

In Search of the First Head and Neck Surgeon

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I have picked a topic quite different from those selected by previous presidents of our Society. In the past, my predecessors have chosen training, socioeconomic, political, developmental, and research aspects of our profession. It seems appropriate on this international occasion to pause to review our accomplishments in the struggle against head and neck cancer and to search for those pioneers who led the way. Ours is a relatively new specialty, formed to concentrate surgical efforts against a growing problem. As tobacco use has increased, the incidence of squamous carcinoma in the head and neck has progressed to alarming levels. Before the introduction of tobacco in Europe in the late 16th century, oral cancer was seldom mentioned in medical writings. When Henry VIII proclaimed the Act of Union between the barbers and the surgeons in 1540, the disease was apparently quite rare. Though banned for a time as a noxious weed by King James, this new product gained rapid acceptance and mouth cancer became commonplace. However, this disease was thought by many to result more from syphilis than tobacco, which was a theory that persisted into the 1940s [1], although Butlin [2], in 1900, stated that "we believe that smoking is a decided cause of the occurrence of cancer [of the tongue], not so much directly as indirectly." As this relatively new problem increased in severity, innovative surgical pioneers appeared in succession, each adding to a growing armamentarium. The very term, surgery of the head and neck, is a relatively new one, first used by Lane [3] in 1888 for a textbook of that name, covering neurosurgery, otolaryngology, and ophthalmology. Modern refinements of this term were delayed

for almost half a century. Not until the 1940s did the term take on the meaning it has today.

As we look into the past, we discover certain head and neck pioneers who are conspicuous for their efforts in the area. I will not cover those surgeons of ancient times and the middle ages as their courageous efforts were generally unsuccessful. In 1650, Wiseman [4] was the first person to record oral cancer treatment details. His knowledge of the subject was remarkable for those times. In 1664, Marchetti [5] described the first glossectomy for cancer. Surgical progress was slowed by infection, difficulties with hemostasis, and airway problems in the 18th and early 19th centuries. Regnoli's [6] unique submental approach in tongue cancer resection was useful before the advent of satisfactory anesthesia. Local control was the goal of these early surgeons. Lymph node involvement was considered a sign of incurability, even in the mid-1800s. Billroth [7] stated in 1878, "Cancers of the tongue are, so long as the lymphatic glands remain unaffected, curable, radically, by early and complete extirpation." The subject of lymph node spread brings us to the modern pioneers.

In Vienna in the mid-1800s, Billroth (Figure 1) began a surgical attack on laryngeal cancer that opened the field of head and neck cancer treatment. His famous laryngectomy, reported in 1874 [8], was preceded only by that of Watson [9] of Edinburgh in 1866, whose patient had syphilis of the larynx. Billroth did not emphasize lymph node removal, but his surgical attempts against a variety of head and neck lesions were monumental. Many of his disciples have earned fame.

Theodore Kocher of Bern followed in Billroth's footsteps and began a remarkable career in thyroid surgery (Figure 2). In 1880, he wrote of his surgical approaches for a wide variety of head and neck cancers [10]. Enlarging upon Billroth's experience and that of Langenbeck [11], he began dividing the

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Figure 1. Theodore Billroth.

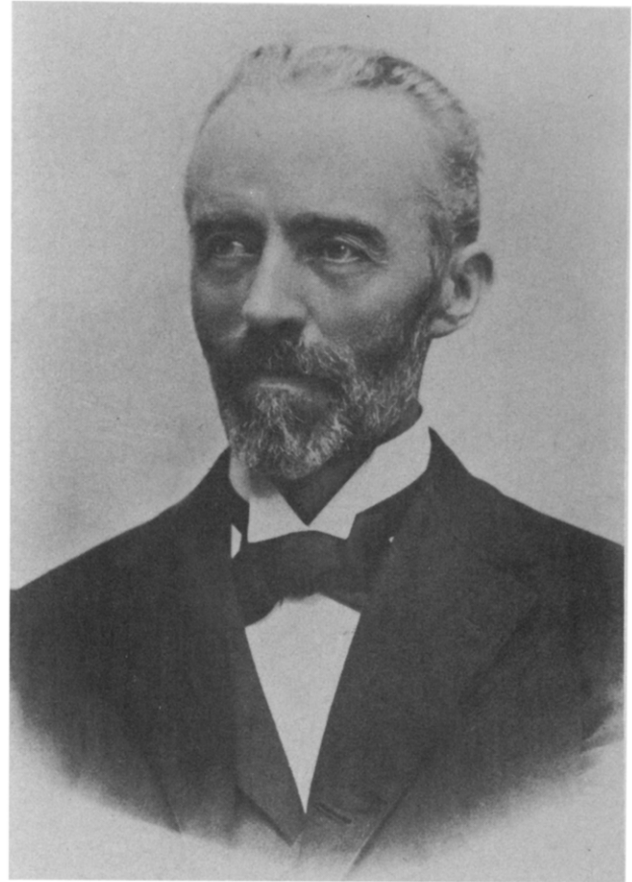


Figure 2. Theodore Kocher.

mandible in cervical approaches to tongue cancer. Initially, he performed node removal only to gain access to the oral cavity. Nevertheless, this was a pioneering step that led to the first concerted effort at combined or in continuity node dissection and oral cancer resection.

In the late 1800s, Henry Butlin (Figure 3) theorized that elective node removal could cure subclinical disease. He summarized his ideas in the text, *Diseases of the Tongue* [2]: "When the primary disease is limited to one half of the tongue and can be removed with a sufficient area of healthy tissue around it to practically ensure the patient against recurrence in situ, the anterior triangle [of the neck] should be cleared out." His ideas about node dissection actually preceded the work of Halsted [12] in breast cancer. Butlin's neck dissections were thorough in every sense of the word, but would be called "modified necks" in today's terminology since they were usually submandibular or suprahyoid (Figure 4). He also attacked the larynx and wrote a comprehensive monograph on the treatment of laryngeal diseases [13]. Butlin [14] reviewed his tongue cancer experience in 1909. He observed that approximately 750 people died yearly in England of this disease

between 1901 and 1907. It is obvious from these writings that the incidence of oral cancer was rapidly increasing as tobacco use gained popularity. Butlin [15] emphasized early diagnosis and wrote of frequent cures in early cases. However, of 66 tongue cancer patients described, 18 had development of local recurrence after operation, 28 died from node involvement, and 20 were free of disease 3 years postoperatively. This 30 percent cure rate was remarkable when compared with the standard 5 to 8 percent figures of that day.

To combat lymphatic involvement, he began a two-stage attack of wide local resection followed in 3 to 4 weeks by elective upper neck dissection. Improved results prompted him to continue this controversial approach which could be called the beginning of modern cancer surgery. He was assistant surgeon and then surgeon at St. Bartholomew's from 1880 to 1902. During these 20 or more years, he perfected techniques that became the underpinnings of head and neck surgery. Butlin's careful appraisal of his own work later prompted Sampson Handley [16] to say, "he never permitted ignorance, whether in himself or others, to masquerade as knowledge. He always stated the facts in few and

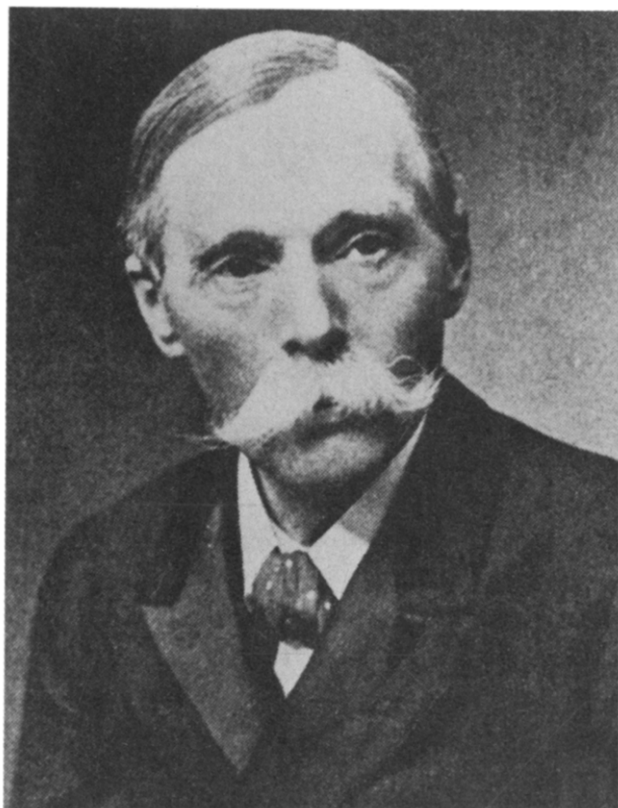


Figure 3. Henry T. Butlin.

plain words." Butlin was elected president of the British Medical Association and the Royal College of Surgeons during his career and was knighted by George V. He displayed the attributes and attainments of a complete head and neck surgeon.

Bland-Sutton and later, St. Clair Thompson, Alexander Marsden, and Coledge in the United Kingdom continued these advances. Trotter [17] made noteworthy contributions with his innovative techniques that bridged the gap between Butlin and George Crile (Figure 5). Crile's monumental work is summarized in a remarkable paper written in 1906 [18], "Excision of Cancer of the Head and Neck. With special reference to the plan of dissection based on 132 operations." This must stand as one of the great publications on head and neck surgery. With courage, insight, and technical ability Crile paved the way for modern day methods. By combining complete neck dissection (often with an extraordinary, temporary occlusion of the common carotid artery) with radical resection of oral primary tumors, he showed that advanced cancers could often be controlled. The operative mortality was 15 percent or more in this preantibiotic, preblood transfusion era. Crile's pressure suit often supported the blood pressure of these patients during radical procedures [18]. This was the forerunner of the gravity suit of modern aviation and space flight and the prototype for the medical antishock trouser

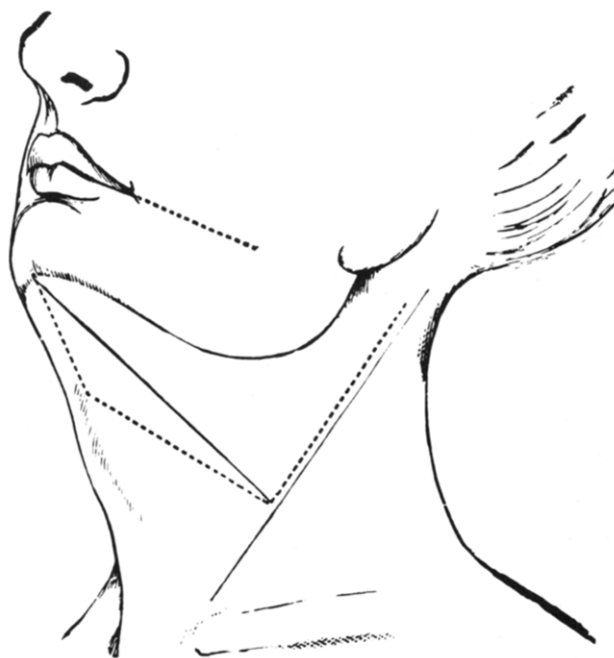


Figure 4. Butlin's diagram of his neck dissection incisions (solid lines). Kocher's incisions for oral cavity exposure added (dotted lines).

(MAST) suit used today by emergency medical teams. In spite of Crile's efforts, these extensive procedures faded from the scene for a time because of excessive mortality and apparent indifference in the surgical community.

Treatment of laryngeal cancer progressed in the late 19th and early 20th centuries under Semon and McKenzie in the United Kingdom and Jackson in the United States. Surgery of the larynx became a special area of endeavor.

Radiation therapy entered the picture in the 1920s. Great strides were made, especially in Great Britain and on the continent, in the treatment of these cancers by interstitial and external methods. Coutard's [19] technique of protracted therapy caught on in many cancer centers. For a time, surgery was partially displaced in head and neck cancer management. MacComb [20], one of the great teachers in this field and former chairman of the head and neck service at the M.D. Anderson Hospital in Houston, has summarized this transition beautifully in a paper that describes the early work of Hayes Martin (Figure 6), who rejected radiation therapy for many cancers because of reactions and the uncertainties of cure. Martin, an admirer of Crile and a well-trained general surgeon with a great interest in radiation therapy, began a review of this entire subject in the 1930s. There gradually evolved a system of head and neck surgery which formed one of the building blocks of our current knowledge. During World War II, Martin brought back the combined operative procedures of Crile. He refined and greatly improved these earlier methods with the

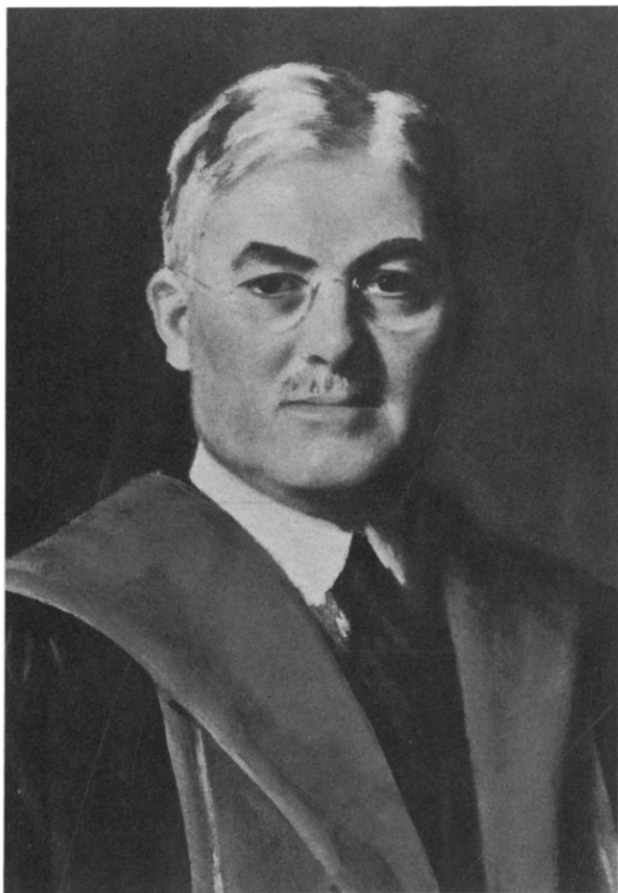


Figure 5. George Crile.

aid of improved anesthesia, blood transfusions, and later, antibiotics. The term head and neck had dropped into obscurity from 1906 until 1948 when Martin used it in one of his early papers [21]. In the same year, Grant Ward [22] wrote an editorial which defined the parameters of this new surgical specialty. In 1951, Martin et al [23] summarized his entire experience and that of the head and neck service of New York's Memorial Hospital in an outstanding paper entitled "Neck Dissection." For many, this became the bible of head and neck surgery. Martin's service was the first one devoted to head and neck cancer in the United States (Figure 7). Nine experienced surgeons who devoted their careers to head and neck surgery carried out operations, trained surgical oncology fellows, performed clinical research, and participated in conferences which were held twice a week. These conferences attracted many visiting surgeons from the United States and abroad. Martin's surgical expertise was remarkable, especially in the treatment of surgical and radiation failures. From this center, trainees went throughout the United States and many other nations, developing departments and practices that helped shape the specialty as we know it today. Ward and Hendrick [24], with courage and ingenuity, helped pave

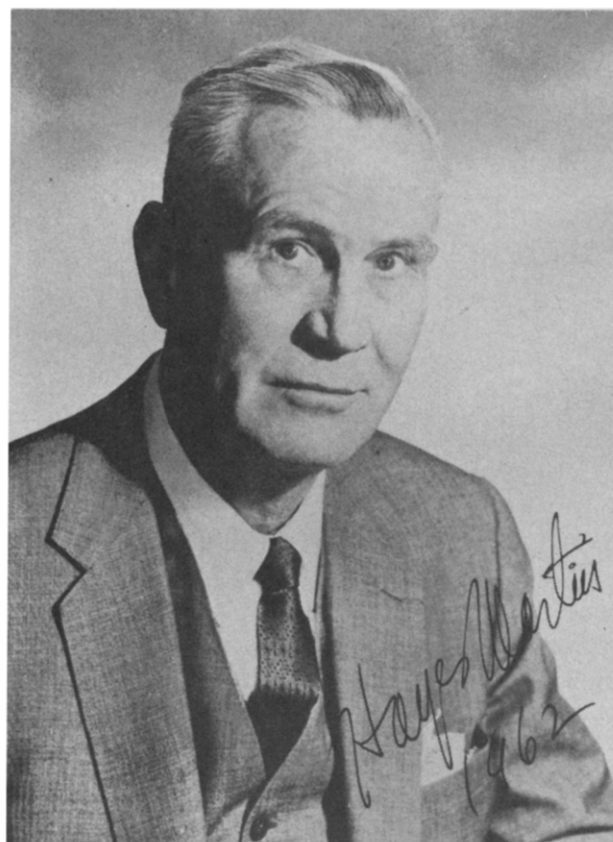


Figure 6. Hayes Martin.

the way for this progress. Cade, Gardham, Harner, Raven, and others from the United Kingdom and Redon and Portmann from France have played significant roles in the formation of modern head and neck surgery.

In 1954, Martin and Ward founded The Society of Head and Neck Surgeons, the first organization of its kind. At that time, comparatively few surgeons practiced this specialty. Not long afterwards, The Association of Head and Neck Oncologists of Great Britain was organized through the efforts of Mr. Ronald Raven, one of the great pioneers in this field. These two groups have spearheaded the attack against head and neck cancer in their respective nations. As this comparatively new specialty continues to develop, more head and neck societies have been appearing throughout the world. In the United States, the otolaryngologists have developed the American Society for Head and Neck Surgery. Immediately after our combined London meeting, the formation of an International Federation of Head and Neck Societies will be announced by Jatin Shaw of New York.

The past 20 years have brought great advances. Plastic surgeons have become important members of these groups. They must be given credit for their reconstructive contributions. With the use of new flaps for immediate reconstruction after extensive



Figure 7. The Head and Neck Service, Memorial Hospital, 1955.

resection, remarkable achievements are now commonplace. Modified neck dissections are being successfully applied in certain settings that hark back to Butlin's work [25]. Preservation of the spinal accessory nerve, if uninvolved, has become routine in most cases. Forehead and deltopectoral flaps have been replaced in many instances by myocutaneous flaps, pioneered by Ariyan [26]. Free flaps are gaining popularity, and craniofacial surgery is being perfected at centers in the United Kingdom and the United States.

Radiation therapy has now established itself as one of the vital tools in head and neck cancer therapy. Team efforts have become essential. Pretreatment planning very often now involves the surgeon and the radiotherapist. Computerized tomography and magnetic resonance imaging have emerged as helpful staging tools. Chemotherapy is being applied with limited though increasing success. Research developments, such as flow cytometry, are rapidly entering the clinical field. Despite all this progress, advanced cancers continue to defy the modern head and neck surgeon. The challenges of the future will call forth new pioneers, not only in surgery but in research, early diagnosis, and prevention. It is intriguing to envision modern efforts by Henry Butlin and Hayes Martin were they to appear on the surgical scene today.

Looking back in time, we note that Billroth, Kocher, Butlin, Crile, and Martin were the leaders in the founding of our field of surgery. Each played a vital role. Martin fine tuned the specialty. He should be called the modern head and neck cancer protagonist. After due deliberation, I conclude that Henry Butlin has earned the title of first head and neck surgeon. He laid the ground work for many modern approaches. Today, the culmination of all these surgical labors should mark the beginning of cooperative ventures between the Society of Head

and Neck Surgeons and The Association of Head and Neck Oncologists of Great Britain. From two nations, these two societies struggling against a common foe, have emerged in the shadows of two historic figures: Butlin and Martin, one from the United Kingdom and one from the United States. Surely this symbolizes the efforts of both countries in the surgical attack upon head and neck cancer.

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