POLIOMYELITIS IN THE LONE STAR STATE:

A BRIEF EXAMINATION IN RURAL AND URBAN COMMUNITIES

THESIS

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INTRODUCTION

In the June of 1952, Joe Jamelka, a Texas farmer, sat dazed in a Houston hospital lobby. The unfortunate man, who had gone days without sleep, had watched as his entire family was decimated by polio, one of the most feared diseases of the era. In a matter of weeks, four of Jamelka's six children were stricken by the disease. The younger two, Bessie Mae and Marvin, were lucky enough to escape with only a limp and trouble walking. Their older brothers, Fred and Joe, Jr., were not so fortunate and required intense hospital care. Fred, the most critical, could not breathe without the help of an iron lung, and Joe, Jr., was confined to an oxygen tent. Their mother had also taken to bed from the psychological strain of the past few weeks, leaving only one child to try and run the family farm. "I guess everything's neglected," the weary Jamelka absentmindedly told reporters. "My son Leroy is feeding the stock and chickens. But there is too much work for one man." To make matters worse, the polio insurance Jamelka purchased for his family was useless, due to a clause in the policy's terms stating the policy did not activate until sixteen days after purchase. Jamelka had only bought it a day before the youngest came down with polio, absolving the company from payment.[1]

[1] *The Houston Chronicle,* 13 June 1952. (hereafter cited as *HC*).

Stories like the Jamelkas' were not uncommon in the summer of 1952. That year, with 57, 628 cases, was the worst ever for polio in the United States.[2] Three thousand died and another approximately twenty-one thousand suffered from permanent paralysis in a plague that swept the nation and overwhelmed hospitals and doctors. Though Joe Jamelka had no way of knowing it, the misfortune that had befallen his family resulted from the intersection of conditions which had been developing for several decades. The yearly polio outbreaks that blighted the country in the immediate postwar era were actually an inadvertent product of modern sanitation that was aggravated by the rapid growth and urbanization common after World War II. Further, while scientists had made great strides in treating bacterial borne pathogens, viral diseases such as polio were mostly beyond their expertise.[3]

The polio epidemics that resulted from this situation became a regular part of the postwar American landscape. The disease, when it did not kill, often maimed its victims and caused anxiety across the country. Communities and families did their best to cope with the disease, with varying degrees of success. Typically, these communities had recently experienced rapid growth and had become much less isolated from the world as Americans became more mobile after WWII. This makes for a compelling argument that polio epidemics in the 1940s and 1950s were linked to postwar growth, which was accompanied by a tremendous increase in polio cases.

This thesis uses two Texas communities to examine how the polio epidemics of the 1940s and 1950s affected victims of the disease and the wider community.

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[2] David M. Oshinsky, *Polio: An American Story* (New York: Oxford University Press: 2005), 161-2.

[3] For a full, in-depth discussion of the disease as it progresses through the human body and infects others, see the Polio Pathogenesis Appendix.

Due to a dearth at the time of conclusive information on the cause and progression of the disease, both patients and doctors struggled to learn how to cope with and treat polio. Meanwhile, community leaders searched for and tried all manner of strategies to prevent further outbreaks. By focusing on a city in a rural area, San Angelo, and another in a metropolitan area, Houston, this thesis can offer a broader picture of how various communities responded to the epidemic.

Any study will help to fill a significant historiographical gap in the history of polio in America. Most of the existing literature falls into two categories: personal memoirs written by victims or medical texts focusing on treatment. Some, such as Leonard Hawkins's *The Man in the Iron Lung: The Frederick B. Snite, Jr., Story* (1956), and Charles L. Mee's *A Nearly Normal Life* (1999), tell of personal polio experiences. Others, like R. W. Lovett's work, *The Treatment of Infantile Paralysis* (1916) and Richard L. Burnow's *The Polio Paradox* (2002), deal with the medical aspects of the disease.[4]

Recently, two scholars have examined the epidemic from a historical perspective. The scientific search for a vaccine and funding behind it is the topic of Jane S. Smith's *Patenting the Sun*, a work inspired by the historian's own childhood participation in early Salk vaccine trials.[5] Smith's work examines not only the scientific work behind the vaccine, but the process of testing the experimental vaccine on 1.8 million school children in 1954, the largest American public health experiment

[4] Lovett's book, written in 1916, was one of the first good medical works on polio, while Burnow's 2002 work deals with the condition known as "post-polio syndrome" a condition common among polio survivors now reaching old age.

[5] Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: William and Morrow Company, 1990), 24.

ever conducted. Smith also discusses the impact polio epidemics had on the nation, and also explores the notion that the successful development of a polio vaccine had an indelible effect on the post-1945 baby boomer generation. One of the first mass experiences of a generation, it assured them that whatever the disease, modern science and technology could protect them from the multitude of aliments and sickness that were commonplace with American's past generations.

Polio: An American Story, by David M. Oshinsky, is the other significant work on this era. In his book, Oshinsky not only explores the cultural impact polio had on Americans, but pays particular attention to the role the March of Dimes played in developing a cure. His work details how what started as a pet project of Franklin Delano Roosevelt became one of the most powerful and effective philanthropic organizations in American history. Without March of Dimes funding, Jonas Salk may never have even worked on polio. Oshinsky also explores the intense professional and personal rivalry that developed between Salk and Albert Sabin as the two, both funded by the March of Dimes, raced to find a cure. Salk got there first, but Sabin's vaccine, which followed a few years later, was more effective and easier to administer. In addition, his findings constituted real scientific breakthroughs, whereas Salk's methods used existing technology vigorously applied. The mutual ill will stayed with both men until their deaths.

On the state level, works which chronicle the growth that Texas experienced during the postwar era mentioned polio only in passing. David G. McComb's *Houston: The Bayou City* (1916) and Joe R. Feagin's *Free Enterprise City: Houston in Political-Economic Perspective* (1988) both substantiate the rapid growth that the

city underwent after and during the war, but neglect the city's high polio rates. The city of Dallas is also another very notable postwar growth success story, which is covered in Robert B. Fairbanks's *For the City as a Whole: Planning, Politics, and the Public Interest in Dallas, Texas, 1900-1965* (1988). No scholarly comprehensive works on Texas are available on statewide growth and urbanization after WWII. While many works have looked at growth, and others have examined the effect of polio, none of have examined the correlation of the two.

Proving the impact the 1949 outbreak had on San Angelo citizens, several local scholars have examined that year's outbreak. The West Texas Historical Association Yearbook has published three articles on the 1949 San Angelo polio outbreak, which formed the initial framework of chapter two. The articles of Dr. Ralph Chase (1990) and Katie Marie Plum (2002) both give a sound chronological breakdown of the events that transpired during the outbreak, with particular attention to the actions of the community and the local medical personnel. Preston Lewis's (2002) article examines the bizarre explanations for polio people came up with during the outbreak, a symptom of scientists themselves understating little of the disease. Plum and Lewis's articles are the products of a graduate-level research seminar conducted at Angelo State University that utilized the school's West Texas Collection, while Chase is the area's leading authority on the 1949 outbreak. No other scholarly works have been published on the event.

Ironically, despite a wealth of sources, no scholars have examined the situation in Houston. The Southwestern Poliomyelitis Respiratory Center's (SWPRC) archives, housed at the McGovern Library in Houston, present an inside

look at polio treatment from the point of view of doctors and researchers. While no actual medical records are available, the SWPRC routinely described its activities in detailed grant applications to the March of Dimes, its main benefactor in its early years of operation. These grant applications, along with research findings and pertinent correspondence and memorandums, were organized, compiled and bound, by year, into annual reports by the Center's staff.

Obviously, there are problems with sources where the authors have the luxury of deciding how to represent themselves, and there is no guarantee that the Center's staff left out less than flattering events in the annual reports. Yet, it is not unreasonable to assume that the documents, especially the grant reports, are a reasonable approximation of the Center's operations. There is no evidence that the March of Dimes ever turned down the grant applications or disputed the way funds were handled. Therefore, unless the Center was involved in defrauding the March of Dimes for years on end, the information in the grant reports can be accepted at face value. Also, if the Center did have operational difficulties, they would have been noted in the grant applications, as it would have given justification to ask for more money. Further, many pages in the bound volumes have a certain candid quality to them. Often one finds corrections scrawled in the margins of memos or reports with the notation "fix for final draft," implying these were the actual documents circulating through the Center. It is likely, therein, that the unknown authors of these annual reports made an effort to use original documents when possible.

Using these sources, and others, this thesis examines two different Texas communities in order to show how each responded to the epidemic. The first is San

Angelo, which had a serious polio outbreak in 1949. In fact the March of Dimes declared the town to be America's worst hit city, per capita, for 1949.[6] Like the rest of the state, San Angelo grew tremendously during and after the war, and subsequently saw a rise in polio cases. The severe outbreak of 1949 practically overwhelmed the city. Some citizens went into outright panic, while others selflessly did their best to help out. Their outbreak makes for an interesting study because of the extreme nature of the crisis. American's worst fears and anxieties about polio were brought into sharp relief that summer in San Angelo.

A look at Houston presents a different picture. The epitome of rapid growth during and after the war, Houston also experienced a high incidence of polio. Every year, the city and surrounding towns always fell victim. Fortunately for Houston residents, their city was also home a new, dynamic medical center, whose doctors saw an opportunity to pioneer a new facility devoted to specialized treatment of polio patients. After allocating state funds and generous donations from the March of Dimes, the Houston medical community began putting together a state of the art complex designed to not only treat patients but also to research ways to improve care and recovery. Operating as a branch of the county-run Jefferson Davis Hospital, the Southwestern Poliomyelitis Respiratory Center (SWPRC) began receiving patients in 1949.

Beginning with an overview of the polio epidemic in general, this thesis then shifts into specific examinations of San Angelo and Houston. Chapter one will show that the state of Texas fits the hypothesis that polio epidemics were exacerbated by

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[6] Ralph Chase, "A Circle of Wagons," *West Texas Historical Association Year Book* 66 (1990): 106 (hereafter cited as WTHAYB).

growth: as the state prospered and urbanized during and after the war, polio cases statewide increased dramatically. In some cases they were more than double what they had been before the war.[7] Moving to West Texas, the focus shifts to the response of the people of San Angelo as they tried to cope with the scope of the disease. What they lacked in medical resources, Houston had. Still, the larger city had its own difficulties in dealing with the epidemic. Running throughout the study is the role of the March of Dimes fighting the disease. Left with no other recourse, the March of Dimes would have been one of the few places to which people such as Joe Jamelka could have turned. Besides funding the search for the Salk vaccine, the March of Dimes' other legacy is the purchase and placement of thousands of iron lungs and leg braces. Discussion of the SWPRC of Houston rounds out consideration of polio in postwar Texas.

[7] Unfortunately medical records and statistics from the era are too inconsistent to conduct a definitive, scientifically robust epidemiological study of the link between polio and growth. This work only attempts to show a compelling correlation between population growth and urbanization in Texas and a dramatic rise in the number of polio cases.

CHAPTER 1

PROSPERITY, GROWTH, AND THE RISE OF POLIO IN TEXAS

During the same years that Texans witnessed their state's transformation from a mostly rural to a mostly urban society, they also watched in horror as polio ran rampant through the state. While science has yet to prove a definite, concrete connection between the polio epidemics and wartime and post-war growth, the correlation between the two is compelling. Rapid population growth and economic prosperity were commonplace in Texas during the war years and continued into the 1950s. Before World War II, the polio epidemics which periodically swept over the country worried parents every summer. Episodes such as the great 1916 outbreak legitimized their concerns. Although polio had been in circulation in the American population for decades, something happened in the mid 1940s that made polio take off. In the final two years of the Second World War, the number of cases every year almost always exceeded the pre-war totals, and the trend accelerated after the war.

For almost a decade, despite advances in medicine and the best efforts of doctors, health workers and scientists, cases increased steadily until the release of the Salk vaccine in 1955. It is not unreasonable to believe that the massive growth and urbanization that America experienced during this era had something to do with the

spread of polio.[8] During this era, cities grew rapidly and Americans became much more mobile, while rural communities became more connected to the outside world. All these factors probably helped facilitate the spread of polio in the late 1940s and early 1950s. The same pattern seems to hold true for Texas: as the state prospered and urbanized during and after the war, polio case loads shot up. This chapter will be concerned with the aspects of growth and urbanization in Texas during the era, and the unique timing of the polio outbreaks. The epidemics occurred because of a peculiar intersection of factors: a pool of potential patients created by modern sanitation; a body of scientific knowledge insufficient to provide a cure; and an era of tremendous growth across the country that kept the epidemics rolling through different communities every summer.

During World War II and the post-war years, Texans completed the transformation of their economy that had begun with the discovery of oil at Spindletop in 1901.[9] Before this breakthrough, the Texas economy, which did relatively well compared to the rest of the Deep South, was based on the cultivation and trading of cotton and cattle. Farming and ranching remained mainstays of the state's economy, but King Cotton passed its crown on to oil in Texas after Spindletop. In fact, oil sales during the 1930s were so great that they softened the effects of the

[8] As of this date, no definitive scientific study has been made linking polio to population growth and urbanization, as record-keeping and case reporting during the polio epidemics does not measure up to modern-day standards of epidemiology. Many records are incomplete or too vague to allow determination of the exact cause of the increase, and many would argue that the development of a very effective vaccine in 1955 makes its discovery a moot point.

[9] Jesus F. De la Teja, Paula Marks, Ron Tyler, *Texas through Time: Crossroads of North America*, (New York: Houghton Mifflin Company, 2004), 324.

Great Depression in certain parts of Texas, most notably Houston.[10] Like the rest of the country, Texas also benefited from New Deal legislation during the Great Depression, but it was WWII that caused government expenditures in Texas to skyrocket. The influx of wartime jobs and cash translated into the state's population increase by twenty percent, while the large cities –Houston, Dallas, Ft. Worth and San Antonio – each doubled in population.[11] The postwar years proved to be equally prosperous.

Alongside the state's exceptional growth, polio epidemics were quite common. Mirroring trends in the rest of the country, polio numbers in the 1940s and 50s seemed to be getting worse every year until the Salk vaccine was put into widespread use in 1955. In 1943 there were 1,274 cases of polio in the state that resulted in 168 deaths, the largest number of cases ever to that point, it was more than double the 1937 figure.[12] In 1948 the Houston area had its worst outbreak to date and recorded 313 cases, but in 1952 an even worse epidemic occurred that topped out at over 700 cases in the Houston area.[13] Further, in the summer of 1949 the modest West Texas city of San Angelo had the ignoble honor of having the most polio cases per-capita in the entire United States for that year.

At the root of the situation was the fact that polio, unlike numerous former disease, defied the best efforts of doctors and researchers to understand and control it.

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[10] Joe R. Feagin, *Free Enterprise City: Houston in Political-Economic Perspective* (New Brunswick: Rutgers University Press, 1988), 61.

[11] Urbanization, "The Handbook of Texas Online," http://www.tsha.utexas.edu/handbook, internet, accessed 2 August 2005 (hereafter cited as "HOTO").

[12] Ibid., Epidemic diseases, accessed 2 August 2005.

[13] *HC*, 20 October 1952.

By the mid-twentieth century, scientific advances alleviated many of the infectious diseases that plagued mankind over the centuries. Incidences of deadly diseases such as typhoid, diphtheria, tuberculosis, influenza, malaria, cholera and syphilis, which had run rampant through communities for generations declined rapidly as the medical establishment leaned how to eliminate them. By the 1940s scientists and doctors had found that certain diseases could be controlled by eliminating the transmitting vector: mosquitoes in the case of malaria and fleas and lice in the case of typhus. Others, like cholera and typhoid, spread in the stool of infected patients, could be managed through careful sanitation. The new miracle drug penicillin handily treated bacterial borne diseases such as tuberculosis and syphilis. Some scientists were even so bold as to believe that infectious diseases would be eradicated from the human existence eventually.[14]

As many of these conquered diseases began to fade in the public consciousness, polio emerged to take their place. The polio epidemics of the twentieth century make for an interesting study because they were actually a product of modernization.[15] Today scientists know that poliomyelitis virons enter the body through the mouth, reproduce in the intestinal tract, and then leave the body in the host's fecal matter. Current theories argue that polio, before modern sanitation, was quite common in America and most people were harmlessly infected as infants. Interestingly, like the chicken-pox, polio infections become more serious as the host grows older. But in infants a polio infection hardly induces more than flu-like

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[14] Oshinsky, *Polio*, 90.

[15] Smith, *Patenting the Sun*, 34-43; Oshinsky, *Polio*, 11-23; Moselio Schaechter and others, eds., *Mechanisms of Microbial Disease* (Baltimore: Williams & Wilkins, 1998), 305-312.

symptoms and also grants the host life-long immunity to further infection. The relatively low levels of constant exposure further improved the host's immunity in the same way that booster shots in vaccine regimes keep patients protected throughout their lives.

Improved sanitation at the turn of the century removed polio, along with a variety of other deadly water borne-pathogens, from the water supply. While Americans were no longer exposed to other dangerous diseases, the population began to lose its natural immunity to polio. In older hosts, serious polio infections spread to the host's central nervous system and attacks motor neurons (nerve cells), resulting in the paralyzed limbs for which the disease is known. Thus, as children without immunity grew older and met more people in their daily lives, they exposed themselves to infection. In addition, Americans became more mobile during and after World War II, and this helped keep polio spreading through the country every year. Paradoxically, in the early twentieth century, paralytic polio epidemics became a problem in countries with high standards of sanitation.

The fact that scientists, health officials and doctors of the era seemed helpless to prevent its spread further exacerbated the polio epidemic. Through the first half of the twentieth century polio stood as a unique topic in the history of medicine, because while scientific advances had created the pool of potential hosts, it was unable to cope with the "new" disease. Measures that previously proved effective in dealing with infectious diseases seemed to have little effect in preventing the spread of polio.[16] Desperate local officials and parents turned to the methods that had worked in the past: demanding clean air, food and water, eliminating pests such as rats and flies, or

[16] Smith, *Patenting the Sun*, 35.

experimenting with new medicines and quarantines. Nothing seemed to work. During polio outbreaks people would avoid crowds, keep their children at home, fastidiously clean their homes and yards, close public venues and bathe their towns in DDT to kill flies and other pests. Yet every summer new cases appeared like clockwork, often times more than the year before. Even more perplexing was that previous epidemics, like tuberculosis and influenza, usually flourished in the crowded, dirty, immigrant-occupied core sections of large cities and then radiated outwards. Polio spread through affluent suburbs, small towns and rural communities with equal pervasiveness, and revealed no discernable cause. In fact, some observed that those from the cleaner, well-off areas seemed to be hit much harder.

Frustration with their failure to stop the spread of the disease, combined with knowledge of polio's effect on its victims, had a profound impact public consciousness. In 1954, the year that Salk announced he was ready to begin testing a new vaccine, the news of the upcoming trials shared the headlines with events such as the *Brown v. Board of Education* ruling, the Army-McCarthy hearings and the fall of Dien Bien Phu. While some have pointed out that far more children died from accidents every year than polio, the comparison misses the point that polio caused a national scare.[17] Because polio would hit a community suddenly all at once in the summer months and spread with seeming randomness, it frightened people more than a deadlier, but better understood, disease did not. Other diseases killed their victims. Polio, however, not only killed, it crippled. Those disabled by polio, at best, had a difficult life ahead of them. The luckiest ones, depending on the severity of the paralysis, could still lead productive independent lives, albeit with cumbersome

[17] Ibid., 37.

braces and wheelchairs. These people did not enjoy the same benefits, respect and privileges that the handicapped have today either. Others with more severe paralysis had to remain bedridden and rely on families for care for the rest of their lives. Those whose families could not provide for them became wards of the state. The most unfortunate, with paralysis so bad they could not breathe on their own, could expect to spend the rest of their days in an iron lung. A fair argument could be made that this was a fate worse than death.

The fear produced cultural changes as well. Polio outbreaks were known to shut down entire communities, both large and small. Prior to the 1940s, polio was usually referred to as Infantile Paralysis or Poliomyelitis, but as the disease became more prevalent in the media, journalists began referring to it as polio to save space.[18] Children were warned to avoid crowds, swimming holes and overtiring themselves. Mothers were to keep their homes clean and make sure that children washed their hands, while fathers could help out by buying polio insurance in case the worst happened. The more well-to-do usually tried to send their children out into the country every summer in hopes of avoiding polio. Cities sponsored clean-up programs and pesticide sprayings on the theory that polio could be spread by flies. Newspapers often kept a careful tally of the number of local cases every summer in every community, and if the count reached an alarming level, coverage moved to the front page.

The press recounted horror stories which only confirmed parents' darkest fears. The story of the unfortunate Thiel family of Mapleton, Iowa served as a reminder to all of the cost of the disease. On 22 July 1952, a Tuesday, sixteen year

[18] Ohsinsky, *Polio,* 8.

old Catherine Thiel came down with a bad fever that two days later was diagnosed as polio. On Wednesday, her little brother, Jerry, 13, was so sick he could no longer work in the family fields, and on Thursday, Jean, 4, had to be carried up to bed. The next day three more Thiel siblings – Francis, Harold and Ronald - came down with headaches and muscle pains. Eventually eleven of the fourteen Thiel children contracted polio. Luckily none of the children died and only two were permanently paralyzed. Their mother, Clara, said "It was kind of like a nightmare." [19]

Interestingly, the case of the Thiels serves as a fairly accurate microcosm of the entire country. The family had been somewhat secluded on their rural Iowa farm until recent years. Mr. and Mrs Thiel warned the children to stay out of the Mapleton swimming hole and urged them to wash up before eating. As a good provider, Mr. Theil even managed to take out a polio insurance policy for his whole family. The family's well water was clean and safe, and the Thiels even used DDT to help keep away the flies, a commonly encouraged practice of the day. They had done everything they were told to do, and yet their family was still devastated.

The Thiels, however, like the rest of the country, were not as isolated as they once were. The two oldest children had left the family farm but returned home for frequent visits. The eldest son, Donald, was a private in the army, and was exposed to scores of other young soldiers from across the country. Joan, the oldest daughter, now lived and worked in a Sioux City hospital that had one of the largest polio wards in the region. She, too, returned home to the farm for regular visits. It would not be unreasonable to assume that either Donald or Joan had unknowingly been infected with polio, and, showing no outward symptoms, brought it home to the rest of the

[19] Ibid., 162-63.

family. But Americans at the time would not have really seen it that way. They would have been more apt to look for the way that the Thiels had "let" the polio get in. Was not enough DDT used to prevent flies? Was there some lapse in hygiene or food preparation? Had the children been allowed to over-tire themselves?[20]

The March of Dimes' financial fundraising success was one of the strongest indications of polio's impact on the American consciousness. Before the March of Dimes came along, most philanthropy in the United States focused on large donations from the wealthy. The March of Dimes tried a different approach, small donations from as many people as possible, and found it wildly successful.[21] Playing on the popular *March of Time* newsreel feature, the March of Dimes first tried its new approach in 1938 with a celebrity-filled radio address that asked people to support the polio cause by sending their dimes "directly to the President at the White House." The White House mailroom was completely overwhelmed by a massive response from the American public. Two days after the radio address some 50,000 pieces of mail came to the White House for the March of Dimes, and on the third there were 150,000 letters. The staff, unable to count all the dimes, resorted to weighing them on scales. By the end of the drive there were 2,680,000 dimes sent in plus thousands of dollars in checks and small bills. The March of Dimes quickly realized that not just the rich Americans were willing to help fight polio.

The March of Dimes also found other successes with its annual mother's march program. The inspiration of the Phoenix, Arizona chapter, the first mother's

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[20] Ibid., 162-63.

[21] Ibid., 54-55.

drive occurred in 1950.[22] The drive, which was heavily advertised, instructed people to leave their porch lights on if they wanted to donate. Then, at the appointed time, an army of 2,300 volunteer mothers hit the streets and went to all the houses with their lights on. The idea proved to be highly successful, as the majority of volunteers only had to participate for one evening a year, and those who wanted to donate only had to leave a light on and then answer the door. The Phoenix chapter managed to raise just short of $45,000 in about an hour's time. The following year the March of Dimes had a mother's march in as many chapters as it could manage. Most of these campaigns also did well, further showing that polio mattered to many Americans.

Mirroring the rise in the number of cases, donations rose in the early 1950s. The March of Dimes raised $250 million between 1951 and 1955, more than twice the amount raised during the 1945-1950 fundraising period. The March of Dimes typically collected more than twice as much as the next closest philanthropic organization. By 1954, the March of Dimes had raised some 67 million dollars.[23] Second to the March of Dimes was the National Tuberculosis Association with only 24.7 million dollars, despite that fact that there were ten times more people suffering from tuberculosis that year. One estimate says that by 1954 two thirds of Americans had donated cash to the March of Dimes, while some seven million had donated their time volunteering.[24] The fundraising power of the March of Dimes indicates two things: how effective its campaigns were, and the national concern over polio.

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[22] Ibid., 87-88.

[23] Ibid., 239.

[24] Ibid., 188.

The March of Dimes devoted most of its donations to patient care and research. The need for a cure was dire, because doctors and health officials seemed helpless in preventing polio's spread each year. Even with the best medical care, some patients were still expected to expire. Advanced treatment centers, like the SWPRC (see following chapters), could only really hope to keep patients alive through the acute phase of the disease, then help along with recovery and rehabilitation as much as possible. Once patients were infected, there was little doctors could do if the patient's own immune systems were not up to task of containing the virus.

It was up to science find a cure. The scientific advances of the early twentieth century protected most modern Americans from diseases and plagues of the past. But polio seemed to be the holdout; in this instance, scientists found their knowledge insufficient.

At the heart of the problem were the fundamental differences between bacteria and viruses as disease causing agents. When the search for a polio cure began after the first major outbreak of 1916, scientists really only understood bacteria. Even today, biology undergraduates study bacteria and viruses in two separate curriculums. To say that they are two different organisms does not illustrate the point well enough. Dogs and cats are two different organisms, but they are remarkably alike: four legs, a head and tail, and internal organs and a skeletal structure that are, for the most part, identical. A more accurate depiction of the differences between a bacterium and virus would be the comparison of a dog to a cockroach: six legs versus four, wings, antennae, a completely different body structure, a hard outer exoskeleton, a

reproductive cycle based on eggs, and organs that bear no resemblance at all to one another. For the most part, the knowledge and research that scientists had accumulated concerning bacteria over the years simply just did not apply when it came to viruses.

In the 1930s, as the first polio epidemics occurred across the country, the field of virology was in its infancy. Although useable vaccines had been developed as early as 1796, by Richard Jenner for the smallpox virus and, in 1885, by Louis Pasteur for rabies, these vaccines were found more through keen observation, trial and error and a bit of good luck.[25] Jenner and Pasteur had little understanding of why their vaccines worked and knew even less about the organisms that produced the disease. By the time polio epidemics sprang up in the early twentieth century, virology had made few advances. The result was that some early attempts at a polio vaccine resulted in disaster.[26] William H. Park's trial of an experimental killed virus vaccine in 1935 was so haphazard and ill-planned that no useful data could be drawn from it, and some suspected that he had actually managed to infect several healthy patients. The same year, the respected scientist John A. Kolmer's trials with a live virus vaccine were even worse. His experimental virus killed nine children participating in his trial and paralyzed several others. These debacles proved to be career-enders for both Park and Kolmer.

Park and Kolmer's disastrous experimental vaccines served to illustrate how incomplete the body of knowledge on viruses was during the early years of the polio epidemics in America. Before the massive undertaking by the March of Dimes to

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[25] Smith, *Patenting the Sun*, 97.

[26] Oshinsky, *Polio*, 57.

fund the search for a cure for polio, only bacteria were well understood by scientists and doctors.[27] This meant that in order to find a cure for polio, scientist had essentially to pioneer a brand new field of study, and despite the best efforts of several brilliant researchers, most notably Jonas Salk and Alfred Sabin, development took many years.

During World War II, the federal government funded several projects which propelled the field of virology forward.[28] The influenza pandemic of 1918 decimated the U.S. military during World War I, killing forty-four thousand servicemen. Seeking to avoid another disaster, the army started projects devoted to protecting the troops from disease. By war's end the Army Commission on Influenza successfully developed a vaccine that kept soldiers safe from influenza. One of that commission's most important researchers was Jonas Salk.

By the late 1940s, after years of dead ends and false leads, scientists finally began to make progress on the polio problem that sanitation advances had inadvertently created decades before. Virology progressed far enough that a working vaccine, despite many disappointing failures, was finally in sight. Also vital to the process was the funding, support and attention that the March of Dimes brought to the search for a cure. In the postwar years the March of Dimes grew into the one of the most powerful, effective and well-run fund-raising organizations ever created. Its funding was instrumental in the development and release of the Salk vaccine in 1955, the result of a concerted effort.

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[27] The March of Dime's indispensable role in the fight to cure polio is extensively covered in Ibid., chapters 43-145.

[28] Ibid., 100-02.

In 1949 researchers addressed three specific problems that needed to be solved before a vaccine could be formulated.[29] Instead of blindly groping in the dark like Parker and Kolmer, scientists now had a much better idea of what they were up against. First scientists had to deal with the earlier discovery that there seemed to be more than one strain of poliovirus. For any vaccine to be effective, it would have to protect against all types. Second, poliovirus was also difficult to replicate in the lab, making its study difficult as well. Laboratory produced poliovirus in 1949 could only be grown in the nervous tissue of monkeys, a substance that in itself was toxic to humans. This meant that even if scientists devised a way to make an inactive poliovirus that would not infect patients, the vaccine was stuck in a toxic medium from which it could not be safely isolated. The third problem was that scientists still really did not understand the pathogenesis of polio, the process of how polio entered and infected the body. Once they found the pathway, then they could find a place to block it.

The process for isolating and typing the different strains of poliovirus was monotonous, repetitive and demanding. Many scientists of the day, despite March of Dimes funding and the obvious need for a cure, found the unglamorous work boring, and considered the work beneath them. Jonas Salk, fortunately, was willing to take on the project.[30] It took Salk and his team three long years, from 1949 through1951, and 1.2 million dollars to grind through the typing process before they were sure that polio existed in three distinct types.

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[29] Ibid., 115-127; Smith, *Patenting the Sun*, 128-134.

[30] For his troubles, Salk was openly held in contempt by many esteemed scientists of the era, most notably Albert Sabin. For a complete treatment of the public and personal rivalry between the two scientists, see both Oshinsky and Smith's books.

At practically the same time, scientist John Enders's humble laboratory at Children's Hospital of Boston, began to re-examine the generally accepted notion that poliovirus could only be grown in the problematic monkey nervous tissue.[31] Following a hunch and experimenting with the newly isolated Type I and Type II strains found in Salk's work, Enders discovered that when treated properly, Type I and Type II poliovirus could easily be grown in less toxic tissues. Prior work on the topic had been so meticulously documented and performed by such well-respected scientists that no one had considered exploring their work further. Ender's discovery, considered so notable and innovative by his peers, earned him The Nobel Prize in Medicine and Physiology in 1954.

In the late 1940s and early 1950s, a series of experiments devoted to understanding the pathogenesis of polio came to fruition. Earlier work on polio had produced several incorrect assumptions that had to be investigated and disproven one by one. By the early 1950s enough work had been done to understand polio's pathogenesis. Scientists now understood that polio, early in the infection, circulated through the host's bloodstream before attacking the central nervous system and causing the paralysis for which the disease was known for. Researchers had thought that polio entered the central nervous system via nerves in the nose and bypassed the bloodstream. Now that they knew that the virus moved through the bloodstream, they were sure that the body's own antibodies, prompted by a vaccine, would stop the virus and prevent its spread.

These breakthroughs culminated in the development, testing and release of the Salk vaccine in 1955. There were numerous problems with initial production and

[31] Oshinsky, *Polio,* 122-23.

distribution of the vaccine, including several bad batches that left a number of children infected. Nevertheless, the downturn in new cases each year after 1955 was dramatic. By 1957, there were only about six thousand new cases, down from fifty-eight thousand in 1952.

In 1961, after successful testing in Eastern Europe and Russia, Albert Sabin, Salk's longtime rival, released his own live-virus vaccine. The Sabin vaccine was much easier to produce, easier to distribute and more effective in the long run for several reasons. Scientists considered it a much greater accomplishment than Salk's version because it was the first of its kind and moved the field of virology forward considerably. Though Sabin walked away with all the prestigious peer awards, and it was his vaccine that was adopted for wide-spread use over Salk's, it was Salk who was widely hailed as a hero in the general public, met President Eisenhower in the Rose Garden and was on the cover of *Time* Magazine. Also, the six years between the release of the Salk and Sabin vaccines meant that Salk's work saved tens of thousands from death or a life of paralysis.

Before the vaccine came to pass, though, there were decades of suffering. The first large national polio epidemic occurred in 1916, centered mostly around the New York City area.[32] That year there were some twenty-seven thousand cases and six thousand dead. From that point on, polio arrived regularly every summer across the country. In the 1930s more major outbreaks occurred: New York, 1931; New Jersey, Pennsylvania and Los Angeles, 1932; Boston, 1935; Alabama, Chicago, and Oklahoma, 1936. In 1939, a woman actually gave birth while in an iron lung.[33]

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[32] Smith, *Patenting the Sun*, 43.

At war's start in 1941, the number of polio cases dipped to a low of 9,000 for the year.[34] With bigger concerns overseas, polio dropped out of the limelight for most of the war. In 1944 a frightening 19,000 were recorded, the highest figure since the 1916 epidemic. Though the totals in 1945 and 1947 were not particularly high, in 1946 and 1948 cases rose to 25,698 and 27,902, respectively.[35] Then in 1949, despite the best efforts of scientists, doctors, and public health officials to contain polio's spread, cases ballooned again to over 42,100. Until widespread use of the Salk vaccine in 1955, the nation's annual totals never dipped below the 1948 mark and were typically over 30,000.

Table 1 – New Cases of Polio, by year in the U.S.

Year	Polio Cases
1945	13, 619
1946	25, 698
1947	10, 734
1948	27, 902
1949	42, 173
1950	33, 351
1951	28, 668
1952	57, 628
1953	35, 968
1954	38, 741
1955	29, 270
1956	15, 400
1957	5, 894

Statistics compiled by David Rose, March of Dimes Archives, White Plains, NY.

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[33] Ibid., 44.

[34] Oshinsky, *Polio: An American Story,* 68.

[35] "Medical Statistics Records, 1945-1958," March of Dimes Archives, White Planes, New York. Figures compiled by David R. Rose. See Table 1.

Examining another statistic, the incidences of polio per 100,000 people, more clearly illustrates the rise in polio cases that occurred as the war came to a close. Prior to 1940 there were only about four cases of polio per 100,000 Americans.[36] From 1940-1944, cases of polio per 100,000 doubled to about eight. The rate of incidence again doubled to 16 per 100,000 people from 1945-1949 period, and went up again to 25 per 100,000 during the years 1950 through 1954. During the frightening epidemic of 1952, the incidence of polio in the United States peaked at 37 per 100,000.

The fact that polio cases dropped when the war started, but rose as the war reached its deployment peak in 1944, raises an important question. Why did polio seem to get worse as the formerly mal-nourished Americans of the Great Depression finally found some prosperity? It is likely that several factors contributed to the dramatic increase as the war neared its end. Servicemen, who widely circulated throughout the country and overseas for several years, were the perfect medium for the spread of disease. They would travel long distances and interact with large groups of other service personnel also on their way to distant posts. The increased mobility of the civilian population also probably helped the spread of polio. During this era millions migrated from farms and rural communities to defense plants. Also, the increasing birth rates during this era also added more potential patients to the pool.

[36] Oshinsky, *Polio,* 162.

The state of Texas's growth and polio rates also resembled those of the rest of the country. After 1948, new cases increased at a remarkable rate every year.[37] At least one in ten servicemen trained in Texas during the war, and the state experienced consistent population growth of twenty percent through the 1940s and 1930s. Like the national figures, the Texas numbers at the end of the war was higher than before, and in the immediate postwar years increased substantially. In 1945 there were just under 1,000 new cases of polio in Texas. In 1948 the number jumped up to 1,765, with notable hotspots being Houston and the Rio Grande Valley.[38] In 1949 the total again increased to 2,355 and stayed over 2,000 for every year but one until 1955, the year the Salk vaccine was released.

Table 2 – Polio Cases In Texas By Year

Year	New Cases
1945	996
1946	979
1947	183
1948	1, 765
1949	2, 355
1950	2, 778
1951	2, 029
1952	3, 989
1953	1, 736
1954	3, 090
1955	1, 930
1956	1, 360
1957	744

Statistics compiled by David Rose, March of Dimes Archives, White Plains, NY.

[37] "Medical Statistics Records, 1945-1958," March of Dimes Archives, White Planes, New York. Figures compiled by David R. Rose and supplied through correspondence. See Table 2.

[38] *HC*, 4 June 1948.

Like the rest of the country, Texas's problems originally stemmed from improvements in sanitation and an unfortunate deficiency in the field of virology. But the communities that suffered the biggest epidemics of polio, even the more rural ones, had all experienced rapid growth during the war years and in the era afterwards. Statistics are revealing. In the 1940s Texas's population increased by 1.3 million people, a healthy increase of 20 percent.[39] Also, in 1940 only 45.4 percent of Texans lived in urban areas, but by 1950 the figure stood at 59.8 percent, which was slightly above the national average.[40] It was also during these years that Dallas, Houston and San Antonio initiated aggressive annexation campaigns and expanded their borders considerably.[41] Clearly, Texas had been demographically transformed.

Growth in Texas during the war and afterwards has not been studied very well by historians in a thorough manner. While the most dramatic examples of recent growth and urbanization, Houston and Dallas, have had books written about them, no comprehensive study has been made of the entire state during the era. Most historians have been content to merely note that the growth happened and not examine it very closely.[42] Because Dallas illustrates an excellent example of the state's grown and urbanization, a short examination is in order. Also it shows that the

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[39] Population and Percent Change in Texas, 1850-2000, "Data Center, The University of Texas Pan-American," http://www.coserve.org/disc/poptotdec.html, internet, accessed 8 August 2005.

[40] Schaechter , *Mechanisms of Microbial Disease*, 408.

[41] Char Miller, "Sunbelt Texas," in *Texas Through Time: Evolving Interpretations* (College Station: A&M University Press, 1991), 293-304.

[42] Ibid., 304. Part of the reason for this is that with the rise in new social history in the 1960s, fewer historians have been interested in the more traditional political and economical histories that would have focused on things like urban growth and industrialization. With new social history's focus on ordinary men and women and history from the ground-up, growth in the era has not been very well documented or thoroughly studied.

phenomenal growth in Houston was not a fluke, but rather only the most visible aspect of Texas's fundamental changes during the era. Houston also deserves study because of its large number of polio cases and the measures the city took to cope with it.

Though no notable epidemics of polio occurred in Dallas, the city usually had a consistent number of cases every summer, and the expressive growth experienced there can be viewed as a reflection of general statewide trends.[43] Much of the city's wealth and newfound prominence as a trading and banking hub was a product of growth in the entire region.[44] Dallas did well because all of Northeast Texas did well, and Northeast Texas prospered as more corporations, banks and trading firms moved their operations to Dallas.

During WWII, Dallas grew tremendously. But even before the Pearl Harbor, the city's well-organized and motivated business community made sure their city got a piece of the pie as the country prepared for war. City boosters were able to attract the North American Aviation's new airplane factory, which broke ground in September of 1940. [45] As other companies and military contracts arrived, they pumped an estimated ninety-one million into the Dallas economy before the war even started. Two other aircraft companies also set up shop in Dallas, and through 1943 some 85,000 people were employed in aircraft manufacturing jobs. The vast majority

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[43] *Dallas Morning News*, 11 July 1952.

[44] Robert B. Fairbanks, *For the City as a Whole: Planning, Politics, and the Public Interest in Dallas, Texas, 1900-1965* (Columbus: Ohio State University Press: 1998), 1-8.

[45] Ibid., 139.

of these aircraft workers, including 13,000 women and 2,400 blacks, had never held factory jobs before.

During the war city boosters increased their efforts to make Dallas the "aviation capitol of the Southwest." In 1942 Love Field became the base of the Fifth Ferrying Group, Air Transport Command.[46] This meant that Dallas became one of nine hubs in the Air Transport Command's vast network of air-based logistics that moved men, planes and supplies across the world. The military spent some six million dollars improving Love Field in 1943. The Navy also based four squadrons of naval reserve airmen in the Dallas area.

After the war Dallas continued to grow. From 1945 to 1955 greater Dallas's population increased from 506,000 to 795,000, a jump of some 290,000.[47] By 1954 74,000 were employed in manufacturing jobs in the area, up from 19,000 in 1940. In 1948 Dallas had more merchant wholesalers than any other city in the Southwest, further securing its status as a major trade hub. In Dallas, as in the rest of Texas, oil had replaced cotton as the main economic stimulus of the state by 1950. From 1945 to 1955 the city's size increased from 50 to 108 square miles. Prior to the war, city leaders had proposed a bold citywide master plan designed to handle future growth through a forty-million-dollar bond. But when the bond measure finally passed in 1945, it proved to be inadequate, and the city was unable to keep up with the demand for services.

Central Texas also grew and urbanized during the 1940s. Though San Antonio had been displaced by Houston and Dallas as the largest city in the state, it

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[46] Ibid., 141.

[47] Ibid., 171-72.

still remained a strong third. In the 1940s the city's population increased by 61 percent to 408,422.[48] The presence of Fort Sam Houston and Kelly, Randolph, Brooks, and Lackland Air Force Bases meant that San Antonio served as a major U.S. military training post. Through the 1950s San Antonio's population continued to grow at a very healthy 41 percent. Just north of San Antonio the state capital of Austin also benefited from a new army facility, Del Valle Army Air Base, constructed 1942 and later renamed Bergstrom Air Force Base. Through the 1940s and 1950s Austin's population growth also usually averaged around 40 percent.

On the southern edge of the East Texas oil fields, Houston also grew astronomically. The Houston ship channel, dredged and completed in 1914, made Houston the state's main shipping hub over Galveston by the mid-1930s. By 1941 Houston ranked third in the nation, only behind New York and Philadelphia, in total tonnage shipped.

Also through the 1930s Houston benefited greatly from the expanding oil industry. Even in the harshest times of the Great Depression, hundreds of oil-related companies opened in Houston, leading to the moniker "the city the depression missed."[49] During the 1930s half the world's oil production was located within 600 miles of Houston, and by 1939 there were some 26,000 wells in the vast East Texas oil fields. Houston became the world leader in the manufacture of oil field tools, supplies and equipment. The oil refining, the process of extracting gasoline from

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[48] San Antonio, "HOTO," accessed 15 August 2005.

[49] Feagin, *Free Enterprise City*, 61. One of the most comprehensive looks at growth in Houston from the 1940s and 1950s was written by urban sociologist Joe Feagin. While Feagin is not a historian by training, he has done considerable research which documents quite nicely the key events in the growth of Houston during the period under consideration.

crude, also played a key part of the area's growth. By 1941 a third of the country's refining was located in the Gulf Coast region. A vast network of pipelines that spread across Oklahoma, Louisiana and Texas oil fields carried crude to Gulf Coast refineries and then tankers in the Port of Houston for shipping.

This trend further expanded during the war as the petrochemical industry came into being. Modern munitions manufacturing for the war effort required a vast amount of synthetic rubbers and other chemicals, like toluene, for the making of explosives. These items could be produced from the byproducts of refining oil into gasoline. Because of the nearby refineries, it made sense to build vital petrochemical plants around the Houston area, and between 1939 and 1950, the federal government and private companies invested no less than a billion dollars in petrochemical plants in the area.[50] The complex grew to some 639 plants by 1966, and included companies such as Shell, DuPont, Humble, Gulf, Texaco, Monsanto, Union Carbide, Dow, Celanese, Ethyl, Phillips, Diamond, Alkali, and Amoco.[51] What began the century mostly as a cotton shipping hub had grown into the home of one of the country's busiest and profitable industries.

One of the most important figures in the growth of Houston was Jesse Jones, wealthy business leader and owner of the *Houston Chronicle.*[52] In Washington Jones was a key figure in distributing New Deal and WWII expenditures. Much of the money that flowed into Houston during those years can be traced back to his

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[50] Ibid., 62.

[51] David G. McCombs, *Houston: The Bayou City* (Austin: University of Texas Press, 1969), 185.

[52] Walter L. Buenger, "Jesse Jones," in Kenneth E. Hendrickson, Jr., Micheal L. Collins, and Patrick Cox, eds., *Profiles in Power: Twentieth-Century Texans in Washington* (Austin: University of Texas Press, 2004), 72.

programs. An experienced financier and well-liked in the Democratic Party, Jones was appointed to the board of the Reconstruction Finance Corporation (RFC) in 1932 under President Herbert Hoover. In 1933 FDR made Jones the chair of the RFC, which was essentially a government bank that made loans, earned interest and received repayment of loans. It was a key agency in FDR's New Deal spending, and a Houstonian was in charge of it. Jones also benefited from having the backing of the powerful Texas congressional delegation led by Speaker of the House, Sam Rayburn. One of Jones's most visible contributions to Houston was funds he allocated to the improvement of the San Jacinto Battlegrounds for the Texas Centennial. Originally set for $400,000, Jones had the amount increased to one million.[53]

When the war started, the RFC continued to be one of the main agencies through which the government lent money and financed the "Arsenal of Democracy." Companies that previously would have been denied federal loans were easily approved after 1941, as long as they were willing to convert to wartime production. During the New Deal the RFC lent out some $10 billion in funds to companies, and during the war it spent four times that amount.[54] After the war, many of the improvements, factories and facilities that the RFC had helped finance, were sold to private industry at bargain-basement prices. During the war Jones served not only as the head of the RFC, but also as the Secretary of Commerce. He served his country well, and while he never favored Texas businesses unfairly over other parts of the country, he made sure they were never left lacking.

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[53] McComb, *Houston*, 171.

[54] Beunger, "Jesse Jones," 83.

In general, the Houston area grew tremendously during the war era. Between 1940 and 1950, the city's population increased by 54 percent and bank deposits grew by 282 percent.[55] In 1948, the same year as a major polio outbreak in the city, Houston was rated as the fastest-growing city per capita in the country. In 1949, the same year that Houston founded its Southwestern Poliomyelitis Respiratory Center (SWPCR) in Jefferson Davis Hospital, the opulent $21million dollar Shamrock Hotel opened. The Shamrock has long been viewed as by some as a symbol of the city's newfound wealth and boldness, while others viewed it as the epitome of noveau riche kitsch.

The expansion of Houston's medical community represented another important sector of growth. In 1939 Monroe D. Anderson, a man made very wealthy by the Anderson, Clayton & Company cotton trading firm, died.[56] His legacy left the M. D. Anderson Foundation some $20 million dollars and only vague instructions for the trustees as to spend it on the betterment of the city. In June of 1941, one of the trustees learned of House Bill 268, that had just passed in the Texas legislature. The bill allotted $500,000 to the establishment of a state cancer hospital dedicated to treatment and research under the University of Texas. The Anderson Foundation trustees offered to match the state funds on the condition that the new hospital be located in Houston and named after Anderson. The trustees even offered twenty acres in the Houston area for the project. The deal was accepted and formalized in August 1942.

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[55] McComb, *Houston*, 189.

[56] Frederick C. Elliot and William Henry Kellar, *The Birth of the Texas Medical Center: A Personal Account* (College Station: Texas A&M University Press), 7-19.

In 1943, Frederick C. Elliot, a dedicated and enterprising administrator, managed to get his Texas Dental College in Houston incorporated into University of Texas system. The conversion was completed by September and Texas Dental College was renamed the University of Texas School of Dentistry. That same summer the Baylor University College of Medicine in Dallas had come upon hard times and needed to relocate or close. By this time, the Anderson trustees and Elliot were considering the idea of using the foundation funds to build a multi-disciplined medical center dedicated to treatment, training and research. Upon hearing that a nearby medical school was looking for a new home, the Anderson trustees offered to donate one million dollars to Baylor Medical School for the construction of a new facility in Houston and an additional $100,000 a year for the next ten years if they would join the new medical center.

The Anderson Foundation then purchased some one-hundred thirty-four acres of land from the city of Houston adjoining Hermann Hospital. In 1944, the federal government also purchased land for eleven hundred-bed naval and veteran's hospital to be built in Houston. By war's end in 1945, the Texas Medical Center was officially incorporated. A flurry of activity followed as plans were presented and executed to expand the medical center. By 1954 the Texas Medical Center had grown to four hospitals, two children's hospitals, a university, a library, a speech and hearing center, a dental school and several administrative and coordinating facilities. Among these facilities was the Southwestern Poliomyelitis Respiratory Center (SWPRC), the product of an affiliation between Jefferson Davis Hospital and Baylor Medical School.

This dynamic and well-funded medical community was integral to the establishment of the SWPRC in the Houston area. Local doctors first proposed the idea to the March of Dimes, whose support combined with state and federal funds made the SWPRC operation possible.[57] After a high case load in 1948 taxed the city's hospitals, doctors at the Texas Medical Center began exploring the possibility of building a special facility dedicated just to the treatment and recovery of polio patients. The money invested in the Center turned out to be a sound investment. For every year from 1948 through 1952, with the exception of 1949, the number of polio cases in the Houston area was always the highest on record to date. Put simply, the number was always bigger than the year before, despite the best efforts of city health officials to improve sanitation and a vigorous DDT spraying program.

Polio was a problem in Houston all through the postwar era until widespread vaccine use in 1955. In 1945, there were some 200 cases of polio in the Houston area with 17 deaths.[58] By November in 1946, there were only 66 cases in Houston and 55 in the rest of Harris County, but an unusual outbreak in November produced three deaths in one week. City health officials attempted to contain the outbreak by ordering that all stables in the city be sprayed with DDT. They also purchased a special truck for $1,350 to spray the entire city.

Polio cases declined in 1947, with only 37 cases and 6 deaths in the entire Houston area.[59] But in May 1948, just as the polio season was starting, there were already 74 cases in the Houston area. In an article that conveyed the frustration of the

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[57] See Chapter 3 for a more in-depth treatment of the Center's founding and funding.

[58] *HC*, 18 November 1946.

[59] Ibid., 3 & 4 June 1948.

city health officer, Dr. Fred K. Laurentz, a *Houston Chronicle* headline read "Dots of Occurrence on Map Are as Sporadic as Shotgun Blast." After compiling data covering the last three years of local polio patients, the city health officials could find no discernable pattern in the location of cases. Laurentz said that the city health department was fighting polio in "the best manner known to modern medicine." Besides spraying programs, the city also did its best to quarantine anyone under fifteen years of age who had come in contact with a polio victim before the victim developed symptoms.

A week later, Mayor Oscar Holcombe and Laurentz announced several other measures to help contain the growing problem.[60] One of these measures was a plan to spray the Houston area bayous by airplane, at the cost of some $15,000. These announcements were made at the opening of the new $1.5 million Sims Bayou water treatment plant. Laurentz remarked that the opening of the plant was "one of the most important public health measures this city has ever undertaken." Ironically, Laurentz had no way of knowing that treatment plants such as that one had inadvertently caused the polio problem in America. While the plant would undoubtedly help protect the city from a host of other deadly waterborne microbes, it also helped create the reservoir of potential polio hosts, leading to the outbreaks. The city also announced that it would hire four health inspectors specifically to address and enforce polio-related sanitation. Despite these measures there were by years end some 312 cases in the Houston.[61]

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[60] Ibid., 10 June 1948.

[61] Ibid., 15 November 1950.

The case load in 1949 was only 190 cases in the Houston area. But 1950 surpassed 1948 with 318 cases.[62] In keeping with the theme of polio correlating with growth, a *Chronicle* staff writer's article in November of 1950 noted that because of Houston's rapid annexation of the surrounding land since 1948, the only way to come to an accurate comparison between the two years was to compare the county totals.[63] The staff writer continued on to make a surprisingly adept statistical analysis of the two years, noting that though there would probably be more cases in 1950, the 1948 mortality rate was higher. In 1948, 1 in 13 polio victims died, but in 1950 it improved to roughly 1 in 23. There are at least two possible explanations for this. The 1950 strain could have been a less virulent strain, and perhaps the Houston area doctors were getting better at managing polio patients during the acute stage.[64]

The next year, as the polio numbers again began to climb in late June 1951, a heated public disagreement occurred between City Councilmen George Marquette and city health officials.[65] They refused to recommend that the city go through its usual regime of DDT spraying for several reasons. Marquette blasted their recommendations as "fuzzy thinking." An irate Marquette remarked, "Why spraying is the only thing we have to fight polio that the people can see." Dr. William Spencer of the SWPRC and several others tried to explain that spraying only killed flies

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[62] "Facts on Polio in Texas," *The SWPRC, 1950-51*, Institutional Collections, The J.P. McGovern Historical Collections and Research Center, Houston Academy of Medicine, Houston. (hereafter cited as IC/MHCARC). These works put out by the SWPRC are bound volumes found in the center's archives.

[63] *HC*, 13 November 1950.

[64] The worst year for polio in Houston, and the rest of the country, was 1952. In the interests of chronology, the Houston polio epidemic of 1952 will be discussed below following the in-depth description of the SWPRC in Chapter 3, Houston's main polio treatment facility.

[65] Ibid., 29 June 1951.

airborne, which would easily be replaced in a day or two by new ones unless breeding spots were eliminated. Plus, the latest scientific evidence indicated that person-to-person contact was much more important to address as most people who were infected with polio showed no outside symptoms. Despite these explanations, Marquette said he would continue to press the city council to continue spraying.

The one positive aspect of the consistently high number of polio cases in Houston was that March of Dimes fundraising in the Houston area was usually well supported. In January 1950, fifty-five A.F.L. and C.I.O leaders voted unanimously to support the upcoming March of Dimes fundraising drive.[66] One union leader remarked that "labor's help to the national polio drive is a continuing tribute to the late President Franklin D. Roosevelt…the friend who put organized labor on its feet." The next year in January 1951 the city of Houston came out in impressive support of the March of Dimes. [67] Venturing out into a vicious January cold snap and braving icy streets and freezing drizzle, thousands of Houston area women collected upwards of $100,000 by going door-to-door. A small army of local law enforcement officers turned out to patrol the streets and guard the collection centers located in the city's firehouses. The March of Dimes central counting building on Lovet Street was guarded like a fortress by another fifty shotgun-wielding officers. At the end of the evening volunteers in armored cars transported the counted money to the First National Bank downtown. Just in case anybody was missed the night before, postmen were instructed to ring the doorbells of every house on their route the next day to pick up any stray donations.

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[66] Ibid., 6 January 1950.

[67] Ibid., 31 January 1951.

Other points in Texas, even more rural areas, also experienced growth and an increased number of polio cases during the same era. The Navy chose the small town of Corpus Christi as the site for one of its new naval air training facilities in 1940.[68] The complex, which consisted of several spread out auxiliary fields, spanned across some twenty thousand acres in three counties. By the end of the war, almost $100 million had been spent on the facility. One of the auxiliary fields was located some forty miles inland from Corpus Christie in the small town of Kingsville. Navy personnel stationed there doubled the town's population to seven thousand. Though the base there would open and close several times over the years, it functioned as an important part of the Kingsville economy through the 1990s. Across the state, the military built fifteen military bases, forty air fields, a naval air station and twenty-one prisoner of war camps.[69] Fort Hood, founded in 1942, made the city of Killeen what it is today (the city's official slogan is "tanks for the memories"), while Beaumont grew as a direct result of the oil and refining business. These communities also experienced a rise in polio, but one of the most notable outbreaks was in small West Texas community of San Angelo.

Isolation was a constant in San Angelo's history and even today, the city lies some seventy miles from the nearest interstate. San Angelo always seemed to have a relatively high number of polio cases for a city its size, but in 1949 genuine disaster struck the small community. That year, San Angelo had the highest number of reported polio cases per capita in the entire country.[70] The city went so far as to close

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[68] Corpus Christi Naval Air Station, "HOTO," accessed 3 September 2005.

[69] Urbanization, "HOTO," accessed 8 August, 2005.

public venues for a week in a futile attempt to control the outbreak. By the end of the year, San Angelo had reported some 420 cases with 28 deaths.

Like the rest of the state, San Angelo had undergone fundamental changes recently before the polio outbreaks of the late 1940s and 1950s. From 1940 to 1950 the city's population increased by more than 100 percent from 25,802 to 52,093. Many in the city now made their livings in the new oil and natural gas industries, whereas before only agriculture was profitable. San Angelo, with its movie theatres and commercial businesses, was the spot that many on the surrounding farms and ranches came to for a bit of city life. The city also served as a training center for the military. Concho Field trained bombardiers, and GoodFellow Field trained pilots. Many locals moved off to the larger cities for lucrative wartime employment, but returned home for visits. Others served overseas and returned home when enlistments were up. Though still in an out-of-the-way corner of Texas, in the late 1940's San Angelo was suddenly more connected to the outside than it had ever been. And like the rest of Texas, this new world seemed to come at the cost of a mystifying disease that swept through the community every summer like clockwork, leaving its victims, mostly children, dead or lame in its wake.

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[70] Ralph Chase, "A Circle of Wagons," 98.

CHAPTER 2

THE POLIO OUTBREAK OF SAN ANGELO, 1949: A COMMUNITY IN CRISIS

As polio rates began to climb across the country during the postwar years, one West Texas ranching town's polio woes exemplified the impact an epidemic could have on a typical community. During the summer of 1949, San Angelo had a catastrophic outbreak of polio that left many citizens in a panic and showed the hysteria a serious polio epidemic could cause in a community. Some townspeople reacted admirably and overcame their fears to help deal with a crisis that could not be contained. Others let their understandable anxiety get the best of them. Some even saw the polio epidemic as good for business. In 1949, with 420 reported cases of polio and 28 deaths, San Angelo had the highest rate of polio in the country per-capita, far above the national average.[1]

San Angelo, recorded as one of the worst-hit cities during a crucial year in America's polio epidemic, makes for an interesting study for several reasons. First, it fits the model of polio being an unintentional symptom of growth and modernization. San Angelo, like the rest of Texas, went through some fundamental changes in the twenty years before polio. It was now less isolated from the rest of the world thanks to new military installations and the income from surrounding oil fields. The

[1] Oshinsky, *Polio,* 4.

population had almost doubled in ten years, and though many other Texans from Houston or Dallas would have considered San Angelo a dumpy backwater, San Angelo served as the region's commercial, retail, entertainment and medical care center. Second, because of the magnitude of the crisis, the 1949 outbreak brings into stark relief many of the fears common among Americans during the era. It also serves to showcase the measures communities took every year in an attempt to curtail polio's spread. Many of the procedures the city implemented were the standard protocol of the day. It also shows how fearful people were of the disease, as at one point in the summer polio brought activity in the city to a grinding halt.

Before World War II, San Angelo was a sleepy, relatively isolated West Texas stock-raising center. In the previous century it existed as a mostly an army post and a way station on cattle drives destined for railheads farther north.[2] Agriculture and ranching drove the local economy until the discovery of Permian Basin oil in 1923. As in other parts of Texas, the oil industry more than doubled the population from 10,050 in 1920 to 25,308 in 1930. San Angelo was also the hub of one of the largest wool and mohair industries in the nation, and despite the increase in population, the rural character persisted.

San Angelo's growth continued through the war. From 1940 to 1950 the population again doubled, from 25,802 to 52,083, and contact with the outside world increased dramatically with the construction of Goodfellow and Concho airfields.[3] Goodfellow Field, an Air Corps training facility, opened in 1940. The base was deactivated briefly in May of 1947, but reopened almost immediately afterwards in

[2] San Angelo, "HOTO," accessed 9 October 2005.

[3] Chase, "A Circle of Wagons," 98.

December of that year and was renamed Goodfellow Airforce Base. While the base brought prosperity and growth, it increased the city's exposure to new pathogens. During the war itself, though, San Angelo was still relatively isolated despite the growth and the air base. San Angelo sits in a rather desolate section of the Edwards Platuea in West Texas that is far removed from the population centers further east and south. The state highways that connect San Angelo to the outside were considerably less improved in the 1940s. Gas rationing during the war would have further restricted travel, and train service was devoted to the military.

After the war these conditions changed. Scores of servicemen returned home, gas rationing was lifted and trains became available again.[4] Now San Angelo was home to a large population of unexposed people now more exposed to the outside world. True to one of the tenants of epidemiology, when an isolated community becomes less isolated, there will be a higher incidence of infectious diseases among a populace with no immunity. In some instances, under the right circumstances epidemics will flare up. Between the growing but previously unexposed population, increased travel and the constant flow of personnel rotating through Goodfellow Air Base, San Angelo was ripe for some sort of outbreak in the postwar years.

Until 1948 San Angelo had a fairly average incidence of polio cases, but in 1949 some unseen "tipping point" was reached.[5] A combination of factors such as a growing population, increased contact with the outside world, changes in demographics, a susceptible population, and inadequate sanitation all converged on the unfortunate, but by no means unusual, town of San Angelo. In 1948, there were

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[4] Ibid.

[5] Malcolm Gladwell, *The Tipping Point* (New York: Brown Little, 2000) 15-18.

57 cases of polio.[6] During the next year 420 cases were treated.[7] Of these, 84 suffered contracted paralysis and another 28 died. By comparison, in 1948 and 1949 Houston and the surrounding area of Harris County reported 313 and 318 cases, respectively.[8] There were ten times as many people living in Harris County, but there were over 100 more cases reported in San Angelo. Compared to national rates of polio incidence, San Angelo's was also many times that of the national average, which in 1949 was about 1 case in every 3,775 Americans. In San Angelo the rate was 1 for every 124 persons.[9]

It deserves to be noted, however, that the actual number of cases during the 1949 epidemic is subject to some question and that no records are available that could support a precise epidemiological study. Lanier Bell, a physical therapist at San Angelo's Shannon Hospital who treated many of the 1949 victims, compiled the figures on which locals agree on.[10] Bell's main resource was his own notes, taken on note cards he carried around in his pocket to help keep track of his patients. Unfortunately, if these note cards have managed to survive, their whereabouts are unknown. As one of San Angelo's few physical therapists at the time, he would have examined probably all the polio patients during the outbreak. While Bell was in a good position to count all the polio patients during the outbreak, no other reliable

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[6] *San Angelo Standard-Times*, 2 June 1949. (hereafter cited as *SAS-T*).

[7] Chase, "A Circle of Wagons," 106.

[8] "Facts on Polio in Texas," *The SWPRC, 1950-51;* Houston's population in 1950: 600,000. Source: The years of readjustment, 1945-1950, "Houston History," http://houstonhistory.com/decades/history5l.htm.

[9] Chase, "A Circle of Wagons," 106.

[10] Ibid., 100; Ralph A. Chase, Interview with author, 31 May 2005, San Angelo, notes, Chase residence.

records seem to exist that could corroborate his tally. The daily *San Angelo Standard Times*, the local paper, seemed content only to report the number of people currently undergoing treatment during the outbreak and did not keep a running tally of the annual total. Also, reporting on the outbreak seems to end suddenly in July, further reducing the newspaper's utility as an accurate source for figures. Shannon Hospital's records, if they have survived, are not open to the public, and it is quite possible that the exhausted staff, which was stretched to the limit, was more concerned with administering care than keeping an accurate count.

While the actual number of cases may be questionable, the crisis to the people of San Angelo was quite real. What did the polio outbreak mean to people of San Angelo? Prior to the outbreak in June of 1949, business as usual occupied the most pressing events on the front page of the *San Angelo Standard Times:* tornadoes in other towns and wool prices. On May 3, the San Angelo municipal pool, which boasted "Pure Fresh Water" and "the highest standards of sanitation," opened for the season.[11] The *Standard-Times* reported polio deaths in distant Austin and Odessa in late May, but carried no stories yet about how the polio total for San Angelo was already close to that of 1948. Event though the polio season of summer was just beginning, no one seemed to take note of the brewing problem.

The situation, however, seemed to change overnight. On May 27, the paper's front page reported that in nearby Ballinger, a one-and-a-half-year-old "negro" baby died of polio. The next day the obituary of ten-month-old Esperanza Ramirez appeared. Ironically, in the column next to the Ramirez announcement was copy detailing the county school-district's increase of 471 pupils for that year, showing the

[11] *SAS-T*, 3 May 1949.

growth in the community that helped lead to the outbreak. Two days later, the scope of the problem became more apparent to the public. Three newly confirmed cases pushed the yearly total to 53. Doctor. R. E. Elvins, the city health officer, asked neighborhoods to form committees to clean up weeds, tall grass, trash, and standing water. They hoped these measures would reduce the numbers of flies and mosquitoes and curtail the spread of the disease. One church cancelled its vacation bible school, and Elvins urged citizens to avoid new contacts and large crowds. He also advised the washing of hands before eating, when handling food, and after using the restroom, as well as avoiding over-tiring and chilling. The city also promised to step up its insecticide spraying.[12]

Authorities ordered these precautions because scientists really had no idea how polio spread or who was susceptible. Cities across the nation used similar methods in an attempt to curtail polio.[13] Even today, the exact details of how polio spreads from person to person are not very well known, as a vaccine preventing its spread was discovered before the finer points of the vector were worked out, making further research a moot point. The hand-washing was probably most effective. Subsequent findings revealed that many people are asymptomatic carriers, who show no outward signs of sickness, but still shed the virus in their stool for weeks or months.[14] Thus, once a core group of asymptomatic carries began circulating in San Angelo, containment measures like those aimed at reducing insects did little to stop

[12] *SAS-T*, 27, 28, & 29 May 1949.

[13] Oshinsky, *Polio*, 5.

[14] Schaechter, 305.

its spread. It probably did not help that San Angelo still had some two thousand outhouses in use throughout the city.

While residents were largely ignorant as to causes, they did begin to understand the disease's effects. With mounting horror and fear, they read about seven year-old Billie Doyal Gleghorn, a local girl who was admitted to the hospital Sunday night and was dead by Monday morning. The cause was polio. That same Monday, Susan Barr, age four, entered the hospital and died by Wednesday, a victim of polio. Both incidents were front-page stories and helped to heighten tensions.

Now that a disaster became apparent, all segments of the city began to mobilize. The March of Dimes dispatched its San Antonio representative to help facilitate care, assess the situation, and allocate the medical equipment from a recently closed North Carolina polio center to San Angelo's Shannon Hospital. The commander at Goodfellow Air Force Base sent a C-47 transport to pick up the equipment, free of charge.[15] Officials used this contribution and other supplies from the March of Dimes to set up two polio wards in Shannon Hospital, one in the basement and another on the second floor.[16] The Clinic Hospital converted its entire first floor into a polio ward. The March of Dimes sent four iron lungs, and local charities supplied two others. Papers assured people this was "just a precaution" but every bed possible became necessary as more cases were diagnosed every day in June. The Red Cross and the March of Dimes sent doctors and nurses to help provide specialized care, but many of the locals still worked double shifts.

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[15] *SAS-T*, 2 June 1949.

[16] Chase, "A Circle of Wagons," 104, 105-106.

San Angelo really only had three qualified pediatricians to treat polio patients: Robert M. Finks, Robert Arledge, and Merrill Everhart.[17] Doctor Finks, who came to San Angelo in 1933, was the first board-certified pediatrician to set up practice in Texas between Ft. Worth and El Paso. Other townspeople showed up to help out in any way they could, a rather selfless act considering no one knew how the frightening disease was spread. One exceptionally dedicated physical therapist, Lanier Bell, spent most of the summer going home only once every two weeks for a brief meal with his family. He could often be found circulating in the wards late at night, offering what comfort he could to patients.[18]

A common treatment in 1949 was the "hot pack." [19] This procedure called for doctors to try relieving the pain and muscle spasms associated with polio by applying heat with old wool army blankets dipped in hot water and wrapped around the affected limbs. The idea was to relax spasiming muscles. Unfortunately, many of the patients, especially the children, found this method painful. Debbie Nightingale, a nurse in San Angelo in 1949, recalled that the staff would give the children toys to play with before beginning their hot pack treatment. After awhile, the children would start crying when they were given toys, because they knew what was coming next. Quite likely, whatever air conditioning system Shannon Hospital had was overcome

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[17] Chase interview with author, 31 May 2005. Dr. Ralph Chase, a pediatrician who lived and practiced in San Angelo for some 50 years has also researched extensively on the 1949 polio outbreak, did not come to San Angelo until 1953.

[18] *The Houston Post*, 27 April 1980.

[19] Loretta Macias, "Today a rare disease; 30 years ago an epidemic," *San Angelo-Standard Times* (?), in Vertical File: "Polio Epidemic," West Texas Collection, Angelo State University, San Angelo, Texas. (This collection hereafter cited as VF/PE.).

by the ward full of steaming hot blankets, meaning the patients and staff also had to contend with the West Texas summer heat.

During the outbreak, the March of Dimes sent a team of polio specialists to help. The team consisted of a physical therapist, a Stanford medical school assistant dean and the March of Dimes' own assistant medical director. It is unclear today if the team actually treated patients, or if they just inspected the facilities and made recommendations. In a meeting with the general medical staff of Shannon Hospital and other local officials on June 14, the specialists discussed the latest procedures in polio treatment and theories on its spread.[20]

Reflecting how little viruses were understood and how helpless modern science was to contain polio's spread, the discussion and advice seemed to contradict itself at several points. For example, the standard hot pack procedure was discussed at length, and the visiting doctors recommend its application as soon as possible to relieve pain to afflicted limbs. At the same time one of the doctors admitted that with frail and weak patients the hot packs could do more harm than good; moreover, if the staff was too busy, hot packs could be forgone without any serious consequences. The specialists also said that quarantines seemed to have little utility in preventing polio's spread, but then admitted they were still practiced in several places. They also quoted the latest studies that indicated flies might not be an agent in polio's spread, but they really had no solid answer as to what did.

One outspoken local doctor openly vented his frustration and confusion during the meeting. "I am extremely interested but confused by what has been said in this

[20] "Minutes of General Medical Staff, Shannon Hospital, June 14, 1949," Polio File, West Texas Collection, Angelo State University, San Angelo, Texas, 1-6. (This file hereafter cited as PF/WTC).

meeting…We first heard the patient may run a fleeting temperature…or …may not… One states that he doesn't believe it is particularly disseminated; another states that it is deseminated possibly by the droplet infection, possibly in the stools. I am still more confused as to the treatment. Some say treat it early by hot packs; some say late."[21] The meeting's moderator admitted, "The conflicting statements referred to are helpful actually in giving us a broader picture of the disease and in emphasizing our lack of knowledge concerning it." Due to their own incomplete knowledge, the nation's leading experts on the polio could not provide local doctors a straight answer. Perhaps seeking to end the meeting on a positive note, one of the visiting doctors complimented the San Angelo staff on its use of the best possible methods, saying there were doing about as well as anyone else in the country.

Despite being a bit hazy on the treatment regime, the San Angelo medical community seems to have performed admirably for the most part. Doctor Chase later wrote that one of the biggest fears in Shannon Hospital was a thunderstorm.[22] The iron lung respirators that many of the patients depended on for breathing had no emergency power reserve, and blackouts were common when storms passed through San Angelo. The iron lungs could be run with a hand-crank in an emergency, but the crank was poorly designed and even strong men tired quickly when operating it. At the sign of an approaching storm, an alarm would sound and groups of volunteers and staff would rush to the polio wards. There they formed teams to operate the hand-cranks in case power was lost. No one, Dr. Chase said, died that year because of an electrical failure.

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[21] Ibid., 17.

[22] Chase, "A Circle of Wagons," 105.

Most of the published literature on the outbreak focuses on the brighter side of the San Angelo medical community's response. But there were rumors that one of the local doctors involved in the epidemic may have done more harm than good. Doctor Chase, probably the leading authority on the outbreak, would later, on two separate occasions, convey these rumors.[23] The allegations were an "open secret" among the medical community in the years following the outbreak. According to Dr. Chase, one of San Angelo's three pediatricians was so frightened of contracting polio himself that he let it compromise his performance. The standard of care for a confirmed polio diagnosis was to perform a spinal tap on patients who had trouble either lifting their head or feet. From there, white blood cells found in the spinal fluid confirmed a polio infection in the spinal column. Supposedly, the doctor in question was so worried of contracting polio that he gave any suspected case only a cursory examination, and in an attempt to minimize his own contact with a potential source of polio infection, never performed any spinal taps. The patient would then be admitted and dumped on Lanier Bell and the other doctors. Overwhelmed by the outbreak, the rest of the staff that did not have time to double-check the other doctor's work. Moreover, since he was a respected member of the medical community, the few doctors qualified to question his diagnosis chose not to.

None of the hospital's medical records are available to confirm or deny these stories. Dr. Chase contends that these stories were common knowledge in the town's medical community in the years after the outbreak. Lanier Bell died in 1986 and seems to have made no mention of this doctor dumping his polio patients on him.

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[23] Ralph Chase, interview by Karal Garcia, 18 November 2001, transcript, Chase Papers, West Texas Collection Angelo State University, San Angelo, Texas, 9; Author's Chase interview.

Since, according to sources, Bell was selfless, it is unlikely he would put into writing the doctor's shortcomings. As of now, there does not seem to be a way to corroborate these stories accurately.

If Dr. Chase's reflections are true, there are several implications. The first is that the number of polio cases during the 1949 outbreak would be over-reported, because one doctor simply declared many cases of summer flu polio instead of giving a proper examination. Therefore, it is possible that San Angelo's frightening epidemic was not the highest per-capital incidence of polio in the nation. Another implication is that patients with legitimate polio cases suffered because the hospital staff was weighed down with in influx of patients. Further, it also exemplifies the hysteria polio inspired during the era, when even a medical doctor is letting his own fears of polio get the best of him.

If in the polio wards San Angelo's medical professionals performed admirably for the most part, the rest of the town did not fair so well. In early June, there was a flurry of activity from concerned citizens and newspaper coverage was often on the front page. The *Standard-Times* gave daily updates on the number of polio cases entering the hospitals - June 11, seven; June 14, nine; June 22, eight.[24] Each day in June the number climbed, despite the efforts that citizens took. By mid-June at least half the city's 160 hospital beds were dedicated to polio patients. One day a graphic that resembled a football score ran on the front-page, and gave a breakdown on case numbers. Though the paper restrained itself from giving a play-by-play on the body count, people were still frightened. The city government, mirroring the fright of the

[24] *SAS-T*, 11, 14 & 22 June 1949; Oshinsky, *Polio*, 6.

townspeople, banned indoor gatherings for a week in June and bathed the city in DDT.

At the request of the mayor, on June 2 the City Commission closed for one week all "movie theatres, churches, schools and any other indoor public gatherings where children under the age of 15 might apply for entrance." The measure passed unanimously, and for a week the city tried to reign in its youth and keep them isolated. Adults also stayed home, professional wrestling in the gym was cancelled, and bands scheduled to play in local venues refused to come to town. Outdoor gatherings such as baseball games were still allowed, however, and the *Standard Times* was careful to clarify that the city itself was not quarantined. Those unable to resist the urge could still see a movie at one of the city's two drive-ins. The municipal pool was also closed, and Dr. Elvins urged citizens to stay out of swimming holes and the Concho River, despite the hot weather. Doctor Elvins, however, did not support the general closing of other public venues and made it a point to say so in a General Medical Staff meeting held at Shannon Hospital a few weeks later.[25] The City Commission had not asked his opinion before closing down the city.

Once the ban on indoor gatherings ended, the City Commission did not enact another one, because other measures had been enacted. One measure was a new ordinance that banned livestock from the city limits; another law required owners to clean out pens every twenty-four hours; and yet another to fine property owners if weeds on their land were higher than twelve inches. The rationale was that these

[25] "Minutes of General Medical Staff, Shannon Hospital, June 14, 1949," 8.

measures would remove flies from the city and curtail circulation of the virus.[26] Possibly some of the measures were actually the symptoms of other old feuds in the city.[27] Recent growth in San Angelo caused tension between the newer "city folk" and original livestock-owning "country folk." The city folk saw the epidemic as an opportunity to pass an ordinance banning livestock from the city limits and modernize the city's image.

The most drastic measure was the repeated spraying of the entire city with DDT, which at the time was considered a completely viable health measure for controlling polio. That same summer San Antonio authorities regularly used helicopters and planes from the Texas Air National Guard to fumigate the entire city with insecticide. Though many of the citizens wanted it, San Angelo declined to use airplanes. Their concern was not that people might have allergic reactions to the insecticide, but that it would cost the city upwards of $38,000 dollars, and that much of the spray would probably blow away. Officials also argued that air spraying would waste DDT, since it would not get down into trash piles and alleyways where it needed to go. Airborne spraying, they reasoned, would only waste the insecticide on roofs and treetops. Instead, the city opted to use a pair of foggers on the ground. One was borrowed from Abilene, and another was bought brand new. They were towed behind pickup trucks and boasted a hundred-gallon tank that lasted for eight hours. Throughout the summer the entire city was sprayed several times by the foggers. Chase recalled that the foggers resembled WWII destroyers laying down a smoke-screen as they rolled by.

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[26] *SAS-T*, 1 June 1949.

[27] Chase, "A Circle of Wagons," 101.

Foggers were only one of several strategies. Ten service organizations sent three- man teams throughout the city to spray individual outhouses with DDT. Sanitation workers were also called in on a Saturday and sent to clean up trash in empty lots. Additionally, the City made available two lawn mowers for rental, and recommended that citizens spray their own yards, especially their trash cans. Because all churches were closed on Sunday, June 5, pastors broadcasted their sermons from local radio stations. They asked for "Devine [sic] guidance" to help them with the plague that had befallen them.[28]

Understandably, all of these measures intensified citizen fears. The epidemic epitomized the worst manifestations of American's anxiety about polio. As the San Angelo outbreak shows, people in the pre-vaccine era were genuinely scared. Travelers gave San Angelo a wide berth. Relatives of the stricken were often not allowed into other people's homes and some limited their visits to the front porch, declining to enter a home where polio was reported. Some citizens simply left town or sent their children away for the summer. Professional wrestlers, whose matches were canceled during the indoor gathering ban, refused to return to San Angelo after the ordinance was lifted.[29]

In the absence of hard scientific proof about how the disease spread, rumor and conjecture ran rampant. Beyond the DDT spraying and the clean-up campaigns, some individuals came up with more inventive explanations. Some blamed the fuzz on peaches and bananas, and others blamed lettuce and celery.[30] Motorists passing

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[28] *SAS-T, 5 & 6* June 1949.

[29] Oshinsky, *Polio*, 6.

through town would not put air in their tires for fear of taking polio with them.[31] The mayor's office received a series of bizarre letters from across the country offering advice on how to deal with the epidemic.[32] An Ohio woman suggested the culprit was "poisonous aluminum cooking utensils." From South Dakota came the theory that the disease was spread in milk that had been contaminated by flies, a variation of the popular theory of the day that flies and other pests were the source of polio woes. A Los Angeles man recommended add a lime and calcium additive to the city's water. Five local women wrote the mayor and blamed the epidemic on teenagers that had come to San Angelo recently from neighboring towns looking for jobs. They also noted that these out-of-towners were depriving the local teens of jobs and offered up the names of some of the teenagers should the mayor decide to remove them. The newspaper ran a strongly worded letter to the editor from one R. G. Walton, who complained bitterly at how he had watched a man in a local diner move several times between preparing food and handling money at the register without washing his hands. "It's a wonder we don't all have polio by now!" he complained.

Though many letters were preposterous, they are the symptom of a larger problem. As illustrated in the transcript of the General Hospital Staff and March of Dimes experts, modern science really had no solid answers to give as to either how polio spread or how it could be prevented. In the absence of any definitive answer, Americans looked around, made their own observations, and tried to draw a

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[30] *The Houston Post*, 27 April 1980.

[31] *Dallas Times Herald*, in VF: PE.

[32] Preston Lewis, "Animal, Mineral, Vegetable: Counterfactual Explanations for San Angelo's 1949 Polio Epidemic," *WTHAYB* 78, (2002): 31.

correlation between their surroundings and the new frightening outbreaks. Of the letters that the mayor's office received, the five local women and R G. Walton were probably on to something. The influx of new people from the town's rapid growth, as indicated by the presence of job-seeking teenagers, was a major factor in the town's 1949 epidemic. Also, San Angelo citizens now circulated much more within the city and interacted with more people from outside the city, further helping to keep polio rolling through the city. In addition, Walton's call for fastidious hand washing could have helped reduce the number of cases and might have nipped the epidemic in the bud in April and early May, while the epidemic was taking root.

As some citizens searched for answers, others looked to make a profit form the situation. Newspaper ads from insurance companies were the most visible sigh of this effort to benefit from the epidemic (see figure 1). On the 29 May, just as the severity of the outbreak became clear, sixteen San Angelo insurance agents took out a full-page illustrated ad in the *Standard-Times*. Seeing no need for subtlety, the ad proclaimed, "POLIO! Your child could be next! Protect your family!" For the rest of the summer individual agents' ads dotted the paper, offering various prices and deals. In 1949, insurance against specific diseases was common practice, and it seems that quite a few San Angelo insurers did not want to let competitors get a leg up on them. Some advertisements showed smiling families, while others simply just made sure to have "Polio" in big black bold letters to catch a reader's attention.[33]

[33] *SAS-T*, 29 May 1949.

Figure 1. Sample of Polio Insurance Ad - A large ad in the paper for polio insurance. *SAS-T*.

Similarly to insurance agents, pesticide companies also made money off the epidemic. In early June, the same day that Goodfellow Air Force Base's C-47 left for North Carolina, the Queen City Distributors (see figure 2) in San Angelo told locals to "Fight Polio: Spray weeds and garbage cans with genuine Nok-Out liquid concentrate insect killer!"[34] Not to be outdone by the city's foggers, the Yellow Cab Company ran an ad for about a week assuring customers that, "We are spraying all our cabs with DDT twice daily for the protection of our customer's [sic] health."[35] A local concrete contractor, L. M. Castor, tried to develop a contraption that could be filled with pesticide and placed in the bottom of a trashcan.[36] Not only would the device keep the trashcan bug-free, but as the insecticide evaporated out of holes in the top of the invention, it would help rid the city of polio. Castor told the reporter he had some three hundred pre-orders waiting to be filled once he perfected his

[34] Ibid., 2 June 1949.

[35] Ibid., 7 June 1949.

[36] Ibid., 24 June 1949.

invention. Because "it is needed at once," Castor rushed his work as much as possible.

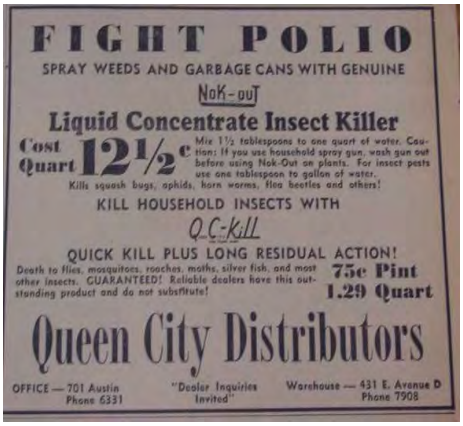

Figure 2. Sample of Ads For Pesticide. *SAS-T*.

San Angelo's chiropractors also ran a series of advertisements during the epidemic. In a large piece that began with "Polio, Let's Prevent It!," local chiropractors LeMance and Turley promised to do their part in the community's fight with polio.[37] Disease, they argued, could come from a misaligned spinal column, and "in correcting spinal conditions we strike at a fundamental cause of disease." To drive the point home, they added, "Father and Mother, the best assurance that *your* child will *not* have polio comes when you've had your child adjusted."

Five days later, the Grupe Chiropractic Clinic bought even more space than LeMance and Turley.[38] Their misleading approach attempted to draw a direct correlation between polio, which they even refer to as an infectious disease, and the swelling caused by physical injury like "a misplaced bone at the base of the head which causes inflammation of the nerves." The cause of this cord pressure, they continued, was usually a fall or a sharp jarring. Children fell more than adults, hence

[37] Ibid., 7 June 1949.

[38] Ibid., 12 June 1949.

accounting for the disease's propensity to target the young. The ad went on to claim that one of Grupe's chiropractors had actually cured a case of polio by resetting a misaligned bone in a patient's spine. The recipient of this "miracle" supposedly went on to a full recovery and a career as an all-state high school football quarterback. Not once in twenty-one years of service, they claimed, did a single one of their patients develop polio. Chances are this claim could not be made after the summer of 1949. While the fallacy of trying to connect a viral infectious disease with inflammation caused by a physical injury later became obvious, it should be noted that compared to women from Ohio blaming aluminum cookware, the chiropractors had a well-developed line of reasoning. It is unclear if the chiropractors honestly believed what they advertised or if they were just trying to scare people into their office.

At the beginning of the summer polio was everywhere in the paper: on the front page, in the ads and the obituaries. But toward the end of June, the tone of the *Standard Times'* coverage changed. The air of panic was gone, and while the daily update on the number of patients in treatment continued, the paper noted that several of the patients currently in the hospital were from outside the county and not natives of San Angelo. In the article "San Angelo Remains Normal Despite Polio Cast-Shadow," the paper quoted the mayor's conversation with a March of Dimes medical director from New York who had visited San Angelo earlier in the month.[39] The March of Dimes recommended "under no circumstances" doing anything, such as banning public events, "that would stop the normal life of the public." He also felt that groups of playing children, as long as there had not been any polio already between them, did not need to be dispersed. Further, as long as parents did not let

[39] Ibid., 23 June 1949.

their children overexert themselves and the city kept up its fogging program, the epidemic would eventually be brought under control. The City Commission also backed-off on its plan to ban livestock from the city limits and reported that its inspection of animal pens was going well.

Though the case load in late June was well short of the 420 cases reported at the end of the year by Lanier Bell, newspaper coverage dropped off by early July. It could be that the city leaders or members of the medical community asked the paper to soften its coverage.[40] Chase suggested that the hospitals, which were being overwhelmed with panicked people, asked the *Standard-Times* to tone down its coverage. The paper refrained from reporting polio deaths, unless polio was mentioned in an occasional obituary. The obituaries were not, however, consistent enough in listing the cause of death to reconstruct a picture of the epidemic. Most of the 28 deaths from polio that occurred through the year should have happened during the peak months of June and July. Yet after the initial 7 deaths in early June, before the indoor ban was issued, the paper did not mention polio deaths. Also, the *Standard-Times* stopped running a tally on the number of cases for the year and only reported the number of patients currently in treatment. In July, coverage of the epidemic largely stopped, even though cases seemed to be nowhere near the total of 420. One of the final items the paper ran about the epidemic was a picture of Valton Vogel celebrating his twelfth birthday with his parents in Shannon Hospital's polio recovery ward.[41] He shared his cake and ice cream with the other 16 children in the ward.

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[40] Chase, interview with author, 31 May 2005.

In another instance the *Standard Times'* July coverage of the epidemic might appear even more suspect. In Wichita Falls, radio station KTRN asked the leaders of San Angelo for advice on how to deal with polio.[42] San Angelo Mayor E. A. Vautrain and several medical specialists responded by recording a broadcast for KTRN, recounting what San Angelo had done and providing their best advice on polio's particulars. During his segment of the program, Mayor Vautrain announced that on June 27, approximately 215 cases of polio had been treated in San Angelo since January 1.[43] So, even though the number of cases in late June was well short of the agreed upon yearly total of 420, coverage of the epidemic in the *Standard-Times* quickly dropped off in early July.[44]

In September, school started as scheduled, despite the summer's commotion. Undoubtedly, more than a few students would have been missing: some where dead, others would be in recovery wards undergoing rehabilitation. Others may have hobbled to class on crutches or in leg braces. Many of the victims had been sent to the Gonzales Warm Springs Foundation rehabilitation hospital in Gonzales, Texas. Others received their rehabilitation locally. How many San Angelo school children were diagnosed with polio and to what degree they recovered is unknown.

The road to recovery was often long and arduous for polio survivors, and many spent the rest of their lives in crutches or wheel chairs. Lanier Bell, the heroic

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[41] *SAS-T* 2 July 1949.

[42] Radio Program Script, Chase Collection, West Texas Collection, box 6, File 11.

[43] The *New York Times* ran a bullet on 21 June 1949 that put the San Angelo count at 194 cases with 8 deaths.

[44] Because no documents such as medical or city records seem to exist that describe the epidemic past July, most write-ups of the event focus on the month of June, when the newspaper coverage was the heaviest and the City Commission closed down the city for a week.

physical therapist who stayed on all night in Shannon Hospital during the 1949 epidemic, spent the rest of the his life in San Angelo helping those who needed rehabilitation, many of them polio survivors. When he died, in 1986, the paper honored his passing with a column in which many of his former patients fondly remembered him.[45]

In the years following the great epidemic of 1949, the number of cases in San Angelo fluctuated between moderate and low. In 1951, 1953 and 1954 there were less than 50 cases for each of those years.[46] In 1952, the worst year on record nationally, another wave of polio cases swept through Texas and San Angelo's case number jumped up to 81. In 1955 the Salk vaccine was released, and there were only 19 cases of polio in San Angelo. By 1957, there were only 7,000 cases in the entire United States.[47]

An examination of the San Angelo polio epidemic of 1949 gives a complete picture of how polio could affect entire communities. San Angelo, like many other previously isolated towns and cities across the country, experienced phenomenal growth and urbanization through the 1940s, the same years that polio rates rose steadily nationally. With a susceptible population now interacting more with the outside world, many communities like San Angelo were ripe for a polio outbreak. Taking a close look at San Angelo in the summer of 1949 reveals how many communities felt and reacted to the disease. Many health care professionals and individual citizens responded commendably, while others employed ineffective

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[45] *SAS-T*, 20 June 1986.

[46] Ibid., 5 May 1956.

[47] Oshinsky, *Polio*, 255.

measures, hoping they would do some good. At the same time, one doctor may have caused more harm than good when his own fears made him refuse to examine closely polio patients, driving up the case load and wasting valuable resources and personnel. Also the private meeting between the March of Dimes specialists and local doctors illustrates the frustration caused by polio, as no one really knew how to cure it or prevent its spread.

Citizens responded in different ways. Some found polio good for business and reacted accordingly. Others let their fears get the best of them and fled the city or refused to venture out in public, while some citizens volunteered to help in any way they could. The most unfortunate participants in the outbreak spent the rest of their lives in crutches or died with only their heads sticking out of the iron lung, the odd contraption that saved many others. In the San Angelo polio epidemic of 1949, one can see how this disease affected everyday Americans in their daily lives and the scope of various reactions it evoked.

CHAPTER 3

THE SWPRC: HOUSTON'S KEY TO MANAGING POLIO

Like San Angelo, Houston also had a severe polio outbreak in the post-war era. When polio season ended in late October of 1952, there were 439 polio cases reported in the city limits that year.[1] The Houston suburbs and outlying areas of Harris County reported an additional 267 cases. But despite this severe outbreak, Houstonians were never gripped with panic like in San Angelo, even though doctors struggled to keep up with the case loads. No quarantines were issued, and city officials kept the pesticide spaying reasonable. There were no reports of citizens fleeing the city in droves, possibly because Houston had a tradition of high polio numbers every summer and citizens were accustomed to dealing with the disease. Additionally, Houstonians also had the comfort of knowing that their city was home to one of the best polio treatment centers in the United States. The Southwestern Poliomyelitis Respiratory Center (SWPRC), founded in June of 1950, became one of the premier facilities in the nation for the research of treatment and rehabilitation of polio patients.

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[1] *The Houston Chronicle* 20 October 1952. It should be noted that these numbers are much more reliable than the numbers in the San Angelo outbreak. The quality of reporting with *The Houston Chronicle* was much more precise than that of the *San Angelo Standard-Times*, and numbers in the paper are consistent with the SWPRC's records. Further, it is unlikely that in Houston's medical community a single doctor's misdiagnosis could lead to gross over-reporting as is alleged in the San Angelo 1949 outbreak.

Unlike San Angelo, which had one catastrophic polio outbreak in 1949, the city of Houston had a steady number of cases every year. Fortunately for the polio victims of Houston, the city hosted one of the most vibrant medial communities in the Southwest, a condition that led to the founding of the SWPRC. Though the now famous Texas Medical Center was still in its formative years during the post-war polio epidemics, the city had a core of well-trained doctors and administrators working in well-funded hospitals and medical schools. Because of the steady stream of polio patients and available resources (money, doctors, facilities), Houston was the natural choice for a specialized polio treatment facility.

The need for a treatment facility of some sort in the city was quite obvious. Mirroring the trend in the rest of the state, polio rates climbed in Houston every year. Within Houston and Harris County in 1948, 1949 and 1950 there were 313, 190, and 318 cases of polio respectively, which resulted in a total of 54 deaths for the three-year span. Of those 318 in 1950, Houston suffered an exceptionally rash outbreak that year, with 216 cases within the city limits.[2]

Professionals associated with the existing facilities in Houston who recognized that they could not adequately address the situation led the movement for a new treatment center. The county-run Jefferson Davis Hospital ran a polio ward during this time, and the pediatricians were often overwhelmed whenever large outbreaks occurred. They could only keep up by calling in medical student interns

[2] Houston's population in 1950: 600,000. Source: The years of readjustment, 1945-1950, Houston History," http://houstonhistory.com/decades/history5l.htm, internet, accessed 20 August 2005.

and residents from other departments in the hospital.[3] Although the doctors at Jefferson Davis were able to keep the mortality level of the outbreaks low, the ward suffered nursing staff shortages and, more importantly, lacked facilities for the growing population of patients that required follow-up visits to monitor their health. Russell J. Blattner, Chief of the Pediatrics Section at Baylor Medical School, recognized the deficiencies of this situation and began organizing the new polio center. He was one of the driving forces behind the founding of what became the SWPRC. The March of Dimes recognized the merits of his plan and aided in the funding. A newspaper article in December of 1949 announced that the Center was approved for state funds and that construction would soon begin.[4]

As mentioned earlier, by the late 1940s and early 1950s, the March of Dimes had grown into one of the most powerful and influential charitable organizations in the nation. The organization used the latest techniques in advertising, fund raising, and motivational research to organize an army of volunteers that collected millions each year in small donations.[5] The March of Dimes used these monies to fund polio research and to help families pay for treatment. Between 1938 and 1955 the March of Dimes raised and distributed some $233 million for patient care, and still had enough to fund lavishly Jonas Salk, Alfred Sabine, and numerous other projects in an attempt to develop a vaccine that would protect from the virus.[6]

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[3] Letter from Paul Harrington to W. Spencer, 2 October 1950, *The SWPRC, 1950-51*.

[4] *HC,* 1 December 1949.

[5] Oshinsky, *Polio*, 5.

[6] Ibid., 65.

The financial aid offered by the March of Dimes was quite generous. National offices instructed local chapters that if "the high cost of polio care would result in undue hardship, force the family to sell a car, mortgage its home or otherwise drastically lower its standard of living, the chapter should offer to pay for *all* or that portion of the cost that cannot be reasonably met." One of the natural progressions of this attitude was the funding in the early 1950s of three specialized polio treatment centers. One of these centers was opened in Houston, and it was designed to give the best possible care available to polio patients.

The Center offered unique, specialized and uncommon care for its patients. Beyond the medical treatment and the Center's specialized support staff, the integration of all the rehabilitation facilities into one comprehensive program in the same building made SWPRC unique. The Center also conducted research on polio treatment and served as teaching and training facility for polio care. This one-stop shop, a model of both efficiency and the highest standards of medical care, was the apex of this massive March of Dimes treatment effort. The SWPRC in Houston would probably have been the model for polio treatment across the nation if an effective vaccine for the disease been not been released in 1955. Many of the Center's daily operating procedures were described in the grant applications they made to the March of Dimes and these grants form the basis for this study.[7]

The Center's initial modest facilities, located on the tenth floor of Jefferson Davis Hospital, opened in June 1950. One of the Center's purposes was to serve as a

[7] Ideally, more internal memos and minutes of director's meetings would have been available for study, but were not. Therefore the grant applications are considered an accurate description of the SWPRC's activities and accomplishments, because if they were fraudulent, March of Dimes would have cut their funding, which it did not until the 1960s.

training facility for doctors, nurses, technicians, physical therapists and other specialized staff required to treat acute polio. Research into improving both the care and rehabilitation of polio victims was an additional purpose of the Center. As the General Staff Meeting in San Angelo showed in the 1949 outbreak, many doctors felt there was plenty of room for improvement in polio treatment regimes. The Center hoped to find the best methods and then train others in these techniques. Both education and research were organized under the nearby Baylor University College of Medicine and funded mostly through grants from the March of Dimes. March of Dimes also paid for the majority of patient costs and contributed substantially to the Center's seed money.

At the time, SWPRC's approach to treatment was rather innovative. In the 1950s, specialized medical facilities were not very common, nor was the all-inclusive approach that the SWPRC took towards health care generally available. The Center was dedicated to more than just alleviating the ravages of polio and keeping patients alive. Its goal was to achieve "total patient care and rehabilitation…including such auxiliary services as physical therapy, occupational therapy, and social services as part of an integrated program of physical and social rehabilitation."[8]

The ultimate objective of the facility was to reintegrate its impaired patients back into society, or, at least, after having improved their condition as much as possible, release them to other long-term care facilities. Prior to the Center's opening, treatment options were limited and bleak by today's standards. Mortality rates of respiratory polio patients could be as high as fifty percent and doctors mostly

[8] "Plan Outline: Southwestern Poliomyelitis Respiratory Center," 2 November 1952, *The SWPRC: 1950-51.*

just accepted as a matter of course such aliments as bedsores and deformities that developed from polio.[9] Most survivors of polio's paralytic damage were expected to remain invalids and a burden to society for the rest of their days. Also, the most severe cases of polio were scattered about the state in ones and twos, consigned to whatever level of care their communities could provide. By centralizing the worst patients, it was decided a much higher level of treatment could be offered much more easily to a larger number of people.

The man appointed to run the new facility in the summer of 1950 was the well qualified Dr. William A. Spencer. The young highly motivated doctor had graduated in 1946 first in his class from the prestigious Johns Hopkins University School of Medicine. His internship and residency training in pediatrics was also at Johns Hopkins, highly appropriate, since most polio patients were young children. From 1948 to 1950, he worked for the U.S. Army at Brooke General Hospital in San Antonio, helping to set up both a pediatric research and a pediatric residency training program.[10] Upon arrival in Houston he assumed the directorship of the SWPRC, a position he would hold for some twenty-eight years, even as it changed to the Texas Institute for Rehabilitation and Research after polio was "cured." Spencer spent his medical career crafting both the SWPRC and later TIRR into world renowned institutions.

Since the SWPRC drew funds from Harris County and was also affiliated with the county-run Jefferson Davis Hospital, the admission policy favored the residents of

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[9] Dr. William Spencer, interview by Maugarite Johnston Barnes, 1984, transcript, Special Collections, Woodsen Research Center, Rice University, Houston, Texas, 13.

[10] Ibid., Letter, Russell Blattner, Baylor College of Medicine, to Kenneth Landauer, March of Dimes, 1 March 1950.

Houston and Harris County, who were to be admitted "directly without need of referral."[11] Out-of-county cases of polio that were not particularly serious would only be accepted by referrals through the March of Dimes, or after approval by Jefferson Davis Hospital or Spencer at the SWPRC. Critical respiratory cases in which the patient had difficulty breathing, however, could be "accepted directly without referral" from the entire southwestern United States, as long as the patients could be transported safely. Also, Harris County polio cases could be accepted without regard to "sex, age, race, residence and financial status," a policy which stood in direct contrast to that of the Houston public school system, which did not desegregate until the 1960s.

To succeed in addressing the polio epidemics that seemed to sweep through Houston annually, the Center's founders knew that keeping their location on the tenth floor of Jefferson Davis Hospital would never be adequate, especially with the large physical and occupational therapy facilities they had in mind. Housing the SWPRC at Jefferson Davis Hospital had never been viewed as more than a temporary expedient, and as soon as the Center was organized plans were drawn up to build and move into a new custom-built facility with the latest technology. Dr. Blattner, the Baylor pediatrician, traveled to Baltimore, Pittsburg, New York and Boston to examine other polio wards to see how they were constructed and how Houston could make its better.[12] Doctor Spencer immediately had his hands full, as funds had to be allocated, grants written, and curricula for the new training facility had to be drawn

[11] Ibid., Spencer, M.D, "Memorandum: Tentative Admission Policy for the Polio Center," 5 July 1950.

[12] Ibid., Letter, R. Blattner, to K. Landauer, 25 February 1950.

up. The decisions were numerous. Could the facility afford to be air-conditioned? Who would pay for it? If the March of Dimes could not supply all the funds needed, would either the federal government or Harris County make up the difference? How much could be provided by charitable endowments and patients' private insurance?[13]

The new building was finally completed and dedicated on November 26, 1951, and by December 17, all patients had been successfully transported from Jefferson Davis Hospital. The two-story building, which included air conditioning, plumbing in each room, elevators, and emergency electrical backups, was paid for by city, county, state and federal funds to the sum of $405,000.[14] Medical equipment for the Center was funded by the local chapter of the March of Dimes at a cost of $64,000, and another $28,000 worth of equipment was donated by individuals or received on loan from other institutions. March of Dimes grants to Baylor Medical School and Jefferson Davis Hospital, under which the SWPRC was organized, also provided $71,500 in funds for "personnel, supplies and repairs to equipment." The final figure on the initial cost of the building and equipment was approximately $570,000. Thus, the building was paid for by government funds in various amounts, while the all the equipment and the cost of its upkeep for the first year was funded by the March of Dimes. March of Dimes also reimbursed the SWPRC for the per-day treatment costs incurred by polio patients unable to pay for it themselves. A non-respirator polio patient's care cost $10.53 a day and $19.80 for respiratory cases. The most critical patients who required twenty-four-hour nursing care incurred an additional charge of $35.00 per day.

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[13] Ibid., Numerous letters and memorandums.

[14] "Investment in SWPRC," *The SWPRC, 1950-51*.

The March of Dimes provided vital equipment to the SWPRC. Invoices indicate that at least 8 tank iron lung respirators, four Monahan chest respirators, five rocking bed respirators and a $2,000 fluoroscope all came from the March of Dimes.[15] The new center had beds for 65 patients, 25 of which could be respiratory cases. In addition, sections of the new building were dedicated to out-patients, research and development of new equipment and an analysis laboratory.[16] The normal medical staff included a full-time pediatrics resident, and a full-time pediatrics intern, and part-time medical resident, and part-time orthopedics resident. Faculty members at the Baylor College of Medicine were also regularly available for specialty consultations and included three doctors specializing in orthopedics, a psychiatrist, a pediatrician, an ear, nose and throat specialist, a physiologist, and an internal medicine specialist. The SWPRC also reaped several other benefits from being affiliated with the Texas Medical Center in Houston. The Jefferson Davis Hospital School of Nursing prepared SWPRC nurses for polio care, and the Harris County Emergency Corps provided transport for complicated respiratory patients within a 250-mile radius. Specialized viral and blood sera lab facilities were also available locally in the Texas Medical Center or the nearby Texas Medical School in Galveston.

Within this environment, Dr. Spencer and his colleagues rolled up their sleeves and got down to the business of refining their craft. In the San Angelo outbreak, several of the local doctors expressed frustration when they pressed the

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[15] Letter from Wilson, Morris and Crain, to Ben Taub, Jefferson Davis Hospital, 19 October 1950, *The SWPRC, 1950-51*. (invoice attached to letter).

[16] "Plan Outline, SWPRC," 2 November 1951,*Progress Report: The SWPRC 1955*, IC/MHCARC.

March of Dimes experts for a clear treatment regime and they could not provide one. One of the more notable aspects of the SWPRC is that its staff attempted to find the most efficient and effective way to treat polio patients. Through observation and careful notation, it was hoped they could come up with a standardized regime. In the first year, specific procedures were written up for patient care.

Upon admission, patients were evaluated and classified as to the severity of their illness.[17] Those who did not require critical care, the "non-paralytic" group, were simply given plenty of rest and monitored through lab tests and nurses, and any progression of symptoms was reported to the resident in charge. Spinal Paralytic patients required more care, and nurses were instructed to position the patients so that the affected limbs were as comfortable as possible. A number of special boards and cushions were available, and muscle spasms were alleviated with hot packs or drugs. After the patient's fever broke and the individual cleared ten-day isolation, he or she would undergo a muscle evaluation by a physical therapist. An orthopedic specialist would then draw up a rehabilitation routine of hydrotherapy and passive or active exercise. A physical therapist administered the routine in the hopes of restoring as much function as possible to the affected limbs.

Those whose polio had spread to the cranial nerves, called bulbar poliomyelitis, required constant twenty-four-hour monitoring. They often lacked the ability to swallow, and mucus buildup could result in a restricted airway and possibly suffocation. In this case an indwelling nasal catheter was inserted to keep the airway clear. An ear, nose and throat specialist would then perform a laryngoscopy and

[17] Ibid., "The Plan of Therapeutic Management of Poliomyelitis Patients in the Respiratory Center."

bronchoscopy to determine if there was adequate ventilation. If not, he would perform a tracheotomy, surgically opening the windpipe below the blockage. The Center's policy was to keep the necessary tracheotomy equipment on hand so that the procedure could be performed quickly and easily.[18]

Polio patients unfortunate enough to have the disease attack their respiratory muscles, or the nerves controlling those muscles, were the most serious. This manifestation of the disease, considered a combination of the bulbar and spinal patients, was termed Bilbo-spinal. The patient would be immediately placed in either a rocking bed or tank respirator until the acute phase of the disease passed. In addition, such a patient would be constantly monitored by nurses. Then efforts would be made to wean the patient off the respirator as soon as possible. It was found that the sooner this was accomplished the better, as it would reduce atrophy to the patient's respiratory muscle tissue. Weaning from the respirators involved the patient breathing unassisted for as long as possible until fatigued, then they would be put back on the respirator. A typical regime would start off with the patient breathing without the respirator for ten minutes every hour and gradually increasing the periods. A patient would also be shown other patients who had already been weaned off the respirators for encouragement. Once free of the respirators the patient would enter the rehabilitation programs to regain as much function as possible.[19]

In the early days of the SWPRC, however, procedures were still somewhat experimental. Center doctors knew that there were several factors and complications that could arise from assisted breathing, but the data to draw up a precise recovery

[18] Ibid.

[19] Ibid.

regiment was not yet available. Research proposals made by the SWPRC in 1951 indicated that there were at least eight broad topics that required further study before more precise care could be given.[20] Metabolic problems during artificial respiration, such as electrolyte imbalance, C02 buildup, blood pH and effects on the circulatory system, had apparently not been studied at that point, despite the widespread incidence of polio. Thus, researchers set to the arduous task of data collection and analysis.

Another early problem encountered by the SWPRC was a nursing shortage that translated into the several shifts regularly being short-staffed.[21] The Center admitted this resulted in care that was "below standard," probably the SWPRC's biggest shortcoming for its first year. Enough nurses were on hand for the critical patients, but other shifts had to be filled with student nurses. During exceptionally lean times, the Red Cross dispatched seven nurses. It seems that early SWPRC nurse salaries were not quite as high as those other medical facilities in Houston. Also, since many polio patients were disabled to one degree or another, caring for them was rather demanding on nurses. Further, many nurses who were mothers avoided working with polio patients, fearing they might infect their own children. Center administrators illustrated the problem to the March of Dimes, Harris County and Jefferson Davis Hospital, and received assurances that the "situation will be corrected."

Despite the initial problems, and despite their continued location on the tenth floor of Jefferson Davis Hospital, the SWPRC still admitted and cared for some 222

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[20] "Progress Report" *Progress Report: The SWPRC 1951*, 22 (?).

[21] "Activities of the Medical Director and Assistant Medical Director," *The SWPRC, 1950-51.*

patients for treatment.[22] Of these patients, 43 were suspected cases of polio that did not manifest themselves as such. Another 12 were mild cases of polio that did not result in paralysis or interfere with breathing. Eighty four of the SWPRC's 1951 patients had spinal paralytic polio and suffered various degrees of paralysis to their limbs, and 7 patients had Bulbar polio and required critical care to keep their airways clear. Nineteen cases were Bilbo-spinal, the most serious form of polio, and required assisted breathing in respirators. Eight of the Center's patients died in 1951. Another 57 convalescent patients, having been treated somewhere else for their polio and now in need of recovery, were also admitted for rehabilitation.

Through the years 1952, 1953, and 1954 the Center would treat some 869 cases of polio, of which 82 died.[23] Typically the heaviest months were June, July and August, which would usually account for half the cases of any given year. Of this 869, children between the ages of two and nine accounted for almost 400 cases. True to form with national trends, of these 400 cases, 60 percent of them were white males, about 30 percent were white females, and the remaining numbers were female and male blacks.[24]

Statistics at the Center correlate with the earlier assertion that before modern sanitation, exposure as infants to polio in the water supply usually resulted in only mild illness and conferred lifelong immunity. Like national trends, the older children,

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[22] "Progress Report" *Progress Report: The SWPRC 1951,* 1 (?).

[23] Spencer, SWPRC to Landauer, MoD, January 7, 1955, *Progress Report: The SWPRC 1955*. 1952 was the worst year ever for polio in the United States and also Houston. See below for a special discussion of the SWPRC's role in the 1952 outbreak.

[24] No satisfactory scientific study has ever documented why blacks had such a lower incidence of polio. A few studies have even tried to prove that blacks had an equal percentage of cases, but the prevailing wisdom in the 1950s was that blacks always had a lower incidence, and the SWPRC would have conformed to that notion. For a fuller discussion see Oshinsky, *Polio,* 66-67.

ages ten to nineteen, had a much higher percentage of serious respiratory cases. Children below age nine, while having a higher incidence of polio in general than older children, were usually less serious cases. Calculations in 1955 found that the mortality rate of the first fifty acute respiratory patients treated at the SWPRC since its founding in 1950 was forty-four percent.[25] By the time of the study in 1955, the mortality rate had dropped to sixteen percent.

By January 1956, the SWPRC had discharged 265 acute respiratory patients to home care.[26] Center doctors had completely weaned most of these off respiratory breathing aids, and they could simply be monitored by a family doctor. Another 205 acute respiratory patients had been dispatched to care facilities in outlying areas after being treated at the SWPRC. Some of the cases had originated as far away as Tennessee, Georgia, Kentucky, Illinois, Nebraska and points in Mexico. The Center also encouraged patients to readmit themselves for follow-up treatment or just routine reevaluation. However, some patients were able to do their follow-up work closer to home as March of Dimes opened more centers, like the SWPRC, and as doctors that had been through the Center's training programs migrated to other polio hotspots in the United States. In spite of this, the SWPRC still readmitted about 200 former patients during its first six years of operation, of which 158 were treated for respiratory infections.

To help manage this patient load, the Center continually added more staff. In addition to two more full-time polio resident M.D.s employed in 1955, the Center

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[25] "Progress Report,"*Progress Report: The SWPRC 1955*, 3 (?).

[26] "SWPRC Respiratory Patient Statistics, June 1950-Jan. 1956," *Progress Report, The SWPRC, 1957*, IC/MHCARC.

worked on hiring more nurses. In fact, over the years, the nursing shortage, while never eradicated, became much less critical. The Center understood that properly trained nurses were a vital part of the patient's recovery from such devastating disease as polio, especially since nurses were the staff that interacted most with the patients. The Center not only taught a polio nursing care regime for their own use, but also trained nurses for other facilities.

To care for the patients at the SWPRC, the nurses went through several lectures to orientate them to the car of polio patients.[27] The bibliography of their training manual cites procedures from fourteen different medical and nursing journals. Here again the researchers at the Center can be seen looking for the best possible treatment regimes for polio patients. Exact procedures were also drawn up on various aspects of care, ranging from properly preparing a bed for a poliomyelitis patient to assisting a doctor in performing a tracheotomy. For example, six different methods were laid out for positioning patients to relieve pain from muscle spasms.

This high level of training and specialization obviously led to better care for the patient, but because it seems that the SWPRC was never able to afford to pay its nurses significantly more than other facilities in Houston, this also contributed to their staffing problems. Because they asked their nurses to do more for the same pay, many opted to work elsewhere. It is possible that the Center was prevented from paying its nurses more because the facility was overseen by the county run Jefferson Davis Hospital.

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[27] "SWPRC: Report of the Director of Nursing Education," *Progress Report: The SWPRC 1951*.

Another aspect of the SWPRC's mission was recovery once the patient's life was no longer in danger. Patient recovery fell to the occupational therapy department, which added another unique aspect of care the Center offered.[28] The department would craft the rehabilitation regiment of each paralyzed patient and help them adjust to their new disability as much as possible. This could range from re-learning how to dress and bathe to performing office skills with one weakened arm.[29] The staff would also visit patient's home and advise them how to modify their houses so they could accommodate their new circumstance, be it leg braces or a wheelchair.

The department also operated an equipment workshop, called the Assistive Device Workshop, which produced custom-fitted equipment for each patient so as to make treatment more comfortable and to aid in rehabilitation. Some of the items developed were simple but effective, such as foam rubber scarves to fit around an iron lung patient's neck that would prevent chafing and also maintain an effective seal for the respirator. Also, because of the varying degrees of paralysis involved, chairs, tables, beds and bathroom seats were all modified for patient use.[30]

The workshop's operators became ingenious in developing new equipment for their patients. One such item developed at the Center allowed a paralyzed male patient to bend his arm at the elbow and feed himself by flexing his leg: pulleys and cords attaching his leg to his arm made this possible. Another item devised by the Assistive Device shop was a work bench that could be used by people with paralyzed

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[28]"Equipment Developed," *Progress Repot, The SWPRC: 1955* .

[29] Physical therapy is more concerned with regaining function and mobility, such as relearning how to walk or strengthening ones arms after an injury. Occupational Therapy deals with acquiring a specific set of skills, or learning to adapt to ones environment with reduced functionality.

[30] Equipment Developed," *Progress Report The SWPRC, 1955.*

arms who only had the use of their feet. The height and angle could be adjusted with the feet, and it allowed the patient to write and type or do anything one would normally do at a desk. Items would adhere to the desk on a magnetic board. In addition to these more elaborate contraptions, the workshop also devoted many man hours to making sure all leg braces, walkers and other aids fit each SWPRC patient comfortably and precisely. In 1955 the Assistive Device workshop reported that it had made and fitted some 803 items at a cost of approximately $11,000. Having the shop in-house meant that turnaround time on some of the items could be less than twenty-four hours, which reduced hospital stays and saved money in the long run.[31]

The SWPRC, with the help of volunteers, also offered various forms of entertainment for the patients to help keep spirits up.[32] In 1951, three groups of 30 patients each made medically approved field trips to the circus, ice show and rodeo in Houston. Other smaller groups made trips to theatres, restaurants, picnics and the movies, always free of charge to the Center. Because some patients on these trips had to be accompanied by their breathing devices, many of the outings required a great deal of advanced preparation. Individual entertainers also came to the Center, and Christmas gifts were provided each year by church groups and generous store owners.

The Center also employed social workers to handle the other aspects of the patient care that were beyond the scope of the medical, nursing and rehabilitation departments. Preparing the patients and their families for their loved ones eventually leaving the Center, either returning home or being transferred to a long-term care

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[31] Ibid.

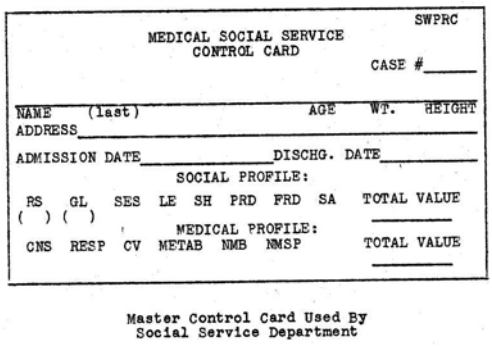
[32] "Volunteers," *Progress Report: The SWPRC 1951*.

facility, consumed most of the social workers' time.[33] The wide range of patient backgrounds and the varying degrees of disability suffered by polio survivors meant that social workers had to handle each case on an individual basis. Interacting with other social agencies, they arranged long-term care for patients that "had received maximum benefit from hospitalization in the Center but who were unable to return to a home situation of their own." Also, since so many of its patients were children, education needs had to be addressed. When the Center opened in 1950, Houston had a Home Bound Public School program for white children to keep them from falling behind while undergoing treatment, but no such program existed for black students. Through the direct efforts of a social worker at the SWPRC, a similar program was started for black school children in September of 1951. Through 1951 the SWPRC only employed one social worker, who handled some 183 cases, 81 of which she guided through discharge from the Center. The following year a second social worker was added to the staff.

One function of social workers was to compile detailed profiles of each patient, assigning a numerical score to the person's social factors in a manner similar to the evaluations the therapeutic departments did regarding the medical progress (see figure 3). The Center scored the patient's medical status according to the severity of the case. Under such categories as respiratory, central nervous system, and metabolism, the patient was given a score based on the seriousness of their condition. For example, a patient who had no trouble breathing was given a respiratory score of 0, and one who could not breathe at all without an iron lung scored 5. The higher the

[33] "Medical Social Service Department: Annual Report: Jan. 1 – Dec. 31, 1951," *Progress Report: The SWPRC 1951*.

patient's total medical profile score, the more serious was his or her condition. The Social Service Department also scored patients in categories such as socioeconomic status, local environment, significant history, patient's response to disease, family's response to disease, and social adaptation or final rehabilitation.[34]



SWPRC

MEDICAL SOCIAL SERVICE
CONTROL CARD

CASE #_____

NAME (last) AGE WT. HEIGHT
ADDRESS_____

ADMISSION DATE_____DISCHG. DATE_____

SOCIAL PROFILE:

RS GL SES LE SH PRD FRD SA TOTAL VALUE
( ) ( )

MEDICAL PROFILE:

CNS RESP CV METAB NMB NMSP TOTAL VALUE

Master Control Card Used By
Social Service Department

Figure 3 – Sample of Master Control Card, SWPRC - Note the lines "Social Profile" and "Medical Profile," under which values are tallied to give a quick synopsis of the patient's situation. *The SWPRC: 1951*.

For example, families and/or patients that were combative or refused to participate in therapy were given the worst score of four, whereas patients and families that followed directions well and adjusted to the new circumstances of the disease were scored as zero, the best score. After tallying, a high total social profile score would indicate that there were many mitigating factors, besides the patient's medical status, that would make the patient's reintegration into society difficult. Low scores would generally indicate the patient had a good support network and also a positive attitude about his condition. While in today's world some would take offense at such profiling, in that time the Center viewed these social factors as pertinent to the patient's future after treatment, and demonstrated that the SWPRC concerned itself with more than just the medical aspects of polio.

[34] Ibid.

Two case studies in the SWPRC's 1955 annual report were cited to emphasize how the Center took into account the patient's background and worked with them to achieve the best possible outcome in the face of a sever polio case. PV, a 15 year old white male, came to the SWPRC in dire condition with severe paralysis in all his extremities and respiratory muscles.[35] Intensive treatment saved his life and nursed PV back to health, but after six months he had only managed to regain the same lung capacity that normal respiratory patients accomplished after three or four weeks. PV, the youngest of six brothers from a poor share-cropping family, had dropped out of school after the eighth grade to help with the family farm. A year and a half after PV's admission to the Center, his alcoholic father died. Occasionally, a brother would briefly visit, but contact with the family was infrequent. Normally a shy boy, PV was bitter and completely overwhelmed at the catastrophic turn his life had taken and seemed to have lost the desire to live. Once moved to the rehabilitation ward, he frequently lashed out at the other boys, who were often from more affluent backgrounds then he.

But after about a year PV's attitude and demeanor improved. A congenial roommate was found, and was also re-enrolled in the homebound school program at the Center. He was resistant at first to his schooling and occupational therapy, but his teacher and therapists were not discouraged and PV began to show progress slowly. Despite his fragile condition, PV reached the point where he could spend his waking hours outside of his iron lung, but he still required it when he slept, and his mobility and function were still rather limited.

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[35] "Case Summary I – SWPRC,"*Progress Report, The SWPRC, 1955.*

Interestingly, one of PV's roommates sold Avon products from the hospital with the help of Center's social worker. PV expressed interest in this and after encouragement and help from the social worker, began running his own account. The social worker spent many of her after hours helping PV, and his school teacher focused his lessons so that he could navigate the order forms and invoices. His occupational therapy was also adjusted so he could manage the paperwork, and by the time he left the Center he could write legibly or type if he was positioned correctly with the proper assistive devices. Eventually he managed to take on a fair amount of the account's responsibilities himself and was making around forty or fifty dollars a month. This case represented remarkable progress considering he had entered the Center practically illiterate and destitute with no family support.

The story of PV ends with him leaving the Center almost three years after admission. The Center's social workers arranged for a nursing home in PV's hometown to care for him, which allowed for his family to visit him much more frequently, and it was also felt that PV would feel more comfortable in an environment more attuned to his cultural background. The Center orientated two nurses at the nursing home in the specifics of PV's care and also outfitted the home with an emergency power source for his iron lung respirator. One of PV's favorite orderlies accompanied him to his new home and stayed with him for a week to make sure he was settled.

Another patient that the SWPRC described in their annual report was SB, 17 year-old white female from an upper middle-class background.[36] She was a fairly

[36] Ibid., "Case Summary II – SWPRC." Though middle class, the family had no health insurance and the March of Dimes paid for SB's treatment just like it did for PV.

typical over-achieving teenager who, before contracting polio that left her without the use of her legs and with limited ability in her arms, had enjoyed swimming, art and church activities. She had her college plans and career completely mapped out. Though her condition was serious when she came to the Center two months before starting her senior year of high school, SB responded well to treatment. She was quickly weaned from the respirators and enthusiastically participated in her rehab programs. Her parents, both well educated and supportive, urged her on. The mother herself had suffered a childhood accident that resulted in the amputation of her arm, and took great pride in being college educated and never having seen herself as handicapped.

In fact, the therapists and doctors felt that SB, along with her parents, pushed herself too hard during her exercises, often exceeding healthy tolerances. They worried that the parents had unrealistic expectations about their daughter's recovery, despite her excellent progress up to that point. Though SB advanced such that she could dress and groom herself without assistance, she could not move from her bed to her wheelchair without help, and the condition of her legs did not improve. As it became apparent to her that she would not be getting much better, SB became depressed. She started skipping therapy sessions, and she was uncooperative when she did go. Her parents during this time questioned the wisdom of the SWPRC doctors and repeatedly requested that SB be given more physical therapy.[37]

SB, aided by counseling at the Center, eventually accepted her situation. She had also been keeping up with her schoolwork while at the Center and was discharged

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[37] Ibid.

in time to graduate with her high school class. She enrolled at the University of Houston in fall of 1955. Her parents, however, also took her to an independent therapist whose program involved five vigorous hours of work a day. This over-exertion resulted in an abnormal EKG for SB, and the Center's doctors ordered her off the new program immediately. Thankfully, the parents relented and finally began to accept their daughter's condition.[38]

The SWPRC included these case studies in their 1955 annual report to emphasize their commitment to the patient's needs beyond the medical attention the Center provided and to demonstrate the broad spectrum of patients they served. PV, who most would have expected to be a complete invalid after having survived the acute stage, managed to achieve a degree of physical and financial independence after his treatment at the Center. SB, whose recovery went as quickly and efficiently as her condition would allow, required extra care before she and her family learned to cope with her new condition.[39]

Among the Center's other functions was training of medical personnel in polio treatment, research and aspects treatment. This program was funded by teaching and research grants from the March of Dimes and through charitable donations. The details of the curricula and research were usually documented in grant applications and progress reports sent to the March of Dimes or Baylor Medical School. While other research programs such as Salk's and Sabin's tried to keep patients from contracting polio in the first place, the efforts at the SWPRC were

[38] Ibid.

[39] Ibid.

devoted to finding the best possible treatment for the infected.[40] The hope at the Center was to clear up the confusion and frustrations over treatment regimes that the doctors in San Angelo felt just a few years before. Had the polio vaccine not been released so soon after the Center opened in 1950, the SWPRC's contributions to the field of polio treatment would be much more significant.

The most notable publication produced at the SWPRC, an indication of its treatment emphasis, was the book *Treatment of Acute Poliomyelitis* by William Spencer, et al.[41] It was a 210-page treatment manual on managing polio that "represented the entire treatment program as evolved at the Center." By 1956 it had been revised three times and also fully translated into Spanish by one of the staff's doctors. In addition to this book, seven papers on various aspects of polio treatment were presented at conferences or submitted to journals in 1956, and the Center also had about ten different ongoing research projects.

The teaching load taken on by the permanent staff at SWPRC was also a significant part of the regular routine. In 1956 six doctors visited for two weeks each for advanced training in polio treatment techniques. Eight pediatrics residents from Baylor Medical School also rotated through the Center for six-week periods, and during peak months general medicine interns, assigned to Jefferson Davis, also did one-month rotations through the Center. The Supervisor of Nursing Education also taught over three hundred individuals in the proper use of polio respiratory

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[40] While many studies have documented the resulting rivalry between Salk and Sabin and other projects that lead to the polio vaccine in 1955, few works have been done on research projects devoted to treatment such as the SWPRC's. However, it is beyond the scope of my medical expertise to productively track how the data generated at the center benefited other fields and specialties.

[41] "Research Activities," *Progress Report, Tthe SWPRC*, 1957, IC/MHCARC.

equipment. It was also common for nursing students to work at the Center for two to four weeks to gain practical experience. In addition to these routine activities, the SWPRC staff would also organize an annual five-day postgraduate seminar for physicians, nurses, social workers and physical and occupational therapists. Over one hundred individuals often attended this program, and preparation for this event occupied several months of the educational staff's time.

Though many records have survived detailing the day-to-day operations and procedures of the Center, documents that explain the exact finances do not seem to exist. On a purely practical level, though the SWPRC was a non-profit institution, expenses still had to be met. The Center's finances were never simple. Funding came from both national and local chapters of the March of Dimes, state, local and federal government, private insurance, private pay and individual donations. The Center's accountants were probably the only ones who could make sense of ledgers at the end of the year. The large general numbers found, however, indicate that most of the services at the Center were paid for by the March of Dimes when compared with incoming accounts totals from private insurance and "miscellaneous income."

In the first year of operation, the March of Dimes not only provided most of the seed money for the Center's opening, but its grants covered all the teaching salaries and research. In November of 1958, the ongoing teaching grant from the March of Dimes was renewed for three years in the amount of $167,250.[42] The March of Dimes, true to their reputation, also paid for the lion's share of the Center's medical costs. In November of 1955, the March of Dimes sent a questionnaire to the

[42] Letter, Basil O'Connor to Spencer, William, 3 November 1958 in,*Progress Report, TIRR. 1959*, IC/MHCARC.

Center requesting detailed patient care cost totals while noting source of payment. The Center reported that from January to October in 1955, its patients had incurred about $300,000 worth of charges.[43] Of this, about $35,000 was paid for by individual families or miscellaneous charities, and about $65,000 by private insurance. The remainder, about $193,000, was all paid for by the March of Dimes, which made them by far the largest contributor to the SWPRC.

The March of Dimes support was critical in the Center's early years when it had to contend with the polio epidemic of 1952. That year was the Center's first in its new building, just in time for the nationwide outbreak. Polio season typically started around July and finished by late August. In 1952 it started around Memorial Day and continued into October.[44] When the crisis abated in the winter months, 57,628 cases of polio were reported nationwide. Of these, about 21,000 suffered permanent paralysis and another 3,000 died. Texas seems to have had more than its fair share with almost 4,000 cases, more than twice the state's usual annual total.[45]

In mid-May, Dr. Spencer and his staff could already probably tell 1952 was going to a bad year for polio in Houston. In an internal letter to the Jefferson Davis Medical Board, Spencer requested the organization of more emergency "facilities for acute poliomyelitis so that the SWPRC can serve as a diagnostic evaluation service, retaining complicated poliomyelitis for treatment and arranging transfer of uncomplicated patients to other facilities in the Jefferson Davis Hospital and other

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[43] Letter, Spencer William to March of Dimes, 4 November 1955, *Progress Report, The SWPRC, 1955.*

[44] Oshinsky, *Polio,* 161-2.

[45] "Medical Statistics Records, 1945-1958," March of Dimes Archives, White Planes, New York. Figures compiled by David R. Rose.

local hospitals."[46] He continued that "the unprecedented incidence of poliomyelitis at the present time" was the reason behind his request. Seeing that numbers for the year were already high, Spencer and his staff asked that plans be made to have other hospitals take less serious polio patients so they could have room for the most critical, while the SWPRC would also serve as the city polio triage center and determine the severity of each case.

Houstonians became aware of the problem in early June when the *Houston Chronicle* carried a story titled "City's Polio Outbreak is Worst in Eight Years."[47] As far back as records went, 1952 was by far the worst year. Closest was 1948, but at the same point in June of that year the city had only recorded 49 cases of polio whereas in June 1952 they already reached 71. The staff writer correctly predicted that "the grim truth is that the worst may well be yet to come."

The city government went about implementing the usual polio measures -- clean-ups and pesticide – to no avail. The mayor toured fly-breeding spots which had been deemed problem areas and reassured citizens that "the city health department is doing everything possible to take care of the situation.[48]" On June 17 Spencer and several other health officials admitted that unless drastic measures were taken, Houston could run out of space to treat its polio patients. He noted that a nursing shortage already existed.[49]

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[46] Letter, Spencer, W., to Jefferson Davie Medical Board, 17 May 1952, in *The SWPRC, 1952*.

[47] *HC*, 8 June, 1952.

[48] Ibid., 9 June 1952.

[49] Ibid., 17 June 1952.

Throughout the outbreak, the *Chronicle* made exceptionally detailed reports, noting the names, ages and home addresses of many polio patients in the city. They took care to note the difference between patients from within or outside of the city limits. Reading the names and descriptions put a human face on the outbreak for Houstonians: Joe Wesley Touchton, 4, son of Mr. and Mrs. J. D. Touchton of 1334 Curtin Street, treated at Jefferson Davis Hospital; Susan Hirsch, 3, and Evie Hirsh, 6, daughters of Mr. and Mrs. Alfred Hirsh of 2921 Nottingham in the affluent West University Place, were both mild cases treated at home. Nancy Lee Moon, 4, of nearby Pasadena, was brought to the SWPRC for treatment. Mrs. A. R. Zion, 23, of 1201 Cypress, fought for her life in an iron lung at Hedgecroft Hospital.[50]

As a stopgap measure in mid-June, Jefferson Davis Hospital reopened its tenth floor to polio patients, the same space that SWPRC had occupied just the year before. The Center also closed its doors to polio patients from other states.[51] Knowing that the city's other polio ward at Hedgecroft Hospital was also filling up, doctors began making plans to allocate more facilities. Hermann, Methodist and Memorial hospitals all pledged support if it was needed, while the Veteran's Hospital made a much more tangible offer of thirty-five to sixty beds if Spencer could come up with the medical personnel to staff them.[52] On July 2, Spencer began sending over his less critical patients to the ward set up at the Veteran's Hospital to make room for more severe cases at the Center.[53] City health officials deftly made the Center one of the main

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[50] *HC*, 17 & 18 June 1952.

[51] Letter, SWPRC to Harris County Medical Society, 30 June 1952, in *The SWPRC: 1952*.

[52] Ibid., "Minutes of the Meeting of the Region 7 State Polio Planning Committee."

[53] *HC*, 2 July 1952.

focal points of Houston's response to the crisis. As the SWPRC's facilities became saturated, other hospitals took the mild cases while the Center, with its specialized staff and equipment, functioned as a "diagnostic evaluation center, retaining bulbo-respiratory patients" for the duration of the emergency. The Center also made it a practice to send home as many mild cases as possible after a short observation, leaving it up to the parents and family doctors to report any changes.

More cases rolled in all through July and August, peaking at twenty-eight in one day on 10 July.[54] In June, a young Baylor Medical School professor was diagnosed with polio, and in early July a popular history and government instructor at nearby Lee College in Baytown died from polio at Hedgecroft Hospital. No local story, however, was more heartbreaking then that of Joe Jamelka, the Moulton farmer whose polio experience was exceptionally cruel: four lame children, a psychologically broken wife and a farm he could no longer run – all struck in a matter of weeks. Yet, it seems that Houston citizens kept their cool unlike San Angelo. Public meetings were held and committees were formed to manage the crisis, but there was no closing of public venues or any restriction of movement. A *Chronicle* staff writer even openly questioned the utility of spraying and pointed out that some communities surrounding Houston that saturated themselves with DDT still had increased polio case loads. Others, he noted, sprayed and saw a decrease. Houston officials chose to not pursue a citywide spraying program during the outbreak and had a smaller per-capita polio rate than other communities that sprayed heavily. While Houston officials, perhaps fearing criticism from worried citizens, said that they believed spraying alone would not eliminate polio, they would not go so far as to say

[54] Ibid., 10 July 1952.

that other towns were doing their people a disservice by spraying for insects. Spraying was still of some benefit as it eliminated pests in general anyway, they said.

In late October the epidemic finally ran its course. When the dust settled in mid-October the tally was a staggering 706 polio cases reported in Harris County, 439 of which occurred within Houston city limits.[55] Resulting from the 439 city cases, were 19 deaths. The Center treated some 369 polio cases that year, 77 of which needed respiratory aid.[56] Another 198 had paralysis to one degree or another. The Center lost 15 patients to polio that year, compared to 13 in 1950 and 8 in 1951. Since the SWPRC took the most critical cases in the area, and its total case load was twice as high as the two previous years, that fact that the number of deaths did not increase in 1952 was notable.[57] At the end of the year Spencer sent a letter to the Veterans Hospital, thanking it for the help they rendered during the epidemic.[58] Their help in taking less severe cases and the "complete cooperation" of their staff allowed the Center to operate at its fullest potential. Working together, they were able to "accomplish a satisfactory standard of medical care in an unprecedented situation."

After the outbreak of 1952, despite the expertise in its field, the Center would exist only a few short years as a polio facility. In addition to funding the care of polio patients across the country, the March of Dimes also spent millions on the search for a cure to the terrifying disease. In 1954, these efforts were finally rewarded when

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[55] Ibid., 20 October 1952.

[56] "Acute Patient Experience: 1950-1952," in *The SWPRC: 1952*.

[57] However, though the center did manage to keep deaths low during the massive 1952 epidemic, it is beyond the scope of this study to determine if this was due to superior treatment methods or a strain of polio that had high rate of incidence, yet was not particularly fatal.

[58] Letter, William Spencer, SWPRC, to Lee D. Cady, Veteran's Administration Hospital, 21 November 1952, *The SWPRC: 1952*.

Jonas Salk, lavishly funded by the March of Dimes, began testing his experimental killed-virus vaccine on New York school children.[59] Ten-thousand Houston school children participated in trials later that year.[60] The vaccine, though imperfect, was effective when properly produced and conferred immunity on those who took it. Widespread vaccination of Americans led to polio's drastic reduction in each of the following five years. By 1957, there were only seven thousand cases reported in the entire United States.[61]

Through the late 1950s the number of polio patients treated at the Center did go down, but there was still a need for the Center to operate. Improperly prepared Salk vaccine could actually infect a recipient with full-blown polio, and there were always patients every year who either had not received the vaccine or who had only a partial course of the prescribed three boosters. As the number of polio cases dropped in the Houston area and in Texas at large, the Center expanded its coverage range each year as other hospital's polio wards closed up shop. In 1953, eleven patients arrived for treatment at the Center from Louisville, Kentucky. The patients, all of them in need of respiratory aid and eight of them in iron lungs, were transported in specially equipped train cars accompanied with an entourage of doctors, nurses and orderlies.[62] Instead of offering treatment to only serious cases, the Center began accepting all cases of polio.

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[59] Jane S. Smith, *Patenting the Sun*, 21.

[60] *HC*, 3 March 1955.

[61] Oshinsky, *Polio*, 255.

[62] *HC*, 12 November 1953.

The Center's leaders understood that while there would be no shortage of polio cases in the short run, they recognized that it would eventually need to find a new direction and purpose. As early as 1957 the directors began exploring a new role.[63] They knew that there were several other diseases and injuries that lead to nerve damage like the type polio caused. As before the Center's founding, there existed no comprehensive care facility for anyone suffering from diseases that resulted in quadriplegia or other debilitated conditions. Additionally, it was a natural direction for the staff, which by this time was well-versed in dealing with long-term patients in need of extensive rehabilitation.

Through 1957 and 1958 the center's directors designed another new building and also gathered funding for the new project, the Texas Institute for Rehabilitation and Research (TIRR). In February of 1959, the new institute was dedicated and patients were successfully transferred. Since almost half of the patients in the new institute were polio patients in need of recovery, the March of Dimes continued to fund their care and also fund some of the new institute's research. Yet, because the "fight" to cure polio was now won, the March of Dimes did not command the same fund-raising power it once did. The TIRR's directors found themselves depending more and more on Houston's wealthy patrons for funding and now faced some lean years.[64]

Luckily by this the time Texas Medical Center in Houston was well established, and its leaders had also cultivated a large network of wealthy patrons who were convinced that a prestigious medical center in Houston was essential to the

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[63] "A Comprehensive Program for the Severely Disabled," *The SWPRC: 1958*, IC/MHCARC.
[64] *HC*, 23 August 1960.

city's growth.[65] Fortunately, TIRR managed to tap into this network because in the early 1960s the March of Dimes shifted its focus to birth defects and stopped practically all of its funding at TIRR. In an interview given on the eve of his retirement in the 1980s, Dr. Spencer remarked that March of Dimes, "simply dropped… the care and subsidy and … even the maintenance of respiratory equipment and the availability and provision of respiratory equipment."[66]

Knowing that most of these patients could not afford the cost of their care without the March of Dimes, TIRR absorbed expenses as part of the institute's operating costs. This, however, left TIRR with a huge gap in funding that they had to scramble to fill. With the help of Ben Taub, one of the Medical Center's wealthiest patrons and strongest supporters, several new foundations were founded to aid TIRR.[67] Also the rapid approval of a Hill-Burton federal grant matched the funds raised by Taub, ensuring the institute's survival. Though the March of Dimes had been instrumental in the Center's opening and its exceptional treatment of polio patients, by the 1960s it ceased entirely to play a role in TIRR's activities.

Nevertheless, the skills learned from treating polio patients apparently served the Center and its patients well. Under the new banner of TIRR, the Center has continued to offer exceptional rehabilitation opportunities for those that some would write off as hopeless. As with the SWPRC, TIRR offers a completely integrated program from doctors down to the social workers and on-site rehabilitation facilities.

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[65] Frederick C. Elliott and William Henry Kellar, *The Birth of the Texas Medical Center*, 109-116.

[66] William Spencer, interview by Maurgarite Johnston Barnes, 1984, 26.

[67] Elliot and Kellar, *The Birth of the Texas Medical Center*, 188.

Even today TIRR offers some of the best care available for those in need of massive rehabilitation, and they feel that most anybody can benefit from their services. This sentiment can be traced back to the 1950s, when many wrote off bedridden polio survivors as hopeless.

In the great fight to cure polio, Houston was on the forefront of treatment and patient care. Spencer and his doctors did their best to cut through the confusion and frustration that was characteristic of the San Angelo outbreak just a few years before. Examining the available evidence, it seems that the Center was successful in producing useful research and also provided a unique and exceptional level of service. Because of the relatively short amount of time it served Houston and the greater Southwest, the release of the Salk vaccine in 1955 caused many of the SWPRC's contributions to fade from memory. But during the polio epidemics of the postwar era, Houston was fortunate to have a facility such as the Center at its disposal, especially during the immense outbreak of 1952. Despite of a huge number of cases that year, because of the SWPRC's efforts Houstonians were spared any sort of catastrophe or breakdown of services during the crisis. Further, the Center offered opportunities to individual polio patients much better than most other places because of the variety of services they offered. While San Angelo shows polio wrecking havoc on one Texas community, Houston shows that the state could also offer some of the best treatment available. Also, with good coordination with the Center and other hospitals, Houston was able to weather the 1952 outbreak relatively well. The Center's role proved that the people of Houston were fortunate to have such facility at their disposal.

CONCLUSION

When Jonas Salk announced in 1955 that he had developed a working vaccine that could protect people from polio, the country hailed him as a hero. Though it would take most of a year to get enough vaccine to get everyone fully vaccinated, the long ordeal was over. In 1956 and 1957 cases of polio dropped off dramatically nationwide. In an impressive White House ceremony in the Rose Garden, a visibly emotional President Eisenhower, himself a loving grandfather, thanked Salk on behalf of "164 million Americans and all the people of the world."[1] Reporters who had followed the president for years and had never seen him lose his composure said his voice trembled with emotion when he told Salk, "I have no words to thank you. I am very, very happy." While Salk was accepting this praise, ten million doses of the vaccine were already prepared and ready for distribution, only awaiting approval from the federal government before shipment.[2] Isolated cases still occurred for the next few years, but the frightening community wide outbreaks quickly became a thing of the past.

Overall, events in Texas deserve mention when writing the history of America's last great plague, polio. If the epidemics were exacerbated by growth,

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[1] *The New York Times* 22 April 1955; Oshinsky, *Polio*, 215-217.

[2] Ironically, the lack of any initiative by the federal government to plan for federal distribution of the vaccine led to a huge public outcry that resulted in the firing of Eisenhower's Secretary of Health, Education and Welfare, Houston's own Oveta Culp Hobby. See Oshinsky, *Polio*, 217-220.

urbanization and a more mobile populace, Texas definitely fits this model in the postwar period. The oil boom and wartime expenditures had an obvious effect on the state's industry and economy. At the same time polio cases increased rather dramatically during the final years of the war and continued an upward trend until the mid-1950s. While it is possible that there is no direct connection between the two, the correlation is compelling. During this upswing in polio cases, modern science found itself incapable of providing any sort of relief. The lack of knowledge about viruses meant that a series of breakthroughs was required before a vaccine could be developed.

Also, in Texas, one can see a polio outbreak at its worst. In San Angelo, panic and conjecture was common. In a futile attempt to contain the epidemic, San Angelo took the drastic measure of banning indoor public meetings. The local medical community was nearly overwhelmed and resources were stretched to the limit. Also, an examination of newspaper ads gives subtle hints to how strongly Americans felt about polio: they were worried enough to buy insurance policies specifically for the disease, while other businesses were sure to mention how their wares could helps those worried about polio. But most notably, in San Angelo we clearly see the confusion and anxiety Americans felt over the disease. Both regular citizens and doctors had to make due with incomplete information, which lead to frustration and speculation.

The city of Houston presented a different picture. Houston probably had some of the highest polio rates in the state. To combat this, the city's medical community developed a first-rate polio treatment facility. It was fortunate the city

undertook this venture, as the SWPRC and its staff proved to be invaluable during the 1952 outbreak. Also, one of the Center's main purposes was to cut through the confusion that the San Angelo doctors felt concerning polio treatment. Doctor Spencer and his staff's main objective was to find the best way to treat polio. The SWPRC was also unique in its approach to patients. Instead of merely treating the patient's polio, the Center saw the person's successful reintegration into society as its ultimate goal. The founders accomplished this by devising a program that integrated all aspects of the patient's recovery. This included the patient's physical and occupational therapy, counseling and mentoring, all monitored by the Center's doctors. The result was that some of the best medical care a polio victim could hope to get was Houston, Texas.

Obviously, the final word on polio in Texas or most of the topics broached in this work, remains to be written. Several topics warrant further study, such as the impact of other infectious diseases on Texas during the post-war growth years. Was polio a special case, or did other, less critical diseases also increase in correlation to the state's growth? Also, it is unknown if polio rates had any discernable pattern in Texas. As of this writing no records precise enough to conduct this type of study are available.

Research on the San Angelo outbreak evokes several questions that available records could not answer. If they still exist, patient medical records are unavailable. Of the twenty-eight deaths that occurred that year, surprisingly little is known of the majority them. After the first six or seven were reported by the *San Angelo Standard Time*, no others were mentioned in the surviving public record. Medical records

could also clear up the allegations that one doctor drove up the numbers because he declined to give more than a cursory examination to suspected polio patients. If new sources become available, they could result in a rewriting of the San Angelo 1949 polio epidemic.

Investigation of Houston and the SWPRC also raises questions. A study of how other large cities handled polio outbreaks would benefit the understanding of how urban centers deal with public health issues like infectious diseases. Examining the archives of the Houston city health department might also lead to a deeper understanding of the city's efforts to contain the 1952 epidemic. If the city has weathered outbreaks of other diseases, an interesting comparison could be made. Also, with such a large population of handicapped citizens after years of polio epidemics, it would be interesting to see if these people formed their own community or lobbied for reform for handicapped people. If they did, was the Center involved in any such activity?

Other aspects of the Center remain to be explored. First, the SWPRC was one of several treatment centers in a network funded by the March of Dimes. An examination of the other facilities would have to be made to compare similarities and differences. In the same vein, it was outside the scope of this project to examine the research produced at the SWPRC to definitively determine the effect that the Center had on entire field of polio treatment. Also, it is unknown if research work done at there improved care in other fields or lead to other breakthroughs down the road. An examination of the treatment book the SWPRC published, compared with other literature of the period, could also be the topic of another study.

What began as the SWPRC still operates today in Houston as The Institute for Rehabilitation and Research (TIRR). While TIRR has not participated in any events dramatic as the 1952 polio epidemic, it has continued to serve Houstonians and people in the Southwest well for almost fifty years now. Their contributions to the field of rehabilitation, which originated with their work in polio, could also make for a productive study. Further, because the SWPRC had to operate under the larger entity of the county's Jefferson Davis Hospital, at time conflicts arose. Research to date has revealed several documents that referred to larger management problems between the two institutions such as personnel shortages, billing issues, lines of authority and funding. Any institutional history of Jefferson Davis Hospital would do well to examine the SWPRC's archives.

Today, the leg braces and iron lungs that were commonplace until the Salk vaccine's release are mere historical curiosities. One iron lung sits in the Fort Concho Museum in San Angelo today, silent testament to grim days when the city found itself in the grips of a deadly serious crisis. Since then, Americans have mostly forgotten what it was like to fear a commonplace but mysterious disease that could strike anyone fatally. Modern medical breakthroughs have made twentieth century Americans the healthiest, longest living people in human history. Yet as recent as one generation ago, infectious diseases, such as tuberculosis, flu and polio could throw an entire community into chaos. At the same time, however, the ravages of polio set the stage for finer aspects of the human spirit to prevail. Lanier Bell, the San Angelo physical therapist who spent many long nights in the summer of 1949 patrolling the Shannon Hospital polio ward, devoted the rest of his life to helping the

injured and handicapped of San Angelo recover. The doctors at the SWPRC, then TIRR, evoked the classics in their approach to the task of rehabilitating the disabled. Towards the front of their building sits a large bronze statue entitled “Prometheus Unbound.” The statue refers to the Greek mythology figure bound in chains to a mountainside by an angered Zeus for giving mortals the gift of fire. Prometheus suffered for eons before being released by Hercules. The statue, meant to inspire patients at the Center, themselves imprisoned by their disease and injuries, shows Prometheus standing triumphantly with his hands over his head, broken chains dangling from his body.

APPENDIX

POLIO PATHOGENESIS

The disease known as poliomyelitis is caused by a virus that scientists have dubbed, aptly, poliovirus.[1] Poliovirus belongs to the group knows as an enteroviruses, which typically dwell in the gastrointestinal tract of their host. Poliovirus primarily enters the human host through the mouth, where it then replicates in the gastrointestinal tract. It then leaves the body in fecal matter. Many people at this stage can be infected with polio, but seem not sick (asymptomatic). They can still spread more viruses, but usually will not feel any worse than mild flu-like symptoms.

To what degree the host gets ill depends on several interrelating factors, such as the natural potency of the host's immune system, general health of the host, the size of the infecting dose and the virulence of the individual strain. If the virus is not contained in the intestinal tract, it can spread to the bloodstream (see figure 4). This is the point where minor illness usually occurs. From there, if not contained, the viruses begin to attack the nervous system, where the real damage occurs. Typically the poliovirus lyse and destroy the host cells they infect after hijacking the host cell's mechanism to reproduce more virus. In the intestinal tract and other parts of the body this is not a major problem, but when nerve cells are killed, they do not grow back.

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[1] Schaechter, *Mechanisms of Microbial Disease*, 305-12.

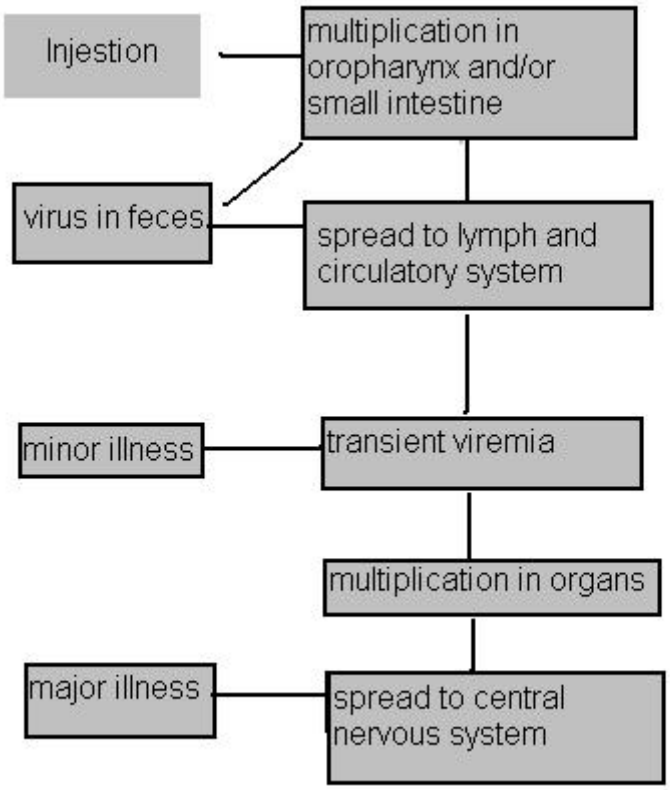

Figure 4 – Polio Pathogenesis - The path of polio through the human body. At the stage of "transient viremia" the host's immune system will either successfully contain the infection or allow it to spread further in the body.

Enough dead nerve cells along a pathway can render the pathway useless, resulting in paralysis. However, if enough of the nerve cells survive the attack and the gaps in pathway are not too large, the surviving nerve cells can actually expand themselves across the gaps and restore conductivity, if the host is lucky. One of the worst possible outcomes is when the poliovirus attacks the nerve cells in the host's medulla oblongata. This part of the lower brainstem is responsible for respiratory functions. If this section fails, the brain's impulses to the lungs will not be received, and the victim will stop breathing. Without the mechanical aid of device such as an iron lung, the patient will then literally suffocate despite having two healthy, fully functional lungs.

Poliovirus requires moderate temperatures for transmission, which accounts for the pattern of outbreaks in the summer and early-fall in the United States. In more tropical climates farther south polio outbreaks can occur year round. However, due to lower standards of sanitation in most equatorial nations, populations are usually exposed to polio early in life, conferring life-long immunity and reducing the number of outbreaks that occur despite year round transmission.

SOURCES CONSULTED

Primary

1. Papers, Correspondence, and Records

Houston Metropolitan Research Center. Houston Public Library.
Vertical File: Polio

March of Dimes Archives. White Plaines, New York.
Medical Statistics Records, 1941-2001

The J. P. McGovern Historical Collections and Research Center. Houston Academy of Medicine, Houston, Texas.
Institutional Collections No. 17 – The SWPRC

Manuscript Collections.
William Spencer Papers.

West Texas Collection. Angelo State University, San Angelo, Texas.
Dr. Ralph R. Chase Collection (1998-22)
Vertical File – Polio Epidemic.
Vertical File – Shannon Hospital.

Woodson Research Center. Fondren Library. Rice University, Houston, Texas.
Marguerite Johnston Barnes Papers

2. Interviews

Chase, Ralph R. Interview by Jason C. Lee, San Angelo, Texas, 31 May 2005.

Chase, Ralph R. Interview by Karal Garcia, San Angelo, Texas, 18 November, 2001. Transcript, Chase Collection, West Texas Collection, Angelo State University, San Angelo, Texas.

3. Newspapers

The Austin-American Statesman. April 2005.

The Dallas Morning News. June – August 1952.

The Dallas Times Herald.

The Houston Chronicle. 1943 – 1960.

The Houston Post. April 1980.

The New York Times. June 1949. April 1955.

San Angelo Standard Times. April – August 1949.

Secondary

1. Books and Monographs

Buenger, Walter L. & Robert A. Calvert, eds.. *Texas Through Time: Evolving Interpretations*. College Station, Texas: Texas A&M University Press, 1991.

Elliott, Frederic C. & Kellar, William Henry, ed.. *The Birth of the Texas Medical Center: A Personal Account.* College Station: Texas A&M University Press, 2004.

Fairbanks, Robert B. *For the City as a Whole: Planning, Politics, and the Public Interest in Dallas, Texas, 1900-1965*. Columbus, Ohio: Ohio State University Press, 1998.

Feagin, Joe R.. *Free Enterprise City: Houston in Political-Economic Perspective*. New Brunswick, New Jersey: Rutgers University Press, 1988.

Gladwell, Malcom. *The Tipping Point*. New York: Brown Little, 2000.

Goodwin, Doris Kearns. *No Ordinary Time: Franklin and Eleanor Roosevelt: The Home Front In World War II*. New York: Simon & Schuster, 1995.

Green, George Norris. *The Establishment in Texas Politics: The Primitive Years, 1938-1957*. Norman: University of Oklahoma Press, 1979.

Halberstam, David. *The Fifties*. New York: Fawcett Columbine, 1993.

Hendrickson, Kenneth E., Jr., Michael L. Collins and Patrick Cox, eds.. *Profiles in Power: Twentieth-Century Texans in Washington*. Austin: University of Texas Press, 1993.

Kluger, Jeffrey. *Splendid Solution: Jonas Salk and the Conquest of Polio*. New York: G. P. Putnam's Sons, 2004.

Lipartito, Kenneth & Joseph Pratt. *Baker & Botts in the Development of Modern Houston*. Austin: University of Texas Press, 1991.

Macon, N. Don. *Clark and the Anderson: a Personal Profile*. Houston: The Texas Medical Center, 1976.

May, Elaine Tyler. *Homeward Bound: American Families in the Cold War Era*. New York: Basic Books, 1988.

McComb, David G.. *Houston: The Bayou City*. Austin: University of Texas Press, 1969.

Mehden, Fred R. von der. *The Ethnic Groups of Houston*. Houston: Rice University Studies, 1984.

Oshinsky, David M.. *Polio: An American Story*. Oxford: Oxford University Press, 2005.

Patterson, James T. *Grand Expectations: The United States, 1945-1974* (Oxford History of the United States). Oxford: Oxford University Press, 1997.

Schaechter, Moselio, N. Cary Engleberg, Barry I. Eisenstein, & Gerald Medoff, eds. *Mechanism of Microbial Disease, Third Edition*. Baltimore: Williams & Wilkins, 1998.

Smith, Jane S. *Patenting the Sun: Polio and the Salk Vaccine*. New York: William Morrow and Company, Inc, 1990.

Thompson, Thomas. *Hearts*. Greenwich, Conn.: Fawcett Publications, 1971.

de la Teja, Jesus F., Paula Marks & Ron Tyler. *Texas: Crossroads of North America*. New York: Houghton Mifflin Company, 2004.

3. Articles

Chase, Ralph R. "A Circle of Wagons." *West Texas Historical Association Yearbook* 66 (1990), 98-107.

Lewis, Preston. "Animal, Mineral, Vegetable: Counterfactual Explanations for San Angelo's 1949 Polio Epidemic." *West Texas Historical Association Yearbook* 78 (2002), 27-37.

Plum, Katie Marie. "For the Benefit of My Parents: Medical Considerations of the 1949 San Angelo Polio Epidemic. *West Texas Historical Association Yearbook 78* (2002), 17-26.

4. Unpublished Works

Garcia, Karal. "War Declared: Community Action in the First Months of the 1949 Polio Epidemic, San Angelo." Graduate seminar paper, Angelo State University. 5 April 2002. Copy in West Texas Collection, Angelo State University.

Zimmermann, Martin. "Local Government Performance during the 1949 Polio Epidemic in San Angelo, Texas." Graduate seminar paper, Angelo State University. 30 November 2001. Copy in West Texas Collection, Angelo State University.

5. Internet Resources

The Centers for Disease Control and Prevention. www.cdc.gov

Data Information and Systems Center, The University of Texas, Pan-American. www.coserve.org/disc/index.html

The Handbook of Texas Online. www.tsha.utexas.edu/handbook/online

Houston History. www.houstonhistory.com

The Institute For Rehabilitation and Research. www.tirr.org

U.S. Census Bureau. www.census.gov

VITA

Jason Chu Lee was born June 12, 1979 in Galveston, Texas, at the University of Texas Medical Branch. His father, Chevy Lee, was completing his residence training in ophthalmology at the medical school, and his mother, Teresa, was employed as a pharmacist. Within a few weeks, Jason's parents moved to McAllen, Texas, where his father began his private practice.

Jason attended Victor Fields Elementary School, Travis Jr. High and McAllen Memorial High School. In high school he was an honors student and marched with the band for four years. After graduation in May 1997, Jason moved to Austin to attend the University of Texas where he pursued a degree in microbiology for three years with the intention of attending medical school after college. After becoming discouraged with his studies in his third year, Jason began looking at different career options. For an elective, he took a difficult, upper-division history course and found himself excelling at material he enjoyed. He added a history degree to his microbiology requirements and graduated in August 2002 with a Bachelor of the Arts in both microbiology and history.

After working full-time for a year at HEB's Central Market in Austin, Jason enrolled in the graduate program at Texas State University - San Marcos in August 2003. While pursuing a Masters in History, Jason also served the University as an Instructional Assistant/grader. He worked with Professors Hindson, Brennan, Hartman, Ingram and Watson. During this time Jason also practiced martial arts at

the Integrated Fighting Arts Academy in Austin and was heavily involved in an independent short film, *Cat Food & Bean Dip*. He was the head writer for *Cat Food & Bean Dip*, which was voted Best in Show at the Dallas Alternative Video Festival in August of 2005.

Upon graduation in December of 2005, Jason has plans to stay in the Austin area.

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This thesis was typed by Jason C. Lee.