PREFACE

ON JANUARY 26, 1874, the fates were auspicious to the birth of anyone destined to become a medical man; particularly were they auspicious for one marked out for a life work in the field of surgery.

That birthday, which was Harold Brunn's, logically would bring an intending physician to the gate of medicine in 1895; and that was the year in which we find him as a young man of twenty-one, carrying his degree Doctor of Medicine, away from the University of Pennsylvania.

Anyone entering medicine, and looking forward to surgery at that particular moment was fortunate. Examining the events of 1895, we find that they marked a decade which opened an epoch of revolution in all science. Particularly, it marked an even more revolutionary era in those sciences which serve medicine and surgery. The dead husks of outworn biological conceptions and of ancient medical philosophies were being rapidly shed. New facts, new theories, new philosophies were being taken on. Medical theory, medical practice, the techniques of both medicine and surgery, all of them were rapidly acquiring a new understanding, a new boldness, a new effectiveness.

Osler had brought to America the British idea that hospital wards are the laboratories of clinical medicine and surgery. Welch had come back from Germany ready to establish the truths that medicine is a major branch of biology; that it must rest upon a foundation of physiology and pathology (after all, the latter is but the physiology of the abnormal), and that physiological knowledge can best come from university departments organized to investigate as well as to teach. It was just a few years before Brunn's graduation at Pennsylvania that the two ideas, apparently diverse, about medical education were blended. It was a year or two earlier that the great clinician and the great pathologist had joined forces with Halsted, Kelley and Hurd at Johns Hopkins University Medical School and Hospital. There in Baltimore they were welding the British and American ideals into something new—something that was to become a distinctive "American Medicine," a practice of the healing arts that would bring

the laboratories to the service of the wards, and of the clinics, that would give to research workers at their benches new problems to solve, many of them problems formulated at the bedside. The process of this welding gave the first faint foretaste of the teamwork that has grown up between scientists, specialists and secretaries, a teamwork that gives American medicine so much ability to progress, and so much power to achieve.

It was an exciting time for a young medical man who, like young Harold Brunn, was full of vigor, the lust for life, abounding curiosity, a great enthusiasm and an abiding belief in his chosen profession. An exciting time indeed! The old in medicine was stubbornly fighting a rear guard action against the new. Amazing to us is what seems to be the blindness and the stupidity of the champions of the old order. Men of great achievement, men of proven genius, were rejecting and incessantly deriding the truth. Perhaps when Brunn's young disciples have lived to his age, they in turn may be astounded to see what in their future may have become axiomatic fundamentals, was rejected by the medical workers of the 30's and the 40's of the 20th century. What may astound them even more, perhaps, will be to know of the stultifying errors of fact and of philosophy which in our deep ignorance we of today may be taking to be the truth. But that has always been the way of the world.

As the 20th century nears its mid-point, theory and practice of anesthesia and asepsis determine and completely dictate the activities of surgery. So much so, that it is almost impossible for those alive today to realize how very short a time ago it was that these ideas first appeared in the world, and how impossible to believe how very recently their acceptance not only was being rejected, but was being ardently resisted.

The year 1895, that year in which Brunn gained the right to be called a doctor, is a convenient date, at which to stand between the old and new and take stock. It is a vantage point, from which one can look backwards and forwards at what medicine has been, was, and was then becoming.

Looking backward to 1874, the year of Brunn's birth, we find that it was only a few years before, that a French surgeon justifiably

had called the hospital operating room "an antechamber to death." Hospital mortality rates shocked even the surgeons of the time, and they were callous men. Callous, however, not for lack of human feeling, but because they saw no alternative to the lethal effects of surgery, had no hope of betterment. Fourteen years before that 1874 birthday, the Massachusetts General Hospital had proudly presented its post-amputation mortality figures—26 per cent. At Brunn's Alma Mater, the University of Pennsylvania Hospital, the rate then was just less than 25 per cent. Those statistics gave the American surgeons good right to be proud, for at the same time, Parisian surgeons were losing 58 per cent of those whose limbs they amputated, the Swiss 48 per cent, and Sir John Erichsen, notable British surgeon of the 60's then in charge of surgery at the University College Hospital in London, could write, "A general mortality for many years of 24 to 26 per cent of all major amputations of the limbs for all cases, may be considered a very satisfactory result."

Once in the University Hospital, this Sir John had as his house surgeon a young man named Joseph Lister; Joseph Lister, a queer sort of youngster always more interested in pathology and microscopy than in the pursuits with which normal young men lighten their leisure. Lister had gone from London to Scotland and because of his love for pathology, his skill with the microscope, and a questioning curiosity that could not be appeased, he had been able to apply Pasteur's work to surgery. In that application, using crude methods of antisepsis, he introduced the modern era in surgery. Lister's results in operating not only were good, they were dramatic. But the great surgeons of that time—as great men are apt to be, rooted in habitudes—would have none of it. To them pus was still "laudable." A great surgeon in 1873 (and that was only one year before Brunn was born), could express himself in these words: "The art of surgery is but the application of manipulative methods to the relief and cure of injury and disease. Like every other art, whether it be manipulative, plastic or imitative, it can only be carried to a certain point of excellence. An art may be modified, it may be varied, but it cannot be perfected beyond certain attainable limits. And so it is, and indeed must be with surgery. There cannot always

be fresh fields for conquest by the knife. There must be portions of the human frame that will ever remain sacred from intrusion, at least by the surgeon's hands. That we have nearly, if not quite reached these final limits, there can be little question."

It is not surprising that such words could be written. The waning 19th century was a time when surgeons, perforce, had to intervene as little as possible; had to amputate with almost a prestidigitator's rapidity of manipulation. Only the hardest—foolhardiest, most physicians of that day thought—dared to enter the abdomen, the skull or the chest, and then only because of urgent need. Little could Sir John or his great colleagues foresee how all this was to be altered by the young man, Joseph Lister, who once had been a hardly noticed hospital assistant.

By virtue of the new knowledge gained by the great French chemist Pasteur, in the face of unkind, often bitter opposition, step by experimental step, Lister gave a gift to surgery that brought to it new powers and new capabilities. The faith in "laudable" pus disappeared along with belief in "the genius epidemicus," the asserted source of sepsis. Out went filth and futility from the operating theater as antiseptic methods came in.

The influence of the casual in human destiny is well illustrated in the story of how Lister chose carbolic acid as the appropriate chemical sterilizer, and so became anchored fast in the idea of antiseptis. Stuck in its mud—so to speak—while at the identical time Pasteur was working out and clearly teaching the principles of asepsis for bacteriological and laboratory purposes, although he did not apply them directly to the needs of physicians and surgeons. It all happened accidentally because Charles Calvert, a great English chemist, had just discovered carbolic acid, and had showed that it effectively deodorized sewage, and at the same time rendered it innocuous. It seemed natural to young Lister to try out the powers of this newly described chemical, and find out how far it would antagonize the contaminators of wounds, which Lister, following Pasteur, believed to be living mites floating in the air. He was impressed, too, with what the obstetricians for a long time had clearly recognized, that contagion could be transferred to wounds by soiled, unwashed hands.

It took a long time—many, many years—for the germ theory of Pasteur and the antiseptic and aseptic techniques of Lister and his disciples to establish themselves as unassailable principles. The application of these simple Pasteurian methods to the needs of surgery awaited the vision of Neuber. Only in the late 80's did this great surgeon of Kiel begin to insist that all things that might touch the operation area be boiled. Dressings, instruments, the patient's gown, the surgeon's smock and the salt solution to be used for irrigation all were boiled. From Neuber's clinic the practice spread throughout Europe. Von Bergman in Berlin did much to speed the gospel of asepsis, and by the late 90's it had become generally recognized as one of the fundamentals essential to the practice of surgery, of medicine and of public health. The struggle went on through that span of years that lay between Harold Brunn's birth and his appearance at the University of Pennsylvania Medical School. It went on all the while he was growing up at San Bernardino, while he was building his knowledge, and strengthening his intellectual powers in grammar school and at high school.

By the time Brunn had become a doctor in 1895, the principles of Pasteur and Lister had become incontrovertably established. But how gradually, and in what fragmentary way came the applications of those principles. And how slowly came the full perception of the wide opportunities these fundamentals, taken together with the liberating practice of anesthesia, had brought to the practice of surgery.

It was as late as 1890 that Halsted of Johns Hopkins had metal casts made of his hands, and had built on them the first pair of surgical rubber gloves. In Germany about the same time surgeons were just beginning to wear thread gloves while operating. At this era the influence of the safety of the methods that Lister had introduced was just beginning to bear fruit.

Now that surgeons could enter the great spaces of the body complacently and confidently and operate within them without fear that sepsis would kill more patients than surgery saved, an urgent demand was springing up for still better means of diagnosis. Under these circumstances, early diagnosis became the first of desiderata. Not until 1895, the year Dr. Brunn took his diploma from Chan-

cellor Pepper, did there come the greatest diagnostic aid of all—the discovery of the x-ray, a revolutionary development that followed Wilhelm Conrad Roentgen's observation that paper coated with barium-platino cyanide, glowed luminously when the cathode rays from a Crookes tube fell upon it.

Just about this time—lured as were most new graduates who could find the money—young Brunn was on his way to the home of Roentgen. To young Americans of that day, Germany was a fabulous land, the highlighted land of progress and accomplishment in medicine, a land of brains, beer and blondes. Reports were coming in never ending streams from Bonn and Breslau, from Berlin, Freiberg, Heidelberg and a score more of university cities, about new knowledge derived through the x-ray. Fractures and bone diseases were yielding up their secrets. In 1896 while Brunn was pursuing his "reisejahr," Becker, for the first time, gave an opaque meal to a guinea pig, and then took the pioneer revealing x-ray of a hollow viscus. But not for another 25 years was the means of visualizing pulmonary lesions through the use of lipiodol to be introduced. It was an introduction which assured new and more subtle diagnostic powers to those interested in thoracic surgery, a field in which young Brunn was to make major contributions.

His year of European travel took Brunn to Breslau, where Mikulicz and Wolfer, the latter a pupil of the great Billroth (only just dead) were pioneering in gastric surgery. It took him to Leipzig, where Volkmann had just then performed the first excision of the rectum for cancer. Only 10 years before this the pioneer appendectomy had been done by Kronlein, operating after a perforation had occurred. A short time before (1899) a country doctor in a small Massachusetts town had given the indications, since become classical, by which inflammation of the appendix could be recognized, and in doing this had made the name McBurney famous for all time. But it was yet to be many long years before therapeutic and prophylactic operative removal of the appendix would become a commonplace of surgery.

In the year 1893, just when Brunn was enrolling as a freshman at Pennsylvania, Krause in Berlin had opened the skull of a patient,

and for the first time had excised the Gasserian ganglion. Krause's clinic was one all young Americans wanted to visit. So were the wards of Trendelenberg, and of Heusner, who were conducting the earliest clinics for gastric surgery where for the first time wounds of the stomach and intestines left by pathological perforations were being repaired.

All over Germany men were adapting the Frenchman Guyon's invention, the cystoscope, to the illumination and visual examination of other hollow viscera. Amongst these the bronchoscope, first devised in 1897 by Killian, was gaining notice. This bronchoscope was to play a great role in the development of thoracic surgery—a development in which Brunn was destined to take a notable part.

Everywhere in Germany during the early and middle 90's of the 19th century, new hospitals were going up, new plans were being devised to meet the growing needs and the expanding techniques of the surgeons. Everywhere research and service laboratories as well as great research institutes were being brought into close coördination with the wards and the clinics. Physicists were improving microscopes and microtomes and x-ray apparatus. Chemists were finding new staining materials, the coördination of physiology and pathology was at its most productive, most exciting stage. It was 1897 that Koch produced old tuberculin, two years after Pfeifer had observed and described bacteriolysis.

Brunn came back after his year abroad with new inspiration, new points of view, and new intellectual powers. He must have left Germany with deep regret. The Germany of that day was a genial, kindly place; a country that inherited the best traditions of European cultivation, believed in them, loved them, and was delighted to hand them on to other peoples. The Germans of those years were true "Herrenvolk," but in the realm of the intellect and of the heart. The stupid idea of race superiority and of a lordly political "Herrenvolk" destined to break and to rule all of the lesser breeds, had not yet begun to show its ugly possibilities.

Brunn tells his friends, that of all the vivid impressions of that "wanderjahr" which remain with him to this day, one of the most vivid is the memory of his first night at Heidelberg, where at the

grand old "Schloss," high above the river Nekar, he was introduced to the strange but fascinating ways of the Studenten Corps—gaily uniformed, scar-faced boys, beering and brawling through the moonlit Rhineland night. The California youngster trained in staid Quaker Philadelphia since then has grown to be one of America's foremost leaders in surgery, but he has never forgotten, never lost the power to enjoy in reminiscence the experiences of those carefree hours.

After all, there are but 12 months in a year, and that year filled as it was with a myriad of new achievements in medicine and surgery, was soon gone, and the young American student was on his way back to the new world, bringing with him new knowledge, and adjusted points of view. He arrived in California to establish himself, to win a world of friends, to put his imprint on the practice and teaching of surgery in his adopted city—San Francisco.

In 1897 San Francisco had a remarkable group of surgeons. The Nestor of the time, Levi Lane, and the truculent Beverly Cole were the last of the great whose training had been in the pre-antiseptic era. Lane's notable pupils, Stanley Stillman and Emmett Rixford, already were acknowledged to be among the leaders in the local field. Robert McLaine was recognized as a foremost contributor to the advancement of operative surgery in California. Douglas McMonigle, a Scotch Canadian with a flair for surgery, especially gynecological surgery, had made an important place for himself professionally and socially. McMonigle had built up a Women's Hospital, and had helped to develop surgery at the Children's Hospital. It was many years after his death that the two hospitals were united.

While an associate of McMonigle, Brunn made his bow as a practitioner in San Francisco. But the occupations of private practice were far from satisfying him; far from meeting his ambition for self-betterment and advancement. He had lost none of his student day enthusiasm for the microscope and the dissecting room. Before 1898 was over, Brunn was teaching pathology at the little old brick building which housed Dr. Toland's primitive Medical School at North Beach. This Medical School that was the forerunner of the present great Medical School of the University of California, where now in 1942 Brunn is Clinical Professor of Surgery. Through all the intervening

years, his connection with the school has never been broken, nor has his unremitting service done other than increase in intensity and in value as time with passing time.

Brunn's association with McMonigle brought him into contact with a group of physicians, all of them men esteemed and loved in San Francisco. The aspiring young surgeon won their support, admiration and friendship. William Watt Kerr, Harry Sherman, William Lewitt, Thomas Huntington were amongst these. The interests and training of Brunn fitted the needs this group of men had for assistance. He gained and grew from association with their experience and wisdom; they gained from his enthusiasm and the points of view then new to them, which he held in physiology and pathology. His natural loyalty and theirs combined to impress him increasingly with the importance to medicine, of coöperative effort between generations. These associations reinforced in him the determination which he has so consistently carried out, to give every worthy young colleague help and a chance to prove himself in his chosen field.

One of that group of friends in medicine who so greatly influenced the future of Harold Brunn was Thomas Huntington, a man of great culture, of vigorous will and of striking personality. Huntington was an accomplished technician who, while yet a small town surgeon, for the first time in California performed an operation using the Listerian antiseptic technique. Following that first experience, by example, word and pen, Huntington, as a young man had struggled—often against frontier types of colleagues offering sturdy opposition to the “new-fangled nonsense.” However, pertinacity and the logic of events finally won him recognition, and acceptance for his ideas. Levi Lane was one of his antagonists, but finally succumbed in the 80's. Beverly Cole, a sturdier conservative, never changed his conviction that “Listerism was all poppycock.”

Late in the 19th century, after this winning fight, Huntington came to San Francisco and later on was made Professor of Surgery at the University of California, with Harry Sherman as the Clinical Professor of Surgery. Huntington chose Brunn as his Assistant, and thus launched his young colleague on a distinguished career as University clinician, teacher and research worker.

And then in 1906 came the fateful moment when nature reached out and shook San Francisco well below her foundations, and not satisfied with that, tried her with fire. No disaster-preparedness committee had made plans for that day. But the more than 1000 injured did not go neglected. Promptly order was brought out of chaos; quickly those who needed aid were gathered into the auditorium—a huge sprawling wooden building, standing on Larkin near Grove streets, in the area that now houses our notable Civic Center. And here hurried most of the young surgeons of the time, among them Harold Brunn. And here they worked, caring for patient after patient, still putting on dressings, still soothing the dying while the wooden building caught fire and burned fiercely around them. Under these testing circumstances they safely evacuated the last patient just before the blazing roof fell in.

The great fire spared the San Francisco Hospital building. It was a quaint aggregation of wooden ward structures, connected by long wooden corridors, with primitive operating theaters, and not a laboratory from one end to the other. A very sketchy autopsy room provided the only place of work for pathologists. The place was infested by rats and by political parasites.

At the time there were four medical schools in San Francisco: the University of California; Dr. Lane's Cooper; the Hahnemann; and the Eclectic; and another institution, the Polyclinic, supposedly devoted to postgraduate instruction in medicine. Each of these had teaching rights in the hospital. Shortly after the great fire the Eclectic School folded up. A little later the Cooper became Stanford University Medical School, absorbing the Polyclinic teaching functions at San Francisco Hospital, and the University of California took over those of the Hahnemann School.

Amongst other post-earthquake adjustments, there came a change in the organization of the Department of Surgery at the University of California. Wallace Terry became Chief of the Department and Professor of Surgery, and he separated the service of the University Hospital from that at the San Francisco Hospital. The University then appointed Harold Brunn Associate Clinical Professor, giving him full authority for administration, patient care, and teaching surgery in

the University Services of the San Francisco Hospital. Here Brunn saw a great opportunity to build from the ground up. It was an opportunity that he seized at once and made the most of. The governing city authorities of the time could not be induced to establish laboratories, so partly at his own expense and partly with meager aid from the University, Brunn initiated in a small way the beginning of what has now become the truly remarkable coördination of the University of California's splendid clinical and operative surgical division with service and research activities in gross and microscopic pathology and bacteriology—the latter now under the direction of Karl Meyer.

It is an ill wind that blows no good. Even so bitter a wind as that which brought a second visitation of plague to San Francisco brought with it unimagined blessings. In 1907 Dr. Guido Caglieri sent a patient to San Francisco Hospital's very primitive pavilion for contagious diseases. Caglieri called the disease plague. The autopsy confirmed his diagnosis. The microscope revealed the little blue-stained bacilli of plague, myriads of them. More plague patients followed, one after another; well over a hundred cases occurred in that small epidemic. The contagious pavilion then was a collection of ramshackle buildings, situated apart in the grounds of the hospital. For it, no house staff was supplied, no staff of trained attendants or nurses. A microscope and a few bottles of stains constituted the laboratory. To give care to plague patients in a way that would protect the community was utterly impossible. The rats were still there, running riot all over the place.

San Francisco had just had a second serious shake-up. This time the notorious Ruef-Schmitz political machine which had dominated the city dishonestly for so many years, had been shaken loose at last, its hold finally broken. When the plague struck, there had not yet been time to repair the politicians' neglect and abuse of the hospital; nor any chance to find and employ competent attendants. No incinerator was available for use of the contagious pavilion. Inspection one midnight revealed that orderlies had built a bonfire and onto it had thrown many pus-sodden dressings soaked with discharges from open buboes. The fire had been allowed to die out and cool, and there, feeding like swine at a trough, were scores of huge rats, feasting on

the plague-infected dressings. James Watkins, an orthopedic surgeon was then acting as Health Officer of San Francisco. Watkins ordered traps set in the hospital sewers, and of the first 100 rats caught, 60 were found infected with plague.

By this time a new city administration had been installed and was functioning. Quickly this new governing body decided to close the San Francisco Hospital, and to move the patients to a temporary hospital improvised out of the grandstand and the box stalls at the old Ingleside Jockey Club's race track. At the same time, on the urging of Dr. Watkins, the new reform mayor, Dr. Taylor, was induced to appeal to the United States Public Health Service for help. This was immediately forthcoming under the direction of Passed Assistant Surgeons Blue and Rucker.

Soon, too, the new administration decided to destroy the old hospital and to build a new one. Within a few months the wooden structures which had been the pride of an earlier San Francisco and the especial interest of the pioneering Beverly Cole, who had been responsible for its design and erection, was no more than foundation stones and ashes. Not even the rat population was left. That had been scattered far and wide.

It was at the improvised Ingleside race track hospital that Harold Brunn worked during the interim years while the present magnificent San Francisco Hospital was being planned and perfected. The sight of that splendid group of buildings must always bring back the names of the present hospital's two creators, Newton Tharp, its architect, and Dr. Richard Broderick, who planned the interior and also was the hospital's first superintendent. Not anywhere, even in Italy, is there a more sightly example of the kind of brick work that made that country famous for the beauty of its palaces.

At the time that the hospital was opened in 1915 it was among the most modern and the most complete, although far from what it has become today under the scrutinizing eye and cherishing hand of Health Director J. C. Geiger. It was a far cry from the crude improvisations of Ingleside, and almost incredibly easier to do good work in than the earlier San Francisco Hospital had been. It gave the surgeons real opportunity. For the first time they found reasonable equipment at

their command. This was about the time that Brunn began to reap the reward of his devotion to the studious life and of his loyalty to the University. The Medical School, rapidly increasing in stature, could give its professors of surgery and their assistants greater opportunity and better equipment than most.

It was an epoch in which pathology growing dynamic, was beginning to draw on the rapidly expanding knowledge of biochemistry. Pathology grew in power; new and improved diagnostic instruments were devised, new operative techniques invented. Brunn attracted to him young men from all these fields. Through them he instigated, encouraged and supported research in many fields of surgery. He wrote; he stimulated his associates to write. Unstintingly he gave a large share of his own time and of his own energies to the advancement of those about him. And through it all he was spending himself unsparingly for the patients who came to him in private practice and in the free wards and clinics of the hospital. He devoted much ingenuity and effort to plans for clinical demonstration and to schedules that might increase the effectiveness of teaching. As a result, today the instruction in the principles and practices of surgery and of medicine given to second and third year students at the San Francisco Hospital under the guidance of Brunn and of Leroy Briggs, is recognized as second to none.

While such developments were going on in San Francisco, the armanentaria of medicine and of surgery were still increasing prodigiously. Wassermann applied the complement fixation phenomena discovered by Bordet to the diagnosis of syphilis. Ehrlich laid the foundation of modern Chemotherapy as he perfected Salvarsan. Carrell showed how tissues could be cultivated, von Pirquet introduced the skin test for tuberculosis, opening the way for the labors of Schick and Ramon, which since that day have almost wiped out the menace of diphtheria. Biologists, chemists, medical men, surgeons, scientists of every category were contributing. The newly introduced von Pirquet reaction brought back to mind the researches that Koch had been doing long before—in 1897—when Brunn was a visitor at the German clinics. Without a doubt his interest in tuberculosis and in thoracic surgery had begun in that far off day.

From the commencement of his service at the San Francisco Hospital, Brunn had seen the type of patient change. In the early years of the century, typhoid fever, malaria and tuberculosis still almost monopolized the wards. Patients stayed for months at a time. Chronic incurables remained for years, for there was no adequate hospital for chronic diseases as there is now at the Laguna Honda Home.

Thanks to the late William Hassler, a truly enterprising Health Director, about this time patients with tuberculosis were given a special pavilion. Thanks to the crusade for the pasteurization and clean production of milk, tuberculosis of the bones and joints and lymphatic glands, formerly very common, was becoming a rarity. Increasingly was cancer reaching the wards at a stage of the new growth when early diagnosis made surgical intervention a more hopeful procedure. Young men were coming from the medical schools trained to recognize early clinical and pathological indications of disease, able to do better x-ray work; more skilled in physical and laboratory diagnosis. Many of these young doctors had been students of Brunn and were drawn to him, and sought and gained appointments in his wards, and under his guidance developed research and study groups. Some of these busied themselves with cancer, some with abdominal surgery, and some with surgery of the chest. All were soon publishing worthwhile observations. As time went on, it was surgery of the chest that caught and held most of Brunn's interest. In his student days he had read about what was then a nine days' wonder. Rehn had sutured a knife wound in the heart. A year or two later Tuffier had used direct massage to restore movement in a failing heart. During the first decade of the 20th century, German surgeons at Trendelenberg's suggestion had attempted to free the pulmonary artery of an occluding embolism. After many failures, Krischner succeeded in doing this in 1924.

In 1933 Beck successfully apposed a pectoral to the cardiac muscle, creating a new coronary blood supply to augment the failing circulation diminished by disease. In 1936 O'Shaughnessy went one better and he implanted successfully the vascular omentum augmenting the blood supplied by an insufficient coronary arterial flow to the cardiac muscle. The bronchoscope that Killian had been experimenting with

at the time of Brunn's advent in San Francisco now was so perfected that the interior of the bronchial tree was made clearly visible. Bronchial adenomas, early cancers of the bronchial mucus membranes, tiny sacculations now could be visualized. Foreign bodies or inspissated secretions could be removed through the Killian tube.

One by one these happenings and the possibilities of teamwork with an ever increasing number of his young colleagues determined Brunn to develop thoracic surgery as his major activity at the San Francisco Hospital. In recognition of his efforts in this field, and because of his services to them, the Roos family endowed the J. J. and Nettie Mack Foundation at the University of California Medical School and directed that it should be devoted to the study of cancer and of thoracic surgery under the guidance of Dr. Brunn.

Today a poor young girl with a bronchiectasis, becoming a reeking stench, an offense to her fellows, driven to despair, her life an abiding horror, can find relief and redemption. A man with abscess of the lung, or another with a gangrenous pulmonary patch, can be restored from the distressing, disabling disease, for it is possible for the thoracic surgeon successfully to remove a lobe, half a lung, or, if need be, a whole lung. Rapidly extending pulmonary cavities, neoplasms, pyopericardium, pyopneumothorax and many more diastrous chest afflictions have been brought within the range of possible cure. A pneumothorax done, intrapleural adhesions cut, a lung collapsed and more often than not the patients' return to vigor, to earning power, to their rightful place in society is assured. The wage earner losing blood through hemoptysis, losing strength day by day, becomes an economic burden, no longer able to provide for his family, slipping down the social slope into poverty, into dependence. This sad picture is one rendered increasingly less frequent by the services of the thoracic surgeon—through such organizations as the Thoracic Clinic of the University of California under Harold Brunn.

Of the 34 major contributions to the surgical literature which constitute Harold Brunn's bibliography, 20 are concerned with questions of intrathoracic pathology or with the techniques of operative procedures in the field of thoracic surgery. That this interest is of long standing is shown by the fact that the first of these communications

appeared in 1926. In the succeeding 10 years, 12 more papers on related subjects were published. A scrutiny of the titles issuing from his clinics during the past five years shows how his interest in the subject has steadily increased. Among these contributions, there have been strikingly valuable studies of benign bronchial tumors, and of the but recently recognized adenomata originating in the bronchial mucus membrane. Study and research behind the papers have contributed fundamentally to an understanding of the genesis, pathology and management of these sorts of new growths. Through such labors as investigator and teacher came Brunn's contribution to this field of his paramount interest, the field of his greatest success.

What a long road has been traveled, what obstacles have been overcome, what unthought-of technical powers have been achieved since Brunn's student days of the 90's, when Roentgen's work was yet undreamed of; when von Pirquet's name had not been heard; when the bovine bacillus and the human tuberculosis bacilli had not been differentiated; when the terms allergy, anaphylaxis and atopy were still unspoken; when lipiodol had not been invented; when simple rib excision for the drainage of an empyema was looked upon as a daring, hardly to be justified innovation. All these and many more devices, based on the growing knowledge and changing points of view, have been brought to the service of thoracic surgery everywhere. Thanks to Brunn, quite as many came to San Francisco as to other medical centers.

No sketch of Harold Brunn's work could be complete that did not mention his creative achievement at Mount Zion Hospital. This sectarian institution developed uneventfully. It served the community in a sufficient but uninspired way. Some years ago, the directors of Mount Zion, feeling that the institution could be made more worthy of the times and of modern medicine, turned to Brunn for aid. Within a few months his enthusiasm and the confidence he always inspires, has rallied a group of substantial citizens to the support of the hospital. Funds were forthcoming, and a new life soon was instilled into the directorate and the management.

Brunn's vision showed him that without research and teaching the best clinical services do not suffice to create a first-class modern hos-

pital; and his university experience thoroughly confirmed this idea. His ability to draw to him able colleagues and to inspire them with his own ardor, brought to Mount Zion a staff of exceedingly able men. Some of these physicians were of his own generation, most were younger men. He placed them in the various clinics and in the newly organized Mount Zion Research Laboratories, for which he was largely responsible. Out of this institution has come a steady flow of research and clinical reports, all of them of first-class importance. This regeneration of the Mount Zion Hospital—re-creation perhaps is a better word—is one more major contribution to be added to Brunn's many others.

Any who have been his students, or his colleagues, any who have been honored with his kindly friendship, any who have experienced his unwavering loyalty, cannot but know that in Harold Brunn they have found companionship with a man of the noblest stature. In this keen clinician, inspiring teacher, friend of learning and unselfish servant of his fellow men, they have a companion with whom they can go into the future, confident that his great qualities will produce still greater achievements in the years to come.

LANGLEY PORTER