteriostatic effect is the strong dissociation in water. The Hg remains bound to the positively charged phenyl group, which leads to the binding with the negatively charged bacteria. The importance of Merfens for the RCT [root canal treatment] has long been known. The therapeutic concentration 1:40 orig. (1:20 000 abs. dilution), as recommended, is in the normal temperature range too low, however, the desired effect is obtained by raising the temperature. In the presence of an open foramina or on sensitive periapical tissues, Katadyn, a modern, graceless or dull disinfectant has proven to be useful [Author’s Note: Today’s Katadyn is a product designed to filter and purify contaminated water]. It is an Ag Preparation in monomolecular or ionic form. It is used in the highest concentration of 17 cm³ of stock solution to 1 liter of water. These three rinsing solutions meet the need of practice: Desogen cleans very well and is has a strong bacteriostatic effect. Merfen does not clean, but is a very strong antiseptic. Katadyn also cleans, has a moderate antiseptic effect, but does not stimulate the periodontal tissues [translated from the original German].

While there is a plethora of new and innovation developments in our present-day practice of dentistry, more often than not a thorough and extensive review of our historical roots will shed some light on the fact that creative ideas have been with us for centuries. The only differences in today’s world are a better understanding of the biological principles of treatment, the materials available to make devices, the manufacturing processes and the failures to learn from the lessons of history.
References


Ernest A. Carpenter was born in the small town of Byron Center (near Grand Rapids), Michigan, on April 13, 1877. Ernest earned a bachelor's degree from Albion College in 1901, and DDS degree in 1911 from the Chicago College of Dental Surgery. The dean of this highly respected institution was the noted educator Dr. Truman W. Brophy.

In 1912, Dr. Carpenter moved to Goshen, Indiana. For the next 40 years, he remained there and was active in both the Indiana Dental Society and the American Dental Association. A civic-minded and religious man, Dr. Carpenter helped to organize Sunday School Bible classes at the First Presbyterian Church. Dr. Carpenter died at his home at age 76, and was buried in Rose Hill Cemetery on the north side of Chicago.

This advertising card was most likely issued by Dr. Carpenter between 1915-1925. Although the card’s postmark is unreadable, our estimate is based on his dress. After reviewing hundreds of other dental practitioner postcards from the early 1900’s, we found that the terms “Prevention vs. Repair” or “Preventive Dentistry,” had not been used by anyone except Dr. Carpenter. Moreover, the doctor cleverly referred to himself as “the man who put the Dent in Dentistry;” his goal: to produce a noticeable, positive effect on his patient’s dental health by first addressing prevention.

In the field of preventive-dentistry, the emphasis on positive oral health gained traction nationally during the late 1960’s. On October 8, 1968, The American Society for Preventive Dentistry was formed. It flourished for almost a decade, publishing a bimonthly journal and sponsoring an impressive annual convention. This Chicago-based organization, which gained 8,000 members in its first two years of existence, billed itself as the “fastest growing society in the history of dentistry.” For a number of complex reasons, this ambitious endeavor was disbanded on June 21, 1977. However, the group’s strong emphasis on preventive dentistry had persisted long enough to make a lasting effect on the dental profession.


Dr. Ernest A. Carpenter: An Early Advocate of Preventive Dentistry

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A Toothbrush in Hand

Not many Victorian Era advertising trade cards pictured a person wielding a toothbrush. However, some cards depict toothbrushes in use while touting oral health claims for a tooth cleaning or breath improvement product or, surprisingly, a brand of coffee. Pictured here are nine cards featuring toothbrushes in action.

Figure 1 shows a stock card of two cherubs demonstrating what we suppose was the “two fisted full arm brushing method” of the time. Seated behind the winged kiddie in the yellow cloth is apparently a cachou (breath mint) container. Stock cards such as this one had a preprinted image and merchants could have any message they desired printed on the cards.

The second card features Arthur Sullivan’s and W.S. Gilbert’s “Three little maids from school,” Yum-Yum, Peep-Bo, and Pitti-Sing (Figure 2). Those lovely ladies from the comic opera The Mikado (which debuted in London in 1885), could “never be persuaded to use anything for our Teeth but Ricksecker’s Dentaroma.” And why not? For only 75 cents, one could buy a “fine bottle” that would last for months. Dentaroma was “Unapproachable in Elegance and Service,” was “The Most Luscious Liquid for Teeth & Breath,” and was used “For Clean Sound White Teeth, Rosy Gums, and Sweet Breath.”

The elegant beauty in Figure 3 kept her pearly whites, pearly white with Van Buskirk’s Sozodont for the Teeth and Breath. Each box contained “Liquid Sozodont and a box of fine Sozodont Powder.” Sozodont was sold in “every city of importance in the world.” The toothbrush pictured seems to be closer to the size of a modern hair brush than it does to today’s toothbrushes.
The Hoyt’s German Cologne 1899 calendar card (Figure 4) advertises “RUBIFOAM FOR THE TEETH A PERFECT LIQUID DENTIFRICE PRICE 25 CTS,” and the jar in the little girl’s hand is labeled “Rubifoam Tooth Powder.” The pudgy little cutie in her fabulous Victorian lace-embellished dress on another Rubifoam card seems delighted after (or before) a good session of brushing her teeth with the “Perfect Liquid Dentifrice” (Figure 5).
Figures 6, 7, and 8 depict rather risqué images for the time, of three beautiful Victorian ladies in their respective boudoirs. One is happily peering into the mirror, obviously delighted to be scrubbing away with Dental Snuff. The model on the far right, similarly attired, has chosen Wright’s (Antiseptic) Myrrh Tooth Soap for her brushing interlude, and the sultry enchantress in the middle has chosen “Long’s Pearl Tooth Soap for Cleansing Preserving & beautifying” her teeth and gums.

The final trade card (Figure 9) is a 1894 fold-over paper doll advertisement for McLaughlin Coffee. We are not able to guess why the coffee company would choose an image of a young girl with a rinsing cup and toothbrush in hand to advertise their brew.
ANCIENT DENTISTRY IN JAPAN

In a series of articles entitled "A galaxy of old Japanese Medical Books" Gordon B. Mestler devotes one section to works of ancient Japanese dentistry and histories of Japanese dentistry (Bulletin of the Medical Library Association 44:339-347 July 1956). This is an important contribution to the bibliography of Japanese dental history.

ORTHODONTICS AND DEVELOPMENTAL STUDIES

Several contributions to the history of orthodontics and growth and development studies have been recently published.

B. R. Townend (Dental Magazine and Oral Topics 72:153-166 Sept. 1955) reviews historically the subject of "expansion" in orthodontic treatment in an article entitled "The comedy of expansion and the tragedy of relapse."

Allan G. Brodie contributes "Orthodontic concepts prior to the death of Edward H. Angle (Angle Orthodontist 26:144-154 July 1956)."

Robert R. McGonagle presents "A review of the significant findings in growth and development since the advent of cephalometrics" (Angle Orthodontist 26:155-165 July 1956).

Homer Garson discusses "Tendencias in the evolution of Orthodontia, past, present and future" (Las tendencias en la evolución de la Ortodoncia, pasadas, presentes y futuras) in Revista de la Sociedad de Estudios de Ortodoncia Tweed de Mexico 2:72-85 Jan.-June 1956.

CONSUMPTION OF SUGAR IN HOLLAND

H. Van Hartingsveld has published an interesting study on the consumption of sugar in Holland from 1850 to 1950 (De Toeneming van het Suikergebruik door de Nederlandse Bevolking, van 1850 tot 1950) in Tijdschrift voor Tandheelkunde 63:448-452 June 1956. The article is based on actual annual records of sugar consumption and is accompanied by a chart showing the rise and decline of use in sugar throughout one hundred years, with notes indicating the historical circumstances influencing changes. No attempt has been made to correlate the findings with incidence of caries.

FAUCHARD BIOGRAPHICAL DOCUMENTS

Biographical details concerning Pierre Fauchard's residence at the chateau of Grand-Mesnil from 1734 (?) until his death in 1761 are published by Georges Dagen in L'Information
Dentaire New Series No. 25:981-985 June 21, 1956 and No. 28: 1092-1097 July 12, 1956. A facsimile of Fauchard's signature is important for purposes of identification with the handwriting in the manuscript of Le Chirurgien Dentiste. The material published throws no light on Fauchard's book or his career as a dentist.

LATIN-AMERICAN DENTAL PERIODICALS

César Mena Serra contributes an article on the Latin-American dental press in the nineteenth century to Gaceta Odontologica 2:293-302 Feb.-Mar. 1956. The article also appears in Revista de la Agrupacion Odontologica de la Capital Federal 12:430-434 April-June 1956. A sketch of Dr. Mena's contributions to dentistry, with his portrait, is in the same number of Gaceta Odontologica, p. 289-292. He is a member of the A.A.H.D. and quite active in the history of dentistry in the Latin-American countries.

ANCIENT EGYPTIAN MEDICINE

Moheyi-el-Dine El-Kharadly (Ciba-Symposium 4:66-72 Aug. 1956) discusses Ancient Egyptian medicine ("Von der altägyptischen Medizin"). At least so far as dentistry is concerned, the statements of fact and inferences drawn are repetitions of what has been already set forth by many historians. This is true with one exception.

The author discusses the Thoma-Hooton mandible, and accepts the interpretation of Hooton that it represents a successful and an unsuccessful attempt of an ancient Egyptian surgeon to establish drainage for an apical abscess. The author concludes his discussion with the statement: "Die Spuren einer ähnlichen Operation sind übrigens auch am Oberkiefer von Amenophis III. (Vater des Ikhnaton) im Museum von Kairo zu sehen." (The traces of a similar Operation are moreover to be seen also on the upper jaw of Amenophis III (father of Ikhnaton) in the Museum of Kairo.)

A second specimen would be very interesting. A picture and description should be published. If these are borings leading to an apical abscess, it is important to compare them with the known specimen to determine whether drilling is their only explanation or whether necrophilous beetles or other means may be the cause.

DENTAL DISEASES IN APE MEN

In an article on "Caries in the South African Ape Men" (British Dental Journal 101:4-7 July 3, 1956), A. J. Clement comes to the conclusion that caries and hyperplasia were diseases of the teeth before mankind came into existence, 800,000 years ago. Clement bases his conclusions on material described by J. T. Robinson in 1952 and 1954.
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THE HISTORICAL DEVELOPMENT OF PHYSIOLOGICAL THOUGHT

The College of Medicine of the University of New York, Downstate Medical Center, Brooklyn, has announced the first of a series of three symposia on "The Historical Development of Physiological Thought," November 13, 14, and 15. The first program of five lectures deals with "The Origins of Physiological Thought in Medical Science," by Ossei Temkin, Iago Galdston, Lloyd G. Stevenson, Horace W. Magoun, and Chauncey Leake.

WILLIAM H. TAGGART: PRO AND CON

The House of Delegates in 1955 adopted a resolution of commemoration in celebration of the one hundredth anniversary in 1956, of the birth of William H. Taggart. The Wisconsin State Dental Society took exception and presented a resolution to the House of Delegates at the 1956 annual session stipulating a board of review of the Association to examine the question of the appropriateness of memorializing Dr. Taggart. The House rejected the Wisconsin resolution.

M. D. K. Bremner, originally in opposition to Taggart was the defendant in the suit in 1918 which brought about Taggart's defeat and the nullification of his patent on the process of casting. Dr. Bremner, in his Story of Dentistry, third edition, 1954, writes a sympathetic and appreciative account of Taggart's acts and his contribution to dentistry. Dr. Bremner writes: "Legal, of course, Taggart had no right to a patent monopoly. But it was he who taught the profession to cast inlays, which was without doubt the greatest single contribution to dental progress that had been made by any individual. Yet, in spite of this invaluable service, he was dragged through the courts, his old age embittered by litigation, and he was left to die in poverty, while the members of the profession were earning millions from the method which he alone had popularized. Unfortunately, the dental profession had no choice but to defend its freedom."

Anybody wishing to judge the complex motives and issues involved in this historic struggle should read the three chapters of Dr. Bremner's book devoted to the subject.

INSTITUTE OF DENTAL MEDICINE OF GENEVA

A booklet, originally appearing as issue No. 4 of Vol. 66 of Revue mensuelle suisse d'Odontologie, 1956, is devoted to L'Institut de médecine dentaire de l'Universite de Genève, 1881-1956. The first 54 pages of the booklet of 104 pages recount the history of the Institute. The general account is
by A. J. Held, and the somewhat detailed histories of the various departments are by members of the staff. These include the polyclinic, and departments of endodontics, removable prosthesis, fixed prosthesis, dento-facial orthopedics, and parodontology.


EARLY CUBAN DENTIST AND GENERAL

In an article on Angel Castillo Agramonte, Dr. Cesar Mena Serra in Protesis Clinica 17:3-4 Oct. 1956, sketches the life of this early Cuban patriot who was executed by the Spanish in 1869. Castillo was one of the earliest Cubans to study dentistry. He received a certificate from a New York dentist, George F. Schaffer, in 1854, and after some difficulty in securing recognition in Cuba, began practice there in 1859. This article is particularly interesting because it is accompanied by a facsimile reproduction of the certificate of 13 months instruction from Schaffer.

Dr. Mena quotes from a more extended account of Castillo's life by Jorge Quintana in a recent number of the Bohemia.

A.A.H.D. ANNUAL MEETING

The Fifth Annual Meeting of the American Academy of the History of Dentistry was held on September 28 at Atlantic City. The program was presented as announced in the Bulletin of August.

An interesting feature of the program was an impromptu discussion of Charles H. Land and his work on the porcelain jacket crown by Dr. Edward B. Spalding who worked with Dr. Land in the early stages of the development of the jacket crown.

Dr. Sam Parks was installed as president. Dr. G. Willard Camelier was chosen president-elect; Dr. Harold H. Faggart was elected vice-president; Milton B. Asbell, secretary; and G. B. Denton, editor.

RECENT ARTICLES BY DR. WEINBERGER


"From 'Irregularities of the Teeth' to Orthodontics as a Specialty of Dentistry" by Dr. Weinberger (American Journal of Orthodontics 42:209-225 March 1956) sketches the history of orthodontics during the 19th and 20th centuries to the present.
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This biography combines “family, dental, social and local history” in telling the story of Tom Brown's determination and ingenuity in achieving professional and economic success in the late 19th century. The inclusion of numerous images (photographed, developed and printed by Tom Brown himself), and annotations blended throughout provide additional insight into the subject’s social and cultural milieu. In addition, the author has been able to accurately describe dental practice during this period, with its emphasis on the so-called “mechanical dentistry” provided by dentists prior to the expansion and integration of the commercial dental laboratory system in the twentieth century.

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There have been a number of English language articles about the toothpick, J. Menzies Campbell’s 1952 paper (Campbell JM. Toothpicks and toothbrushes. Dent Items of Interest. 1952;74: 295-305.) is of particular note. However, Der Zahnstocher und Seine Geschichte eine kulturgeschichtlich-kunstgerbliche studie (The Toothpick and its History: A cultural-historical and arts and crafts study) remains the premier reference resource. We must congratulate Dr. Potashnick for the time, effort and cost in providing this English translation.

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A Guide to Bone Toothbrushes of the 19th and Early 20th Centuries

by Dr. Barbara E. Mattick

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