



The Surgical Legacy of Randolph Lee Clark Jr, MD: First Surgeon-in-Chief and Director of University of Texas MD Anderson Cancer Center I. Training and Surgical Practice Before Recruitment to University of Texas MD Anderson Hospital

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ABSTRACT Dr R. Lee Clark Jr was the first Surgeon-in-Chief and permanent Director of the University of Texas MD Anderson Cancer Hospital, leading the institution from 1946 to 1978. He is known for his visionary leadership as President, but much less about his prodigious activity as a general surgeon and for his academic contributions as a clinical researcher and surgical educator. His general surgery training at the Mayo Clinic from 1935 to 1939 was extensive, having been involved in over 2000 operations. Dr Clark then began a prodigious surgery practice for 2 years in Jackson, MS. He described his clinical practice: “I have done more than 600 major operations a year, of all types—from the brain to the colon”. He was commissioned into the Army Air Force in 1942, as Chief of Surgical Services, with 30 surgeons at a 1000-bed hospital in North Carolina. In 1944, he transferred to Wright Patterson Field in Dayton, OH, as Chief of the Experimental Surgical Unit. He published numerous articles about surgical problems in aviation medicine and edited the journal *Air Surgeon’s Bulletin*. His final assignment in 1945 was Chairman of the Department of Surgery at Randolph Field in San Antonio, TX. On 12 July 1946, after a rather turbulent and vacillating recruitment process, Dr Clark received a unanimous

vote by the University of Texas Board of Regents to become the first permanent Director and Surgeon-in-Chief, and so, Randolph Lee Clark Jr began the most productive and impactful phase of his career.

Keywords R. Lee Clark jr · MD Anderson Cancer Hospital · Surgical Oncology · Ernst Bertner · John Spies

“The pursuit of knowledge about human beings has never been work for me; it has always been pleasing ... When you finally get down to it and want to learn that the beginnings of the human being—the replication of his cells, the protoplasmic determination, and the things that make them wrong or natural—constitute a fascinating road to follow ... That kind of interest led to the study of medicine. Following that came the decision on how best to personally do something about it. That meant surgery as a specialty. This led to cancer and uncontrolled cell replications ... I learn something about this phase of the human being on a daily basis. And this is why every day is a good day ...”

– Randolph Lee Clark Jr¹

While Dr Randolph Lee Clark Jr is well-known historically as the first Director²;¹ and Surgeon-in-Chief of the University of Texas MD Anderson Cancer Center, little has been written about his prodigious and extensive activities as a general surgeon and as a surgical oncologist. His professional activity is also a story of general surgical practice in the 1940s and 1950s, a time when there was

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¹ Dr Clark’s title was changed to President and Surgeon-in-Chief in 1968.

very little surgical specialization, limited availability of antibiotics, and few options for cancer treatments other than surgical excision.

We are fortunate, historically, that Lee Clark was a prolific writer and that he frequently chronicled his activity in typewritten letters to family, friends, and surgical colleagues. This is the previously untold story of his surgical activities, including involvement in many surgical societies.

EARLY HISTORY (1907–1928)

Randolph Lee Clark Jr was born on 2 July 1907 in Hereford, TX, where his parents had moved to help his grandfather to start another school.^{1,2} He grew up in Wichita Falls, TX, where his father, Randolph Lee Clark Sr, was Superintendent of Schools.^{1,3,4} After graduating from high school at age 16 (in 1923), he went to Tarleton Junior State College and then transferred to the University of South Carolina, where he received a Bachelor of Science degree in Chemical Engineering, including a major in English literature, in 1927.^{1,3,4} With only \$5 in his pocket at graduation, he had to earn money for medical school. He then worked for 18 months at a major chemical firm in Newark, NJ, where he supervised a research unit that included 14 PhD chemists. He invented a new process for making a pigment that for years was used in the manufacture of paint and tires.⁴⁻⁶ He later recalled: “Research and chemical engineering were satisfying, but they dealt with inanimate objects ... I hoped I would find in the study of medicine what I had been looking for all along, the meaning of life and people”.¹ In September 1928, Lee Clark and his boss (and future brother-in-law), Jack

Worsham, left their job at the chemical plant and drove to Richmond, VA, to attend the Medical College of Virginia (MCV).⁴

SURGICAL TRAINING (1932–1939)

Dr Clark received his medical degree from the Medical College of Virginia in 1932, where he ranked first in his class^{7,8} (Fig. 1 and electronic supplementary Fig. S1) (see footnote 4). Dr J. Shelton Horsley, Surgeon-in-Chief at MCV, sparked his interest in cancer surgery.^{1,9} One week after graduating, he married Bertha Margaret Davis (on 11 June 1932), who was the only woman in his medical school class and who graduated second in the same class (Fig. 1c).^{1,10} Drs. Lee and Bertha Clark took their state medical board examinations while on their honeymoon, then they both did a rotating internship at Garfield Memorial Hospital in Washington DC from July 1932 to December 1933.^{1,4}

It was common at that time for surgeons to have part of their training in Europe. Therefore, Drs Lee and Bertha Clark went to Paris, where he trained as a surgical resident at the renowned American Hospital from December 1933 to January 1935 (the only private hospital in Paris) and his wife trained as an obstetrical residency at Tarnier Maternity Hospital (Fig. 2).^{1,6} In his second year as a surgical resident, he worked for 6 months at the Pasteur Institute and the Radium Institute under Marie Curie, the twice Nobel Prize winner, during her final months of life. As one of the leading centers in the world, the Radium Institute experience showed Dr Lee Clark the potential of using brachytherapy and external-beam irradiation for future cancer treatments.^{1,4} This experience early in his career surely influenced him when he arrived in Houston as the Director and Surgeon-in-Chief of MD Anderson Hospital, where one of his first major recruitments was Dr Gilbert Fletcher as Chief of ‘Therapeutic Radiology’, who established the world’s first cobalt 60 radiation unit.^{1,4} During his residency in Paris, he worked with the famous Dr Thierry de Martel, the Director of the American Hospital and founder of French neurosurgery; this was an important experience as a surgical trainee, for Dr Clark would years later be the only surgeon in Mississippi who would perform neurosurgical procedures in the brain and spine. During his last few months in France in 1935, Dr Clark traveled to Strasbourg to visit the famous surgeon Henri Reni Leriche. While at the Clinique Chirurgicale, he met an American surgeon who had just arrived for training, Dr Michael E. DeBakey from New Orleans.¹¹ The two of them would join together 13 years later in Houston as surgical leaders in the Texas Medical Center.

² Three generations of the Clark family were educational leaders, notably in starting schools in Texas. Grandfather Randolph Clark, an ordained minister, founded Wichita Falls Junior College. He and his brother Addison Randolph Clark started the AddRan Christian University (named for the brothers Addison and Randolph Clark), first in Thorp Springs, TX, in 1873, then moving to Waco Texas in 1895, where it was renamed as Texas Christian University in 1902, and finally moved to Fort Worth in 1910.¹

³ His father, Randolph Lee Clark, was an educational leader in Wichita Falls, TX (where he was Superintendent of Schools and established Wichita Falls Junior College, which eventually grew into Midwestern State University), then in Gainesville, TX (as President of Gainesville Junior College, which became North Central Texas College), and then in Cisco, TX (as President of the Randolph College, named in honor of Randolph Clark, which is now Cisco College). He was also President of the Texas State Teachers Association in 1925.¹

⁴ During medical school, he was President of his medical school class, and Founding President of the MCV Alpha Omega Alpha Medical Honorary Fraternity; he coached a wrestling team and became the national amateur middleweight wrestling champion.⁸

FIG. 1 (a) Medical students Lee Clark and Bertha Davis at their anatomy class at the Medical College of Virginia (1930). Graduation photos of (b) Dr R. Lee Clark Jr and (c) Dr Bertha Margaret Davis in June 1932. (Photos courtesy of McGovern Historical Library, Texas Medical Center. Series I. Box 44; file 14 and Box 28; file 19. Used with permission)

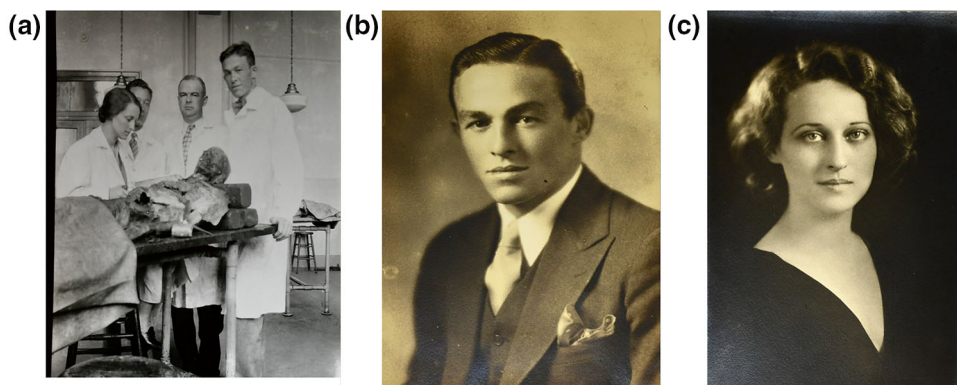


FIG. 2 Dr Clark had his early surgical training at the famed American Hospital in Paris from 1933 to 1935. His wife, Dr Bertha Davis Clark, trained as an obstetrical resident at the nearby Tarnier Maternity Hospital. Photo at the hospital includes (left to right) Drs. Duncan McEachern, Lee Clark, Bertha Davis, and William Farmer. (Photo courtesy of McGovern Historical Library, Texas Medical Center. Series I. Box 28; file 19. Used with permission)

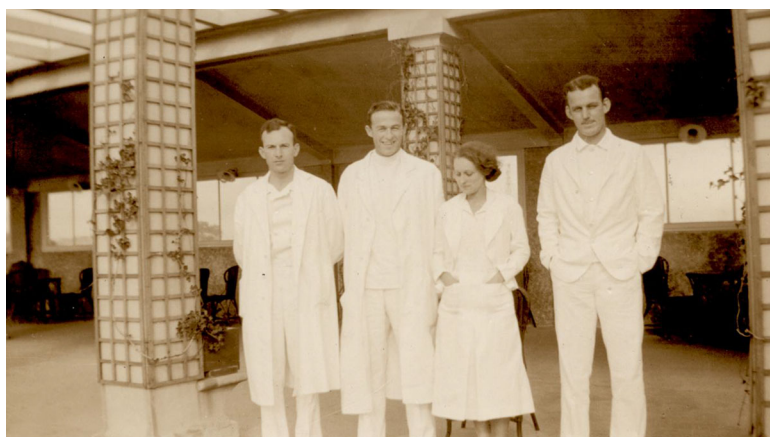
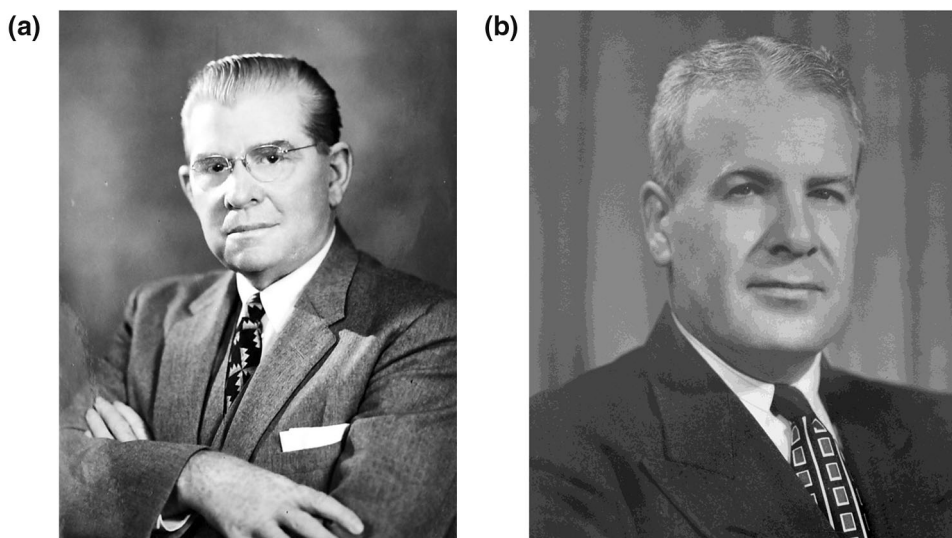


FIG. 3 (a) 1957 photo of Dr Claude Dixon (1893–1968) who was Chief of General Surgery during Dr Clark's training, and an expert in colorectal surgery at the Mayo Clinic, Rochester, MN. He was a primary mentor to Dr Clark over his entire career.¹² (b) 1952 photo of Dr O.T. (Jim) Clagett (1908–1990) who trained with Dr Clark at the Mayo Clinic in the 1930s. He became the Chief of Thoracic Surgery in 1940 at Mayo Clinic. Dr Clark considered him as one of his best friends.¹ (Photos Courtesy of Mayo Clinic. Used with permission)



Fate would influence his surgical career when Dr Claude Dixon, Head of General Surgery at the Mayo Clinic, visited the Salpetriere Hospital in Paris in 1934.¹² Dr Clark then invited him to tour the American Hospital, where he was the Chief Resident in Surgery (Fig. 3a).^{1,12,5} From that time forward, Dr Dixon became his primary mentor throughout his career, first encouraging him to come to Mayo Clinic for training (April 1935–October 1939), then advising him regularly about his general surgery practice in Jackson, MS (1939–1942), and later being a primary advocate for him being appointed as the Director and Surgeon-in-Chief of the MD Anderson Cancer Hospital (1945–1946).

At the Mayo Clinic, Dr Clark did not begin as a surgical trainee, but instead spent the first 15 months training in internal medicine and then as a surgical resident for 3 years (electronic supplementary Fig. S2).^{2,4} This dual training experience uniquely shaped his cancer practice into a blend of both a surgical and medical perspective. His general surgery surgical experience was prodigious and extensive, having been involved in 2000 operations at the Mayo Clinic; cancer cases comprised about two-thirds of this caseload.¹ He was the first assistant for 18 months with his surgical mentor, Dr Claude Dixon, who was Chief of General Surgery (Fig. 3a and electronic supplementary Fig. S3). He also earned a Masters of Science in Surgery from the University of Minnesota in 1938 with a thesis of ‘Iron Metabolism and Anemia with Cancer of the Right Colon.’¹³ His wife Bertha was offered a staff position in pediatrics at Mayo Clinic, but instead she chose to train in anesthesia (and gave birth to their two children while in Rochester) [electronic supplementary Fig. S2].¹

Dr Clark’s mentors thought highly of his professional skills. Dr Claude Dixon, his primary surgical mentor at Mayo Clinic, stated that Dr Clark was “one of the most outstanding young men we have ever trained. He also is one of the very few men who is both an excellent clinician and an outstanding surgeon, and who at the same time has maintained a keen interest in research”.¹⁴ “I do not have the slightest doubt”, wrote Dr Dixon in 1946, “but that he will develop into one of the great leaders in the profession”.¹⁵ Dr Albert C. Broders, Director of Surgical Pathology (August 1939), stated, “Dr Clark is one of those rare individuals in whom is combined imagination, sound judgment, energy, technical skill, and integrity which is at

all times above reproach”.¹⁶ Even the legendary Dr Will Mayo was interested in recruiting him onto the Mayo Clinic surgical staff at the completion of his surgical training.¹⁵

SURGICAL PRACTICE IN JACKSON, MS (1939–1942)

Once again, fate would offer a unique opportunity for Dr Clark to fully utilize his surgical skills in Jackson, MS, where he would be the Chief Surgeon in a private clinic with three surgical partners.¹ This practice opportunity, which drew from a large geographic area with 70 primary physicians, came about because one of their senior surgical partners (Dr Frank Hagaman) tragically died in an auto accident⁶ and the practice needed an immediate recruitment.¹⁷ However, there were also personal reasons. Dr Clark’s brother-in-law, Dr John Henthorne, had already moved to Jackson, MS, from the Mayo Clinic as a pathologist at Mississippi Baptist Hospital. This family relationship influenced the Clark family’s decision to settle in Jackson, MS.¹ Interestingly, he also wanted his family to be raised near his Texas roots. When asked why he and his wife had not stayed at the Mayo Clinic, he responded: “I have been in Jackson two years ... I could not see myself remaining in Rochester and raising my kids as Yankees, so we moved before they developed an accent”.¹⁸

Beginning in October 1939, Dr Clark quickly developed a prodigious surgical practice at Mississippi Baptist Hospital, with his wife Bertha (Bert) as his primary anesthesiologist. Cancer surgery comprised the majority of his caseload, as it had at the Mayo Clinic. As Dr Clark described his surgical practice, “Since my arrival here, we have had over a thousand surgical cases to do. There is an abundance of pathology in these parts, and I have recently had quite a few neurosurgical cases”.¹⁹ His general surgery practice was huge and comprehensive (Table 1). He described his practice in 1942 in two letters. The first was when he applied for his commission in the Air Division of the Army Medical Corp: “I have done a large volume of surgery in private practice since I left the Mayo Clinic nearly 3 years ago, having done more than 600 major operations a year, of all types—from the brain to the colon”.²⁰ After receiving his commission, he wrote to his surgical mentor, Dr Claude Dixon, at the Mayo Clinic: “I am enclosing a list of patients I had in the hospital on the day I received my (Army) Commission. All of these patients were on my personal service, and I had operated upon them personally, and, as you will see, there is considerable variety. I have been very pleased all along with the great amount of pathology that I have seen since

⁵ Dr Clark later wrote to Dr Dixon in 1957: “This visit [in Paris in 1934] became the guiding beacon that has determined the destiny that I have since pursued ... Your intervention in my behalf, undoubtedly, was a major factor in my securing and accepting the (Mayo) Fellowship without benefit of an interview. This Fellowship, and the opportunity to work with you during the almost five years of my stay at the Mayo Clinic set the pattern and gave me, not only the vision, but the “working tools” with which to pursue my medical future”.¹²

⁶ 18 August 1939.

TABLE 1 A typical 9 weeks of surgeries by Dr Clark in 1942^a

During 9 weeks from 1 January to 23 February 1942, Dr Clark performed 116 operations (averaging 13 cases a week)—70 operations during January 1942 and 46 operations during the first 23 days of February.

His caseload, categorized by disease site, included:

1. Gastrointestinal surgeries (49 cases), including appendectomies (15 cases), cholecystectomies (6 cases), intestinal bypass or ostomies for advanced cancer (7 cases), gastric resections, closure of duodenal ulcers, anorectal surgeries (5 cases)
2. Gynecological surgeries (29 cases), including dilatation and curettage (15 cases), radical hysterectomies (5 cases), oophorectomies (4 cases), tubal ligations (2 cases), uterine suspensions (2 cases), and ovarian cysts
3. Head and neck surgeries (13 cases), including thyroidectomies (5 cases), brachial cleft cysts (2 cases), radical neck dissection, parotid gland surgeries (2 cases each), excision calculi in the submaxillary gland, biopsy of a tumor in the mouth, plastic surgery of the lip
4. Extremity surgeries (10 cases), including amputations of a leg and a finger, excision sarcoma thigh, palmar abscess, ligation of saphenous veins (2 cases), pyoderma of foot
5. Pediatric surgeries (9 cases), including appendectomies (3 cases), circumcisions (2 cases), harelip repairs (2 cases), parotid gland exploration, and urethral surgeries
6. Breast surgeries (5 cases), including radical mastectomies (3 cases), breast biopsies, excisions of breast cysts
7. Hernia surgeries (5 cases), including repairs of inguinal (3 cases), femoral and incisional hernias
8. Skin surgeries (5 cases), including skin grafts (3 cases), excision of basal cell carcinoma, pilonidal cyst excision, incision and drainage of an abscess, excision of lipoma
9. Trauma surgeries (2 cases) of stab wounds
10. Neurosurgery, including craniotomy for removal of brain cyst

^aCompiled from Dr Clark's application to the American Board of Surgery; McGovern Medical History Library of the Texas Medical Center Series III; Box 95: file 4

working in Mississippi ... We had no mortality on this list. I must admit, however, that this was the biggest list to date, though I have consistently had over 25 postoperative patients in the hospital for the past year and a half".²¹ Years later, he described his Jackson surgical practice: "We were there two years, and I did over 1000 major operations, of which a disproportionate number were cancers or tumors".¹ His wife Bertha was equally herculean in her work ethic, having performed over 1400 anesthesia procedures during the same 2-year time period.⁶

Dr Clark was a diligent student of surgery and was constantly adopting new surgical procedures. The mentors for his surgical practice were three surgical icons, with whom he frequently corresponded: Drs. Claude Dixon and O.T. (Jim) Clagett at the Mayo Clinic (Fig. 3), and Dr Alton Ochsner at Tulane University Medical Center and the Ochsner Clinic (Fig. 4a). He wrote many letters to these three surgeons for advice and traveled on multiple occasions to observe surgery at the Mayo Clinic and the Ochsner Clinic.²²⁻²⁶ As described in one of his letters: "Bert (and I) came up to the (Mayo) Clinic for about a week. We had a good time and learned a lot of new tricks. I was particularly interested in the neurosurgery, and it will probably be necessary for me to do a good bit of it".²⁵ In a letter Dr Clark wrote to Dr Ochsner: "I wish to tell you how much I enjoyed attending your surgical clinic and observing you operate ... I would appreciate it if, at your convenience, you would let me know on what days I would most likely find you having an operative clinic".²⁶ Dr Ochsner replied a few days later: "It was indeed a pleasure

having you several weeks ago. I only regret that you could you not have spent more time with us ... I hold my operative clinic on Tuesday, Dr Gage has his on Thursday, and Dr DeBakey⁷ has his on Saturday".^{27,28} (Fig. 4b).

The American Board of Surgery began a national two-part examination program in 1938 to standardize surgical education and assess expertise. Surgeons were expected to be 'Board Certified' after completion of surgical training plus 2 years of surgical practice.²⁹ Therefore, in January 1942, Dr Clark applied to take the American Board of Surgery examination. As required, he listed his caseload of 820 operations at Mississippi Baptist Hospital, including 411 'colonic surgeries', with 43 deaths (10.46% mortality) and 409 cases listed as 'others',⁸ with eight deaths (1.9%), for a total mortality rate of 6.2%.³⁰ The most common causes of postoperative deaths were peritonitis (14 patients), sepsis (7), intestinal obstruction (7), embolus (6), and pneumonia (5). These outcomes are truly remarkable, given the diversity of caseload in every anatomic area, and that he was the only surgeon between New Orleans and

⁷ Dr Ochsner was also a primary mentor to Dr Michael DeBakey and was a major influence in his moving to Houston in 1948 to become the first Chair of the Department of Surgery at the newly relocated Baylor Medical School in the Texas Medical Center, just a short distance from where Dr Clark was planning the building of the MD Anderson Hospital (Fig. 5).²⁷

⁸ Most common non-colonic operations: 165 thyroidectomies, 43 cholecystectomies, 10 appendectomies, 19 gastric surgeries, 42 gynecological surgeries, 29 hernia repairs, 26 intestinal bypass procedures.

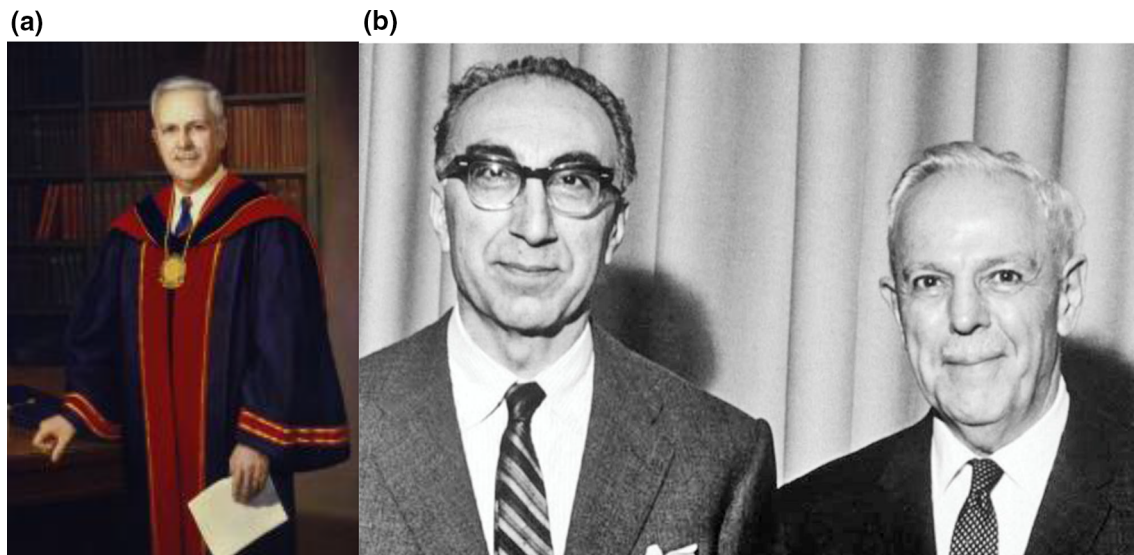


FIG. 4 Dr Alton Ochsner (1896–1981) and Dr Michael DeBakey (1908–2008) at the Ochsner Clinic and Tulane University Department of Surgery. Dr Ochsner was the Founder of the Ochsner Clinic in New Orleans, LA, and President of the American College of Surgeons

(1951–1952). Dr Ochsner was a mentor to both Dr Clark and Dr DeBakey and encouraged both of them to take the professional risk of starting major programs in the 1940s at the newly formed Texas Medical Center, Houston, TX.

Memphis who was performing these large-scale operations, at a time when there were only sulfa antibiotics to treat any surgical infections.

In March 1942, Dr Clark paid \$20 to take the written examination (Part I) of the Surgical Boards (which he passed), and was then quickly scheduled for the oral examination (Part II) the following month.³¹ He paid \$50 for this second examination and then traveled to New Orleans to take the Board examination on 20 April 1942 at Charity Hospital New Orleans.³² His examiner was Dr Alan O. Whipple, who was then the Chair of the American Board of Surgery and the Medical Director of the Memorial Cancer Hospital in New York City. Dr Clark described Dr Whipple as “very considerate, and we really had an enjoyable time”.³³ He was certified by the American Board of Surgery in May 1942.³⁴

As described by one of his biographers, “In Jackson, he displayed unusual agility in the operating room, his eye-hand coordination exquisite, and his speed unrivaled. Unlike most surgeons, Clark had the training of an internist with the intellectual curiosity that transcended tumor removal and tissue repair”.² However, Dr Claude Dixon, one of his Mayo Clinic surgical mentors, expressed some concern about the ‘super dedication’ to his work and his prodigious surgical workload (Fig. 3a). In a handwritten letter on 28 May 1942, Dr Claude Dixon wrote: “Now, Clark, you’re too young and inexperienced yet to understand why you can’t always keep on the go 24 hours a day. For God’s sake, start now to take it easier ... You owe something to your family and yourself. Just quit running all over Hell’s half-acre seeing cases. You can’t operate on

everyone. Confine your work to your own hospital only. I don’t give a damn what anyone tells you. I know I am right, and I do want to tell you before you “crack-up” ... Remember me to Mrs. Clark. This advice also applies to her. You both know how interested I am in your welfare ... As ever, C.F. Dixon”.³⁵

SURGICAL PRACTICE IN THE ARMY AIR FORCE (1942–1946)

One Sunday morning on 7 December 1941, Dr Clark heard on the radio that Pearl Harbor, Hawaii, had been attacked. In his words, “I asked to be relieved of my responsibilities in Jackson and went to the Army Air Force⁹ (AAF) Medical Department”.¹ Although he volunteered to go into the military, he was viewed as an ‘essential’ physician in his local area, and the draft board had some hesitancy about his leaving a busy surgical practice.³⁷ Dr Clark persisted and was finally commissioned into the AAF with the rank of Captain in August 1942 and was assigned

⁹ By 1943, there were 2.4 million airmen in the Army Air Force that provided air combat and support until 1947, with the creation of the Air Force as a separate component of the military. Military airplanes were flying much faster and higher than ever before, creating new medical problems for airmen, including injuries from crashes, G-forces, and high-altitude frostbite. By the end of the war, the AAF had successfully acquired its own medical system oriented to the special needs of air warfare, with over 8300 doctors. This accomplishment reflected the determined leadership of AAF medical leaders and the dedication of thousands of medical practitioners who volunteered for aviation medical responsibilities that were often undefined or unfamiliar to them.³⁶

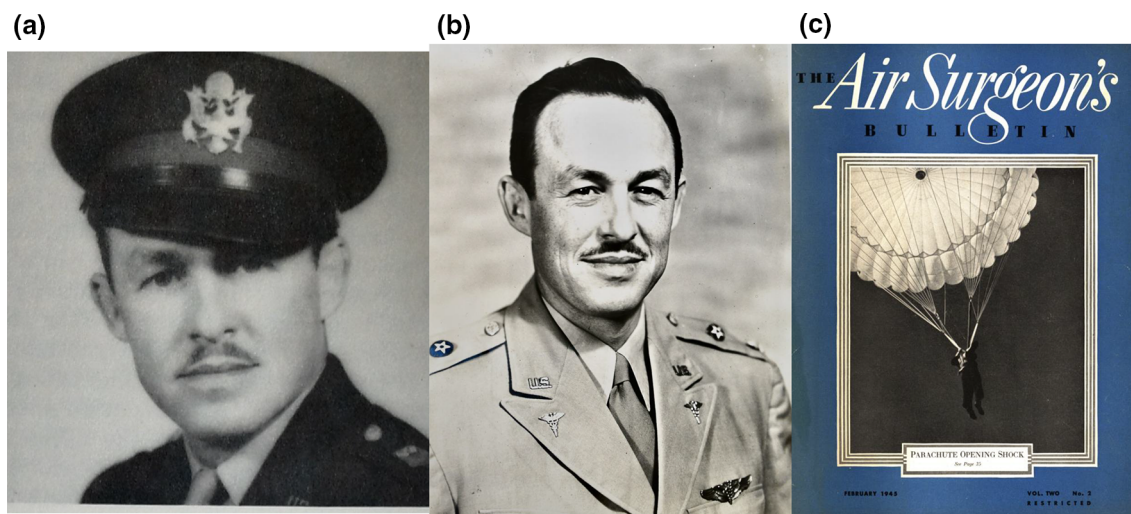


FIG. 5 Dr Clark was commissioned into the Army Air Corp (July 1942). (a) He was first appointed as a Captain, then as a Major (October 1943), and (b) then promoted to Lt. Colonel in October 1945 until July 1946. (c) Dr Clark was Editor of the *Air Surgeon's Bulletin*

during the war, which was distributed to all physicians in the Army Air Force.⁴⁶ (Photos courtesy of McGovern Historical Library, Texas Medical Center. Series I. Box 3; file 6. Used with permission)

as Chief of Surgical Services at the Station Hospital at Seymour Johnson Field, North Carolina¹⁰ (Fig. 5a and electronic supplementary Fig. S4).^{1,38} This assignment allowed him to continue his surgical load along with the senior administrative leadership of 30 surgeons at this 1000-bed hospital, one of the largest in the Carolinas.

Dr Clark proved to be a resourceful and innovative surgical leader in the AAF, including many clinical research contributions. He published the results of new technologies and refined surgical procedures. Here are three examples. First, he conducted research into the common problem of testicular varicoceles, a condition that left many recruits unfit for flight school. He developed a surgical procedure for this condition that was published in February 1944 in the journal *Surgery, Gynecology and Obstetrics*, one of the most influential surgical publications (now published as the *Journal of the American College of Surgeons*).³⁹ Second, he wrote about the prevention and management of frostbite, caused by the extreme cold and wind blast in AAF bombers flying at high altitudes.^{40,41} Third, Dr Clark made contributions in the surgical management of pilonidal cysts (another common ailment among airmen sitting for prolonged periods while flying).⁴²

A 3-month period in 1943 was a fateful time in his career, when Major Clark enrolled in the School of Aviation Medicine at Randolph Field Texas, to learn more advanced skills of a flight surgeon. During this time, he developed relationships with key individuals who would later join Dr Clark on the MD Anderson Hospital faculty. Most notably, he developed friendships with Edgar White, from Louisville, KY. Dr Edgar White¹¹ was Chief of Surgical Training at the School of Aviation Medicine, Randolph Field, from 1943 to 1945. The two of them forged a close friendship with one of their instructors, Dr Clifton Howe (see footnote 11) a Canadian and a specialist in tropical medicine at the time. The three even played on the same baseball team at Randolph Field. At one point, Dr Clark asked them “If I do something after the war, if I can build a clinic somewhere, would you be interested in joining me? Well, they both said, “we think we would”.¹

After a year in the AAF, Captain Clark was promoted to the rank of Major (October 1943). His surgical leadership was recognized by being appointed, in March 1944, as a member of the Surgical Advisory Board to the Air Surgeon, and also as one of five Consulting Surgeons for the entire AAF Medical Services, assigned to the AAF bases in 21 Eastern states “for consultation and advice on surgical

¹⁰ Seymour Johnson Field was activated on 12 June 1942 as Headquarters Technical School, Army Air Forces Technical Training Command, and, in 1943, with a secondary mission to prepare officers and men for overseas duty. More than 250,000 troops trained there during the war.

¹¹ Dr Clark recruited both Dr Edgar White and Dr Clifton Howe to the MD Anderson Hospital; Dr White became the Head of the Department of Surgery in May 1949 and Dr Howe became the Head of the Department of Medicine in July 1950.

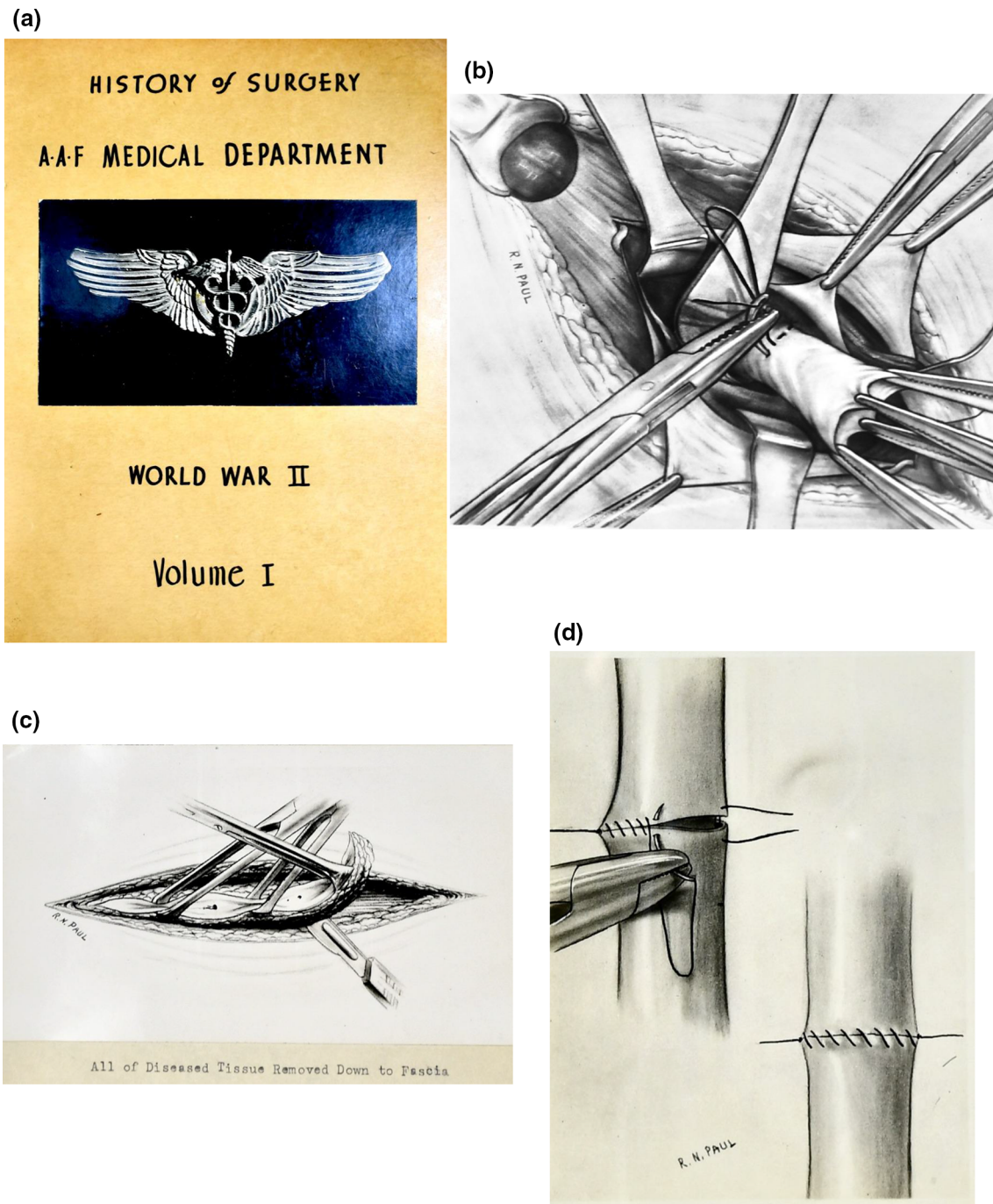


FIG. 6 Lt Col R. Lee Clark’s last major project in the Army Air Force was editing a 357-page, two-volume surgical textbook for surgeons at Air Force Hospitals: (a) “The History of Surgery, Army Air Force Medical Department, World War II”. Chapters included

problems within his command”.⁴³ However, he was worried that he was going to wind up in Washington, “shuffling a lot of paper”,¹ so he requested to be transferred to Wright Patterson Field¹² in Dayton, OH as Chief

¹² Wright Patterson Field expanded from 40 buildings to over 300 in 1944, with a workforce of over 50,000. It operated as the wartime

details of the surgical technique for (b) hernia repairs, (c) pilonidal cysts, and (d) vascular anastomosis.^{55,56} (Photos courtesy of McGovern Historical Library, Texas Medical Center. Used with permission)

of the Experimental Surgical Unit, where he supervised

Footnote 12 continued
center of aeronautical research, development, and procurement. The AAF Aeromedical Laboratory here developed the first flying suits. Here, the AAF housed more than 100 aircraft models, and, at its peak, had almost 80,000 planes on hand.⁴⁴

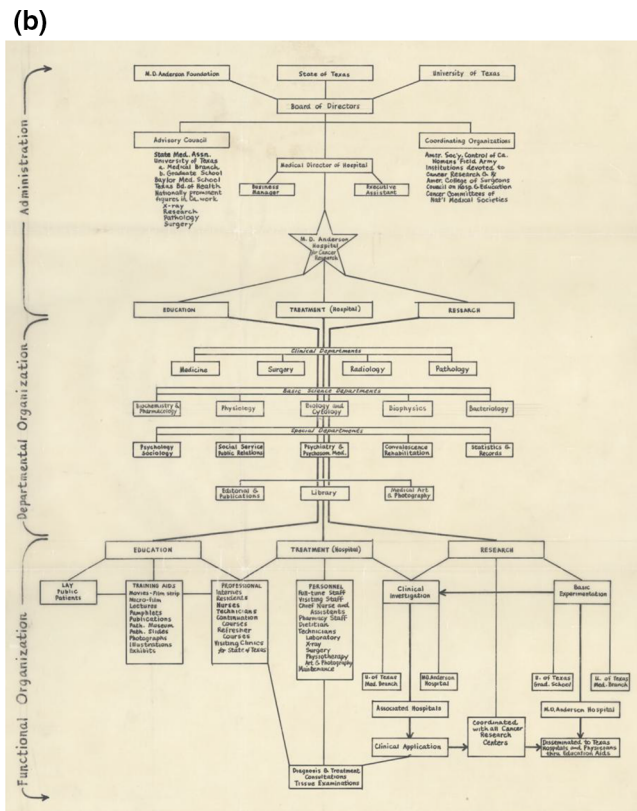
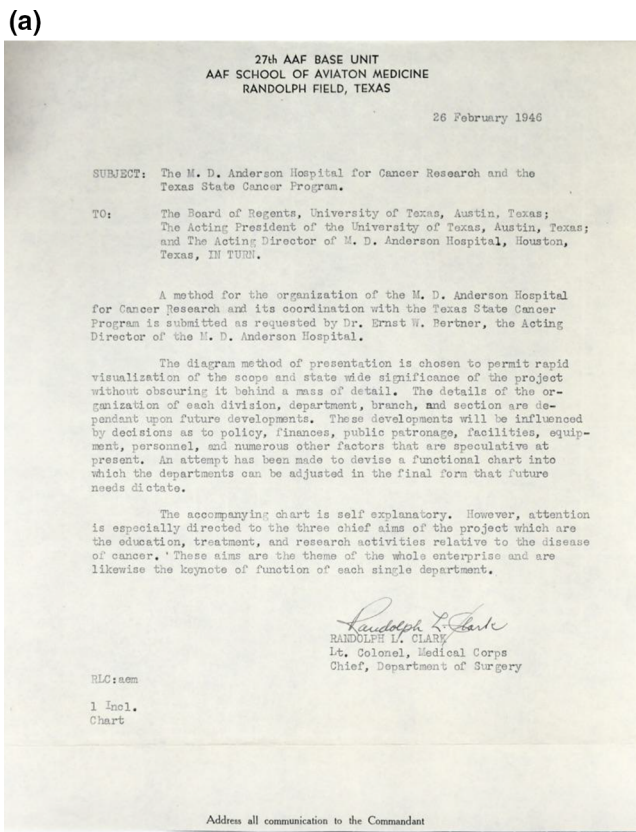


FIG. 7 (a) Formal letter from Dr Clark applying for the position of Director of the UT MD Anderson Hospital for Cancer Research, 26 February 1946.⁶¹ (b) Organizational diagram from Dr Clark describing the integration of clinical, research, and educational

missions. (Courtesy of McGovern Historical Library, Texas Medical Center. Series X. Box 27; file 7; and Series II. Box 10; file 8. Used with permission)

surgical experiments and clinical application of surgical problems in aviation medicine. As he described this opportunity, "It made a good place to start a surgical research program, and since Dayton was centrally located, it would be a good place for my consulting work. I could easily travel to any of the 75 Air Force hospitals in the country that had need of surgical consultation".¹ Starting in May 1944, he directed programs in surgical education and gave monthly conferences with Dr Alfred Shands to many of the 10,000 board-qualified specialists; he also initiated the *Air Surgeons' Bulletin* that was distributed to all Air Force physicians (Fig. 5c).^{1,9,45,46} Dr Clark developed an active animal surgery laboratory with experimental programs that included experiments involving frostbite, arterial anastomosis, skin grafting, and effects of various chemotherapy and biological agents on tissue growth and wound repair.^{47,48} He performed significant trauma research on vascular and orthopedic injuries resulting from parachuting, where out of every eight men who parachuted from an airplane at that time, two were killed and 4 were injured. He wrote: "We worked on this [parachute injuries] and on the trauma associated with the forces resulting from

crashes. We worked on ways of anastomosing blood vessels and other things to keep from losing legs. For the first time in the history of wars ... there was a real opportunity to save legs and arms and lives".¹ He published his results in the *Annals of Surgery*, covering surgical problems in aviation medicine and describing casualties due to aircraft accidents, enemy gunfire, parachute injuries, frostbite at high altitude, and the types of surgical treatment for these types of trauma.⁴⁰

His final assignment in the AAF was at Randolph Field Air Base¹³ in San Antonio, TX, as Director of a newly formed Department of Surgery at the 250-bed Station Hospital, and as Director of Experimental Animal Surgery

¹³ The Randolph Field School of Aviation has a long history of training pilots and engineers since it began in 1930. From 1941 to 1943, and again in 1945–1946, it housed Army Air Forces Central Instructors School (CIS), which trained instructors for ground schools, and instructor pilots (including civilian contract instructors) for all three phases of flying training. By the end of the war, the CIS had graduated more than 12,500 instructors. In 1945, primary pilot training was added for transitioning candidates to become B-29 bomber pilots and engineers (United States Department of Interior, National Register of Historic Places).

at the AAF School of Aviation Medicine;¹⁴ as Surgical Consultant, for the Central District, USA; and as a member of the Surgical Advisory Board to the Air Surgeon.^{49–52} From December 1944 until his discharge in July 1946, he frequently performed major surgery on enlisted military and their dependents, who presented with the full range of general surgery pathology (e.g. major trauma, hernias, gallstones, appendicitis, varicose veins, gynecology, and head and neck pathology).⁵³ He also conducted research in surgery at the School of Aviation Medicine and was responsible for the supervision of animal and patient research projects, the instruction of medical officers and enlisted personnel in surgical technique and perioperative management of aviation medicine, and directed hospital care and surgical service for all Randolph Field personnel.⁵⁴ He was promoted once again to the rank of Lieutenant Colonel in October 1945 (Fig. 5b). He made stops at military bases all over the country as a primary consultant in general surgery to the Surgeon General, oftentimes piloting a B-47 plane.⁵⁵ During this time, he published a major article about surgical problems in aviation medicine in the *Annals of Surgery*,⁴⁰ and edited a two-part, 357-page surgical textbook for military surgeons titled “The History of Surgery, Army Air Force Medical Department, World War II (Fig. 6)”.^{56,57} Volume I of the textbook included details on organizing an AAF Surgical Service, treatment of shock, aircraft accidents, frostbite, enemy gunfire, burns, and elective surgery for hernias, varicoceles, varicose veins, pilonidal cysts, and vascular injuries (including illustrations on surgical technique).⁵⁵ Volume II of the surgical textbook discussed surgical research, including organizing both clinical and experimental surgical research programs, as well as extensive tables and charts on surgical practices and procedures employed by the AAF Medical Department, and statistics on operations at the major AAF hospitals, including studies of hernia repairs, appendicitis, and frostbite.⁵⁶ For his significant contributions to the AAF Medical Service, he received the Air Force Legion of Merit in May 1947.^{1,58,15}

Dr Clark’s leadership abilities were described in a letter from his supervisor, Dr Alfred Shands:¹⁶ “Those of us in the Air Surgeon’s Office who were acquainted with Col.

¹⁴ The School of Aviation Medicine was created in Randolph Air Force Base in 1931 and became known worldwide for its work in research, experiments, and education of physicians and medical staff in Aviation Medicine. The School was responsible for the dissemination of all medical information to the AAF.^{49,50} Dr Clark was also trained to fly the B-29.⁵⁵

¹⁵ The Legion of Merit is one of the US Military’s most prestigious awards. It is one of only two decorations to be issued as neckwear, the other being the Medal of Honor.

¹⁶ Alfred R. Shands Jr, MD, was a legendary orthopedic surgeon. He was the Founding Chair of Orthopedics Surgery at Duke Medical Center from 1930 to 1937. Dr Clark worked closely with him during

Clark, considered him one of exceptional ability in the field of research and teaching. He definitely has a keen analytical mind, which is well-adapted for investigation. His ability as a surgeon has always been considered excellent. In addition to his professional qualifications, he has an extremely nice personality, gets along easily with his associates and is endowed with administrative ability”.⁵⁹

As the war in Europe and Asia was winding down in 1945, Dr Clark began to explore surgery positions after leaving the AAF. Once again, his mentor, Dr Claude Dixon, played a pivotal role in guiding his career. The two exchanged numerous letters about job opportunities in a ‘teaching hospital’. At the same time, the Acting Director of MD Anderson Hospital, Dr Ernst Bertner, had been appointed as the first President of the Texas Medical Center, and informed the University of Texas (UT) Board of Regents that they needed to find his replacement.

On 25 December 1945, at a Christmas party in Rochester, MN, at the home of Dr Manford Comfort,¹⁷ Dr Dixon urged the Chair of the UT Board of Regents, Judge Dudley Woodward, to contact Lt Colonel Clark at Randolph Field, San Antonio, about the Director position.¹ The following day, Dr Dixon wrote letters to Dr Clark and Mr. E.B. Stroud, a Dallas lawyer who was Dr Comfort’s brother-in-law and a personal friend of Judge Woodward.⁶⁰ Dr Clark then wrote immediately to Judge Woodward who, in turn, arranged for Dr Clark to drive to Austin, TX, to interview with the Acting UT President, Dr Theophilus Painter, on 15 January 1946.⁶¹

Dr Clark then met with the UT Board of Regents on 22 February 1946 in the first of three interviews over 5 months. On 26 February 1946, he formally applied for the position, writing out a detailed proposal of his vision for MD Anderson Hospital on AAF stationary, along with a proposed organizational chart of the MD Anderson Hospital (Fig. 7 and electronic supplementary Fig. S5).^{62,63,18} After a rather turbulent and vacillating recruitment process with competitive candidates, Dr Clark

Footnote 16 continued

the war, first as surgeons at the Army Air Force Hospital in Goldsboro, NC, and then on the Surgical Consultants’ Board of the Army Air Force.¹ Colonel Shands became Chief of the Surgical Branch, Office of the Air Surgeon, Army Air Force (1944–1945). Later, Dr Shands was the Founding Medical Director of the Alfred I. DuPont Institute for Crippled Children, Wilmington, DE, and was President of the American Orthopedic Association in 1954–1955.

¹⁷ Manford W. Comfort, MD, was a Professor of Medicine at the Mayo Clinic and President of the American Gastrointestinal Association in 1957. He was a native Texas who was also a friend of Dr Ernst Bertner, when he was Acting Director of MD Anderson Hospital.

¹⁸ Dr Clark wrote: “The three chief aims of the project are the education, treatment, and research activities relative to the disease of cancer. These aims are the theme of the whole enterprise and are likewise the keynote of function of each single department”.⁶²

received a unanimous vote to become the first permanent Director and Surgeon-in-Chief at the UT Board of Regents meeting on 12 July 1946.^{64,19} And so, Randolph Lee Clark Jr then began the most productive phase of his career as the first permanent Director and Surgeon-in-Chief of MD Anderson Hospital for Cancer Research (as it was named in 1946).

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